NOTE TO USERS

An Exploratory Analysis of Internet Gambling Among Youth

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ABSTRACT

The Internet represents a relatively new phenomenon, offering players a convenient, easily accessible, and relatively anonymous gambling venue. This study explored Internet gambling in a sample of youth aged 12 to 24 years. Students in high school, CEGEP, and university were asked to report on their involvement in gambling activities both on-line and off-line. In the past 12 months, 4.6% of participants had gambled on the Internet, with higher rates among males (5.8%) compared to females (2.3%). As well, 36.6% of youth reported that in the past 12 months they had gambled on Internet 'practice' gambling sites where no money was required to play. Concerns about the possible effect of Internet gambling on youth are raised and possible future directions for research are explored.

RÉSUMÉ

L'Internet est un phénomène relativement nouveau, offrant aux joueurs un environnement commode, accessible, et relativement anonyme. Cette étude a exploré le jeu sur l'Internet d'un échantillon de jeunes âgés de 12 à 24 ans. Des étudiants du secondaire, du CEGEP, et de l'université ont été demandés d'indiquer leur état de jeu hors de l'Internet et le temps qu'ils jouaient avec argent sur l'Internet. Dans les derniers 12 mois, 4.6% des participants avaient joué sur l'Internet, avec des taux de participation plus hauts pour les hommes (5.8%) comparé aux femmes (2.3%). De plus, 36.6% des jeunes ont indiqué que dans les derniers 12 mois ils avaient joué sur des sites d'Internet 'pratiques' où l'argent n'était pas nécessaire à fin de jouer. Des inquiétudes sur les possibles effets du jeu sur l'Internet chez les jeunes sont soulevés, et des possibles futures directions de recherche sont explorées.

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CHAPTER I

Introduction

The advent of new entertainment technologies has had a dramatic impact on the way Canadians use their leisure time. The average Canadian, for example, spends more than 21 hours per week watching television whereas only three generations ago, less than 1% of Canadian households owned a television set (Gorman, 1996; Statistics Canada, 1997, 2002). Canadian youth in particular are growing up in a media-infused environment where new forms of electronic entertainment appear on the market almost daily. From videogames to movies to television to the Internet, children and adolescents are exposed to more forms of media at a greater frequency than ever before in history.

The rapid rise in new entertainment technologies has led to some concern among parents, educators, and heath care providers. Much of the current debate regarding the potentially harmful effects of the media centres around a relatively new phenomenon, the Internet. Since its commercialization in the early 1990s, the Internet has literally exploded into a multi-billion dollar industry. Today, more young people than ever before are 'surfing the net'. The Internet offers children and adolescents access to a huge number of websites, many of which were designed primarily or exclusively for adults. Internet gambling websites, for example, are increasingly common on the World Wide Web. While other forms of gambling are prohibited by law for Canadian youth under the age of 18, the Internet offers an easy route to an otherwise illegal activity (Griffiths & Wood, 2000; Smeaton & Griffiths, 2004). For youth with access to the Internet, gambling sites provide a means for young people to engage in a prohibited, potentially high-risk activity.

The present study seeks to address the dearth in empirical data regarding youth gambling behaviour on the Internet. Because Internet gambling has only existed for about a decade (Schneider, 2004), very little is currently known about Internet gambling among youth. This study was designed to address this gap in the gambling literature. The results of this study will provide researchers, prevention experts, and parents with valuable information about Internet gambling in youth.

CHAPTER II

Review of the Literature

Youth Gambling

Today, a growing number of young people are gambling for recreation and entertainment (Jacobs, 2000). Despite legal sanctions designed to protect children and adolescents, the overall number of youth who report participating in government-sponsored and/or regulated gambling activities continues to rise (Jacobs, 2000, 2004). At present, research from Canada, the United States, the United Kingdom, Australia, and New Zealand indicates that approximately 80% of adolescents have participated in some form of gambling during their lifetime (see reviews by Jacobs, 2000; National Research Council, 1999; Shaffer & Hall, 1996). Researchers estimate that between 4% and 8% of 12 to 17-year-old adolescents have a serious gambling problem while another 10-15% are at risk for the development of a gambling problem (Derevensky & Gupta, 2000b; Jacobs, 2000; National Research Council, 1999; Shaffer & Hall, 1996). As well, the prevalence rates of problem gambling are higher among youth compared to adults. While the rate of probable pathological gambling in youth is between 4% and 8%, the rates of pathological gambling in the general adult population are between 1% and 3% (Derevensky, Gupta, & Winters, 2003; National Research Council, 1999).

Broadly speaking, pathological gambling can be described as constituting a loss of control over gambling behaviour. Similar to drug or alcohol addiction, a loss of control over gambling may be continuous or periodic, and is highlighted by irrational thinking and erroneous cognitions. Correlates include a preoccupation with gambling and with obtaining money to gamble, a continuation with gambling despite adverse consequences,

and an inability to stop gambling despite having the desire to do so (American Psychiatric Association, 2002).

Research indicates that problematic gambling among adolescents is associated with a number of negative mental health outcomes. For example, youth with gambling problems are more likely to exhibit depressive symptomology and anxiety, and are at an increased risk of suicide ideation and attempts (Derevensky & Gupta, 2004; Gupta & Derevensky, 1998). Youth with gambling problems are also at an increased risk for the development of alcohol and substance abuse problems (Hardoon, Derevensky, & Gupta, 2002; Winters & Anderson, 2000). In addition, problem gambling in youth has been associated with increased delinquency and criminal behaviour, poor academic performance, higher rates of school truancy and dropout, and disrupted familial and peer relationships (Derevensky & Gupta, 2004; Hardoon et al., 2002; Wynne, Smith, & Jacobs, 1996). Finally, a growing body of research indicates that greater accessibility to gambling products and activities is related to increased levels of gambling, increased money spent on gambling, and increased rates of problem gambling (Griffiths, 1995). This link between greater accessibility and increased rates of problem gambling has led to concern on the part of researchers about new forms of accessible gambling technology such as Internet gambling.

The Internet: A New Gambling Venue

Internet Usage Among Canadian Youth

Little is known about the actual number of young people accessing gambling websites. Nevertheless, it is clear that more and more youth are accessing the Internet. In Canada, for example, data collected from 5,682 youth, aged 9 to 17 years, indicates that

99% reported having used the Internet at least to some extent (Media Awareness Network, 2001). In total, over 1/3 of youth today spend between 1-3 hours on the Internet per day (Media Awareness Network, 2001). Data from the 2000 Programme for International Student Assessment (PISA) further indicates that 90% of 15-year-olds have computers at home (Willms & Corbett, 2003).

Playing games on the Internet appears to be a popular activity for many young people. Almost half of all youth reported that they enjoy playing and downloading games on the Internet (Media Awareness Network, 2001; Willms & Corbett, 2003). Younger students also appear to be spending more time on the Internet playing games compared to older students, thus it is likely that these numbers will continue to grow. A greater proportion of elementary age students (62%) reported using the Internet for playing and downloading games, while only 40% of secondary students reported engaging in these activities (Media Awareness Network, 2001).

Internet Gambling

Internet gambling offers participants the possibility of engaging in many different gambling activities in the seclusion and comfort of their own homes. Although private ownership of a gambling website is technically illegal in Canada, most Internet gambling websites circumvent material prohibitions by being housed in lucrative offshore operations (Kelley, Todosichuk, & Azmier, 2001). Internet gambling is an extremely profitable industry, and in recent years several governmental agencies have responded by becoming actively involved in their operation (e.g., Holland, New Zealand, the Philippines, and Australia). More recently, the province of New Brunswick established an Internet gambling site for lottery playing. Estimates place the profits of the Internet

gambling industry in the multi-billion dollar range, with hundreds of Internet gambling websites currently operating and new websites opening almost daily (Cabot, 2004).

The appeal of Internet gambling for youth may lie in a combination of exciting graphics and video-game technology coupled with ease of accessibility and an opportunity to win money. Many Internet gambling websites also offer monetary rewards for frequent and first-time players as well as loyalty programs and bonuses, all of which may be enticing to youth. Some websites, for example, offer players the possibility of earning redeemable points through frequent play. Others proffer high initial deposit bonuses for returning players. Often, players who refer a friend are awarded bonuses as high as $100. Some websites even provide 'Bettor's Insurance' programs which returns 10% of net gaming losses (Gambling Online, 2003). Other advantages of Internet gambling include the option to engage in social play. Many web-based gambling games include multiple players so individuals can compete with each other on-line. Even when playing on these websites without actually spending money, Internet gambling may be perceived by some to be engaging, exciting and exhilarating.

The proliferation of on-line gambling websites poses a new problem for children and adolescents. While other sources of gambling remain, for the most part, strictly regulated, the Internet provides an accessible and largely anonymous route to an otherwise illegal activity for young people (Griffiths, 1999; Griffiths & Wood, 2000). For example, Smeaton and Griffiths (2004) examined 30 Internet gambling sites and found that only 12 had age restrictions. Griffiths (2004) has argued that Internet gambling may be problematic for vulnerable populations such as compulsive gamblers and youth. Internet gambling resembles other electronically enhanced forms of gambling similar to

slot machines and video lottery terminals (VLTs), known to be fast-paced, thrilling, and highly addictive. Further, the risk for disproportionate spending may be greater with electronic cash due to decreases in the perceived value of money. As Internet gambling grows in popularity, it is feared that the rise in on-line gambling venues may lead to increases in youth problem gambling.

'Practice' Sites

A significant barrier to Internet gambling currently exists for a number of young people. Many children and adolescents do not possess a credit card, the major currency currently used by Internet gambling websites. However, a number of adult Internet gambling websites offer free games and free practice websites available to anyone with access to a computer. These 'practice' sites are virtually identical to their adult counterpart gambling sites, affording players the opportunity to engage in casino games, sports wagering, and other popular forms of gambling (see Appendix C for several examples of Internet commercials advertising free gambling). Marketing strategies on practice sites sometimes include the use of 'pop-up' advertisements encouraging players to access adult gambling websites and play with money.

Similarly, many gambling sites offer rewards in the form of tokens or fake money where players can exchange a given amount of tokens for a prize. Players begin with a certain number of free tokens and each game involves an initial wager and payouts if the player is successful. Where age is a concern, companies effectively circumvent the law by offering prizes such as t-shirts or baseball caps when players have won a specified amount of tokens. Legally, these underage players are not gambling because no money has been exchanged.

Youth may also engage in 'practice' Internet gambling via gaming websites. Casino-type gambling games are embedded in many youth-oriented sites (e.g., Yahoo games, MSN games, and 'neopets.com'). Such websites offer players a multitude of games, including games of chance such as blackjack, roulette, slots, and poker. For example, in one popular website, players create and care for a virtual pet in an imaginary world called 'Neopia'. The virtual pets, called 'neopets', require food, toys, and medical attention, all of which require money or 'neopoints'. In order to take care of one's pet, a player must play games in order to earn neopoints. There are three types of games in Neopia: puzzles, action games, and games of luck/chance. Games of luck/chance offer players a variety of different casino-type games where they may risk their neopoints to win more neopoints. While the concept of Neopia may seem fairly innocuous, it affords youth an opportunity to experience the concept of gambling on the Internet.

With increasing numbers of new websites dedicated to 'practice' gambling, researchers suspect that the distinction between gambling and gaming may be blurred by the on-line gambling industry in order to maximize future profits. Youth who practice gambling regularly on the Internet without using real money may be prime targets as future players. Most importantly, at present, little is known about the long-term effects of Internet gambling either with or without money on future gambling behaviour.

Research on Internet Gambling

Internet Gambling Among Adults

While it is difficult to ascertain how many young people are aware of Internet gambling websites and how many are spending time gambling on-line, a small number of empirical studies have examined Internet gambling behaviour in adults. The Canada West

Foundation, in a survey investigating gambling patterns among 2,202 Canadians aged 18 and above, reported that only 0.5% of adults had tried gambling on the Internet during the past 12 months (Azmier, 2000). Among respondents who reported gambling in the past year (n = 1,295), the most popular reason given for choosing not to gamble on the Internet was a lack of Internet access (42%). It is possible, therefore, that as more people gain access to the Internet in their homes, the rate of Internet gambling may increase.

Data collected in the U.K. (Griffiths, 2001) also showed low rates of Internet gambling, possibly due to the relatively small percentage of the U.K. population who had access to the Internet at the time of data collection. A total of 2098 respondents (918 male and 1180 female) were questioned about their attitudes and behaviours surrounding both gambling and Internet gambling. Among the participants who reported being Internet users (24%), only 1% had gambled on the Internet. However, another 4% reported that they would like to try gambling on the Internet.

Ialomiteanu and Adlaf (2001) found that the prevalence of Internet gambling in Ontario was much higher. Data obtained from a random telephone survey of 1,294 individuals aged 18 years and older showed that a total of 5.3% of respondents reported having participated in Internet gambling during the past year. More women reported on-line gambling (6.3%) compared to men (4.3%), although this difference was not found to be statistically significant.

In a more recent study, researchers surveyed French-speaking adults living in the province of Quebec about their gambling behaviour. Within their sample of 8,842 adults, only 0.3% reported they had gambled on the Internet in the past 12 months (Chevalier, Hamel, Ladouceur, Jacques, Allard & Sévigny, 2004). These rates may be due, in part, to

the fact that most Internet gambling sites are in English and thus are less appealing to a predominantly French-speaking audience.

A study conducted at the University of Connecticut yielded very different results. Ladd and Petry (2002) surveyed 389 individuals (mean age of participants was 42.8 years (SD = 16.0) and 84.2% were Caucasian) seeking treatment from dental and medical clinics at a university health centre. Most reported having gambled in the past year, while 70.0% reported having gambled within the past 2 months and 42.0% within the past week. With respect to Internet gambling, 8.1% indicated having gambled on the Internet at least once in their lifetime, with 3.6% participating weekly. Younger participants were significantly more likely to report on-line gambling compared to older participants, $F(1, 378) = 17.68$, $p < .01$. Further, 74% of participants who had tried Internet gambling were classified as being problem gamblers based on the South Oaks Gambling Screen (SOGS), compared to only 22% of participants with no experience gambling on the Internet. Participation in Internet gambling was found to be significantly associated with scores on the SOGS, $F(1, 382) = 40.79$, $p < .01$.

Internet Gambling Among Youth

With respect to youth, Griffiths (2001) provides data from a small sample of adolescents (N = 119) aged 15 to 19 years of age, none of whom reported gambling on the Internet. As mentioned previously, these results may have reflected the relatively low level of Internet usage in the U.K. at the time the study was conducted. However, 4% of the sample did reveal that they would be interested in trying Internet gambling.

In contrast to data gathered from youth in the U.K. (Griffiths, 2001), 3.7% of high school students in Quebec reported having gambled on the Internet in the past year

(Chevalier, Deguire, Gupta & Derevensky, 2003). Similarly, a study conducted in the U.S. found that 1.9% of college students (N = 10,765) had gambled on the Internet a few times per month. Another 0.3% reporting monthly internet gambling, while 0.3% reported engaging in on-line gambling on a weekly basis (LaBrie, Shaffer, Laplante & Wechsler, 2003).

The current research on youth gambling and particularly on Internet gambling, although relatively scarce, suggests that there may be reason to be concerned about the potential impact of this new form of gambling on youth. Concerns have also been raised about the emergence of Internet gambling sites that offer players the chance to gamble without spending money. Websites that offer free games, free trials, or gambling using tokens may be particularly enticing to young people. Hardoon, Derevensky, and Gupta (2002) conducted an exploratory analysis of Internet gambling in youth and discovered that at least 25% of young people with serious gambling problems were playing gambling-type games on the Internet using free websites where no money was required to play. Another 20% of youth who fit an "at-risk profile" for a gambling problem were also gambling on the Internet without using real money (Hardoon et al., 2002).

Presently, no other research exists that explores the phenomenon of Internet gambling without money with respect to problem gambling. However, recent findings provide evidence for a link between Internet gambling with money and problem gambling. Wiebe, Cox, and Falkowski-Ham (2003) conducted a follow-up study examining gambling practices among 448 adults. Using the Canadian Problem Gambling Index (CPGI), a measure of gambling severity, they discovered that among individuals who reported some gambling in the past year, there were significant differences in

gambling severity with respect to engagement in Internet gambling. While only 3.2% of individuals classified as being non problem gamblers reported gambling on the Internet during the past year, 16.7% of participants with a serious gambling problems reported engaging in Internet gambling. It may be that among individuals at-risk for developing a gambling problem the Internet presents a unique danger.

While overall prevalence rates of Internet gambling appear to be relatively low, researchers and clinicians in the field of gambling are concerned about the potential for greater abuse among youth as well as other high-risk groups including seniors and those already experiencing gambling problems. Children and adolescents may be particularly vulnerable to the appeal of Internet gambling as they find gambling enjoyable, are attracted to the colourful, fast-paced videogame-like qualities, view themselves as highly intelligent, and perceive themselves as invulnerable to the development of a gambling problem (Dickson, Derevensky & Gupta, 2004). Gambling practice sites expose youth to adult games, encouraging them to practice and perhaps move on to 'for money' Internet gambling websites.

Research Goals

Although studies have begun to emerge in recent years examining the phenomenon of Internet gambling, currently the literature on Internet gambling and youth is limited. The primary goal of the present study is to address this lack of research by exploring Internet gambling patterns and behaviors among youth. More specifically, this research aims to investigate Internet gambling familiarity among youth, past year experience with both non-Internet gambling and Internet gambling, the prevalence of Internet gambling on 'practice' sites where no money is required to play, wagers and

methods of payment among youth Internet gamblers, and gender and developmental differences. Further, this study will examine the structural characteristics of Internet gambling (e.g., graphics, speed of play, accessibility, etc.) that appeal to youth.

Because this is an exploratory study, hypotheses are tentative. Nevertheless, it is likely that more males will engage in Internet gambling compared to females given the extant literature on youth gambling, which has shown that males are typically over-represented in most forms of gambling (Derevensky & Gupta, 2004; Jacobs, 2004). Since Internet gambling typically requires a credit card, debit card, or some other form of electronic payment, older adolescents and young adults are more likely to gamble on the Internet compared to younger adolescents, who may not have access to these means of payment.

Conversely, it is possible that a greater proportion of younger adolescents will report that they gamble on the Internet without money. The Media Awareness Network (2001) found that a greater proportion of elementary school students reported using the Internet for playing and downloading games compared to secondary school students (Media Awareness Network, 2001). Overall, youth are likely to report Internet gambling without money to be a pleasurable activity.

Finally, youth who show greater problems with gambling will be more likely to participate in Internet gambling based on previous research linking Internet gambling with gambling severity (Ladd & Petry, 2001; Wiebe, Cox, & Falkowski-Ham, 2003). Because Internet gambling remains largely unregulated, the existence of an association between gambling problems and Internet gambling may be critical given data showing

youth may represent a vulnerable population with respect to gambling (Derevensky, Gupta, & Winters, 2003; National Research Council, 1999)

Little is currently known about the prevalence of Internet gambling among youth or the correlates of Internet gambling. The present study represents the first major exploration of Internet gambling among Canadian youth and seeks to add to our current knowledge on youth gambling behaviours.

CHAPTER III

Method

Participants

Participants included a total of 2,087 individuals (893 males, 1194 females) aged 12 – 24 years (see Table 1 for the distribution).

Table 1

Sample Distribution by Gender and Age Group

	Sample Distribution	
	N	%
Gender		
Male	893	42.8
Female	1194	57.2
Age Group		
12-13	161	7.7
14-15	341	16.3
16-17	610	29.2
18-20	770	36.9
21-24	205	9.8
Total	2087	

Participants were recruited from 6 high schools across 3 school boards, 4 CEGEPs (a type of educational institution exclusive to the province of Quebec offering specialized post-secondary training), and 2 universities in the Montreal region (see Table 2). Under the Quebec educational system, adolescents typically begin high school at the age of 12 and graduate at 17 (grade 11), with the majority then attending a CEGEP for 2-3 years either to acquire a trade, or as a university pre-requisite.

Table 2

Sample Distribution by Level of Education

	Sample Distribution	
	N	%
Level		
High School	890	42.6
CEGEP	896	42.9
University	301	14.4
Total	2087	

Instruments

Demographic Questionnaire. Several items were created to assess individual factors including gender, age, languages spoken in the home, and educational level. Participants were also queried about general Internet usage and habits (see Appendix A).

Gambling Activities. Respondents were asked to indicate the frequency with which they engaged in a variety of gambling activities (not including games played on the Internet) by choosing either *never, less than once a month, 1-3 times a month,* or *once a week or more*. They were also asked to indicate when they first gambled for money (if applicable).

Risk-Taking. The Risk-Taking Questionnaire (RTQ) (Knowles, 1976) is a 20-item measure used to assess risk-approach and risk-avoidance motivation. Participants indicate whether they agree or disagree with each item using a 5-point Likert scale, with 1 = agree very much, and 5 = disagree very much. On average, the RTQ takes approximately 10 minutes to complete. Risk-avoidance items are scored directly and risk-approach items are scored in reverse, with all items summed to produce a global total score. A higher

global total score indicates greater risk-approach. Internal reliability of the RTQ ranges from .85 – .86, with concurrent validity ranging from .67 – .73 with performance on Zuckerman's Sensation Seeking Scale (SSS). With respect to gambling, the RTQ has been shown to be highly correlated (r = .48) with the South Oaks Gambling Screen (SOGS), a widely-used measure of problem gambling among older adolescents (Powell, Hardoon, Derevensky, & Gupta, 1999).

Internet Gambling. A series of items was developed to assess Internet gambling both with and without money. Respondents were asked to indicate the frequency with which they engaged in Internet gambling games such as roulette, blackjack, dice, etc. They were also asked to indicate when they first gambled on the Internet, why they enjoyed gambling, with whom, and where they use the Internet to gamble (if applicable).

Gambling Screening Instrument for Individuals Under 18 Years of Age. Participants under the age of 18 years completed the DSM-IV-MR-J (Fisher, 2000), a revised version of the DSM-IV-J (Fisher, 1992). This measure is a 12-item, 9-category instrument used to screen for pathological gambling during adolescence. Based on DSM-IV criteria (American Psychiatric Association, 1994), the DSM-IV-MR-J measures gambling behaviour in the past 12 months. For each item, participants indicate the degree to which they have engaged in a particular gambling-related behaviour during the past 12 months. Following previous research using the DSM-IV-MR-J, a variable was created to delineate participants who had not gambled in the past 12 months from those who reported some gambling (Felsher, Derevensky, & Gupta, 2004). Participants who did not report any gambling behaviour in the past 12 months were classified as Non-Gamblers, while participants who reported having gambled and endorsed 0-1 item were classified as

Social Gamblers, those who endorsed 2-3 items were classified as At-Risk for the development of a gambling problem, and those who endorsed 4 or more items were classified as Probable Pathological Gamblers. Presently, the DSM-IV-MR-J represents a conservative measure of adolescent pathological gambling (Derevensky & Gupta, 2000a; Gupta & Derevensky, 1998). The DSM-IV-MR-J has adequate internal consistency, with Cronbach's alpha = .75 (slightly lower than .78 for the original DSM-IV-J screen) (Fisher, 2000).

Gambling Screening Instrument for Individuals 18 Years of Age and Above. Respondents aged 18 years and above completed the checklist of DSM-IV criteria for problem gambling (American Psychiatric Association, 1994). Participants were classified as Social Gamblers if they had gambled in the past year and endorsed 0-2 items on the DSM-IV checklist for problem gambling. Participants who endorsed 3-4 items were classified as At-Risk for the development of a gambling problem, and those participants who endorsed 5 items or more were classified as Probable Pathological Gamblers.

Procedure

Five English school boards in the Montreal area were approached for permission to conduct the study within their high schools, with 3 school boards agreeing to participate in the research. Once permission was obtained from the school boards, information packages were disseminated to high school principals explaining the goals and procedures involved in the research. These packages contained parental consent forms, as well as copies of the approved ethics form (see Appendix B). Follow-up phone calls confirmed interest in the research project. Similarly, information packages were mailed to departmental representatives at 5 English CEGEPs asking permission to

conduct research, with 4 agreeing to participate. Professors at 2 English universities were contacted individually and were sent information packages.

Data collection was group administered and occurred over a six-month period beginning in November 2003. The majority of data collection was completed in individual classrooms while in two instances data collection occurred in the school library. Research assistants were present at all times to supervise questionnaire administration and to answer questions.

All participants were informed that their participation was voluntary and that they were free to withdraw from the study at any time without penalty. Participants were asked to complete the questionnaire independently and were assured confidentiality. Gambling was defined as any activity that involved an element of risk where money could be won or lost. Internet gambling was defined similarly, with a clear distinction between Internet gambling *with* money and Internet gambling *without* money. Internet gambling *without* money was defined as any gambling-type game played on the Internet that involved risking tokens, points, or fake money in order to win prizes, tokens, points, or fake money. Time to complete the questionnaire varied from 15 – 55 minutes, with most students finishing within 30 minutes.

Data coding and entry. To assure anonymity, each questionnaire was assigned an identification number. Questionnaires were scanned using a Fujitsu scanner (Scan Partner 620C) and Optical Mark Recognition software (Remark Office OMR 5.5). Each questionnaire was scanned twice to ensure that no scanning errors had occurred. The questionnaire data were then converted into an SPSS file for analysis.

CHAPTER IV

Results

Data Analysis

The data were analyzed with SPSS 11.0 using descriptive statistics including frequency counts, cross-tabulations, and chi-square tests of significance. As well, bivariate correlations were used between certain variables.

Participants were divided into four groups based on their level of gambling and severity of gambling problems. Individuals who had not gambled in the past 12 months were categorized as being Non-Gamblers. The remaining participants were then classified as either Social Gamblers, At-Risk Gamblers, or Probable Pathological Gamblers based on their total scores on either the DSM-IV-MR-J (for individuals under the age of 18) or the DSM-IV checklist for problem gambling (for individuals aged 18 and above).

Participation in Internet gambling was determined by asking respondents to indicate the number of websites they had visited in the past 12 months in order to gamble both with money and without money.

Global scores for the Risk-Taking Questionnaire (RTQ) were calculated by summing the 20 items to form 2 subscales. Eleven of the items were summed to form a risk-avoidant subscale while 9 items were reverse-scored to form a risk-approach subscale. The two subscales were then summed to create one global score. Global scores were then divided into quartiles with the lowest 25% of the sample representing low risk involvement, the middle two quartiles (ranging from 25% to 75%) representing average risk involvement, and the top 25% of the sample representing high risk involvement.

Missing Data. Three participants neglected to indicate their gender and were omitted from the final analysis. Another 5 participants neglected to indicate their current educational level. Missing data for current educational level was corrected based on three criteria: the school code of the participant, the position of the participant within the data set (i.e., examining other students scanned during the same period of time), and the participant's age group. Finally, 67 questionnaires were eliminated due to incompleteness (i.e., more than one third of items missing) or suspected response bias (items completed in an obvious pattern).

Missing items within the Risk-Taking Questionnaire (RTQ) (Knowles, 1976) were pro-rated within each subscale by summing the non-missing items in the subscale and dividing that sum by the total number of items summed. This formula was applied only in cases where a minimum of 80% of the items on a particular subscale had been completed. Ten cases were omitted from analyses as more than 20% of the items on one or both subscales had not been completed.

High-Risk Behaviours

Gambling Participation

A total of 70.9% of youth reported gambling in the past 12 months, with significantly more males (78.8%) reporting gambling behaviour compared to females (65.0%), $\chi^2(1, N = 2087) = 47.47, p < .001$ (see Table 3). Chi-square analyses also revealed significant differences in gambling involvement with respect to age group, with a greater proportion of older participants reporting past year involvement in gambling activities, $\chi^2(4, N = 2087) = 62.73, p < .001$.

Table 3

Gambling Participation in Past 12 Months by Gender and Age Group

		Gambling Participation[1]	
	N	Yes	No
Gender***			
Male	893	78.8	21.2
Female	1194	65.0	35.0
Age Group***			
12-13	76	47.2	52.8
14-15	228	66.9	33.1
16-17	428	70.2	29.8
18-20	592	76.9	23.1
21-24	156	76.1	23.9
Total	2087	70.9	29.1

[1]Percentage.
***$p < .001$.

With respect to current educational level, a greater proportion of CEGEP students (76.1%) reported having gambled in the past 12 months compared to high school (65.5%) and university students (71.4%), $\chi^2(2, N = 2088) = 24.26, p < .001$ (see Table 4).

Table 4

Gambling Participation in Past 12 Months by Level of Education

	N	Gambling Participation[1]
Level***		
High School	890	65.5
CEGEP	896	76.1
University	301	71.4
Total	2087	70.9

[1]Percentage.
***$p < .001$.

Participants were provided with a 16-item list of gambling activities and asked to indicate the frequency with which they had engaged in each over the past 12 months by choosing *never, less than once a month, 1-3 times a month,* or *once a week or more* (see Table 6). Past year participation in gambling activities was then examined separately for younger participants (aged 12 – 17 years) and older participants (aged 18 years and above) by regrouping all age ranges into a dichotomous variable. This partition, though somewhat arbitrary, reflects the legal age for gambling in the province of Quebec, which is 18 years (see Tables 5 and 6). In Quebec, individuals aged 18 and above are legally entitled to participate in all forms of regulated gambling such as buying lottery tickets, gambling in a casino, or using electronic gambling machines.

Overall, the most commonly reported gambling activities among younger participants (aged 12 – 17 years) were card playing (38.9%), lottery scratch cards (37.8%), and sports betting (23.5%) (see Table 5). Compared to older participants (aged 18 years and above), a greater proportion of younger participants reported past year participation in sports betting [$\chi^2(3, N = 2070) = 28.69, p < .001$], bingo [$\chi^2(3, N = 2079) = 10.58, p < .05$], dice/craps [$\chi^2(3, N = 2072) = 42.34, p < .001$], and cards [$\chi^2(3, N = 2076) = 52.17, p < .001$]. The most popular gambling activities among older participants were lottery scratch cards (43.7%), lottery draws (34.2%), and slot machines (29.2%) (see Table 6). A greater proportion of older participants reported past year gambling with lottery scratch cards [$\chi^2(3, N = 2083) = 8.43, p < .05$], lottery draws [$\chi^2(3, N = 2079) = 101.59, p < .001$], slot machines [$\chi^2(3, N = 2079) = 151.89, p < .001$], and electronic gambling machines (e.g., VLT) [$\chi^2(3, N = 2079) = 28.90, p < .001$] compared to younger participants. There were also significant differences between age groups with respect to

past year casino games [$\chi^2(3, N = 2078) = 28.59, p < .001$] and other unlisted gambling activities [$\chi^2(3, N = 2081) = 2.40, p < .05$].

Table 5

Gambling Participation Among Participants Under 18 Years of Age in Past 12 Months by Gambling Activity

	Frequency of Gambling[1]			
	Never	Less than once a month	1-3 times a month	Once a week or more
Gambling Activity				
Lottery scratch cards/pull tabs	62.2	29.5	6.7	1.7
Lottery draws	84.7	11.6	2.8	.9
Horse racing	97.6	1.8	.2	.4
Sports betting	76.5	15.1	5.3	3.2
Sports betting through the lottery	91.5	4.3	3.0	1.2
Bingo	83.1	14.8	1.7	.4
Slot machines	90.9	6.7	1.9	.5
Electronic gambling machines (e.g. VLT)	88.9	6.6	2.7	1.8
Casino table games (e.g. blackjack, poker, etc.)	88.8	7.0	2.4	1.8
Dice/craps	85.9	8.2	3.1	2.8
Cards	61.1	23.2	8.7	7.0
Jai Lai	99.7	.1	-	.2
Maj Jong	98.6	1.2	.3	-
Spread betting	97.8	1.2	.5	.5
Stock market	95.2	3.0	1.3	.5
Other	94.6	2.4	1.3	1.6

[1]Percentage.

Table 6

Gambling Participation Among Participants Aged 18-24 Years in Past 12 Months by Gambling Activity

	Frequency of Gambling[1]			
	Never	Less than once a month	1-3 times a month	Once a week or more
Gambling Activity				
Lottery scratch cards/pull tabs	56.3	34.6	6.7	2.4
Lottery draws	65.8	25.6	6.8	1.8
Horse racing	98.2	1.3	.2	.2
Sports betting	85.8	9.0	3.3	2.0
Sports betting through the lottery	90.0	5.4	2.9	1.8
Bingo	87.1	10.2	2.3	.4
Slot machines	70.2	25.7	3.4	.7
Electronic gambling machines (e.g. VLT)	83.1	12.9	3.2	.7
Casino table games (e.g. blackjack, poker, etc.)	85.5	12.4	1.7	.3
Dice/craps	94.4	3.7	1.1	.7
Cards	74.1	18.8	4.7	2.4
Jai Lai	99.6	.3	.1	-
Maj Jong	98.2	1.4	.3	.1
Spread betting	96.6	2.4	.6	.4
Stock market	93.8	4.2	1.3	.6
Other	96.5	2.2	.8	.4

[1]Percentage.

Past year gambling participation with respect to gender was examined separately for younger and older participants (see Figures 1 and 2). Among younger participants, significantly more males than females reported sports betting [$\chi^2(1, N = 1101) = 107.80$, $p < .001$], sports betting through the lottery [$\chi^2(1, N = 1104) = 62.03$, $p < .001$], slot machines [$\chi^2(1, N = 1106) = 11.40$, $p < .001$], electronic gambling machines (e.g., VLT) [$\chi^2(1, N = 1106) = 22.64$, $p < .001$], casino table games (e.g., blackjack) [$\chi^2(1, N = 1105) = 23.34$, $p < .001$], dice/craps [$\chi^2(1, N = 1102) = 52.79$, $p < .001$], cards [$\chi^2(1, N = 1104) = 25.64$, $p < .001$], spread betting [$\chi^2(1, N = 1107) = 5.39$, $p < .05$], the stock market [$\chi^2(1, N = 1108) = 22.80$, $p < .001$], and other unlisted gambling activities [$\chi^2(1, N = 1044) = 8.18$, $p < .05$]. Younger females were more likely to report past year participation in bingo compared to similar-age males, $\chi^2(1, N = 1107) = 10.87$, $p < .001$.

Past year participation in gambling activities among individuals aged 18 and above was examined with respect to gender (see Figure 2). Similar to younger participants, older participants showed significant differences between males and females for past year participation in sports betting [$\chi^2(1, N = 969) = 104.35$, $p < .001$], sports betting through the lottery [$\chi^2(1, N = 968) = 100.65$, $p < .001$], electronic gambling machines [$\chi^2(1, N = 973) = 21.33$, $p < .001$], casino table games [$\chi^2(1, N = 973) = 29.32$, $p < .001$], dice/craps [$\chi^2(1, N = 970) = 26.31$, $p < .001$], cards [$\chi^2(1, N = 972) = 19.34$, $p < .001$], spread betting [$\chi^2(1, N = 972) = 32.41$, $p < .001$], and the stock market [$\chi^2(1, N = 973) = 18.02$, $p < .001$]. More females reported past year participation in bingo compared to males, $\chi^2(1, N = 972) = 11.39$, $p < .05$. Further, in contrast to younger participants, older participants showed significant differences between males and females for past year participation in Jai Lai [$\chi^2(1, N = 972) = 6.62$, $p < .05$].

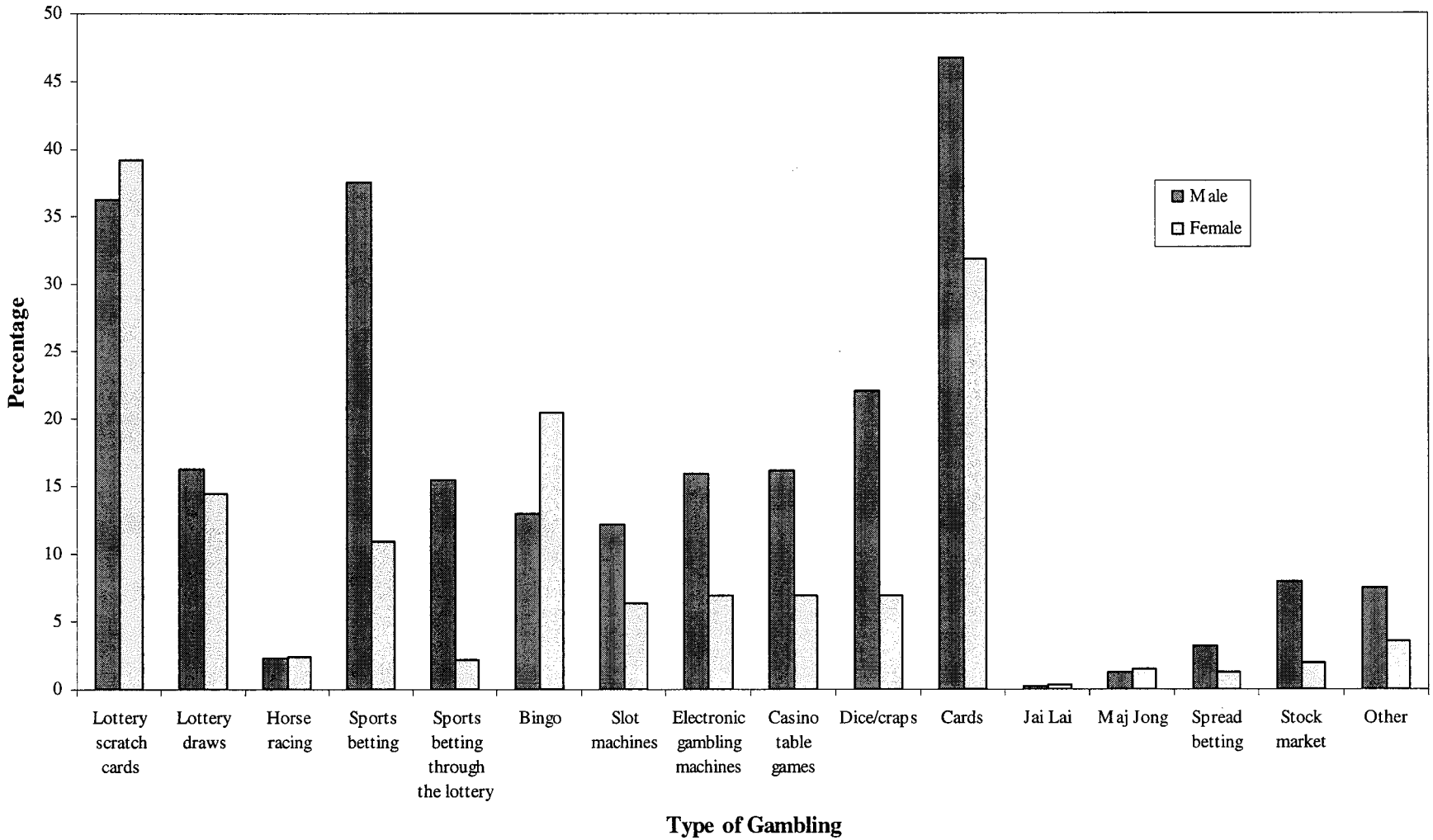

Figure 1. Gambling activities among participants under 18 years of age in past 12 months by gender.

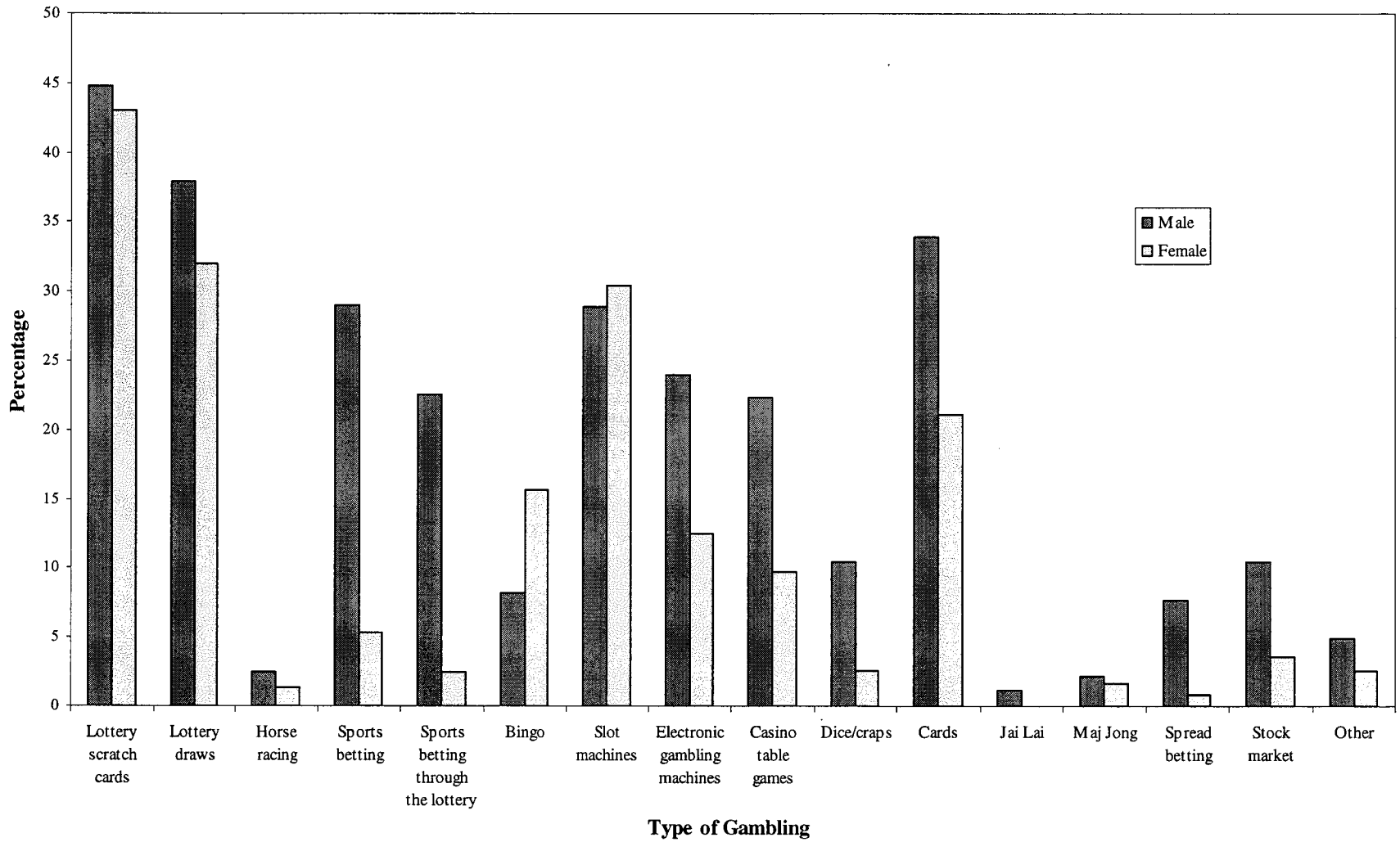

Figure 2. Gambling activities among participants aged 18-24 years in past 12 months by gender.

Participation in gambling activities *once a week or more* was examined separately for younger and older individuals (see Figures 3 and 4). Overall, the most popular weekly gambling activities among participants under the age of 18 were cards (7.0%), sports betting (3.2%), and dice/craps (2.8%). Younger males were significantly more likely to report engaging in sports betting at least once per week compared to younger females, $\chi^2(1, N = 1101) = 24.45, p < .001$ (see Figure 3). Younger males were also more likely to report weekly participation in sports betting through the lottery [$\chi^2(1, N = 1104) = 10.65, p < .001$], slot machines [$\chi^2(1, N = 1106) = 6.70, p < .05$], electronic gambling machines [$\chi^2(1, N = 1106) = 11.62, p < .001$], casino table games [$\chi^2(1, N = 1105) = 4.20, p < .05$], dice/craps [$\chi^2(1, N = 1102) = 23.82, p < .001$], cards [$\chi^2(1, N = 1104) = 26.46, p < .001$], and other unlisted gambling activities [$\chi^2(1, N = 1044) = 5.81, p < .05$].

Among older participants, the most popular gambling activities for weekly play were cards (2.4%), lottery scratch cards/pull tabs (2.4%), and sports betting (2.0%). Males aged 18 and above were significantly more likely to report weekly participation in sports betting [$\chi^2(1, N = 969) = 22.04, p < .001$], sports betting through the lottery [$\chi^2(1, N = 968) = 18.81, p < .001$], electronic gambling machines [$\chi^2(1, N = 973) = 11.64, p < .001$], casino table games [$\chi^2(1, N = 973) = 4.97, p < .05$], and cards [$\chi^2(1, N = 972) = 13.19, p < .001$] compared to females (see Figure 4).

In contrast to younger males, older males were significantly more likely to report weekly participation in lottery draws [$\chi^2(1, N = 973) = 6.54, p < .05$] and the stock market [$\chi^2(1, N = 973) = 5.38, p < .05$]. Unlike younger participants, there were no significant gender differences for weekly play on slot machines, dice/craps, or other unlisted gambling activities for older youth.

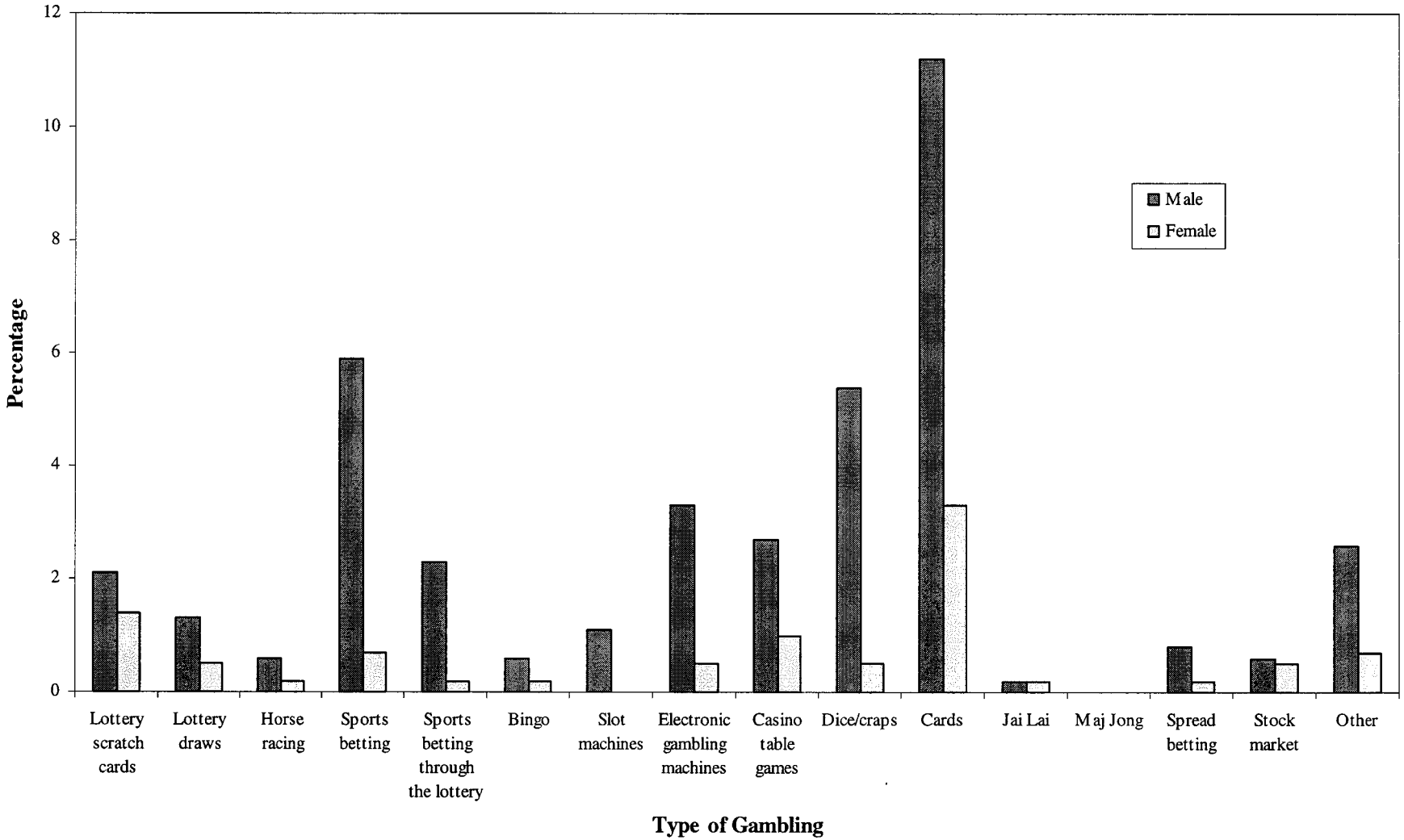

Figure 3. Weekly participation in gambling activities among participants under 18 years of age in past 12 months by gender.

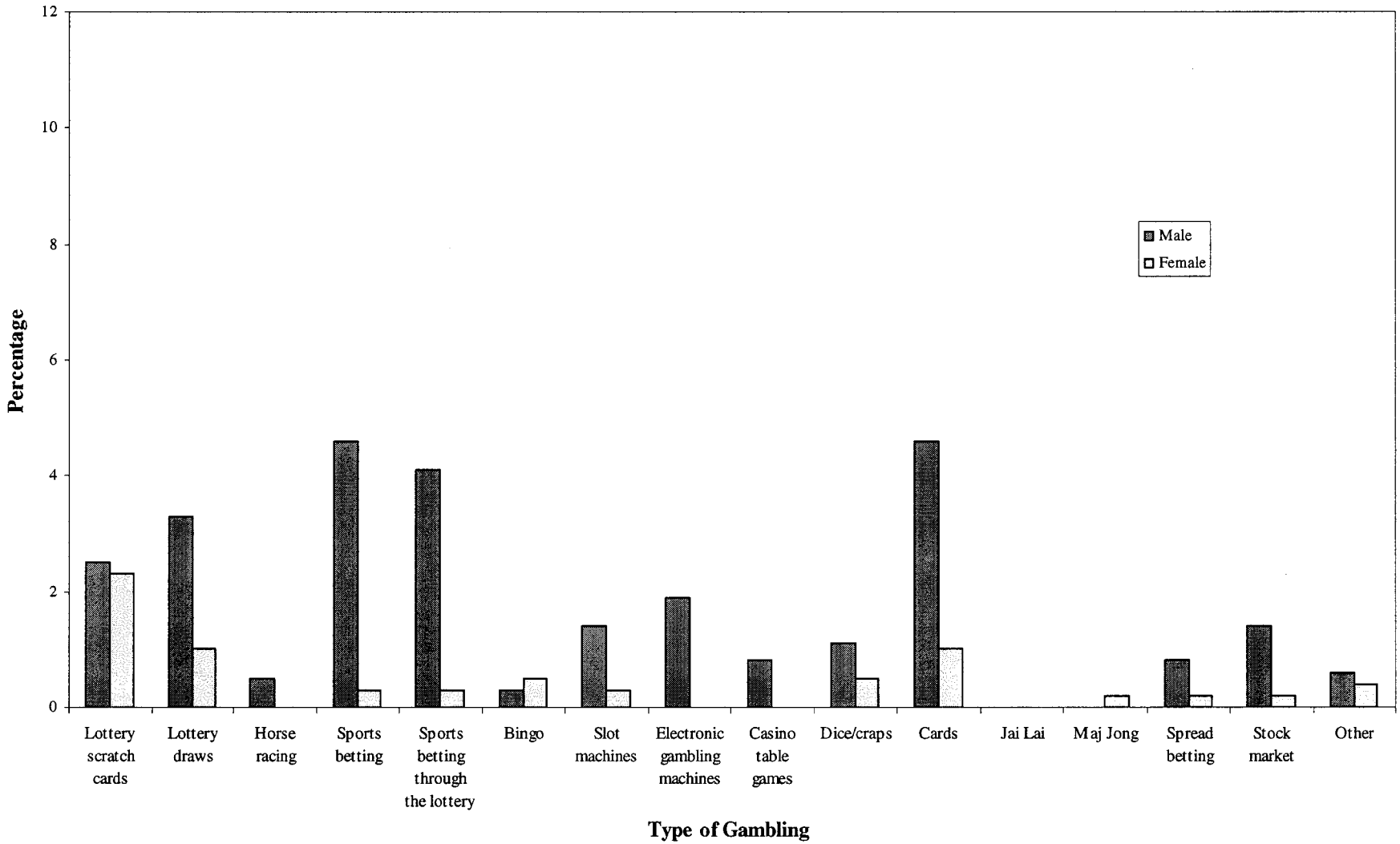

Figure 4. Weekly participation in gambling activities among participants aged 18-24 years in past 12 months by gender.

Problem Gambling

Total scores on the DSM-IV-MR-J or the DSM-IV criteria checklist were used to classify participants as being Non-Gamblers, Social Gamblers, At-Risk Gamblers, or Probable Pathological Gamblers. A total of 32.9% of the sample was classified as Non-Gamblers, 58.3% as Social Gamblers, 5.7% as At-Risk Gamblers, and 3.0% as Probable Pathological Gamblers (PPGs) (see Table 7). Conclusions must be drawn with caution due to differences in the number of males (n = 795) and females (n = 1020) among certain age categories. More specifically, there were significantly more females aged 18-21 years (n = 608) compared to males (n = 367), $\chi^2(1, N = 975) = 9.67, p < .05$.

Table 7

Gambling Severity by Gender and Age Group

		Gambling Severity[1]			
	N	Non (n = 598)	Social[a] (n = 1059)	At-Risk[b] (n = 104)	PPG[c] (n = 54)
Gender***					
Male	795	27.7	57.4	9.2	5.8
Female	1020	37.1	59.1	3.0	.8
Age Group***					
12-13	138	50.0	38.4	8.0	3.6
14-15	293	35.8	47.4	10.9	5.8
16-17	544	32.2	57.2	7.2	3.5
18-20	671	27.9	67.7	2.8	1.6
21-24	169	36.7	60.4	1.8	1.2
Total	1815	32.9	58.3	5.7	3.0

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
***$p < .001$.

Overall, a greater proportion of males reported gambling problems compared to females, $\chi^2(3, N = 1815) = 79.18, p < .001$. Further, chi-square analyses revealed significant differences among age groups with respect to gambling severity, $\chi^2(12, N = 1815) = 90.40, p < .001$. The largest proportion of youth classified as At-Risk Gamblers and Probable Pathological Gamblers were 14-15 years of age (5.8%), with an overall trend toward younger participants reporting greater problems with gambling.

Gambling severity data was analyzed separately for males from females (see Tables 8 and 9). The largest proportion of male Probable Pathological Gamblers were 14-15 years of age (10.8%) (see Table 8). Among females, however, the largest proportion of Probable Pathological Gamblers were 12-13 years of age (2.6%) (see Table 9).

Table 8

Gambling Severity Among Males by Age Group

	N	Gambling Severity[1]			
		Non ($n = 220$)	Social[a] ($n = 456$)	At-Risk[b] ($n = 73$)	PPG[c] ($n = 46$)
Age Group***					
12-13	61	47.5	32.8	14.8	4.9
14-15	148	31.8	41.9	15.5	10.8
16-17	259	25.9	57.1	10.4	6.6
18-20	279	21.5	71.0	4.3	3.2
21-24	48	35.4	58.3	4.2	2.1
Total	795	27.7	57.4	9.2	5.8

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
***$p < .001$.

Table 9

Gambling Severity in Females by Age Group

	N	Gambling Severity[1]			
		Non (n = 378)	Social[a] (n = 603)	At-Risk[b] (n = 31)	PPG[c] (n = 8)
Age Group**					
12-13	77	51.9	42.9	2.6	2.6
14-15	145	40.0	53.1	6.2	.7
16-17	285	37.9	57.2	4.2	.7
18-20	392	32.4	65.3	1.8	.5
21-24	121	37.2	61.2	.8	.8
Total	1020	37.1	59.1	3.0	.8

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
**$p < .05$.

A greater number of younger male participants (aged 12 – 17 years) were classified as At-Risk Gamblers (12.6%) and Probable Pathological Gamblers (7.7%) compared to older males, $\chi^2(3, N = 795) = 38.47, p < .001$ (see Table 10). Similarly, more younger females were classified as At-Risk (4.5%) and Probable Pathological Gamblers (1.0%) compared to older females, $\chi^2(3, N = 1020) = 16.17, p < .05$ (see Table 11).

Table 10

Gambling Severity Among Males Below and Above 18 Years of Age

	N	Gambling Severity[1]			
		Non (n = 220)	Social[a] (n = 456)	At-Risk[b] (n = 73)	PPG[c] (n = 46)
Age Group***					
Under 18	468	30.6	49.1	12.6	7.7
18 and above	327	23.5	69.1	4.3	3.1
Total	795	27.7	57.4	9.2	5.8

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
***$p < .001$.

Table 11

Gambling Severity Among Females Below and Above 18 Years of Age

	N	Gambling Severity[1]			
		Non (n = 378)	Social[a] (n = 603)	At-Risk[b] (n = 31)	PPG[c] (n = 8)
Age Group***					
Under 18	507	40.6	53.8	4.5	1.0
18 and above	513	33.5	64.3	1.6	.6
Total	1020	37.1	59.1	3.0	.8

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
***$p < .001$.

As would be expected from previous results, a larger proportion of high school students reported problems with gambling compared to CEGEP and university students, $\chi^2(6, N = 1815) = 71.96, p < .001$ (see Table 12).

Table 12

Gambling Severity by Educational Level

	N	Gambling Severity[1]			
		Non (n = 598)	Social[a] (n = 1059)	At-Risk[b] (n = 104)	PPG[c] (n = 54)
Level***					
High School	762	35.2	51.0	9.3	4.5
CEGEP	818	28.2	65.6	3.7	2.4
University	235	42.1	56.6	1.3	-
Total	1815	32.9	58.3	5.7	3.0

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
***$p < .001$.

Internet Gambling Without Money

Participation in Internet Gambling Without Money

Participation in Internet gambling without money was determined by asking respondents to indicate the number of sites they had visited in the past 12 months to gamble for fun (without money). The current study defined Internet gambling without money as any game played on the Internet that paralleled regular gambling in that it necessarily involved the act of risking something in order to gain something. Whereas with other types of gambling players wagered money, with Internet gambling, players wagered tokens, points, or fake money in order to win prizes, more tokens, more points, or more fake money. In order to provide clarification, participants were informed that certain people preferred to play gambling games on the Internet using practice sites, free games, and free trials, while other preferred to gamble on the Internet using money.

Participants were instructed that they would first be asked questions about Internet gambling *without* money and later would be asked similar questions about Internet gambling *with* money.

A total of 36.6% of participants (n = 764) reported that in the past 12 months they had gambled on the Internet without money (see Table 13). Although proportionately more males (38.5%) reporting having gambled on the Internet without money compared to females (35.2%), this difference was not statistically significant. Further, a larger proportion of younger participants reported gambling on the Internet without money, $\chi^2(4, N = 2087) = 45.42, p < .001$.

Table 13

Internet Gambling Without Money in Past 12 Months by Gender and Age Group

	N	Participation in Past 12 Months[1]
Gender		
Male	893	38.5
Female	1194	35.2
Age Group***		
12-13	161	43.5
14-15	341	39.9
16-17	610	43.4
18-20	770	32.6
21-24	205	20.5
Total	2087	36.6

[1]Percentage.
***$p < .001$.

Gender differences in past year participation in Internet gambling without money was examined across age groups (see Table 14). Among males, the largest proportion of

participants who reported Internet gambling without money were aged 12-13 years (50.0%), while among females, the largest proportion of individuals who reported Internet gambling without money were 16-17 years (44.7%).

Table 14

Internet Gambling Without Money Among Males and Females in Past 12 Months by Age Group

	Participation in Past 12 Months[1]	
	Males**	Females***
Age Group		
12-13	50.0	38.5
14-15	40.2	39.1
16-17	42.1	44.7
18-20	32.4	32.8
21-24	34.5	15.0
Total	38.5	35.2

[1]Percentage.
**$p < .05$.
***$p < .001$.

Significantly more participants under the age of 18 reported Internet gambling without money in the past 12 months compared to older males [$\chi^2(1, N = 893) = 8.93, p < .05$] and older females [$\chi^2(1, N = 1194) = 24.55, p < .001$] (see Table 16). Not surprisingly, similar results were obtained when past year participation in Internet gambling without money was cross-tabulated with current educational level. A larger proportion of high school students (41.3%) reported gambling on the Internet without money compared to CEGEP students (37.4%) and university students (20.3%), $\chi^2(2, N = 2087) = 43.49, p < .001$ (see Table 17).

Table 15

Internet Gambling Without Money Among Males and Females Below and Above 18 Years of Age

	Participation in Past 12 Months[1]	
	Males**	Females***
Age Group		
Under 18	42.6	42.2
18 and above	32.7	28.5
Total	38.5	35.2

[1]Percentage.
**$p < .05$.
***$p < .001$.

Table 16

Internet Gambling Without Money in Past 12 Months by Level of Education

	N	Participation in Past 12 Months[1]
Level***		
High School	890	41.3
CEGEP	896	37.4
University	301	20.3
Total	2087	36.6

[1]Percentage.
***$p < .001$.

Game Preferences

Participants were provided with a 14-item list of Internet gambling activities and asked to indicate the frequency with which they had engaged in each without money over the past 12 months by selecting *never, less than once a month, 1-3 times a month,* or *once a week or more.* Past year participation was examined separately for participants below and above the age of 18 years (see Tables 17 and 18).

Past year participation. Among younger participants, the most popular forms of Internet gambling without money were cards (47.3%), blackjack (31.3%), and slot machines or other electronic gambling machines (22.1%) (see Table 17).

Table 17

Internet Gambling Without Money Among Participants Under 18 Years of Age in Past 12 Months by Gambling Activity

	Frequency of Internet Gambling[1]			
	Never	Less than once a month	1-3 times a month	Once a week or more
Internet Gambling Activity				
Roulette	91.0	6.2	1.7	1.1
Blackjack	68.7	19.9	8.0	3.4
Baccarat	98.1	1.2	.3	.5
Dice/craps	87.2	7.3	3.3	2.2
Keno	96.2	2.7	.6	.5
Sports betting	83.7	8.5	4.2	3.5
Horse racing	96.8	1.7	.7	.7
Slot machines or other electronic gambling machines	77.9	15.5	5.0	1.6
Cards	52.7	22.3	14.2	10.8
Jai Lai	99.3	.6	-	.1
Maj Jong	94.1	3.8	1.6	.5
Spread betting	98.6	1.0	.2	.2
Stock market	95.7	2.4	1.2	.7
Other	95.2	2.1	1.4	1.3

[1]Percentage.

Similarly, among older participants, the most popular forms of Internet gambling without money were cards (34.9%), blackjack (23.0%), and slot machines or other electronic gambling machines (15.7%) (see Table 18).

Table 18

Internet Gambling Without Money Among Participants Aged 18-24 Years in Past 12 Months by Gambling Activity

	Frequency of Internet Gambling[1]			
	Never	Less than once a month	1-3 times a month	Once a week or more
Internet Gambling Activity				
Roulette	93.7	4.5	1.4	.3
Blackjack	77.0	16.4	5.0	1.5
Baccarat	98.6	.8	.3	.3
Dice/craps	95.8	2.6	1.2	.4
Keno	97.7	1.3	.6	.3
Sports betting	92.8	3.6	2.1	1.5
Horse racing	98.5	.8	.4	.3
Slot machines or other electronic gambling machines	84.3	11.0	3.7	1.0
Cards	65.1	19.7	9.7	5.5
Jai Lai	99.4	.1	.2	.3
Maj Jong	92.7	4.3	1.8	1.1
Spread betting	97.8	.8	.7	.6
Stock market	96.7	2.2	.2	.9
Other	96.6	1.7	.7	1.0

[1]Percentage.

Compared to older participants, younger participants reported more past year participation in roulette [$\chi^2(3, N = 2084) = 7.80$, $p < .05$], blackjack [$\chi^2(3, N = 2082) = 22.60$, $p < .001$], dice/craps [$\chi^2(3, N = 2083) = 48.87$, $p < .001$], sports betting [$\chi^2(3, N = 2082) = 40.59$, $p < .001$], slot machines or other electronic gambling machines [$\chi^2(3, N = 2075) = 13.72$, $p < .05$], and cards [$\chi^2(3, N = 2077) = 41.35$, $p < .001$]. A greater proportion of older participants reported past year participation in Maj Jong and spread betting, but these differences were not statistically significant.

Among younger participants, significantly more males reported that in the past 12 months they had played roulette [$\chi^2(1, N = 1109) = 15.35$, $p < .001$], blackjack [$\chi^2(1, N = 1108) = 17.12$, $p < .001$], baccarat [$\chi^2(1, N = 1107) = 7.15$, $p < .05$], dice/craps [$\chi^2(1, N = 1108) = 18.43$, $p < .001$], sports betting [$\chi^2(1, N = 1107) = 66.44$, $p < .001$], and the stock market [$\chi^2(1, N = 1107) = 13.36$, $p < .001$] compared to females (see Figure 5). Younger females, meanwhile, were significantly more likely to report past year participation in Maj Jong compared to younger males, $\chi^2(1, N = 1109) = 18.31$, $p < .001$.

Among older participants, significantly more males reported past year participation in roulette [$\chi^2(1, N = 975) = 24.24$, $p < .001$], blackjack [$\chi^2(1, N = 974) = 25.04$, $p < .001$], baccarat [$\chi^2(1, N = 973) = 6.97$, $p < .05$], dice/craps [$\chi^2(1, N = 975) = 6.21$, $p < .05$], sports betting [$\chi^2(1, N = 975) = 46.57$, $p < .001$], and the stock market [$\chi^2(1, N = 973) = 13.67$, $p < .001$] compared to same age females (see Figure 6). Like younger females, older females were significantly more likely to report past year participation in Maj Jong [$\chi^2(1, N = 975) = 8.90$, $p < .05$]. Unlike younger males, older males were significantly more likely to report past year participation in spread betting, $\chi^2(1, N = 975) = 21.13$, $p < .001$.

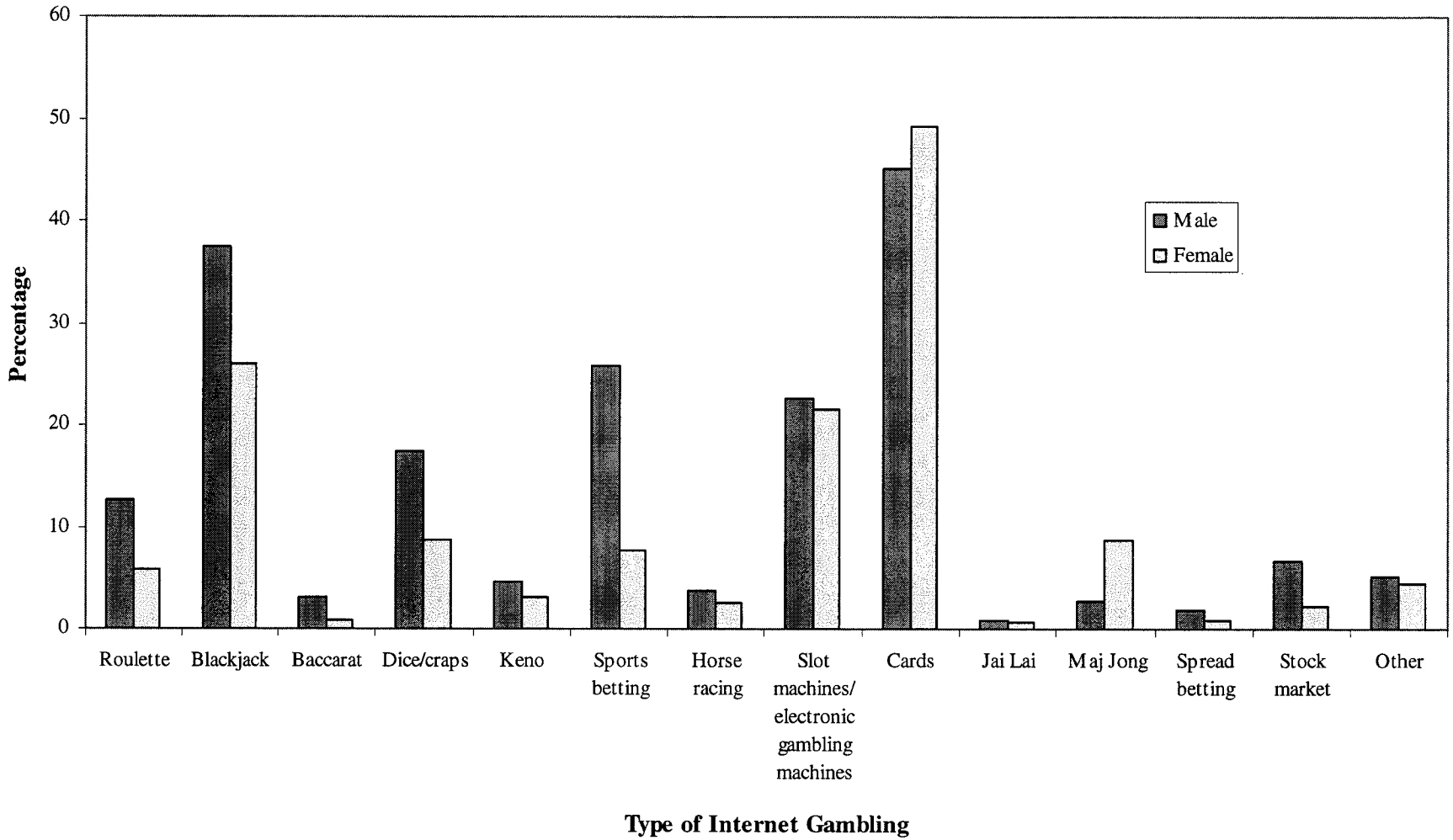

Figure 5. Internet gambling without money among participants under 18 years of age in past 12 months by gender.

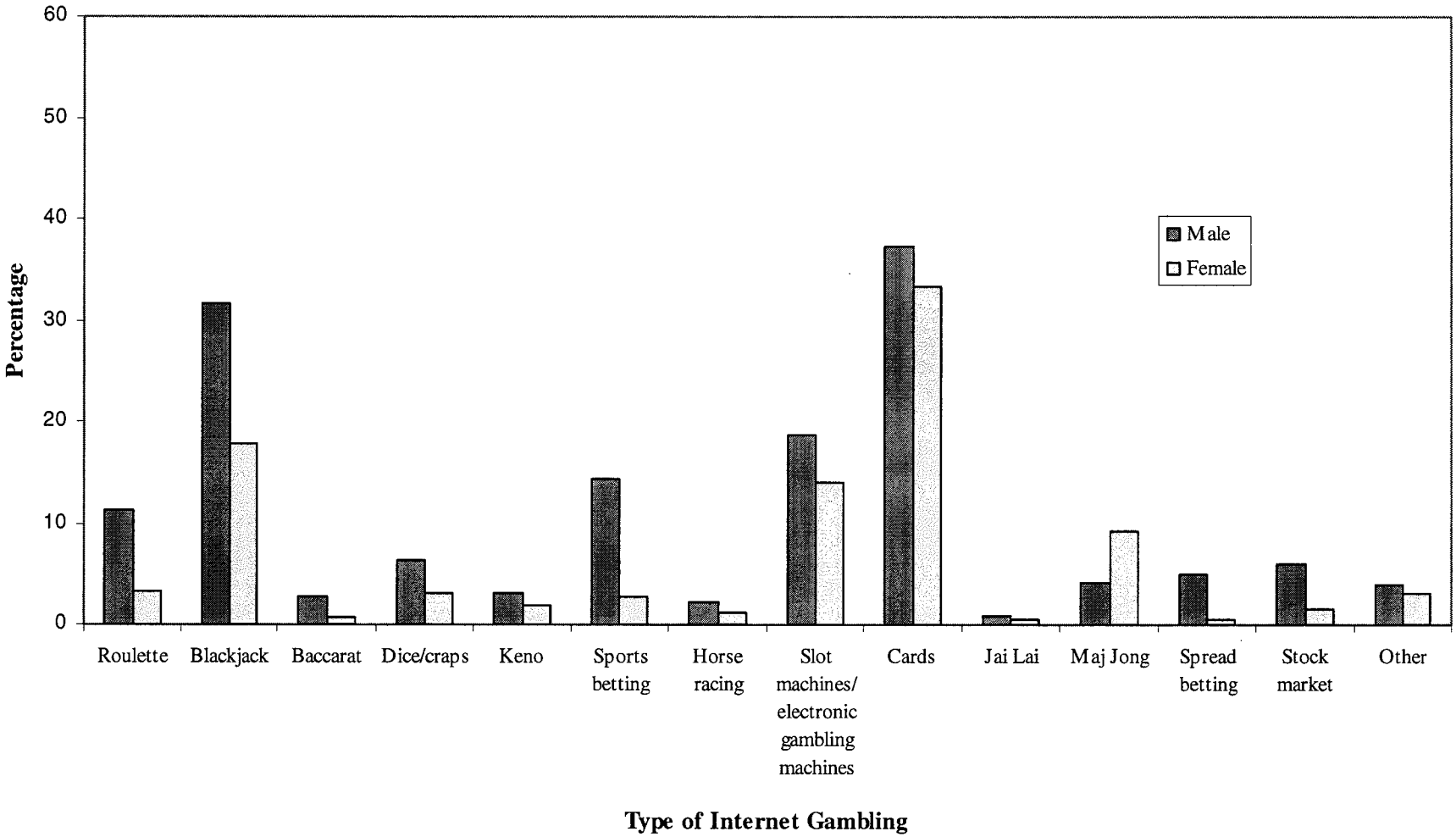

Figure 6. Internet gambling without money among participants aged 18-24 years in past 12 months by gender.

Weekly participation. Among younger participants, the most popular forms of Internet gambling without money for weekly play were cards (10.8%), sports betting (3.5%), and blackjack (3.4%) (see Figure 7). Similarly, for older participants, the most popular forms of Internet gambling without money for weekly play were cards (5.5%), blackjack (1.5%), and sports betting (1.5%) (see Figure 8).

Younger males outnumbered younger females for participation in every form of weekly Internet gambling without money. Compared to females, significantly more males reported weekly Internet gambling without money on blackjack [$\chi^2(1, N = 1108) = 3.97$, $p < .05$], baccarat [$\chi^2(1, N = 1107) = 5.59$, $p < .05$], dice/craps [$\chi^2(1, N = 1108) = 19.38$, $p < .001$], sports betting [$\chi^2(1, N = 1107) = 25.87$, $p < .001$], and slot machines or other electronic gambling machines [$\chi^2(1, N = 1103) = 6.85$, $p < .001$].

Among older participants, males outnumbered females for weekly participation in every form of Internet gambling without money except Maj Jong, although differences between males and females were not found to be statistically significant (see Figure 8).

Similar to younger males, older males were significantly more likely to report weekly participation in sports betting [$\chi^2(1, N = 975) = 11.65$, $p < .001$] and slot machines and other electronic gambling machines [$\chi^2(1, N = 972) = 4.54$, $p < .05$] compared to older females. Unlike younger males, older males were also significantly more likely to report weekly participation in spread betting [$\chi^2(1, N = 975) = 5.37$, $p < .05$].

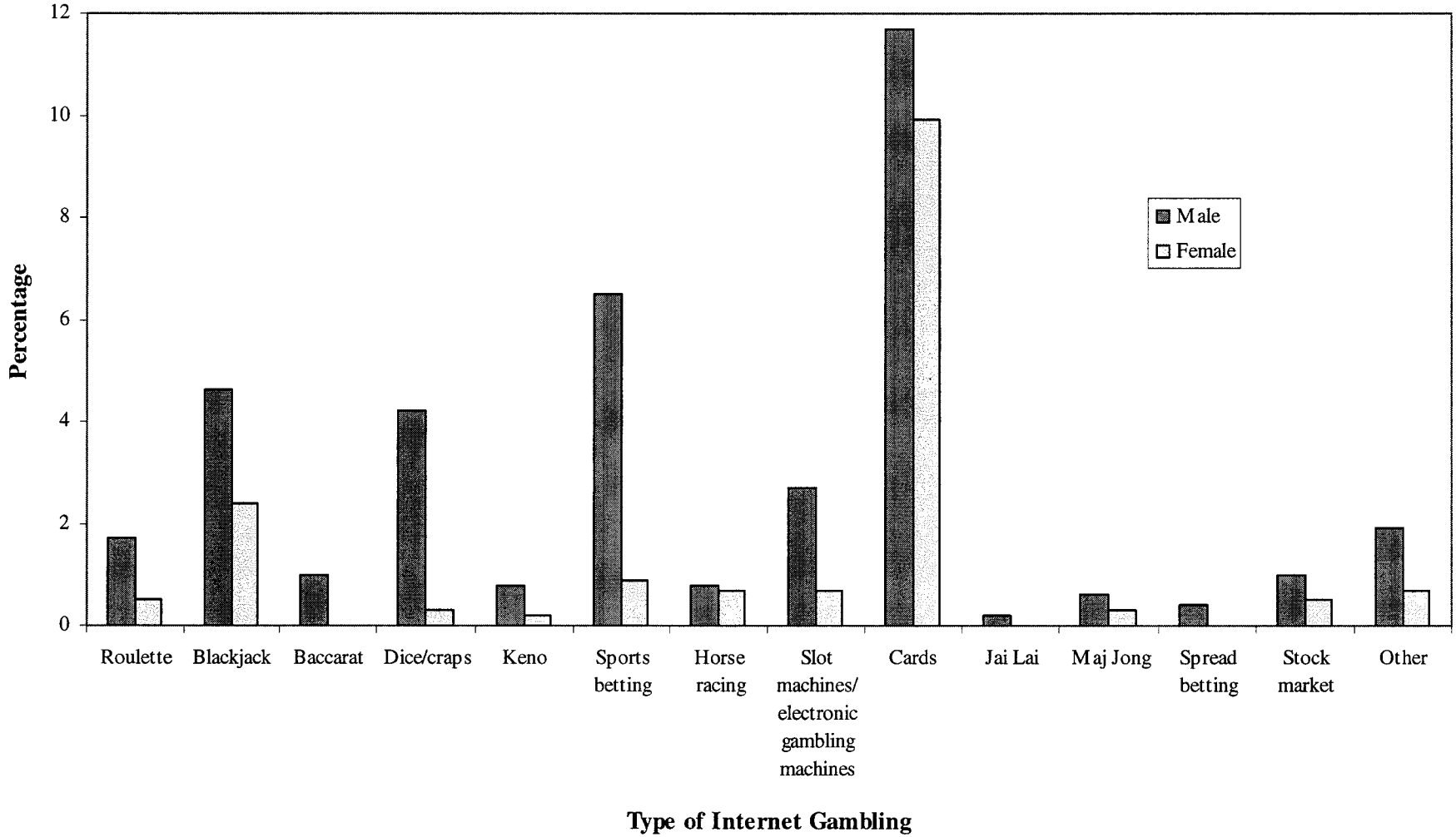

Figure 7. Weekly Internet gambling without money among participants under 18 years of age in past 12 months by gender.

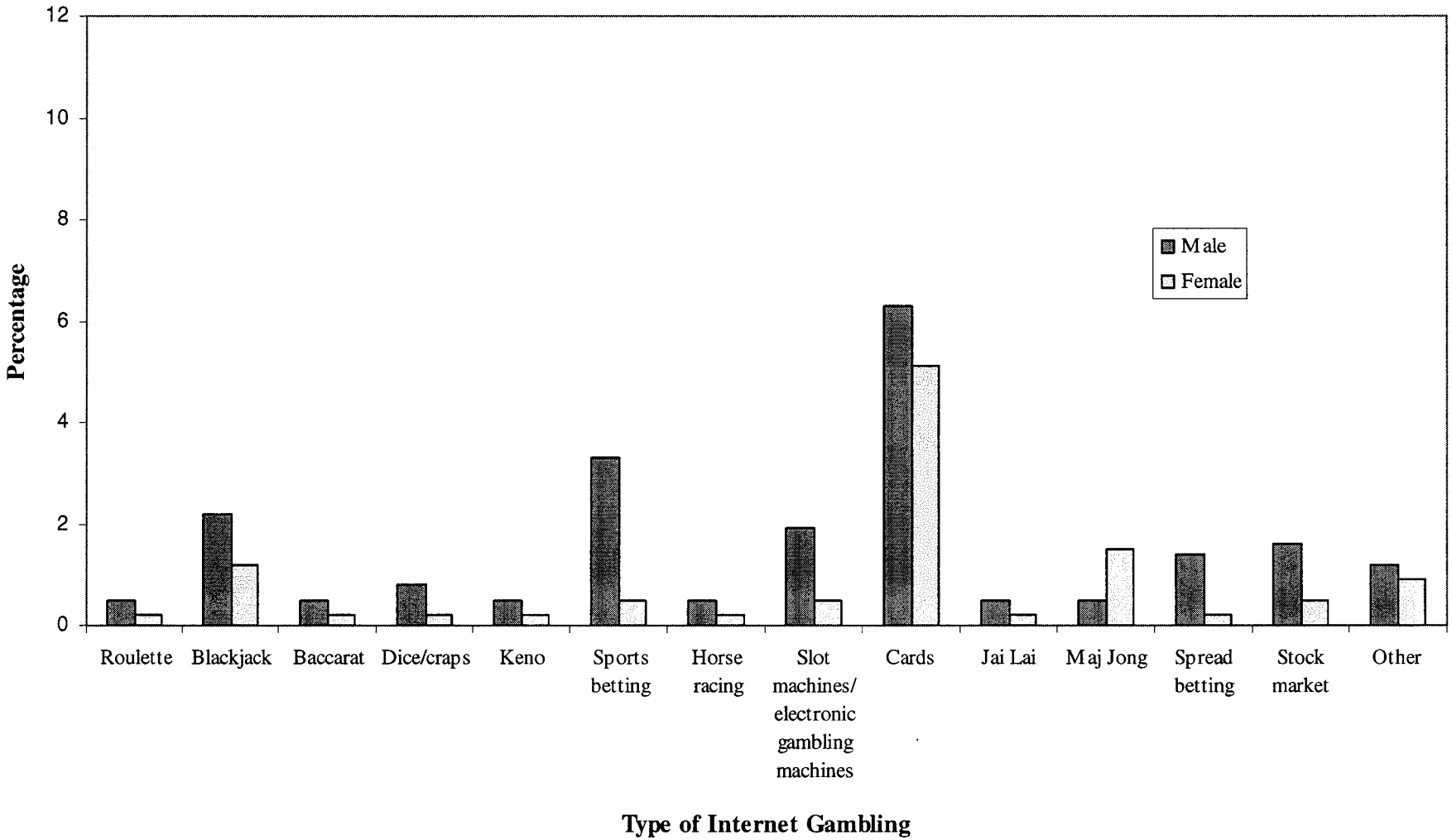

Figure 8. Weekly Internet gambling without money among participants aged 18-24 years in past 12 months by gender.

Age of Onset for Internet Gambling Without Money

Of the 1084 individuals who reported some Internet gambling in their lifetime with and/or without money, the greatest proportion (28.4%) reported that their first Internet gambling experience occurred between the ages of 14 and 15 years (see Table 19). Another 26.3% reported that their first Internet gambling experience occurred between the ages of 12 and 13 years.

Table 19

Age of Onset for Internet Gambling Without Money by Age Group

		Age of Onset for Internet Gambling Without Money[1]						
	N	< 10	10-11	12-13	14-15	16-17	18-20	21-24
Age Group***								
12-13	83	18.1	59.0	22.9	-	-	-	-
14-15	187	16.6	25.1	46.0	12.3	-	-	-
16-17	357	6.2	14.3	28.9	39.2	11.5	-	-
18-20	391	7.4	7.9	17.6	33.5	29.4	4.1	-
21-24	66	4.5	3.0	12.1	21.2	22.7	33.3	3.0
Total	1084	9.2	16.6	26.3	28.4	15.8	3.5	.2

[1]Percentage.
***$p < .001$

Approximately one in ten participants (9.2%) who had gambled on the Internet with and/or without money reported that they first began gambling on the Internet without money before the age of 10 years.

Internet Gambling With Money

Participation in Internet Gambling With Money

Participation in Internet gambling with money was determined in a similar manner to participation in Internet gambling without money. Respondents were asked to

indicate the number of websites they had visited during the past 12 months in order to gamble for money.

Results indicate that approximately 4.6% of the entire sample had gambled on the Internet in the past year (see Table 20). Significantly more males (7.8%) reported on-line gambling with money as compared to females (2.3%), $\chi^2(1, N = 2088) = 35.86, p < .001$.

Table 20

Internet Gambling With Money in Past 12 Months by Gender and Age Group

	N	Participation in Past 12 Months[1]
Gender		
Male	893	7.8
Female	1194	2.3
Age Group***		
12-13	161	5.6
14-15	341	6.7
16-17	610	5.2
18-20	770	3.9
21-24	205	1.5
Total	2087	4.6

[1]Percentage.
***$p < .001$.

Significant differences were similarly found among age groups with respect to participation in Internet gambling, $\chi^2(4, N = 2087) = 9.87, p < .05$, with a larger proportion of younger participants reporting Internet gambling with money.

As with previous analyses, past year participation in Internet gambling with money among age groups was examined with respect to gender (see Table 21). Among males, the largest proportion of participants who reported Internet gambling in the past 12

months were aged 14-15 years (10.4%). Among females, however, the largest proportion of participants who reported Internet gambling were slightly older, aged 16-17 years (3.5%).

Table 21

Internet Gambling With Money Among Males and Females in Past 12 Months by Age Group

	Participation in Past 12 Months[1]	
	Males	Females
Age Group		
12-13	10.0	2.2
14-15	10.4	3.4
16-17	7.2	3.5
18-20	7.4	1.5
21-24	3.4	.7
Total	7.8	2.3

[1]Percentage.

For males and females, age groups were collapsed into two categories separating individuals under the age of 18 from those 18 years of age and over (see Table 22). A greater proportion of younger males reported Internet gambling (8.6%) compared to older males (6.8%), although this difference was not statistically significant. Significantly more younger females reported Internet gambling (3.2%) compared to older females (1.3%), $\chi^2(1, N = 1194) = 5.01, p < .05$.

Table 22

Internet Gambling With Money Among Males and Females Below and Above 18 Years of Age

	Participation in Past 12 Months[1]	
	Males	Females**
Age Group		
Under 18	8.6	3.2
18 and above	6.8	1.3
Total	7.8	2.3

[1]Percentage.
**$p < .05$

Similar to Internet gambling without money, a greater proportion of high school students reported having engaged in Internet gambling with money in the past 12 months (6.1%) compared to CEGEP (4.2%) and university students (1.7%), $\chi^2(2, N = 2087) = 10.44$, $p < .05$ (see Table 23).

Table 23

Internet Gambling With Money in Past 12 Months by Level of Education

	N	Participation in Past 12 Months[1]
Level**		
High School	890	6.1
CEGEP	896	4.2
University	301	1.7
Total	2087	4.6

[1]Percentage.
**$p < .05$.

Game Preferences

Participants were provided with a 14-item list of Internet gambling activities identical to the one provided for Internet gambling without money. Instructions served to inform participants that subsequent questions referred to gambling on the Internet *with* money. Participants reported the frequency with which they had engaged in each Internet gambling activity with money over the past 12 months by selecting *never, less than once a month, 1-3 times a month,* or *once a week or more.*

Past year participation. Among younger participants, the most commonly reported forms of Internet gambling with money were cards (5.6%), sports betting (5.0%) and blackjack (3.6%) (see Table 24). Similarly, among older participants, the most popular forms of Internet gambling with money were cards (2.7%), sports betting (2.5%), and blackjack (1.9%) (see Table 25).

Overall, a greater proportion of younger participants reported playing blackjack on the Internet for money in the past year (3.6%) compared to older participants (1.9%), $\chi^2(1, N = 2087) = 5.14, p < .05$. Further, younger participants were significantly more likely to report past year Internet gambling with money on dice/craps [$\chi^2(1, N = 2086) = 18.77, p < .001$], sports betting [$\chi^2(1, N = 2087) = 9.34, p < .05$], and cards [$\chi^2(1, N = 2084) = 10.85, p < .001$]. A greater proportion of older participants reported past year Internet gambling on the stock market (1.4%) compared to younger participants (.8%), however this difference was not statistically significant.

Table 24

Internet Gambling With Money Among Participants Under 18 Years of Age in Past 12 Months by Gambling Activity

	Frequency of Internet Gambling[1]			
	Never	Less than once a month	1-3 times a month	Once a week or more
Internet Gambling Activity				
Roulette	98.8	.5	.5	.2
Blackjack	96.4	1.7	1.2	.7
Baccarat	99.5	.1	.2	.3
Dice/craps	97.4	1.1	1.0	.5
Keno	98.9	.5	.4	.3
Sports betting	95.0	2.1	1.0	2.0
Horse racing	99.3	.3	.1	.4
Slot machines or other electronic gambling machines	97.4	1.7	.7	.2
Cards	94.4	2.6	1.4	1.5
Jai Lai	100.0	-	-	-
Maj Jong	99.6	.2	.2	-
Spread betting	99.5	.3	.1	.2
Stock market	99.2	.4	.2	.2
Other	99.2	.5	.2	.1

[1]Percentage.

Table 25

Internet Gambling With Money Among Participants Aged 18-24 Years in Past 12 Months by Gambling Activity

	Frequency of Internet Gambling[1]			
	Never	Less than once a month	1-3 times a month	Once a week or more
Internet Gambling Activity				
Roulette	99.5	.2	.2	.1
Blackjack	98.1	1.0	.7	.2
Baccarat	99.9	.1	-	-
Dice/craps	99.7	.2	-	.1
Keno	99.6	.3	.1	-
Sports betting	97.5	1.1	.7	.6
Horse racing	99.7	.2	-	.1
Slot machines or other electronic gambling machines	98.4	.9	.6	.1
Cards	97.3	1.5	.6	.5
Jai Lai	100.0	-	-	-
Maj Jong	99.7	.2	.1	-
Spread betting	99.8	-	.2	-
Stock market	98.6	.9	.2	.3
Other	99.8	.2	-	-

[1]Percentage.

Differences in past year participation in Internet gambling were examined with respect to gender separately for younger and older individuals (see Figures 9 and 10). Among younger participants, significantly more males reported past year engagement in roulette [$\chi^2(1, N = 1111) = 4.65, p < .05$], blackjack [$\chi^2(1, N = 1112) = 10.57, p < .001$], dice/craps [$\chi^2(1, N = 1112) = 15.02, p < .001$], sports betting [$\chi^2(1, N = 1112) = 23.13, p < .001$], slot machines or other electronic gambling machines [$\chi^2(1, N = 1111) = 3.99, p < .05$], and cards [$\chi^2(1, N = 1111) = 7.85, p < .05$] compared to younger females (see Figure 9). A greater proportion of younger females reported past year participation in Maj Jong on the Internet for money (.5%) compared to same age males (.2%), but this difference was not statistically significant.

Similarly, older males were significantly more likely to report past year participation in Internet roulette [$\chi^2(1, N = 975) = 8.33, p < .05$], blackjack [$\chi^2(1, N = 975) = 10.73, p < .001$], dice/craps [$\chi^2(1, N = 974) = 4.98, p < .001$], sports betting [$\chi^2(1, N = 975) = 21.89, p < .001$], slot machines or other electronic gambling machines [$\chi^2(1, N = 974) = 9.65, p < .05$] and cards [$\chi^2(1, N = 973) = 11.29, p < .001$] compared to older females (see Figure 10). In contrast to younger males, older males were more likely to report past year participation in the stock market compared to older females, $\chi^2(1, N = 974) = 6.89, p < .05$.

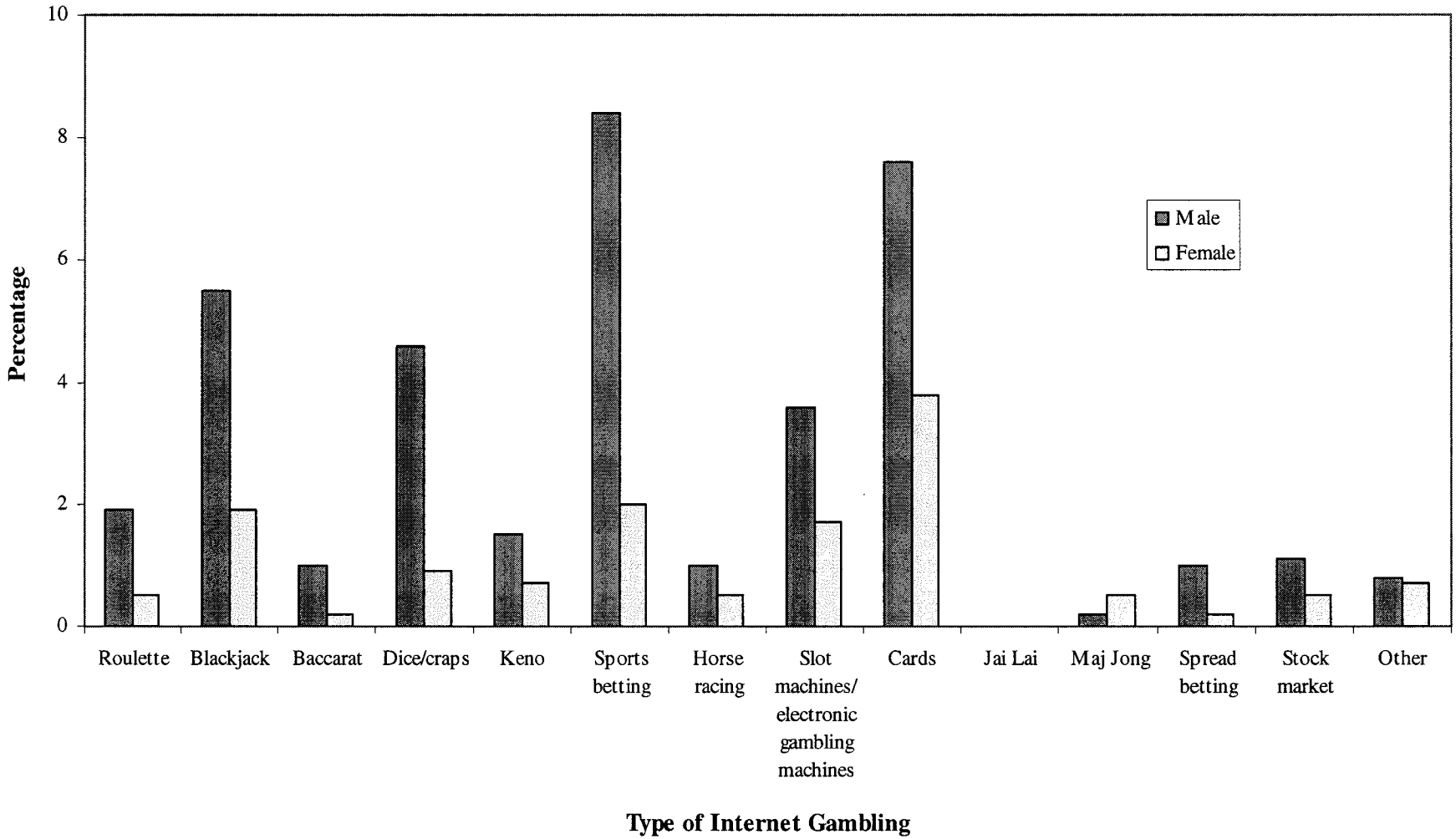

Figure 9. Internet gambling with money among participants under 18 years of age in past 12 months by gender.

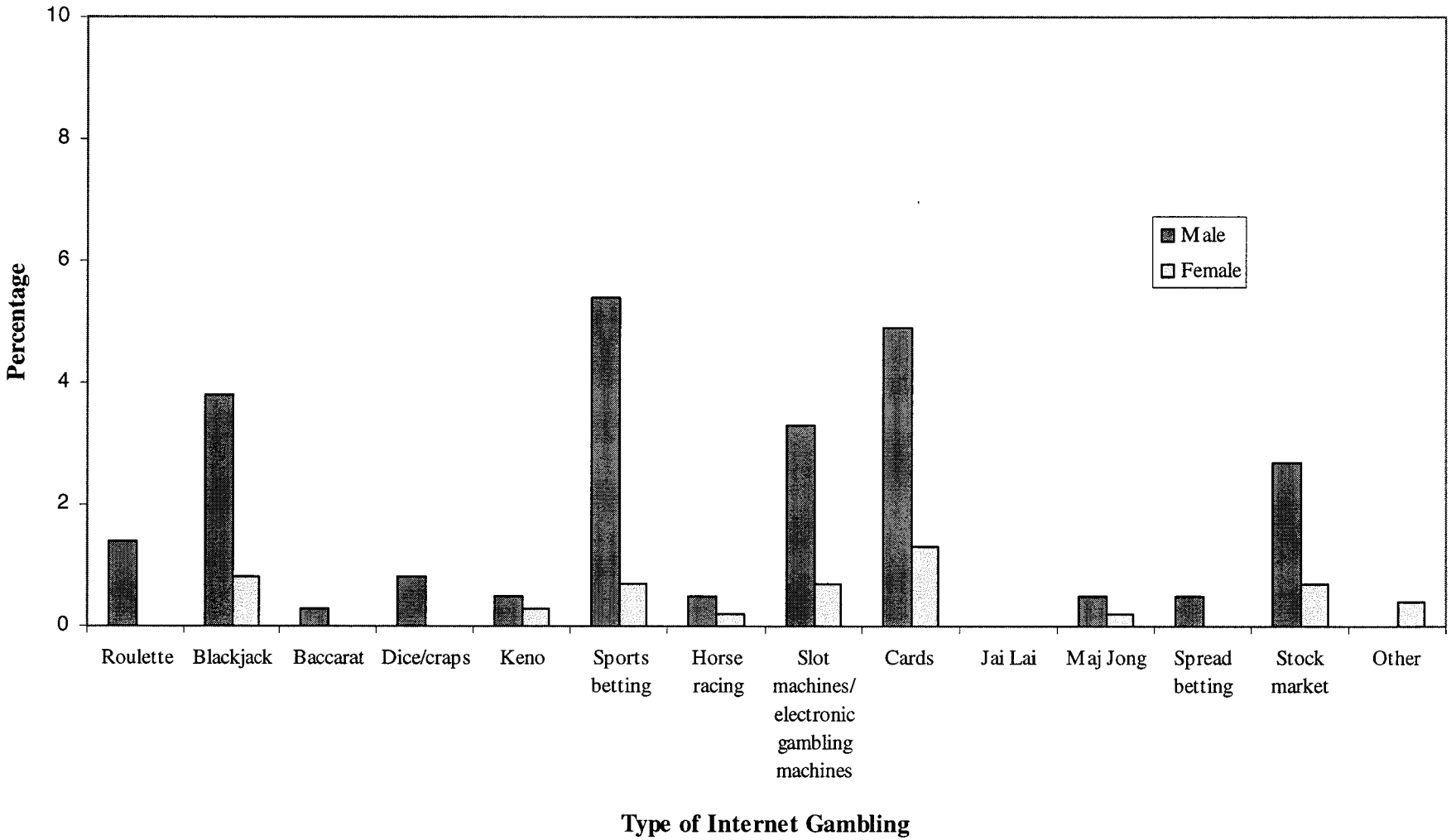

Figure 10. Internet gambling with money among participants aged18-24 years in past 12 months by gender.

Weekly participation. A small number of participants reported weekly participation in Internet gambling with money in the past 12 months (see Figures 11 and 12). Among younger participants, the most popular forms of Internet gambling with money for weekly play were sports betting (2.0%), cards (1.5%), and blackjack (.7%) (see Figure 11). Among older participants, the most popular forms of Internet gambling with money for weekly play were sports betting (.6%), cards (.5%), and the stock market (.3%) (see Figure 12).

Younger males were significantly more likely to report weekly Internet gambling with money on dice/craps [$\chi^2(1, N = 1112) = 6.72, p < .05$], sports betting [$\chi^2(1, N = 1112) = 17.12, p < .001$], and cards [$\chi^2(1, N = 1111) = 5.91, p < .05$] compared to same age females (see Figure 11). No participants above or below 18 years of age reported weekly Internet gambling with money on Jai Lai or Maj Jong.

Among older participants, no females reported Internet gambling with money once a week or more (see Figure 12). Nonetheless, there were significant differences in weekly participation with respect to gender for sports betting [$\chi^2(1, N = 975) = 17.12, p < .001$], cards [$\chi^2(1, N = 973) = 8.30, p < .05$], and the stock market [$\chi^2(1, N = 974) = 4.98, p < .05$]. No older participants reported weekly Internet gambling on baccarat, keno, Jai Lai, Maj Jong, spread betting, and other unlisted Internet gambling activities.

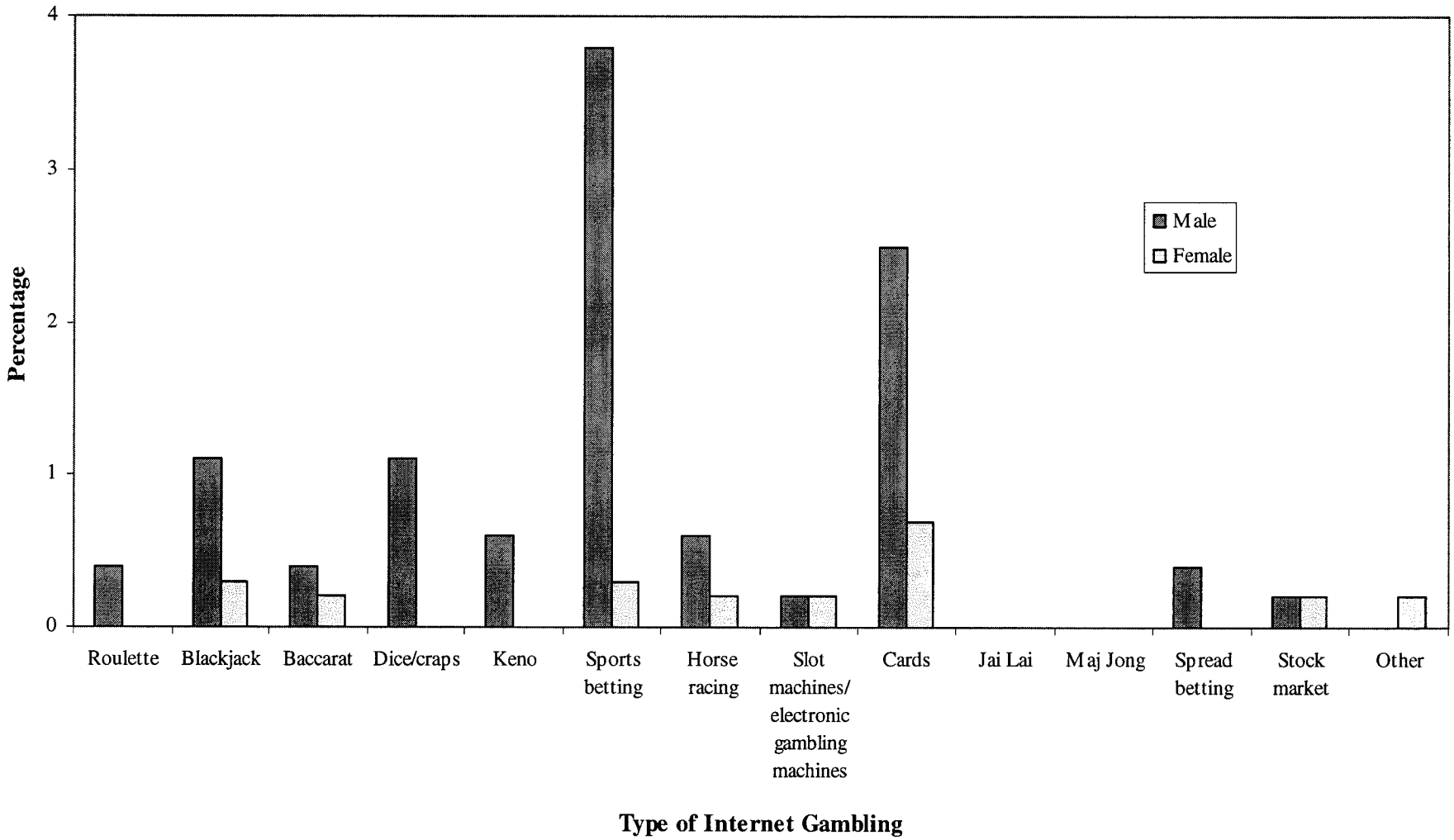

Figure 11. Weekly Internet gambling with money among participants under 18 years of age in past 12 months by gender.

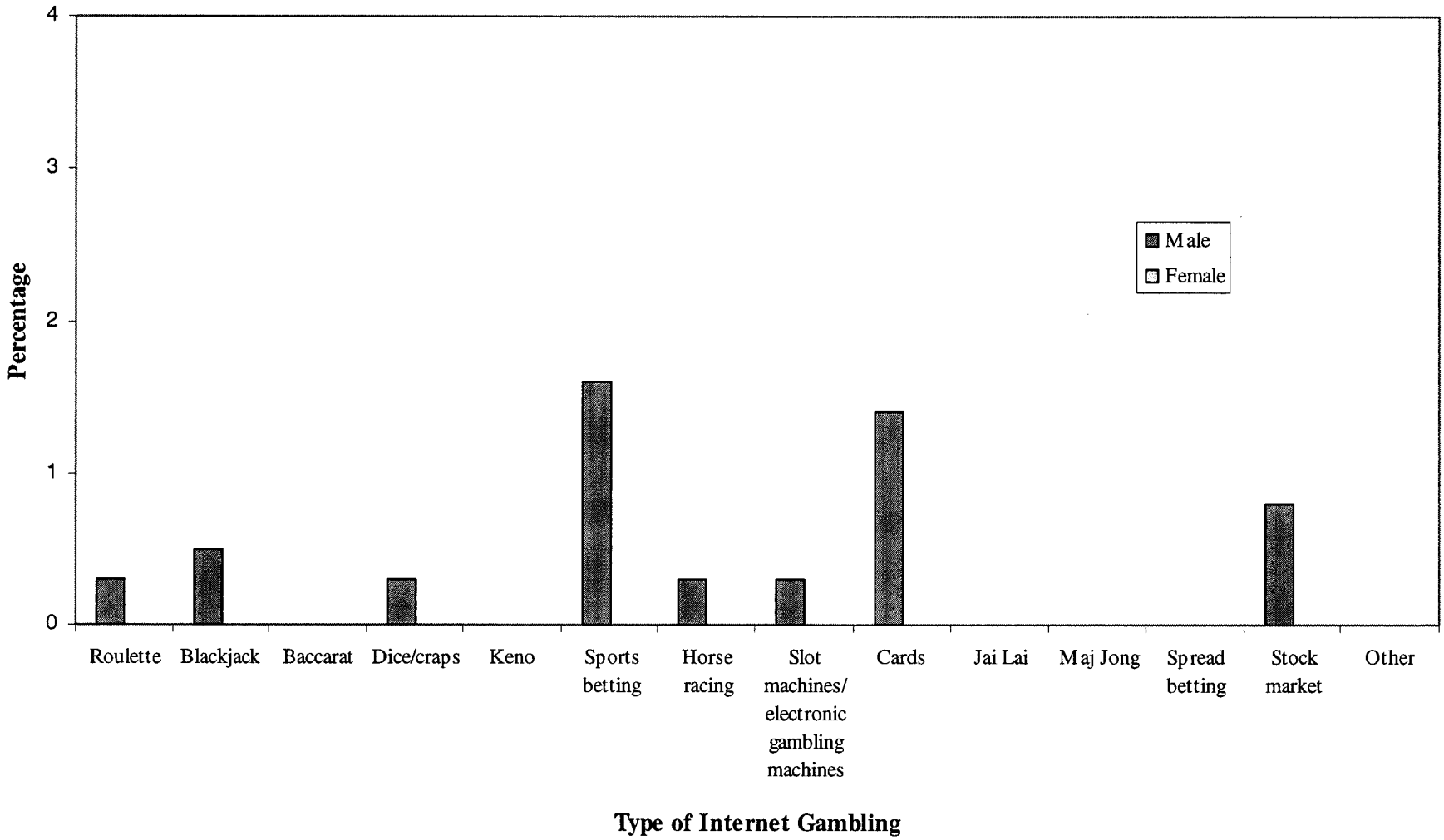

Figure 12. Weekly Internet gambling with money among participants aged 18-24 years in past 12 months by gender.

Internet Gambling and Gambling Severity

Gambling severity was examined with respect to participation in Internet gambling. Of a total of 80 Internet Gamblers (individuals who reported gambling on the Internet with money at least once in the past 12 months), 22.5% were classified as At-Risk Gamblers and 18.8% were classified as Probable Pathological Gamblers (see Table 26). Although differences in sample size make comparisons difficult, it is worth noting that among participants who reported non-Internet gambling in the past 12 months (n = 1815), 9.2% were classified as At-Risk Gamblers and 4.8% were classified as Probable Pathological Gamblers.

Table 26

Gambling Severity Among Internet Gamblers by Gender and Age Group

		Gambling Severity[1]		
	N	Social[a] (*n* = 47)	At-Risk[b] (*n* = 18)	Probable Pathological[c] (*n* = 15)
Gender				
Male	57	54.4	21.1	24.6
Female	23	69.6	26.1	4.3
Age Group**				
12-13	7	42.9	42.9	14.3
14-15	20	20.0	45.0	35.0
16-17	28	64.3	14.3	21.4
18-20	24	87.5	8.3	4.2
21-24	1	100.0	-	-
Total	80	58.8	22.5	18.8

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
**$p < .05$.

No significant gender differences among gambling severity groups were found for participation in Internet gambling. However, differences among gambling severity groups for participation in Internet gambling with respect to age were significant [$\chi^2(8, N = 80) = 24.13, p < .05$] with 14-15 year olds showing the largest proportion of Probable Pathological Gamblers.

To further explore differences among age groups, male and female Internet gamblers were examined with respect to gambling severity (see Table 27). Among male participants who reported some Internet gambling with money in the past 12 months, the largest proportion of At-Risk Gamblers were aged 12-13 years (50.0%) and the largest proportion of Probable Pathological Gamblers were aged 14-15 years (42.9%) (see Table 27). Differences in male Internet gamblers among age groups with respect to gambling severity were significant, $\chi^2(8, N = 57) = 23.13, p < .05$, with an overall trend toward younger participants having greater problems with gambling.

Among female participants who reported some Internet gambling with money in the past 12 months, the largest proportion of At-Risk Gamblers were aged 14-15 years (50.0%). Only one female Internet gambler was classified as a Probable Pathological Gambler, and this participant was aged 14-15 years. Differences in female Internet gamblers among age groups with respect to gambling severity were not statistically significant, possibly due to the relatively small overall sample size.

Table 27

Gambling Severity Among Male and Female Internet Gamblers by Age Group

	Gambling Severity[1]					
	Males**			Females		
	Social[a] (n = 31)	At-Risk[b] (n = 12)	PPG[c] (n = 14)	Social[a] (n = 16)	At-Risk[b] (n = 6)	PPG[c] (n = 1)
Age Group						
12-13	33.3	50.0	16.7	100.0	-	-
14-15	14.2	42.9	42.9	33.3	50.0	16.7
16-17	55.6	11.1	33.3	80.0	20.0	-
18-20	88.8	5.6	5.6	83.3	16.7	-
21-24	100.0	-	-	-	-	-

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
**$p < .05$.

Differences between younger Internet gamblers and older Internet gamblers were examined separately for males and females (see Tables 28 and 29). Significant differences in gambling severity were found between younger male Internet gamblers and older male Internet gamblers, $\chi^2(2, N = 57) = 14.15, p < .05$ (see Table 28). For example, while 5.3% of older male Internet gamblers were classified as Probable Pathological Gamblers, 34% of younger male Internet gamblers were classified as Probable Pathological Gamblers.

Differences between older and younger female Internet gamblers with respect to gambling severity were not statistically significant (see Table 29). However, there was an overall trend toward more gambling problems among younger participants.

Table 28

Gambling Severity Among Male Internet Gamblers Below and Above 18 Years of Age

	N	Gambling Severity[1]		
		Social[a] (n = 31)	At-Risk[b] (n = 12)	PPG[c] (n = 14)
Age Group**				
Under 18	38	36.8	28.9	34.2
18 and above	19	89.5	5.3	5.3

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
**$p < .05$.

Table 29

Gambling Severity in Female Internet Gamblers Below and Above 18 Years of Age

	N	Gambling Severity[1]		
		Social[a] (n = 16)	At-Risk[b] (n = 6)	PPG[c] (n = 1)
Age Group				
Under 18	17	64.7	29.4	5.9
18 and above	6	83.3	16.7	-

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).

Conversely, among the total number of Probable Pathological Gamblers in the entire sample (n = 54), 27.8% reported gambling on the Internet with money in the past 12 months, whereas proportionately fewer At-Risk Gamblers (17.3%) and Social Gamblers (4.4%) reported any on-line gambling. A greater proportion of younger At-Risk Gamblers and Probable Pathological Gamblers reported past year Internet gambling

with and without money compared to older At-Risk and Probable Pathological Gamblers (see Table 30).

Table 30

Gambling Severity by Participation in Internet Gambling With and Without Money in Participants Below and Above 18 Years of Age

	Past Year Participation[1]			
	Under 18		18 and Above	
	Without Money	With Money	Without Money	With Money
Severity				
Social[a]	49.5	5.0	34.5	4.0
At-Risk[b]	58.5	19.5	59.1	9.1
PPG[c]	63.4	34.1	46.2	7.7

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).

Gambling severity was examined separately for males and females who reported gambling on the Internet with money in the past 12 months (see Figures 13 and 14). Because the number of At-Risk (n = 18) and Probable Pathological Gamblers (n = 15) was relatively small, past year participation in Internet gambling activities was not analyzed independently for younger and older individuals.

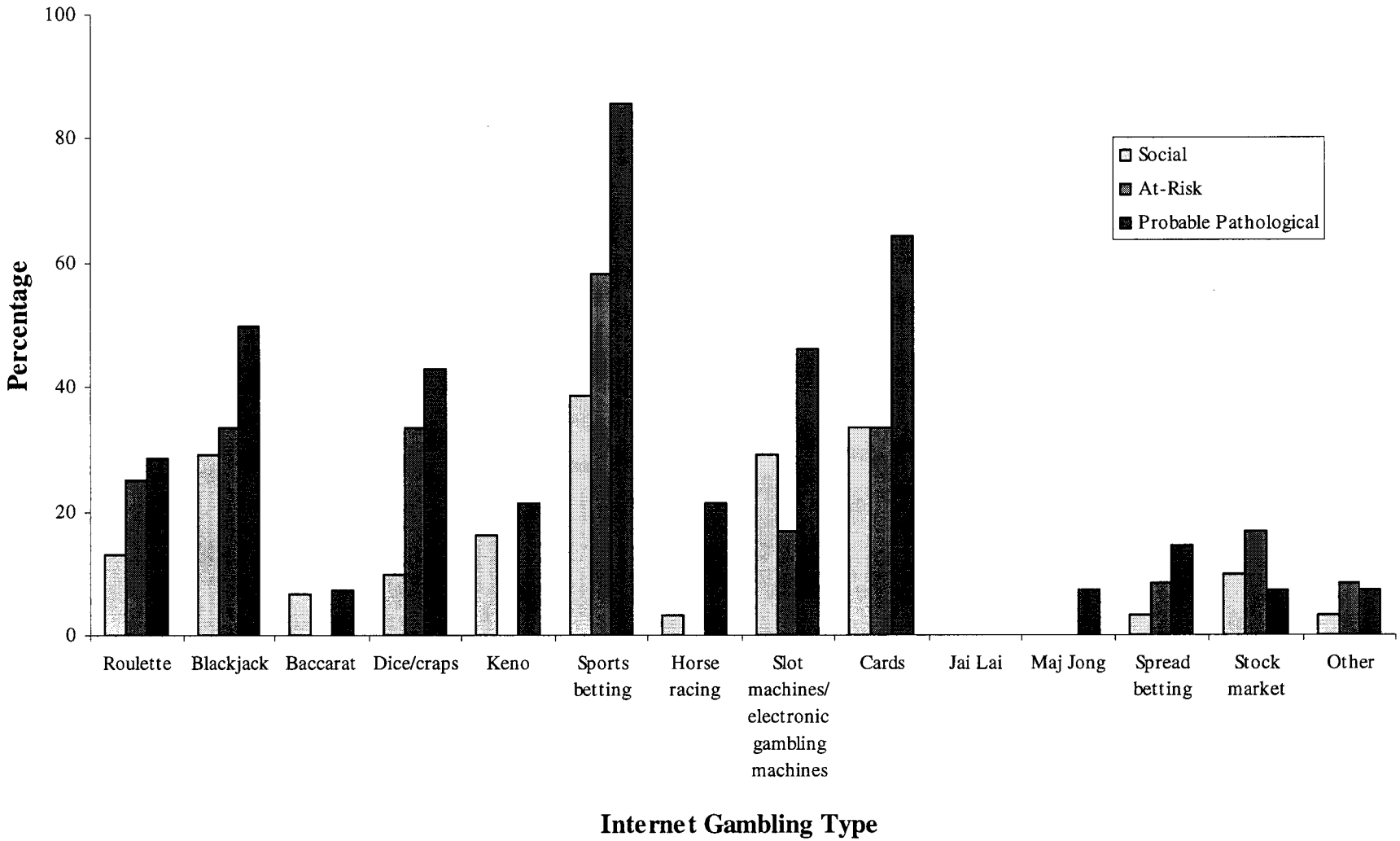

Figure 13. Participation in Internet gambling among male Internet gamblers by gambling severity.

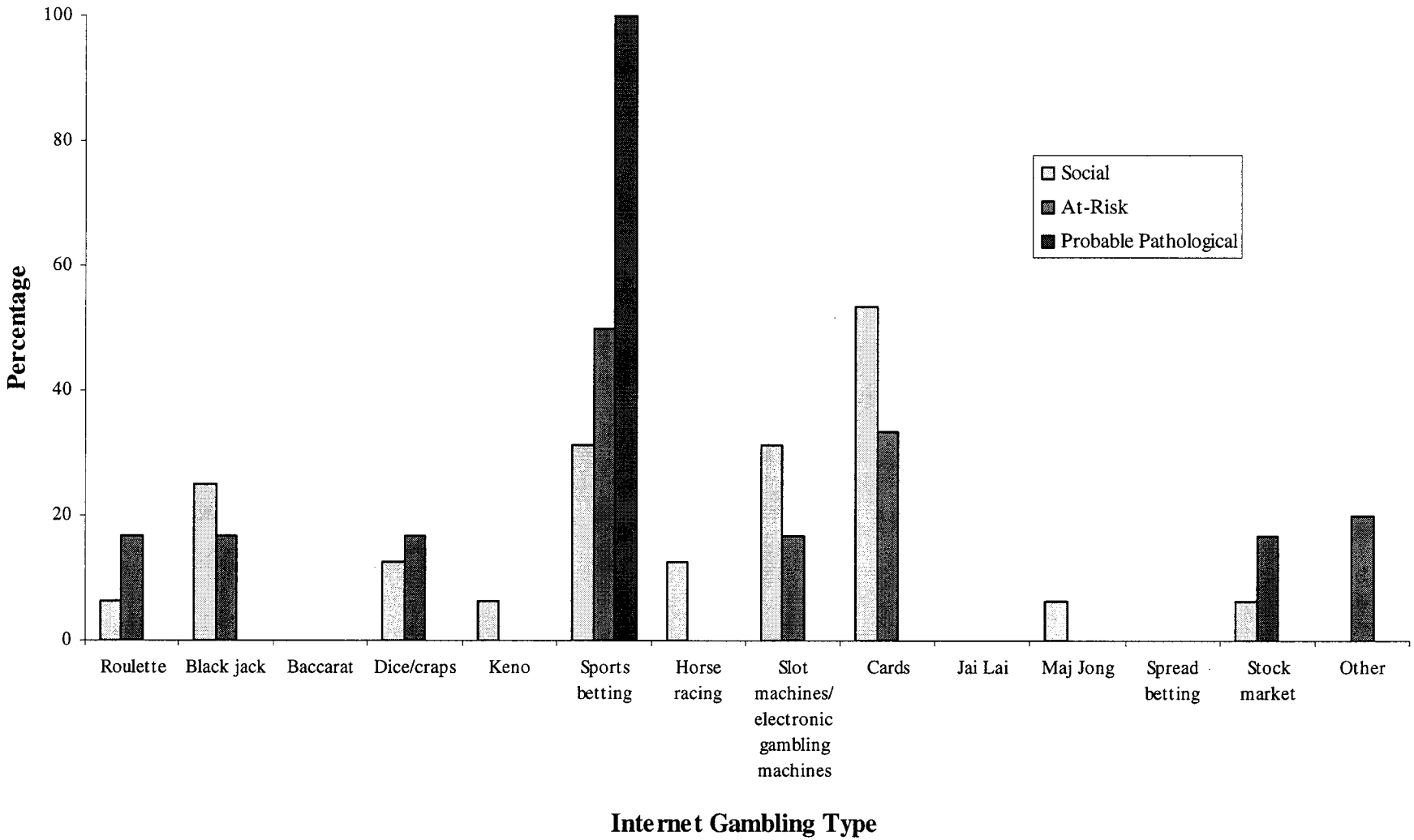

Figure 14. Participation in Internet gambling among female Internet gamblers by gambling severity.

Among male Social Gamblers who reported past year participation in Internet gambling without money, the most popular Internet gambling activities were sports betting (38.7%), cards (33.3%), and blackjack (29.0%) (see Figure 13). Among male At-Risk Gamblers, the most popular Internet gambling activities were sports betting (58.3%), blackjack (33.3%), dice/craps (33.3%), and cards (33.3%). Finally, among male Probable Pathological Gamblers, the most popular Internet gambling activities were sports betting (85.7%), cards (64.3%), and blackjack (50.0%).

Among females who reported Internet gambling with money in the past 12 months, the most popular Internet gambling activities for Social Gamblers were cards (53.3%), sports betting (31.3%), and slot machines or other electronic gambling machines (31.3%) (see Figure 14). For female At-Risk Gamblers, the most popular forms of gambling on the Internet were sports betting (50.0%), cards (33.3%), roulette (16.7%), blackjack (16.7%), dice/craps (16.7%), slot machines or other electronic gambling machines (16.7%), and the stock market (16.7%). Although realistically no conclusions can be drawn based on a sample of 1, it is worth noting that the only female Probable Pathological Gambler in the sample who reported Internet gambling in the past 12 months had engaged in sports betting on the Internet.

Among male and female At-Risk and Probable Pathological Gamblers who reported gambling on-line in the past 12 months, sports betting was the most popular activity. This was also the case for weekly play, with 57.1% of male Internet gamblers reporting weekly participation in on-line sports betting compared to 25% of male At-Risk Gamblers and 9.7% of male Social Gamblers. Weekly participation in Internet gambling activities with respect to gambling severity closely resembled past year participation for

male Internet gamblers, with more participants endorsing sports betting, cards, and blackjack compared to any other form of Internet gambling. However, only 1 female Social Gambler, 1 At-Risk female Gambler, and 1 female Probable Pathological Gambler reported weekly participation in any Internet gambling activity, limiting the utility of analyzing weekly participation in Internet gambling activities independently for males and females.

Differences in frequencies of male and female Social, At-Risk, and Probable Pathological Gamblers who report past year participation in Internet sports betting are depicted in Figure 15.

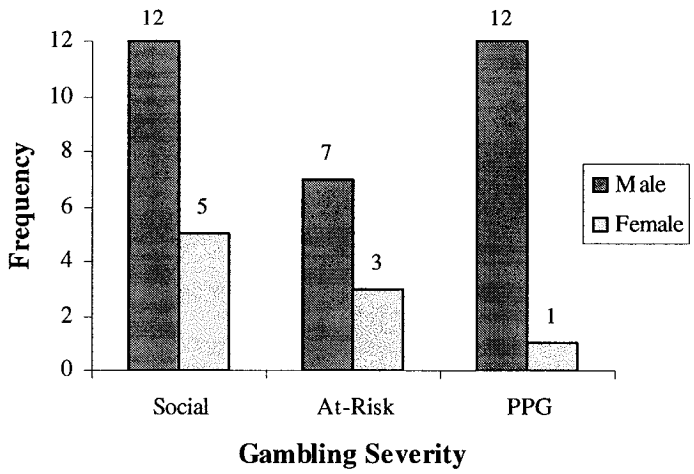

Figure 15. Frequency of on-line sports betting in past 12 months by gambling severity.

Card playing was the second most popular Internet gambling activity for At-Risk and Probable Pathological Gamblers who reported Internet gambling with money in the past 12 months. Among At-Risk Gamblers, 33.3% of males and 33.3% of females reported that they had engaged in Internet card games for money, while among Probable Pathological Gamblers, 64.3% of males reported that they had engaged in Internet card games for money (see Figure 16 for a frequency distribution).

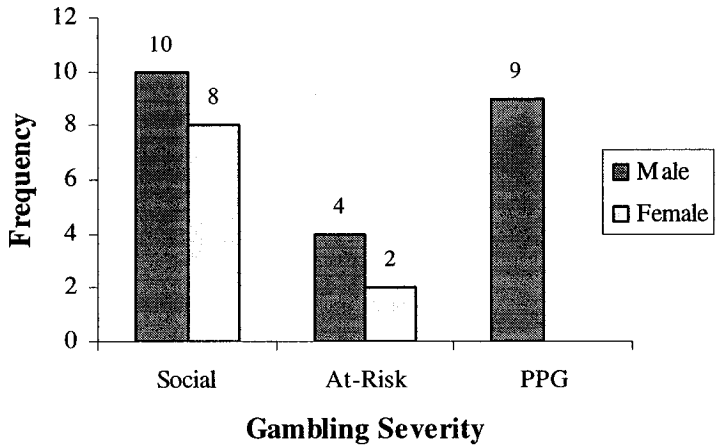

Figure 16. Frequency of on-line card playing in past 12 months by gambling severity.

Age of Onset for Internet Gambling With Money

Of the 149 individuals who reported having gambled on the Internet, 30.9% reported that their first Internet gambling experience occurred between the ages of 14 and 15 years (see Table 31).

Table 31

Age of Onset for Internet Gambling With Money by Age Group

		Age of Onset for Internet Gambling Without Money[1]						
	N	< 10	10-11	12-13	14-15	16-17	18-20	21-24
Age Group***								
12-13	12	33.3	33.3	33.3	-	-	-	-
14-15	34	17.6	14.7	29.4	38.2	-	-	-
16-17	47	8.5	6.4	21.3	34.0	29.8	-	-
18-20	51	-	-	3.9	33.3	25.5	37.3	-
21-24	5	-	-	-	-	-	80.0	20.0
Total	149	9.4	8.1	17.4	30.9	18.1	15.4	.7

[1]Percentage.
***$p < .001$

The median age of onset for Internet gambling for money was 14-15 years, compared to 12-13 years for Internet gambling without money (see Figure 17). Interestingly, similar proportions of respondents in both groups reported commencing on-line gambling before the age of 10 (9.2% for Internet gambling without money, and 9.3% for Internet gambling with money).

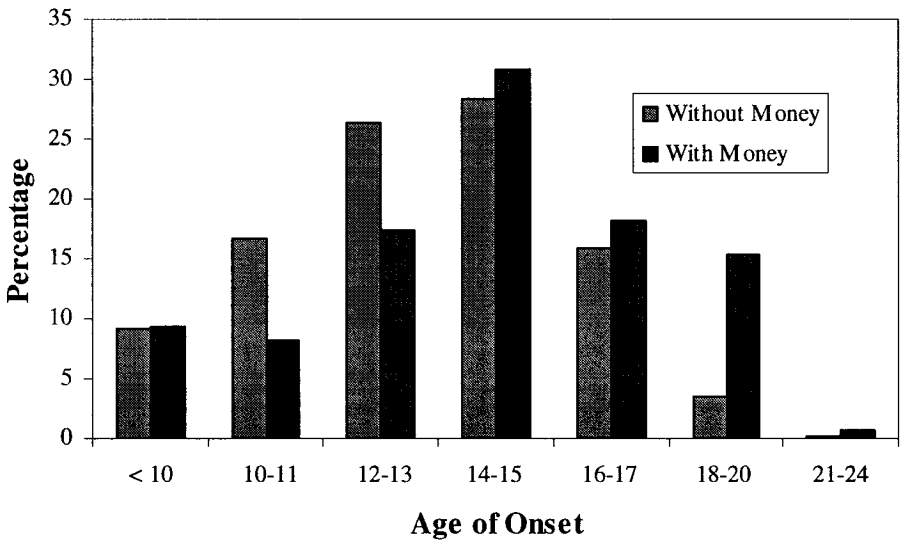

Figure 17. Age of first experience gambling on the Internet with or without money.

Almost half of all participants who reported having visited an Internet gambling site (47.7%) indicated that the very first time they visited a gambling site was the result of being solicited by a pop-up advertisement while on a site unrelated to gambling (see Appendix C for examples of on-line advertising for Internet gambling sites). The second most endorsed reason for visiting an Internet gambling site was because "a friend recommended it" (23.9%) (see Table 32). Another 13.3% reported that they saw an advertisement on the Internet encouraging them to visit a gambling site, while 6.3% reported that while surfing the Internet, they decided to search for a gambling site. A smaller proportion of individuals decided to visit an Internet gambling site after receiving

a promotion such as a free CD-ROM (1.2%) or after seeing an advertisement in a magazine, on television, or on a poster (.7%). Reported reasons for visiting an Internet gambling site for the first time were examined with respect to gambling severity (see Table 32).

Table 32

Reasons For Visiting an Internet Gambling Site for the First Time by Gambling Severity

		Reported Reason for First-Time Visit[1]					
	N	Saw pop-up ad	Decided to search for site	Friend told me	Saw ad on Internet	Saw ad else-where	Promo
Severity**							
Non[a]	117	49.6	.9	18.8	14.5	.9	1.7
Social[b]	370	48.6	7.3	24.3	12.2	.8	1.4
At-Risk[c]	57	47.4	8.8	24.6	14.0	-	-
PPG[d]	26	26.9	11.5	38.5	23.1	-	-
Total	570	47.7	6.3	23.9	13.3	.7	1.2

[1]Percentage.
[a]No non-Internet gambling activity in past 12 months
[b]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[c]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[d]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
**$p < .05$.

Compared to Non-Gamblers (49.6%), Social Gamblers (48.6%), and At-Risk Gamblers (47.4%), a smaller proportion Probable Pathological Gamblers (26.9%) reported that they had visited their first Internet gambling site after being solicited by a pop-up advertisement while visiting a site unrelated to gambling. However, a greater proportion of Probable Pathological Gamblers reported that they first visited an Internet gambling site because a friend recommended it (38.5%), they saw an advertisement on the Internet for on-line gambling (23.1%), or they decided to search for an on-line

gambling site (11.5%). Differences with respect to gambling severity in reported reasons for visiting an Internet gambling site for the first time were significant, $\chi^2(18, N = 570) = 29.32, p < .05$.

Internet Gambling With Others

Participants were asked to indicate with whom they gambled on the Internet in the past 12 months (if applicable). Participants selected from a list of possible individuals and could endorse more than one item (see Table 33). Among individuals who reported some Internet gambling ($n = 97$), 47.4% reported that they usually gambled on the Internet with their friends. Interestingly, females were significantly more likely to report gambling with their parents [$\chi^2(1, N = 97) = 12.32, p < .001$] and siblings or relatives [$\chi^2(1, N = 97) = 12.32, p < .05$] compared to males.

Table 33

Usual Internet Gambling Partner(s) by Gender and Age Group

		Usual Internet Gambling Partner(s)[1]					
	N	Alone	Friends	Parents	Siblings/ Relatives	Co-Workers	Strangers
Gender							
Male	70	42.9	48.6	2.9	7.1	5.7	17.1
Female	27	25.9	44.4	25.9	22.2	11.1	14.8
Age Group							
12-13	9	22.2	66.7	11.1	22.2	11.1	11.1
14-15	23	34.8	56.5	8.7	17.4	-	21.7
16-17	32	31.3	43.8	9.4	3.1	12.5	18.8
18-20	30	50.0	43.3	10.0	13.3	6.7	10.0
21-24	3	66.7	-	-	-	-	33.3
Total	97	38.1	47.4	9.3	11.3	7.2	16.5

[1]Percentage.

Although overall, no significant differences were found with respect to age groups, a larger proportion of participants under the age of 18 reported gambling on the Internet with friends (51.6%) compared to older participants (39.4%) (see Table 34). Conversely, a smaller proportion of younger participants reported gambling on the Internet alone (31.3%) compared to older participants (51.5%).

Table 34

Usual Internet Gambling Partner(s) Below and Above 18 Years of Age

		Usual Internet Gambling Partner(s)[1]					
	N	Alone	Friends	Parents	Siblings/ Relatives	Co-Workers	Strangers
Age Group							
Under 18	64	31.3	51.6	9.4	10.9	7.8	18.8
18 Years and Above	33	51.5	39.4	9.1	12.1	6.1	12.1
Total	97	38.1	47.4	9.3	11.3	7.2	16.5

[1]Percentage.

Responses among those participants who reported gambling on the Internet were examined with respect to gambling severity (see Table 35). Compared to Social Gamblers (42.6%), a greater proportion of At-Risk (61.1%) and Probable Pathological Gamblers (48.8%) reported that they usually gambled on the Internet with their friends. Probable Pathological Gamblers who had gambled on the Internet in the past year were also more likely to report gambling on the Internet with strangers (40.0%) compared to Social (8.5%) and At-Risk Gamblers (5.6%), $\chi^2(2, N = 80) = 10.82, p < .05$.

Table 35

Usual Internet Gambling Partner(s) by Gambling Severity

		Usual Internet Gambling Partner(s)[1]					
	N	Alone	Friends	Parents	Siblings/ Relatives	Co-Workers	Strangers
Severity							
Social[a]	47	38.3	42.6	10.6	12.8	8.5	8.5
At-Risk[b]	18	33.3	61.1	16.7	16.7	11.1	5.6
PPG[c]	15	40.0	53.3	6.7	6.7	6.7	40.0
Total	80	37.5	48.8	11.3	12.5	8.8	13.8

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).

Internet Gambling Location(s)

Participants indicated where they had used a computer or cell phone to gamble on the Internet with money in the past 12 months (if applicable). A list of possible locales were provided and participants were informed that they could endorse more than one item (see Table 36). The overwhelming majority (80.4%) reported that they usually gambled on the Internet at home. There were no significant differences in choice of location(s) for Internet gambling with respect to gender or age groupings.

Both At-Risk Gamblers (22.2%) and Probable Pathological Gamblers (33.3%) were more likely to report engaging in Internet gambling at school compared to Social Gamblers (6.4%), $\chi^2(2, N = 80) = 7.43, p < .05$ (see Table 37). There were also significant differences among gambling severity groups with respect to on-line gambling at work, $\chi^2(2, N = 80) = 6.76, p < .05$, with fewer Social Gamblers (2.1%) reported gambling on the Internet at work compared to At-Risk Gamblers (16.7%). No Probable

Pathological Gamblers reported on-line gambling at work, perhaps because most were high school students and were less likely to be holding part-time jobs compared to CEGEP and university students.

Table 36

Usual Internet Gambling Location(s) by Gender and Age Group

		Usual Internet Gambling Location(s)[1]					
	N	At home	At work	At a friend's house	At school	At an Internet café	Cellular phone
Gender							
Male	70	75.7	5.7	30.0	10.0	2.9	5.7
Female	27	92.6	7.4	29.6	22.2	3.7	14.8
Age Group							
12-13	9	100.0	-	44.4	44.4	-	-
14-15	23	78.3	8.7	47.8	13.0	4.3	17.4
16-17	32	75.0	3.1	21.9	9.4	3.1	12.5
18-20	30	80.0	6.7	23.3	10.0	3.3	-
21-24	3	100.0	33.3	-	-	-	-
Total	97	80.4	6.2	29.9	13.4	3.1	8.2

[1]Percentage.

Method(s) of Payment

More on-line gamblers reported that they had used a personal credit card to pay for their Internet gambling in the past 12 months (24.7%) compared to any other method of payment (see Table 38). A number of participants reported that they had used their debit card (14.4%) or on-line bank transfers (13.4%) in order to finance their Internet gambling.

Table 37

Usual Internet Gambling Location(s) by Gambling Severity

		Usual Internet Gambling Location(s)[1]					
	N	At home	At work	At a friend's house	At school	At an Internet café	Cellular phone
Severity							
Social[a]	47	80.9	2.1	29.8	6.4	-	4.3
At-Risk[b]	18	88.9	16.7	27.8	22.2	-	22.2
PPG[c]	15	86.9	-	46.7	33.3	6.7	13.3
Total	80	83.8	5.0	32.5	15.0	1.3	10.0

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).

Table 38

Method(s) of Payment for Internet Gambling Below and Above 18 Years of Age

		Method(s) of Payment[1]					
	N	Personal credit card	Family credit card, consent	Family credit card, no consent	Debit card/ ATM	Personal cheque	Wire/ bank transfer
Age Group							
Under 18	64	18.8	9.4	7.8	12.5	9.4	7.8
18 and Above	33	36.4	15.2	-	18.2	9.1	24.2
Total	97	24.7	11.3	5.2	14.4	9.3	13.4

[1]Percentage.

Family credit cards were also employed, with 11.3% of individuals reporting having used a family member's credit card *with* permission and 5.2% reporting using a family member's credit card *without* permission.

Internet Gambling Wagers

Participants who reported Internet gambling with money in the past 12 months indicated the average amount of money spent each time they gambled on the Internet (see Table 39). More than half of all Internet gamblers (52.8%) reported average wagers of $25 or less per Internet gambling session. No significant differences were found between males and females or between age groups.

Table 39

Average Amount of Money Spent Internet Gambling by Gender and Age Group

		Average Amount of Money Spent[1]				
	N	< $25	$25 - $50	$50 - $100	$100-$500	> $500
Gender						
Male	53	56.6	13.2	3.8	9.4	17.0
Female	19	42.1	21.1	21.1	10.5	5.3
Age Group						
12-13	7	42.9	28.6	-	14.3	14.3
14-15	20	55.0	10.0	10.0	-	25.0
16-17	17	47.1	23.5	11.8	5.9	11.8
18-20	26	53.8	11.5	7.7	19.2	7.7
21-24	2	100.0	-	-	-	-
Total	72	52.8	15.3	8.3	9.7	13.9

[1]Percentage.

With respect to gambling severity, proportionately fewer Probable Pathological Gamblers (30.8%) reported wagering small amounts of money (less than $25) per Internet gambling session compared to At-Risk Gamblers (47.1%) and Social Gamblers (53.3%) (see Table 40). A larger proportion of Probable Pathological Gamblers (38.5%) reported spending $500 or more each session compared to At-Risk Gamblers (11.8%)

and Social Gamblers (3.3%). Differences with respect to gambling severity in average amount of money spent per Internet gambling session approached but did not reach statistical significance.

Table 40

Average Amount of Money Spent Internet Gambling by Gambling Severity

		Average Amount of Money Spent[1]				
	N	< $25	$25 - $50	$50 - $100	$100-$500	> $500
Severity						
Social[a]	30	53.3	16.7	13.3	13.3	3.3
At-Risk[b]	17	47.1	29.4	-	11.8	11.8
PPG[c]	13	30.8	7.7	15.4	7.7	38.5
Total	60	46.7	18.3	10.0	11.7	13.3

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).

Appeal of Internet Gambling

Participants were asked to indicate why they chose to gamble on the Internet as opposed to another venue (if applicable). They selected from a list of reasons why a person might prefer to gamble on the Internet and asked to choose any answers that applied to them (see Table 41 for items). Responses indicated that the most frequently endorsed reasons for gambling on the Internet were 24-hour accessibility (36.1%), high speed play (29.9%), never having to leave the house to play (29.9%), competition (28.9%), privacy (22.6%), convenience (21.6%), and good odds (20.6%).

Table 41

Appeal of Internet Gambling Among Internet Gamblers by Gambling Severity

	Gambling Severity[1]		
	Social[a] (n = 47)	At-Risk[b] (n = 18)	PPG[c] (n = 15)
Reasons for Internet Gambling			
24-hour accessibility	36.2	38.9	33.3
Graphics	12.8	5.6	20.0
Realistic-looking games	17.0	11.1	6.7
Sex appeal	8.5	11.1	20.0
Game diversity	19.1	5.6	13.3
High speed play	27.7	27.8	33.3
Bonuses	8.5	22.2	26.7
Competition**	21.3	33.3	60.0
Convenience	23.4	16.7	20.0
Privacy	25.5	16.7	33.3
Anonymity	14.9	-	20.0
Less intimidating than a real casino	8.5	5.6	13.3
Easier to hide gambling from others	6.4	22.2	13.3
Don't need to leave the house to play	27.7	27.8	40.0
Good odds	19.1	27.8	33.3
Fair/reliable payouts	10.6	22.2	33.3
Other	8.5	-	6.7

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
**$p < .05$.

Among Social and At-Risk Gamblers, the most commonly endorsed reason for choosing Internet gambling was 24-hour accessibility (see Table 41). This was not the case among Probable Pathological Gamblers. A greater proportion of Probable Pathological Gamblers endorsed competition (60.0%) and not needing to leave the house

to play (40.0%). As well, equal numbers of Probable Pathological Gamblers endorsed 24-hour accessibility, high speed play, privacy, good odds, and fair/reliable payouts. Interestingly, proportionately fewer At-Risk Gamblers (5.6%) endorsed graphics as a reason for gambling on the Internet compared to both Social Gamblers (12.8%) and Probable Pathological Gamblers (20.0%). For most items, however, there was a trend toward increasing endorsement from Social to At-Risk to Probable Pathological Gamblers.

Significant differences among gambling severity groups were found for competition, with more Probable Pathological Gamblers endorsing competition (60.0%) compared to Social Gamblers (21.3%) and At-Risk Gamblers (33.3%), $\chi^2(2, N = 80) = 7.99, p < .05$. Differences among gambling severity groups with respect to the 8 most frequency endorsed reasons for Internet gambling are depicted in Figure 18.

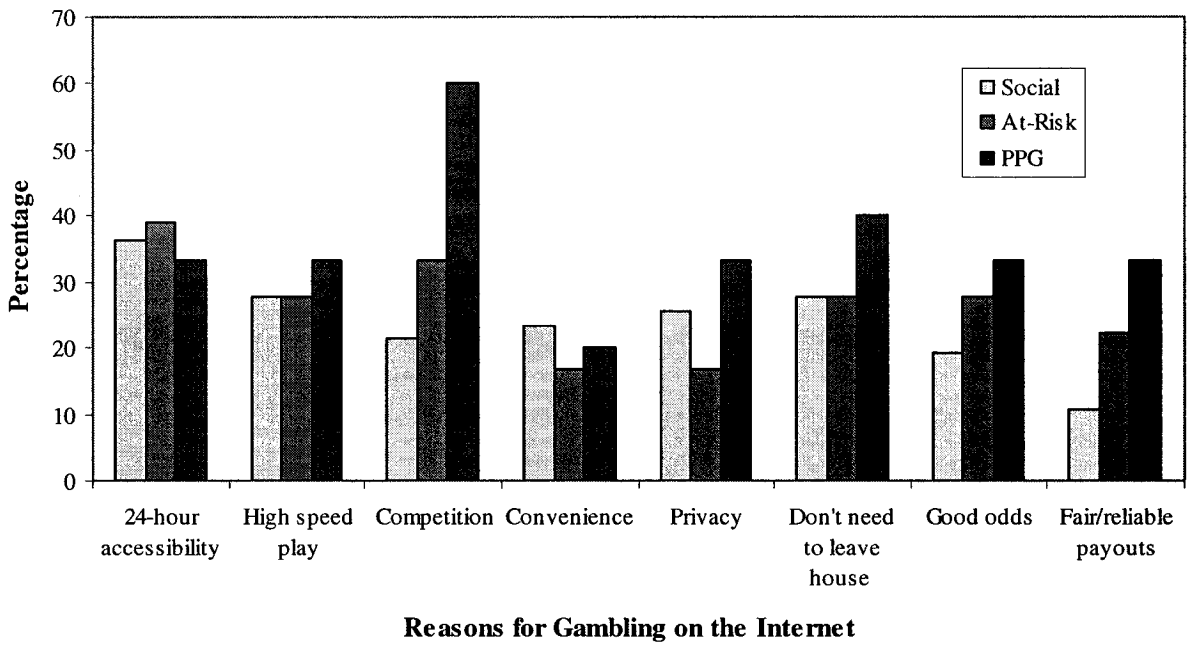

Figure 18. Top 8 reasons for gambling on the Internet according to Internet gamblers by gambling severity.

Internet Gambling With and Without Money: A Comparison

Participants who reported Internet gambling without money in the past 12 months were examined with respect to Internet gambling with money (see Table 42). A total of 10.6% of participants who reported Internet gambling without money also reported gambling on the Internet with money in the past 12 months. Significantly more males (17.2%) who reported past year participation in Internet gambling without money also reported participation in Internet gambling with money, $\chi^2(1, N = 2087) = 28.32, p < .001$.

Table 42

Internet Gambling With Money Among Participants Reporting Some Internet Gambling Without Money in Past 12 Months by Gender

		Participation in Internet Gambling With Money in Past 12 Months[1]	
	N	Yes	No
Gender***			
Male	344	17.2	82.8
Female	420	5.2	94.8
Total	764	10.6	89.4

[1]Percentage.
***$p < .001$.

Participants who reported Internet gambling with money in the past 12 months were also examined with respect to Internet gambling without money (see Table 43). At least 4 out of every 5 participants who reported past year participation in Internet gambling with money also reported Internet gambling without money. No significant differences were found between male and female Internet gamblers for past year participation in Internet gambling without money.

Table 43

Internet Gambling Without Money Among Participants Reporting Some Internet Gambling With Money in Past 12 Months by Gender

		Participation in Internet Gambling Without Money in Past 12 Months[1]	
	N	Yes	No
Gender			
Male	70	84.3	15.7
Female	27	81.5	18.5
Total	97	83.5	16.5

[1]Percentage.

Internet gamblers who also reported some Internet gambling without money (n = 76) were examined with respect to age of onset for Internet gambling with and without money. Median age of onset for Internet gambling without money was 12-13 years, while median age of onset for Internet gambling with money was 14-15 years (see Figure 19). Similar to Internet gambling without money, median age of onset for non-Internet gambling was 12-13 years.

Internet Gambling and Risk-Taking Behaviour

In order to better understand the profile of youth who gamble on the Internet, risk involvement was examined with respect to Internet gambling. Previous research has linked risk-taking behaviour to gambling in youth (Winters & Anderson, 2000). Risk-taking behaviour was measured using the Risk-Taking Questionnaire (RTQ) (Knowles, 1976).

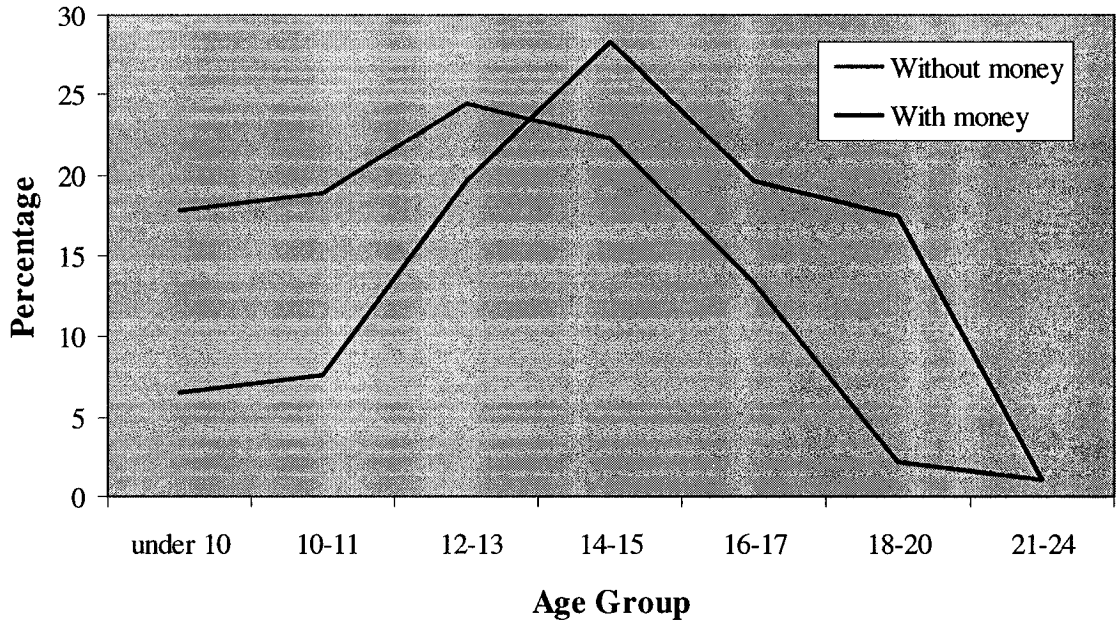

Figure 19. Age of onset for Internet gambling with and without money among Internet gamblers.

Global scores for the RTQ ($M = 50.7$, $SD = 11.93$) were recoded into three categories: a group comprised of the lowest 25% of scores (representing low risk involvement), a group comprised scores ranging from 25% to 75% (representing average risk involvement), and the top 25% of scores (representing high risk involvement).

Males were more likely to be classified as high risk-takers (32.5%) compared to females (19.1%), $\chi^2(2, N = 2077) = 68.52, p < .001$ (see Table 44). Differences in level of risk involvement were also significant with respect to age, with more individuals aged 14-15 years having reported high risk involvement (30.8%) compared to any other age group, $\chi^2(8, N = 2077) = 58.71, p < .001$.

Table 44

Level of Risk Involvement by Gender and Age Group

		Level of Risk Involvement[1]		
	N	Low (n = 539)	Average (n = 1022)	High (n = 516)
Gender***				
Male	886	18.6	48.9	32.5
Female	1191	31.4	49.5	19.1
Age Group				
12-13	157	45.2	37.6	7.2
14-15	338	22.8	46.4	30.8
16-17	610	22.8	50.5	26.7
18-20	767	23.3	51.8	24.9
21-24	205	35.6	49.3	15.1
Total	2077	26.0	49.2	24.8

[1]Percentage.
***$p < .001$.

Level of risk involvement was examined with respect to gambling severity (see Figure 20). Across categories, there was a trend toward higher levels of risk involvement among individuals reporting more gambling problems, $\chi^2(6, N = 1807) = 188.13, p < .001$. For example, among Non-Gamblers, the majority were classified as low or average risk, whereas among At-Risk and Probable Pathological Gamblers, the largest proportion of participants were classified as high risk. A moderately strong correlation was found for the 3 RTQ categories with gambling severity, $r = .296, p < .001$.

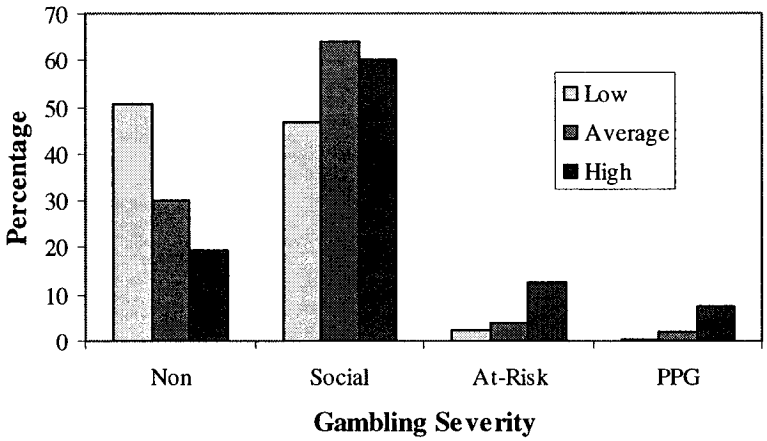

Figure 20. Level of risk involvement by gambling severity.

Risk classification was examined with respect to gambling severity in males and females separately (see Tables 45 and 46). Not surprisingly, for both male and female participants, risk involvement increased as gambling severity increased. A greater proportion of male At-Risk and Probable Pathological Gamblers were classified as high risk-taking compared to female At-Risk and Probable Pathological Gamblers.

Table 45

Level of Risk Involvement Among Males by Gambling Severity

		Risk Involvement[1]		
	N	Low (*n* = 153)	Average (*n* = 377)	High (*n* = 259)
Severity***				
Non	216	33.8	48.6	17.6
Social[a]	454	15.6	52.2	32.2
At-Risk[b]	73	11.0	27.4	61.6
PPG[c]	46	2.2	32.6	65.2
Total	789	19.4	47.8	32.8

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
***$p < .001$.

Table 46

Level of Risk Involvement Among Females by Gambling Severity

	N	Risk Involvement[1]		
		Low (n = 326)	Average (n = 495)	High (n = 197)
Severity***				
Non	378	44.7	41.8	13.5
Social[a]	601	25.5	53.2	21.3
At-Risk[b]	31	9.7	48.4	41.9
PPG[c]	8	12.5	25.0	62.5
Total	1018	32.0	48.6	19.4

[1]Percentage.
[a]DSM-IV score (0-2); DSM-IV-MR-J score (0-1).
[b]DSM-IV score (3-4); DSM-IV-MR-J score (2-3).
[c]DSM-IV score (≥ 5); DSM-IV-MR-J score (≥ 4).
***$p < .001$.

Participants who reported past year involvement in Internet gambling were significantly more likely to be classified as high risk-takers, $\chi^2(2, N = 2077) = 39.49, p < .001$ (see Figure 21). A larger proportion of high risk-taking individuals reported gambling on the Internet (51.5%) compared to low risk-taking individuals (10.4%).

Past year Internet gambling among male and female participants was examined with respect to risk involvement (see Tables 47 and 48). Similar proportions of male and female Non-Gamblers were classified as high risk-takers (12.0% and 11.0%, respectively). However, across all 3 gambling activities (non-Internet gambling, Internet gambling without money, and Internet gambling with money) there was a greater proportion of males classified as high risk compared to females.

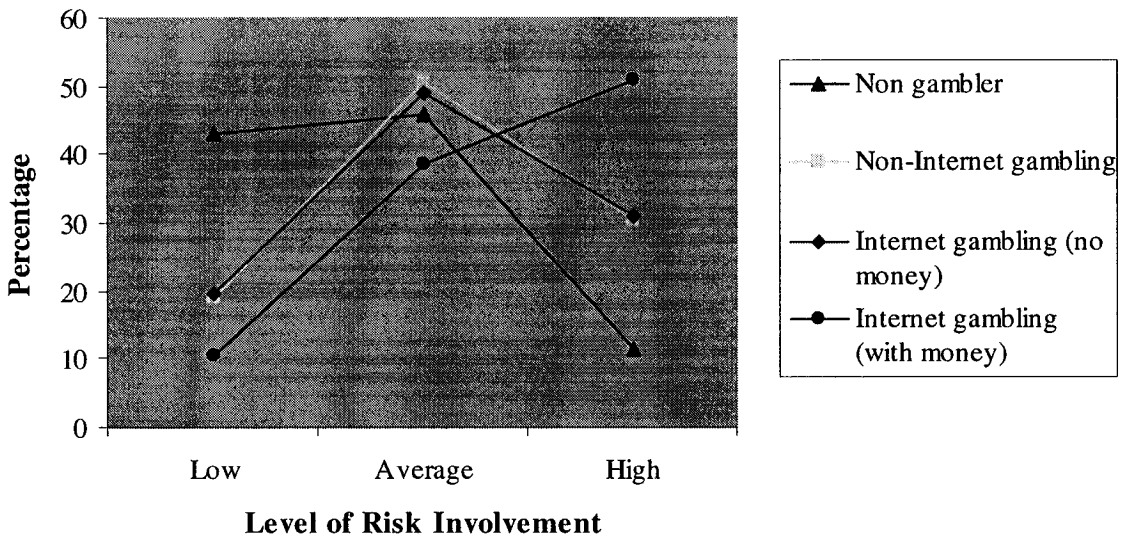

Figure 21. Level of risk involvement by participation in gambling activities.

Table 47

Internet Gambling Among Males in Past 12 Months by Risk-Taking Behaviour

	Level of Risk Involvement[1]		
	Low	Average	High
Type of Gambling Activity			
None	38.0	50.0	12.0
Non-Internet gambling	13.5	48.6	37.9
Internet gambling without money	12.9	47.7	39.5
Internet gambling with money	8.7	37.7	53.6

[1]Percentage.

Table 48

Internet Gambling Among Females in Past 12 Months by Risk-Taking Behaviour

	Level of Risk Involvement[1]		
	Low	Average	High
Type of Gambling Activity			
None	45.0	44.0	11.0
Non-Internet gambling	24.1	52.4	23.5
Internet gambling without money	25.1	50.4	24.6
Internet gambling with money	14.8	40.7	44.4

[1]Percentage.

Among males, more participants who reported some Internet gambling with money in the past 12 months were classified as high risk-takers (53.6%) compared to low risk-takers (8.7%) and average risk-takers (37.7%) (see Table 47). Similarly, more females who reported Internet gambling in the past 12 months were classified high risk-takers (44.4%) than low risk-takers (14.8%) or average risk-takers (40.7%) (see Table 48).

Across risk involvement categories, the proportion of male and female participants who reported non-Internet gambling in the past 12 months was similar to the proportion of participants who reported Internet gambling without money in the past 12 months (see Figure 22 for a graphical representation).

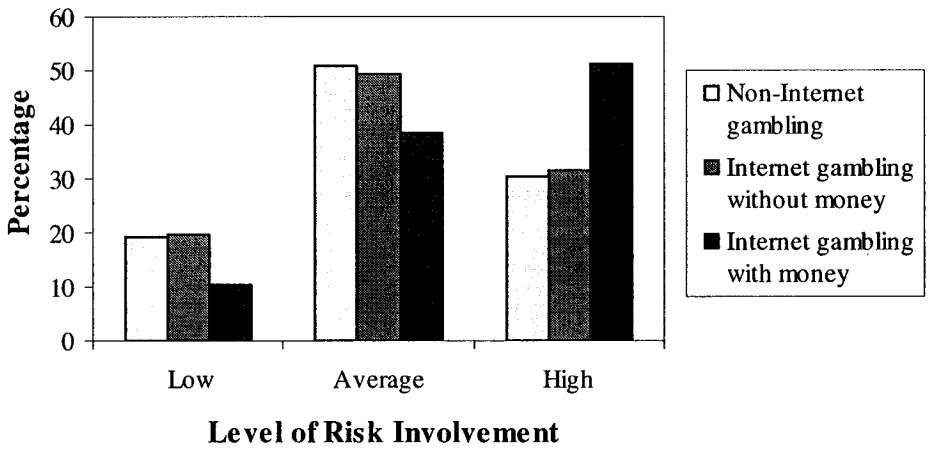

Figure 22. Participation in Internet gambling with or without money by risk involvement.

CHAPTER V

Discussion

The present study examined Internet gambling patterns and behaviours in a sample of males and females aged 12-24 years. Past year involvement in gambling activities, risk taking behaviour, and problem gambling were explored in relation to Internet gambling. As well, the structural characteristics of Internet gambling found to be particularly appealing to youth (e.g., type of gambling, game characteristics, etc.) were examined.

Prevalence of Problem Gambling

Overall, 70.9% of respondents reported having gambled for money in the past year, with significantly more males reporting gambling behaviour compared to females. These findings are consistent with previous research (Derevensky & Gupta, 2004; Jacobs, 2000, 2004; Felsher, Derevensky, & Gupta, 2004).

While many people regularly engage in recreational gambling activities without ever developing any gambling-related difficulties, a small percentage of individuals experience serious problems with gambling. Adolescents and young adults have been identified as being particularly vulnerable to the development of gambling problems as the prevalence rates of problem gambling among youth are approximately double those among adults (Derevensky, Gupta, & Winters, 2003; National Research Council, 1999).

The results of the current study suggest that 5.7% of participants were At-Risk for the development of a gambling problem and 3.0% were Probable Pathological Gamblers. Consistent with previous research findings (Jacobs, 2004), significantly more males were classified as Probable Pathological Gamblers (5.8%) compared to females (.8%).

Although overall, these prevalence rates are slightly lower than what might be expected for a youth gambling study, the present study utilized the most conservative measure of adolescent problem gambling in use today (Derevensky & Gupta, 2000a; Shaffer & Hall, 1996). The inclusion of CEGEP and university-age participants also lowered the overall prevalence of problem gambling. It is important to note that students who pursue post secondary studies are by no means a random sample of young adults and may share a set of specific qualities, competencies, and/or skills that have allowed them to excel academically. Further, problem gamblers may be more likely to drop out of school due to academic failure. CEGEP and undergraduate university programs typically require considerable amounts of time and energy, leaving little room for excessive gambling. Indeed, among participants under the age of 18, the rate of Probable Pathological gambling was 4.2% compared to 1.5% for participants 18 years of age and over.

Interestingly, when gambling severity was examined with respect to age in males and females, the largest proportion of male Probable Pathological Gamblers were aged 14-15 years, whereas the largest proportion of female Probable Pathological Gamblers were aged 12-13 years. This may be due to the fact that there were approximately double the number of youth aged 14-15 compared to youth aged 12-13. Whether these gender differences are noteworthy or simply a statistical anomaly will be a question for future research.

Internet Gambling Without Money

At least one third of youth may be gambling on the Internet without money, using free 'practice' sites where players can place bets in order to win tokens, points, prizes, or fake money. Although technically no money has been exchanged, Internet 'practice'

gambling is virtually indistinguishable from regular Internet gambling and may confer a similar appeal. The results of the current study suggest that 36.6% of participants had gambled on the Internet in the past 12 months without spending money. In contrast to other forms of gambling, there were no significant differences between males and females in terms of past year participation in Internet gambling without money, suggesting that this activity is popular among youth regardless of gender.

Consistent with the original hypotheses, a greater proportion of younger adolescents reported gambling on the Internet without money compared to older adolescents. Significantly more participants under the age of 18 reported gambling on the Internet without money compared to participants 18 years of age and older. This may be due to differences between high school students and students in CEGEP and university discussed earlier. It is important to note, however, that any divisions among youth below and above 18 years (the age of majority for gambling in Quebec) are arbitrarily applied to Internet gambling, since at present most Internet gambling is illegal in Canada with the exception of provincially owned enterprises (Kelley, Todosichuk, & Azmier, 2001).

Participants with gambling problems were much more likely to report past year Internet gambling without money. Compared to 41.6% of Social Gamblers, 58.7% of At-Risk Gamblers and 59.3% of Probable Pathological Gamblers reported Internet gambling without money in the past 12 months. Rates of participation were even higher for younger participants (under the age of 18), with 58.5% of At-Risk and 63.4% of Probable Pathological Gamblers reporting past year participation in Internet gambling with money. These rates are considerably higher than the rates obtained by Hardoon, Derevensky, and Gupta (2002), who found that 20% of At-Risk and 25% of Probable Pathological

Gamblers were gambling on the Internet without money. This may be partially due to the fact that Hardoon et al's sample, which consisted of youth below the age of 18 from the province of Ontario, was collected over 2 years ago. Two years later, youth are more Internet-savvy than before and may be engaging in Internet gambling without money at a higher rate. It is also possible that Hardoon et al.'s questionnaire did not adequately define Internet gambling without money, which may have resulted in an under-representation of the prevalence of Internet gambling without money. During data collection for the present study, many participants independent of age appeared confused about the idea of gambling without money. Many expressed surprise that gambling could include wagering for prizes, tokens, or any other symbolic object. To facilitate participant comprehension, the definition of Internet gambling without money was clearly explained before questionnaire administration.

More participants reported playing card games (e.g., poker), blackjack, and slot machines or other electronic gambling machines in the past 12 months compared to any other form of Internet gambling without money. However, for weekly play (once per week or more), the three most popular forms of Internet gambling without money were card games, sports betting, and blackjack, suggesting that occasional Internet gamblers were not playing the same games as participants who gambled regularly on the Internet without money. As frequency of Internet gambling without money increased, more participants reported engaging in card games and sports betting compared to other gambling activities. For example, among older participants, the most popular Internet gambling activity overall was lottery scratch cards/pull tabs, whereas for weekly play, the most commonly endorsed Internet gambling activity was card playing.

It appears, then, that for both non-Internet gambling and Internet gambling without money, card games (e.g., poker, blackjack, etc.) and sports betting are more popular among frequent gamblers compared to occasional gamblers. Interestingly, this finding corroborates recent reports about the growing popularity of on-line Internet gambling card games such as poker among young people (Strasser, 2004). Why card games and sports betting are so popular remains to be explored. It may be that the familiarity of these two activities make cards and sports betting more appealing to youth. Card games, for example, are generally accessible to youth from a very early age, unlike many casino games such as keno and baccarat. As well, youth are likely to have had a great deal of prior exposure to sporting events on television, where viewers typically support for one team or another. It is possible that familiarity may ease the transition from real life to the virtual world of the Internet.

Internet Gambling With Money

A relatively small number of participants reported Internet gambling with money (4.6%), with significantly more males reporting gambling on the Internet (7.8%) compared to females (2.3%), and significantly more participants under the age of 18 (5.8%) reporting on-line gambling compared to older participants (3.4%). These numbers are slightly higher than those found by Chevalier, Deguire, Gupta, and Derevensky (2003), who reported that 3.7% of high school students had gambled on the Internet in the past year. However, rates for the current study are similar to rates found by other researchers working with adults populations (Ialomiteanu & Adlaf, 2001; Ladd & Petry, 2002).

Although overall the rate of Internet gambling may seem inconsequential, characteristics of this group suggest that individuals who gamble on the Internet may be at a much greater risk for the development of a gambling problem. More Internet gamblers were identified as At-Risk or Probable Pathological Gamblers compared to both non-Internet gamblers and those who reported Internet gambling without money. The preponderance of Internet gamblers with gambling problems may be due to the fact that Internet gambling is attractive to individuals who already gamble. Such individuals may already be 'primed' to notice gambling-related activities due to frequent experiences gambling for money and thus might be more likely, for example, to notice an advertisement for an on-line gambling site. The current study found that compared to Non-Gamblers, Social Gamblers, and At-Risk Gamblers, Probable Pathological Gamblers were less likely to report that they accessed a 'pop-up' advertisement while on a site unrelated to gambling. They were, however, more likely to endorse a general statement indicating that they first visited an Internet gambling site because they saw an advertisement on the Internet (possibly implying that at the time, they were visiting a site related to gambling). It may be that heavy gamblers are already involved in gambling to such a degree that the transition to Internet gambling is a natural one.

Internet gambling also appears to be appealing to high risk-taking individuals. Youth who showed greater risk involvement were much more likely to be identified as At-Risk and Probable Pathological Gamblers, and were 5 times more likely to report past year involvement in Internet gambling compared to low risk-taking youth. Because Internet gambling is relatively new, it may attract individuals high in risk-taking who have a propensity to try new and exciting activities. As well, aspects of Internet gambling

such as the graphics, sounds, and quick payouts may be highly reinforcing for youth who crave the stimulation of risky activities. The rapid event frequency between wagers and payouts in video lottery terminals (VLTs), for example, have been associated with excessive gambling (Griffiths, 1993).

Rapid speed of play was appealing to almost one third of Internet gamblers (29.9%). As well, as gambling severity increased, more participants reported that high speed play was an appealing factor. A greater proportion of Probable Pathological Gamblers reporting that they were attracted to Internet gambling because of the high speed of play (33.3%) compared to Social Gamblers (27.7%) and At-Risk Gamblers (27.8%). High speed play was the second most popular aspect of Internet gambling found to be appealing to Internet gamblers.

Overall, the most appealing aspect of Internet gambling among Internet gamblers was ease of access, with 36.1% of Internet gamblers reporting that 24-hour accessibility was the primary reason they elected to gamble on the Internet. Similarly, 29.9% reported that they appreciated the fact that they did not have to leave the house to gamble, and 21.6% reported that overall convenience was a major factor in their decision to gamble on-line. Interestingly, there were minimal differences in the proportion of Social, At-Risk, and Probable Pathological Gamblers who endorsed both 24-hour accessibility as well as convenience. However, Probable Pathological Gamblers were much more likely to endorse not needing to leave the house to play (40.0%) compared to Social (27.7%) and At-Risk Gamblers (27.8%). While there may be no association between gambling severity and convenience in terms of 24-hour accessibility, there may be a strong association between gambling severity and convenience in terms of having the ability to

gamble at home. In other words, individuals with gambling problems may be much more attracted to Internet gambling because it allows them to engage in gambling in the comfort of their own home, albeit this also can be considered a form of easy access. Given that the overwhelming majority of Internet gamblers reported that they usually gambled on the Internet at home (80.4%), this may have important implications for parents and professionals alike.

All primary reasons given by Internet gamblers for choosing to gamble on the Internet, therefore, involved ease of access. If youth are engaging in Internet gambling at home, it is likely that their parents are unaware of the potential risks associated with youth gambling in general. Parents may not perceive underage gambling to be illegal or potentially dangerous. Research by Felsher, Derevensky, and Gupta (2004) as well as Ladouceur and his associates (1998) support this contention.

Alternately, parents may be unaware of such on-line activities since a number of youth today have computers with Internet access in their bedrooms. Further, the majority of youth who use the Internet at home report that their parents do not sit with them when they surf the Internet (68%) (Media Awareness Network, 2001). Both the Canadian Paediatric Society and the Government of Canada recommend that any computers in the home be kept in well-used areas rather than in bedrooms, so that parents can monitor their children's Internet activities (Canadian Paediatric Society, 2003; Government of Canada, 2001). Parents can play an active role in protecting youth from engaging in Internet gambling in the home.

Although convenience was appealing to Internet gamblers in general, by far the most popularly endorsed aspect of Internet gambling among Probable Pathological

Gamblers was competition. A strong majority (60.0%) of Probable Pathological Gamblers reported that on-line competition was most appealing to them. Unfortunately, it is not clear whether these participants were implying that they enjoyed the competition of Internet gambling with other individuals in their company, or with other players on the Internet either familiar or anonymous, or merely competition against 'the house'. Whether in the company of friends or strangers, competition could be understood in a general sense to represent the excitement that competitive activities brings as players attempt to win a prize. In fact, Probable Pathological Gamblers were much more likely to report gambling on the Internet with strangers (40.0%) compared to Social Gamblers (8.5%) and At-Risk Gamblers (5.6%), suggesting that the aspect of competition described as being appealing may, in fact, encompass more than a typical competitive interaction between individuals in real time. Future research may want to discern Probable Pathological Gamblers' perception of competition.

If the competitive aspects of Internet gambling are more appealing to individuals at risk for the development of a gambling problem, then this may partially account for the preponderance of younger individuals who reported gambling on the Internet. Nearly half of all Internet gamblers reported that they regularly gambled on the Internet with their friends, and younger Internet gamblers were much more likely to report gambling on the Internet with friends compared to older participants. Among adolescents, competitive play among peers is common and leisure activities such as sports betting are popular (Gupta & Derevensky, 1998). For example, the Internet offers a quick an easily accessible route to wagering money on the outcome of major sporting events, either in competition with peers or with strangers. Indeed, the current study revealed that sports

betting became more popular as gambling frequency increased. As well, sports betting was the most popular Internet gambling activity among At-Risk and Probable Pathological Gamblers.

The current study suggests that for non-Internet gambling, Internet gambling without money, and Internet gambling with money, both sports betting and card games such as poker and blackjack are popular among both occasional and weekly gamblers. Card games and sports betting also appear to be important activities for frequent gamblers. This finding corroborates recent reports about the growing popularity of on-line Internet gambling card games such as poker (Strasser, 2004). It is plausible that involvement in card games or sports betting may be a risk factor for the development of gambling problems, both in relation to Internet gambling and non-Internet gambling. Parents and educators may want to watch for involvement in these gambling activities among youth.

Not surprisingly, a greater number of older participants reported gambling on the Internet alone (51.5%) compared to younger individuals (31.3%). It may be that among younger gamblers, Internet gambling is more likely to be viewed as a socially accepted activity. Among CEGEP and university students, this may not be the case. As well, the role of peers among younger gamblers may be particularly important. As mentioned previously, competition was a popular aspect of Internet gambling, particularly among Probable Pathological Gamblers. Parents and educators may want to pay careful attention to group interactions among youth with respect to on-line gambling in order to ascertain whether youth are engaging in a potentially high-risk activity.

With respect to what youth are actually wagering on the Internet, it appears that most wagers are relatively small. The majority of participants who had engaged in Internet gambling in the past 12 months indicated that they had spent an average of less than $25 per gambling session, with significantly more males wagering money on-line compared to females, and no significant differences in wager amounts between age groups. Interestingly, there was a U-shaped trend for almost every age group, with more participants reporting small wagers and large wagers (over $500 per session) compared to wagers ranging from $25 to $500. Not surprisingly, both At-Risk and Probable Pathological Gamblers reported spending more money, on average, compared to Social Gamblers. Unlike Social and At-Risk Gamblers, however, a greater proportion of Probable Pathological Gamblers reported wagering over $500 per session.

Youth were most likely to pay for their Internet gambling using a personal credit card (24.5%). This is not surprising as most credit card companies do not routinely verify the date of birth of potential customers. Indeed, more than one half of youth report that they have pretended to be a different age when they are on the Internet (Media Awareness Network, 2001). More and more young people today are carrying credit cards, and companies hoping to profit from this trend are marketing credit cards specifically designed to appeal to youth (Howard & Dugas, 2004). Parents can monitor their children's monthly credit card statements in order to determine how money is being spent. This may become increasingly difficult, however, given that many credit card companies are now offering clients the option of having 'virtual statements' e-mailed to them each month in order to minimize waste. Parents may need to become more vigilant as more and more services become automated.

However, a credit card is by no means necessary to gamble on-line. Many participants reported using their debit card and on-line bank transfers to finance their on-line gambling. Interestingly, about one in ten participants reported that they had used a family credit card *with* permission, indicating a degree of familial acknowledgement and/or support for Internet gambling activities.

It is difficult to ascertain at this point whether youth who engage in Internet gambling *without* money are more likely to progress to Internet gambling *with* money. There appears to be substantial overlap between Internet gambling with and without money. Among participants who reported some Internet gambling with money in the past 12 months, 89.4% had also gambled on the Internet without money. It is also notable that among Internet gamblers, the median age of onset for Internet gambling without money was 12-13 years, while the median age of onset for Internet gambling with money was 14-15 years, suggesting a time lag of about one year between introduction to each activity. It is possible, therefore, that most Internet gamblers began by 'practice' gambling on the Internet before moving on to gambling with money. Since those individuals who had gambled on the Internet with money in the past year were much more likely to also show gambling problems and high risk involvement, this progression may represent a serious issue that should be addressed both in research and applied settings.

The profile of the average Internet gambler appears to share some similarities with the profile of a non-Internet gambler in that they are both likely to be male and in their early teens. However, Internet gamblers are more likely to show high involvement in other risky activities. Further, Internet gamblers appear to like gambling on the Internet

because they find it easily accessible, most likely because they enjoy the convenience of gambling in the comfort of their own homes.

It remains to be seen whether Internet gambling with or without money actually creates gambling problems or exacerbates existing problems among youth. Because this study is cross-sectional in nature, it is impossible to say definitively whether Internet gambling is responsible for increases in youth pathological gambling symptomology. However, research suggests that greater exposure to gambling activities is linked to higher rates of problem gambling (Griffiths, 1995). As more and more youth spend time on the Internet, it is plausible that aggressive marketing on the part of Internet gambling companies will influence younger and younger individuals to try on-line practice gambling sites without spending any money. Structural characteristics of Internet gambling such as ease of accessibility and high-speed play may impel some youth to try on-line gambling with money. This, in turn, may lead to a higher rate of problem gambling among youth. Without few if any barriers designed to protect young people, the Internet offers an almost unlimited variety of gambling activities for the curious player.

Social Policy Implications

At least one third of youth may be gambling on the Internet using 'practice' sites, the long-term effects of which remain unclear. Participants who reported regularly engaging in Internet gambling with money were at a much greater risk for the development of gambling problems. Early exposure to on-line gambling may be priming youth for later gambling behaviour in several ways. First, Internet gambling may affect the perceptions of youth regarding on-line gambling and gambling in general. Gambling sites may be either directly or indirectly framing gambling as a fun, safe activity to

engage in because no money is actually spent. As well, youth who play gambling games on-line may be more likely to see gambling as a normal part of Internet activity when in fact the small amount of prevalence research that exists seems to indicate that most adults do not engage in Internet gambling (Chevalier, Hamel, Ladouceur, Jacques, Allard & Sévigny, 2004; Ialomiteanu & Adlaf, 2001; Kelley et al., 2001). Perceptions of gambling may also be influenced through the basic structural characteristics of Internet gambling sites. It is possible, for example, that a player's odds of winning may be more favourable on practice sites compared to real gambling sites, leading players to develop the perception that winning money is easy. More research is needed to determine the nature of the relationship between Internet gambling with and without money and gambling pathology.

Most importantly, it is clear that youth under the age of 18 are able to access Internet gambling sites with relative ease and engage in a potentially high-risk activity (Griffiths & Wood, 2000; Griffiths & Parke, 2002). Past research has indicated that few Internet gambling websites have appropriate restrictions designed to protect youth (Smeaton & Griffiths, 2004) and the current study serves to corroborate these findings.

More and more governments are launching their own Internet gambling sites. As a society, we have a responsibility to protect youth from activities which could endanger their health and well-being. The gambling industry, both governmental and private, must regulate the use of Internet gambling websites to prevent youth from engaging in on-line gambling. As well, parents have a responsibility to monitor their children's on-line activities. As Internet gambling grows in popularity, and as more and more gambling

activities are available on-line, policy-makers will need to be vigilant in protecting vulnerable populations such as youth.

Limitations and Directions for Future Research

Several limitations to this study exist. First, the study used self-report without corroboration from other sources such as parents, teachers, and peers. Sampling bias is also a risk due to the fact that this sample was school-based. While students below the age of 16 are required to attend school in Quebec, students aged 17 and above as well as CEGEP and university students have actively chosen to pursue post-secondary diplomas or degrees. They may, therefore, be qualitatively different from those students who have chosen to leave school. For example, students who have a serious gambling problem may be more likely to drop out of school in order to support their habit.

Another limitation of the study involves the use of the Risk-Taking Questionnaire (RTQ). The RTQ was originally designed for adults and contains colloquial phrases and vocabulary that may be problematic for youth. For example, many participants complained that they did not understand what the phrase "playing with fire" meant. Others had difficulty comprehending what "hitchhike" represented. Several items contained negatives, creating confusion among participants, such as the phrase "I'm the kind of person who is usually not very cautious." It may be that the language of the RTQ is outdated. Other well-validated measures of risk-taking may be more appropriate.

Future research may want to target new high-risk populations using a clearer, more concise version of the questionnaire used for this study. Considering the rapid rate at which younger and younger children are now becoming familiar with computers and the Internet, it may be worthwhile to explore Internet gambling among pre-adolescent

youth aged 11-13 years. As well, replication will be important within different groups of young people. For youth from low income families, for example, fewer opportunities may be present to engage in Internet gambling at home, and we would therefore expect rates of Internet gambling to be lower among these youth. Similarly, geographical, cultural, and language differences should be explored in relation to Internet gambling.

Gender differences should be explored among youth who gamble on the Internet both with and without money. The current study found that approximately the same proportion of males and females were gambling on the Internet without money, although overall, more males than females reported Internet gambling with money as well as gambling problems in general. Researchers may want to focus on the differences among males and females who participate in Internet gambling without money in order to identify which factors are associated with problematic outcomes.

Future research should explore the degree to which parents are aware of Internet gambling as well as the extent to which they do or do not sanction their children's participation in such activities. Future investigations may also want to address overall attitudes among families toward Internet usage within the home environment in order to determine how best to address the issue of youth Internet gambling within the family.

Finally, longitudinal data will be important in establishing or refuting the notion that early exposure to on-line practice gambling in youth is associated with a greater probability of developing problems with gambling. Unfortunately, the cross-sectional nature of this study makes such endeavors impossible, but in future, it is hoped that this question will be addressed.

The past decade has seen a huge amount of change with respect to the role technology plays in our lives. The Internet has become an important resource for information, interpersonal communication, and leisure. As adults, we have a responsibility to ensure that our leisure activities, both on-line and off-line, are not harmful to youth. As Internet gambling grows in popularity, further investigation will be needed to inform parents and educators as how best to protect youth.

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APPENDIX A

Instruments

The following questionnaire refers to your gaming preferences and behaviours. For each statement, please indicate your response by filling in the circle next to the statement you agree with. All information is confidential and anonymous. We do not require any identifying information and only our research team at McGill University will have access to this information. The entire questionnaire should take approximately 30 minutes to complete.

For each question, please fill in marks like this: ● **NOT like this: ⊗ ⊘ ⊘**

1 Gender: O Male O Female

2 Age:

O Under 10 years of age
O 10-11 years of age
O 12-13 years of age
O 14-15 years of age
O 16-17 years of age
O 18-20 years of age
O 21-24 years of age
O 25-34 years of age
O 35-44 years of age
O 45-54 years of age
O 55-64 years of age
O Over 65 years

3 Country of Residence:

O Canada
O USA
O Other
please specify: _____

4 List ALL languages spoken at home:

O French
O English
O Spanish
O Portuguese
O Italian
O Hebrew
O Greek
O Arabic
O Hindi
O Chinese
O Japanese
O Vietnamese
O Korean
O Polish
O Dutch
O Russian
O First Nations
O Other
please specify:
_____

5 Marital status:

O Single
O Married/common-law
O Separated or divorced
O Widowed

6 Are you currently in school?

If yes, indicate your grade level:

O Grade 3 – 6
O Grade 7 – 8
O Grade 9 – 12
O CEGEP
O Trade/Technical School
O University
O Graduate/Post-doctoral

If no, what is the highest level of education completed?

O Grade 3 – 6
O Grade 7 – 8
O Grade 9 – 12
O CEGEP
O Trade/Technical School
O University
O Graduate/Post-doctoral

7 What is your primary occupational status?

- O Work full-time
- O Work part-time
- O Unemployed
- O Student
- O Retired

8 In the past 12 months, how often have you:

	Never	Less than once a month	1 – 3 times a month	Once a week or more
Consumed alcohol	O	O	O	O
Smoked tobacco (cigarettes, cigars)	O	O	O	O
Used marijuana or hashish	O	O	O	O
Used other illicit drugs (e.g. cocaine, speed, GHB, ecstasy)	O	O	O	O

9 In the past 12 months, how much time have you spent on the Internet per day?

- O Less than 30 minutes
- O 30 to 60 minutes
- O 1 to 2 hours
- O 2 to 4 hours
- O Over 4 hours

10 In the past 12 months, how often have you made online purchases for personal use?

- O Never
- O Occasionally (less than once per week)
- O Regularly (once a week or more)
- O Daily (once a day or more)

11 In the past 12 months, how often have you participated in an on-line chat group/chat room?

- O Never
- O Occasionally (less than once per week)
- O Regularly (once a week or more)
- O Daily (once a day or more)

12 **<u>In the past 12 months</u>,** how often have you played each of the following games <u>for money</u>? (This does NOT include games you play on the Internet.)

	Never	Less than once a month	1 – 3 times a month	Once a week or more
Lottery scratch cards/pull tabs	O	O	O	O
Lottery draws (e.g. Lotto 6/49)	O	O	O	O
Horse racing	O	O	O	O
Sports betting	O	O	O	O
Sports betting through the lottery (e.g. "Mise-O-jeu™" in Quebec)	O	O	O	O
Bingo	O	O	O	O
Slot machines	O	O	O	O
Electronic gaming machines (e.g. VLT, video poker, Pokies)	O	O	O	O
Casino table games (e.g. Blackjack, poker, etc.)	O	O	O	O
Dice/craps	O	O	O	O
Cards	O	O	O	O
Jai Lai	O	O	O	O
Maj Jong	O	O	O	O
Spread betting	O	O	O	O
Stock market	O	O	O	O
Other	O	O	O	O

please specify: _____

13 **How old were you the first time you played gambling games <u>for money</u>? (NOT including games you play on the Internet.)**

- O I have never played gambling games for money
- O Under 10 years of age
- O 10-11 years of age
- O 12-13 years of age
- O 14-15 years of age
- O 16-17 years of age
- O 18-20 years of age
- O 21-24 years of age
- O 25-34 years of age
- O 35-44 years of age
- O 45-54 years of age
- O 55-64 years of age
- O Over 65 years

14 Indicate <u>all</u> the reasons you play gambling games (NOT including games you play on the Internet). (You may choose more than one answer.)

- O I have never played gambling games
- O Fun
- O Relaxation
- O Excitement
- O Entertainment
- O Be with friends/make new friends
- O Relieve anxiety or depression
- O Relieve boredom
- O Escape from problems
- O Feel older
- O Make money
- O Other
  please specify: _____

15 Out of all the reasons you listed above, what are the <u>TOP THREE (3) REASONS</u> you play gambling games? (NOT including games you play on the Internet.) (Choose <u>up to 3 answers</u>.)

- O I have never played gambling games
- O Fun
- O Relaxation
- O Excitement
- O Entertainment
- O Be with friends/make new friends
- O Relieve anxiety or depression
- O Relieve boredom
- O Escape from problems
- O Feel older
- O Make money
- O Other
  please specify: _____

16 <u>In general</u>, who do you play gambling games with? (NOT including games you play on the Internet.) (You may choose more than one answer.)

- O I have never played gambling games
- O Alone
- O Friends
- O Parents
- O Siblings/relatives
- O Co-workers
- O Strangers
- O Other
  please specify: _____

17 Indicate <u>all</u> the gambling opportunities near your home (within 50 miles or 80 km).

- O There are no gambling opportunities near my home
- O Casino
- O Electronic gaming machines (Video Poker, VLT, Pokies)
- O Racetrack
- O Lottery ticket outlet
- O Bingo
- O Other
  please specify: _____

18 Below are twenty different statements.
Rate how much you agree or disagree with each statement.

	Agree very much	Mildly agree	Neutral	Mildly disagree	Disagree very much
1. It is always best to think about something before you jump into it	O	O	O	O	O
2. I'm the kind of person who is usually not very cautious	O	O	O	O	O
3. I like being around people who are willing to take a chance	O	O	O	O	O
4. I like doing things when I know exactly what is going to happen	O	O	O	O	O
5. It's good to be a little careless	O	O	O	O	O
6. I'm the kind of person who avoids risks	O	O	O	O	O
7. With the kinds of problems you can run into these days, I'd rather not hitchhike	O	O	O	O	O
8. I'd rather walk than ride with someone who drives very fast	O	O	O	O	O
9. In most situations, it is often better not to take a chance	O	O	O	O	O
10. I'd rather not gamble if there is another way of doing things	O	O	O	O	O
11. I'm the kind of person who likes risks	O	O	O	O	O
12. In most things, it is probably better to know exactly where you are going	O	O	O	O	O
13. I stay away from situations that are likely to be dangerous	O	O	O	O	O
14. I like people who are a little wild	O	O	O	O	O
15. I sometimes gamble just for the excitement it brings	O	O	O	O	O
16. I'm the kind of person who is usually careful about what I do..	O	O	O	O	O
17. I'd rather play with fire than not play at all	O	O	O	O	O
18. It is better to be safe and not to do something than to do something and be sorry for it later	O	O	O	O	O
19. It's exciting to break someone else's rules	O	O	O	O	O
20. I like getting into situations that I don't know if I can get out of	O	O	O	O	O

19 Some people play gambling games on the Internet for fun (WITHOUT money) using practice sites, free games, free trials, etc. Other people gamble on the Internet WITH money.

The following questions (19 – 25) refer to playing gambling games on the Internet WITHOUT money. Later on, we will ask you questions about gambling on the Internet WITH money.

In the past 12 months, how often have you played the following gambling games on the Internet for fun (WITHOUT money)?

	Never	Less than once a month	1 – 3 times a month	Once a week or more
Roulette	O	O	O	O
Blackjack	O	O	O	O
Baccarat	O	O	O	O
Dice (craps)	O	O	O	O
Keno	O	O	O	O
Sports betting	O	O	O	O
Horse racing	O	O	O	O
Slot machines or other electronic gaming machines (e.g. VLT, video poker, pokies)	O	O	O	O
Cards	O	O	O	O
Jai Lai	O	O	O	O
Maj Jong	O	O	O	O
Spread betting	O	O	O	O
Stock market	O	O	O	O
Other	O	O	O	O

please specify: _____

20 **How old were you the first time you played gambling games on the Internet for fun (WITHOUT money)?**

- O I have never played gambling games on the Internet
- O Under 10 years of age
- O 10-11 years of age
- O 12-13 years of age
- O 14-15 years of age
- O 16-17 years of age
- O 18-20 years of age
- O 21-24 years of age
- O 25-34 years of age
- O 35-44 years of age
- O 45-54 years of age
- O 55-64 years of age
- O Over 65 years

21 In the past 12 months, how many gambling sites have you played on regularly for fun (WITHOUT money)?

- O None
- O 1 Internet site
- O 2 to 5 Internet sites
- O More than 6 sites

22 In the past 12 months, how often have you played gambling games on the Internet for fun (WITHOUT money)?

- O Never
- O Occasionally (less than once a week)
- O Regularly (once a week or more)
- O Daily (once a day or more)

23 In the past 12 months, how much time have you spent playing gambling games for fun (WITHOUT money) per session? NOTE: A session is defined as anytime you log onto the Internet.

- O Never
- O Less than 30 minutes
- O 30 to 60 minutes
- O 1 to 2 hours
- O 2 to 4 hours
- O Over 4 hours

24 When you play gambling games on the Internet for fun (WITHOUT money), who do you usually gamble with? (You may choose more than one answer.)

- O I don't play gambling games on the Internet
- O Alone
- O Friends
- O Parents
- O Siblings/relatives
- O Co-workers
- O Strangers
- O Other
  please specify: _____

25 Why do you like to play gambling games on the Internet? (You may choose more than one answer.)

- O I have never played gambling games on the Internet
- O Fun
- O Relaxation
- O Excitement
- O Entertainment
- O Be with friends/make new friends
- O Relieve anxiety or depression
- O Relieve boredom
- O Escape from problems
- O Feel older
- O Make money
- O Other
  please specify: _____

26 The following questions refer to gambling on the Internet WITH money.

<u>In the past 12 months</u>, how often have you played the following gambling games on the Internet WITH money?

	Never	Less than once a month	1 – 3 times a month	Once a week or more
Roulette	O	O	O	O
Blackjack	O	O	O	O
Baccarat	O	O	O	O
Dice (craps)	O	O	O	O
Keno	O	O	O	O
Sports betting	O	O	O	O
Horse racing	O	O	O	O
Slot machines or other electronic gaming machines (e.g. VLT, video poker, pokies)	O	O	O	O
Cards	O	O	O	O
Jai Lai	O	O	O	O
Maj Jong	O	O	O	O
Spread betting	O	O	O	O
Stock market	O	O	O	O
Other	O	O	O	O

please specify: _____

27 **How old were you the first time you played gambling games on the Internet WITH money?**

- O I have never gambled on the Internet
- O Under 10 years of age
- O 10-11 years of age
- O 12-13 years of age
- O 14-15 years of age
- O 16-17 years of age
- O 18-20 years of age
- O 21-24 years of age
- O 25-34 years of age
- O 35-44 years of age
- O 45-54 years of age
- O 55-64 years of age
- O Over 65 years

28 **<u>In the past 12 months</u>, how many gambling sites have you regularly played on WITH money?**

- O None
- O 1 Internet site
- O 2 to 5 Internet sites
- O More than 6 sites

29 There are many places where a person might choose to gamble. Why do <u>you</u> choose to gamble <u>on the Internet</u>? (You may choose more than one answer.)

- O I have never gambled on the Internet
- O 24-hour accessibility
- O Graphics
- O Realistic-looking games
- O Sex appeal
- O Game diversity
- O High speed play
- O Bonuses (sign up, free cash, redeposit, referral...)
- O Competition (person to person gambling)
- O Convenience
- O Privacy
- O Anonymity
- O Less intimidating than a real casino
- O Easier to hide gambling from others
- O Don't need to leave the house to play
- O Good odds
- O Fair/reliable payouts
- O Other
  please specify:

  _____

30 Out of all the reasons you listed above, what are the <u>TOP THREE (3) REASONS</u> you gamble on the Internet? (Choose <u>up to 3 answers</u>.)

- O I have never gambled on the Internet
- O 24-hour accessibility
- O Graphics
- O Realistic-looking games
- O Sex appeal
- O Game diversity
- O High speed play
- O Bonuses (sign up, free cash, redeposit, referral...)
- O Competition (person to person gambling)
- O Convenience
- O Privacy
- O Anonymity
- O Less intimidating than a real casino
- O Easier to hide gambling from others
- O Don't need to leave the house to play
- O Good odds
- O Fair/reliable payouts
- O Other
  please specify:

  _____

31 What do you view as being the major drawbacks of gambling on the Internet? (You may choose more than one answer.)

- O There are no drawbacks to gambling on the Internet
- O Need a credit card
- O Worried about credit card fraud
- O Don't want to give personal information on-line (like my name and account numbers)
- O The bets might be rigged (no chance of winning)
- O Lack of casino ambiance (doesn't feel like a real casino)
- O Unsure if I could actually collect any winnings
- O Easier to hide problems with gambling
- O Other
  please specify: _____

32 Out of all the drawbacks you listed above, what do <u>you</u> view as being the <u>TOP THREE (3) DRAWBACKS</u> of gambling on the Internet? (Choose <u>up to 3 answers</u>.)

- O There are no drawbacks to gambling on the Internet
- O Need a credit card
- O Worried about credit card fraud
- O Don't want to give personal information on-line (like my name and account numbers)
- O The bets might be rigged (no chance of winning)
- O Lack of casino ambiance (doesn't feel like a real casino)
- O Unsure if I could actually collect any winnings
- O Easier to hide problems with gambling
- O Other
  please specify: _____

33 How did you come across your first Internet gambling site?

- O I have never visited an Internet gambling site
- O I clicked on a pop-up while I was on an Internet site unrelated to gambling
- O While I was surfing on the Internet, I decided to search for a gambling site
- O A friend recommended it
- O Advertisement on the Internet
- O Advertisement in a magazine/on television/on a poster
- O Promotion (e.g. free gambling CD)
- O Other
  please specify: _____

34 In the past 12 months, how much time have you spent gambling WITH MONEY per session?
NOTE: A session is defined as each time you log onto the Internet.

- O Never
- O Less than 30 minutes
- O 30 to 60 minutes
- O 1 to 2 hours
- O 2 to 4 hours
- O Over 4 hours

35 When you gamble on the Internet WITH MONEY, who do you usually gamble with?
(You may choose more than one answer.)

- O I don't gamble on the Internet
- O Alone
- O Friends
- O Parents
- O Siblings/relatives
- O Co-workers
- O Strangers
- O Other
  please specify: _____

36 In general, from where do you gamble on the Internet, either with or without money?
(You may choose more than one answer.)

- O I don't gamble on the Internet
- O At home
- O At work
- O At a friend's home
- O At school
- O At an Internet café
- O Cellular phone
- O Other
  please specify: _____

37 In the past 12 months, most of the time, WHEN have you gambled on the Internet?

- O I don't gamble on the Internet
- O Weekday mornings
- O Weekday afternoons
- O Weekday evenings
- O Weekend mornings
- O Weekend afternoons
- O Weekend evenings
- O Anytime I feel like it, day or night

38 In the past 12 months, what is the average amount of money you have spent gambling on the Internet per session? NOTE: A session is defined as each time you log onto the Internet.

- O None
- O $1 – $5
- O $6 – $10
- O $11 – $25
- O $25 – $50
- O $50 – $100
- O $100 – $500
- O $500 – $1000
- O Over $1000

39 In the past 12 months, what is the most money you have wagered in one Internet session?

- O None
- O $1 – $5
- O $6 – $10
- O $11 – $25
- O $25 – $50
- O $50 – $100
- O $100 – $500
- O $500 – $1000
- O Over $1000

40 In the past 12 months, what is the most money you have WON in one Internet session?

- O None
- O $1 – $5
- O $6 – $10
- O $11 – $25
- O $25 – $50
- O $50 – $100
- O $100 – $500
- O $500 – $1000
- O Over $1000

41 In the past 12 months, what is the most money you have LOST in one Internet session?

- O None
- O $1 – $5
- O $6 – $10
- O $11 – $25
- O $25 – $50
- O $50 – $100
- O $100 – $500
- O $500 – $1000
- O Over $1000

42 What method(s) of payment do you use to gamble on the Internet? (You may choose more than one answer.)

- O I don't gamble on the Internet
- O Personal credit card
- O Credit card belonging to family member (with permission)
- O Credit card belonging to family member (without permission)
- O Debit card/ATM
- O Personal cheque
- O Wire/bank transfer
- O Other
  please specify: _____

43 When gambling on the Internet, how often do you go back on-line another day to win back money you lost?

- O Never
- O Some of the time (less than half the time I lose money)
- O Most of the time (more than half the time I lose money)
- O All the time

44 In the past 12 months, while gambling on the Internet, how often have you:

	Never	Less than once a month	1 – 3 times a month	Once a week or more
Consumed alcohol	O	O	O	O
Smoked tobacco (cigarettes, cigars)	O	O	O	O
Used marijuana or hashish	O	O	O	O
Used other illicit drugs (e.g. cocaine, speed, GHB, ecstasy)	O	O	O	O

45 Answer these questions ONLY if you are UNDER 18 YEARS OF AGE. If you are 18 years of age or over, skip ahead to question 46.

NOTE: **gambling** refers to betting money on activities (e.g., lottery, cards, sports wagers, bingo, slot machines, casino-type games, sporting events, games of skill, etc.) with a chance of winning money. This can include gambling on the Internet.

1. In the past year, how often have you found yourself thinking about gambling or planning to gamble?

O Never O Sometimes
O Once or Twice O Often

2. During the course of the past year, have you needed to gamble with more and more money to get the amount of excitement you want?

O Yes O No

3. In the past year, have you ever spent much more than you planned to on gambling?

O Never O Sometimes
O Once or Twice O Often

4. In the past year, have you felt bad or fed up when trying to cut down or stop gambling?

O Never O Often
O Once or Twice O Never tried to cut down
O Sometimes

5. In the past year, how often have you gambled to help you escape from problems or when you are feeling bad?

O Never O Sometimes
O Once or Twice O Often

6. In the past year, after losing money gambling, have you returned another day to try and win back money you lost?

O Never O More than half the time
O Less than half the time O Every time

7. In the past year, has your gambling ever led to:

a) Lies to your family?	O Never	O Once or Twice	O Sometimes	O Often
b) Arguments with family/friends or others?	O Never	O Once or Twice	O Sometimes	O Often
c) Missing school?	O Never	O Once or Twice	O Sometimes	O Often

8. In the past year, have you ever taken money from the following without permission to spend on gambling:

a) School dinner money or fare money?	O Never	O Once or Twice	O Sometimes	O Often
b) Money from your family?	O Never	O Once or Twice	O Sometimes	O Often
c) Money from outside the family?	O Never	O Once or Twice	O Sometimes	O Often

46 Answer these questions ONLY if you are 18 years of age or over.

NOTE: **gambling** refers to betting money on activities (e.g., lottery, cards, sports wagers, bingo, slot machines, casino-type games, sporting events, games of skill, etc.) with a chance of winning money. This can include gambling on the Internet.

During the past year:

	YES	NO
1. Have you been preoccupied with gambling (e.g. thinking about gambling, planning to gamble, or thinking about ways to get money to gamble with)?	O	O
2. Have you needed to gamble with more and more money in order to get the amount of excitement you want?	O	O
3. Have you tried repeatedly to control, cut back or stop gambling, without being able to?	O	O
4. Have you felt restless or irritable when attempting to cut down or stop gambling?	O	O
5. Have you gambled to escape from problems or when you were feeling bad?	O	O
6. After losing money gambling, have you often returned another day to get even (try to win back money you lost)?	O	O
7. Has your gambling let to lies to family members, your therapist, or other people in order to conceal your involvement with gambling?	O	O
8. Has your gambling led you to commit illegal acts such as forgery, fraud, theft, or embezzlement to finance it?	O	O
9. Has your gambling ever led you to jeopardize or lose a significant relationship, job, or career or educational opportunity?	O	O
10. Have you had to rely on others to provide money to relieve a desperate financial situation caused by gambling?	O	O

Only a few more questions to go...

1. In the morning, how long does it USUALLY take you to get to school?

- O Between 1 – 10 minutes
- O 11 – 30 minutes
- O More than 30 minutes

2. In the morning, how do you USUALLY get to school? (Choose only one answer.)

- O Walk
- O Bike
- O School bus
- O City bus and/or Metro
- O Car

3. At the end of the day, where do you USUALLY go right after school? (Choose only one answer.)

- O Go straight home
- O Go to a friend's house
- O Go to work at your job
- O Go to the mall
- O Go downtown
- O Go to a restaurant

4. How do you USUALLY get home after school? (Choose only one answer.)

- O Walk
- O Bike
- O School bus
- O City bus and/or Metro
- O Car

5. How do you know there are video lottery terminals (VLTs) in your neighbourhood?

- O There aren't any
- O I have seen them
- O I have seen signs for them
- O Somebody told me they are here

6. Please indicate the places where someone can play a video lottery terminal (VLT) in your neighbourhood. (Choose one or more answers.)

- O There are no places to play
- O Restaurants
- O Cafés
- O Bars
- O Bowling alleys
- O Arcades

7. Where have you played a video lottery terminal (VLT)? (Choose one or more answers).

- O Never played a VLT
- O In my neighbourhood
- O Near my school
- O Downtown

8. Where do your friends play video lottery terminals (VLTs)? (Choose one or more answers.)

- O My friends don't play VLTs
- O In their neighbourhood
- O Near their school
- O Downtown

9. When have you played a video lottery terminal (VLT)? (Choose one or more answers.)

- O Never played a VLT
- O During my lunch break
- O Before going home or after school
- O At night
- O On the weekend

10. When do your friends play video lottery terminals (VLTs)? (Choose one or more answers.)

- O My friends don't play VLTs
- O During their lunch break
- O Before going home or after school
- O At night
- O On the weekend

11. Please shade in the circles below to indicate your postal code.

Please hand-write your postal code in this column

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓖ Ⓗ Ⓘ Ⓙ Ⓚ Ⓛ Ⓜ Ⓝ Ⓞ Ⓟ Ⓠ Ⓡ Ⓢ Ⓣ Ⓤ Ⓥ Ⓦ Ⓧ Ⓨ Ⓩ

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓖ Ⓗ Ⓘ Ⓙ Ⓚ Ⓛ Ⓜ Ⓝ Ⓞ Ⓟ Ⓠ Ⓡ Ⓢ Ⓣ Ⓤ Ⓥ Ⓦ Ⓧ Ⓨ Ⓩ

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓖ Ⓗ Ⓘ Ⓙ Ⓚ Ⓛ Ⓜ Ⓝ Ⓞ Ⓟ Ⓠ Ⓡ Ⓢ Ⓣ Ⓤ Ⓥ Ⓦ Ⓧ Ⓨ Ⓩ

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

Thank you for taking the time to fill this out!

FOR OFFICE USE ONLY:

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

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APPENDIX B

Ethics Certificates and Consent Forms

APPENDIX C

Examples of Internet Gambling

1. Example of an Internet advertisement offering monetary incentives for new players.[1]

2. Example of an Internet advertisement offering monetary incentive for new players.[2]

3. Example of an Internet advertising banner offering monetary incentive for new players.[3]

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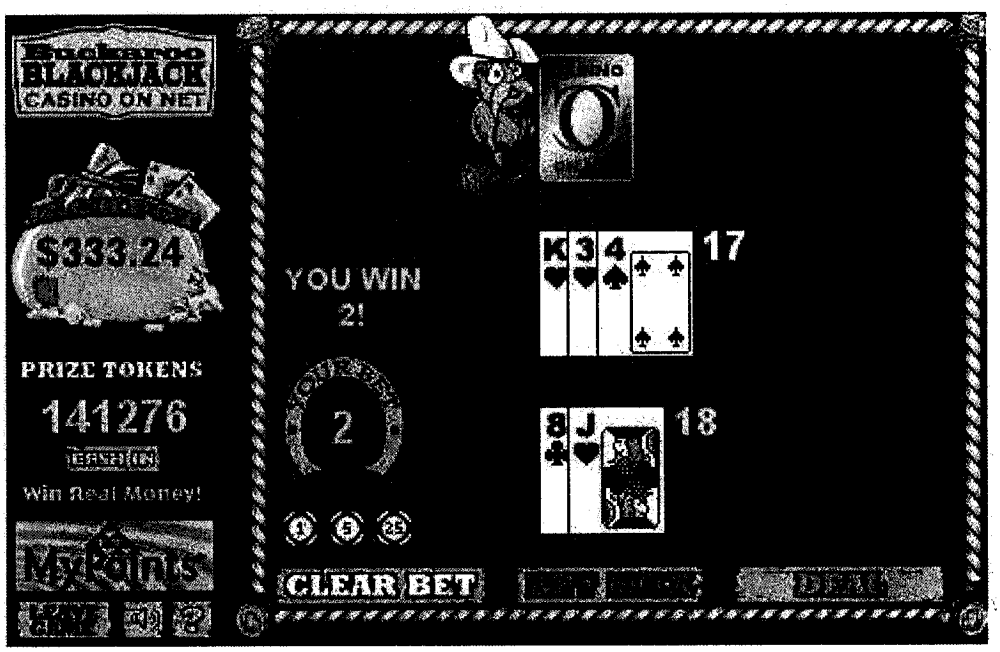
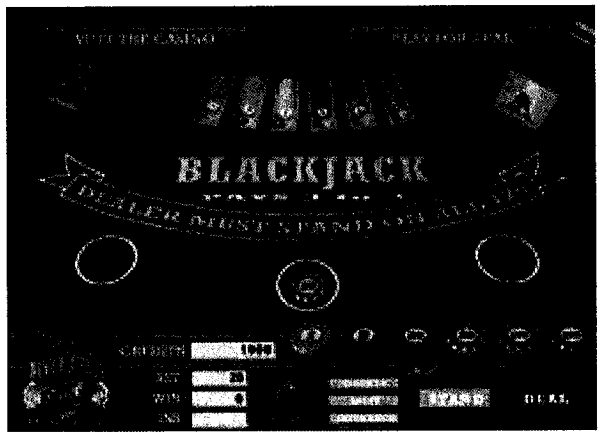
[1] Downloaded August 2, 2004 from http://www.betting-nba-basketball.com/
[2] Downloaded July 15, 2004 from http://www.online-casino-bonus.net/
[3] Downloaded June 1, 2004 from http://www.carnivalcasino.com/

4. Example of an Internet advertisement offering free gambling and chat.[4]



5. Example of an Internet 'practice' gambling site designed for youth. Players wager 'prize tokens' that can eventually be exchanged for prizes of money.[5]

[4] Downloaded May 29, 2004, from http://www.slotsonly.com
[5] Downloaded February 10, 2004, from http://www.plainsboro.com/~lemke/pogo/blackjack/



6. Example of an Internet site offering free black jack where players have the option to click a button if they want to "visit the casino" or "play for real" (upper left and right-hand corners).[6]

7. Example of Internet advertisement offering free play on slot machines.[7]

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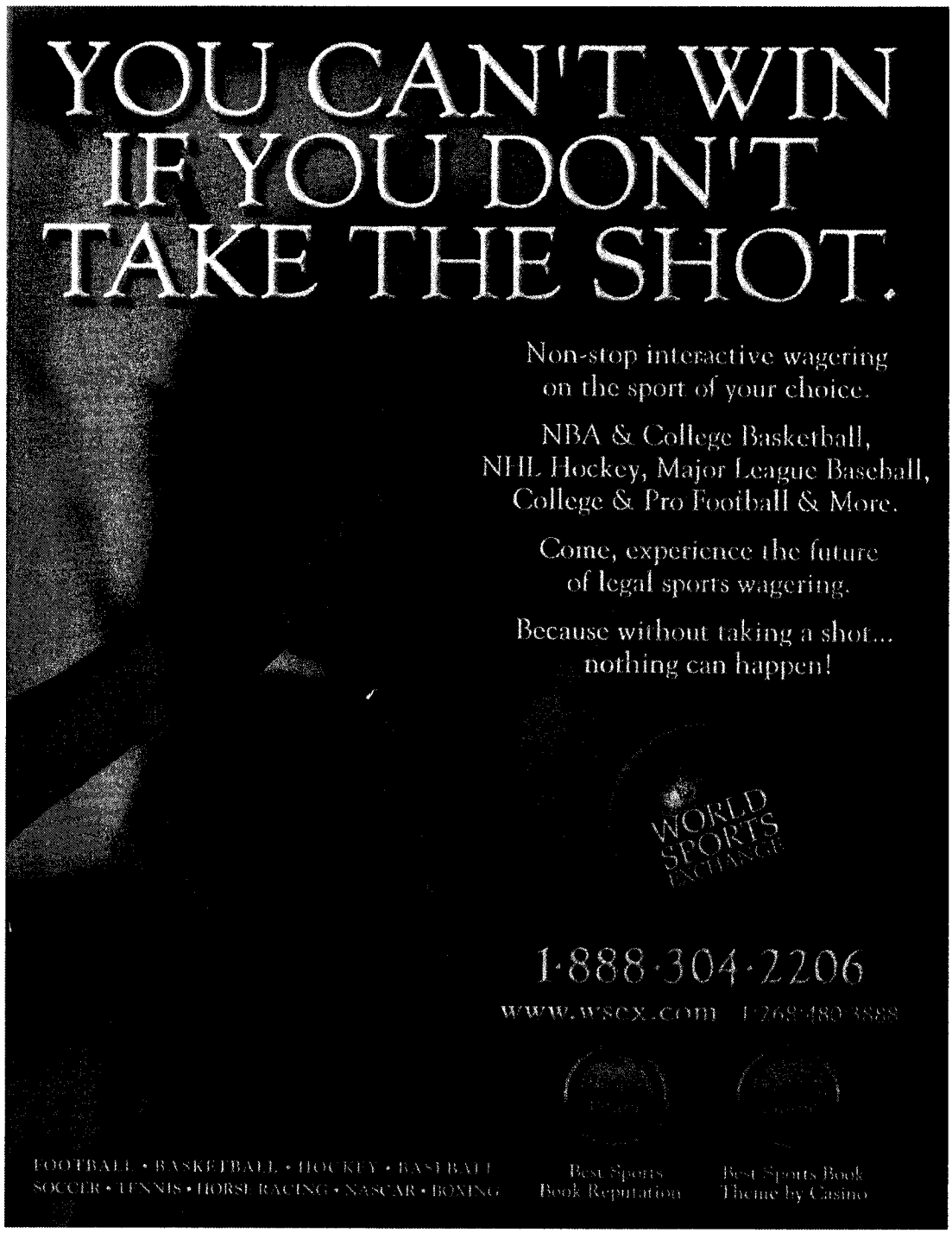
[6] Downloaded June 10, 2004, from http://www.captains-free-casinos.com/free-games.html
[7] Downloaded July 23, 3004, from http://www.freeslotmachines.com



5. Example of a magazine advertisement for a sports betting site.[8]

[8] From *Gambling Online*, March/April 2002.