

**L'identification des variables culturelles et des facteurs de
risque et de protection associés aux problèmes de jeu chez les jeunes**

**The identification of risk, cultural and protective factors associated
with youth gambling problems**

Report to Fonds québécois de recherche sur la société et la culture

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RÉSUMÉ

Les résultats contenu dans ce présent rapport se rapportent à une étude visant l'atteinte de deux objectifs : l'examen de la présence d'un lien entre la participation de jeunes mineurs aux jeux d'argent et leur niveau de résilience, tandis que le second examine la présence de différences au niveau de la prévalence des comportements de jeu de jeunes québécois de diverses communautés culturelles.

L'échantillon est composé de 1 273 élèves âgés entre 12 et 19 ans qui fréquentent une douzaine d'écoles secondaires francophones et anglophones, réparties dans quatre commissions scolaires, de l'île de Montréal. Les élèves ont complété des questionnaires permettant d'évaluer leur fréquence de participation aux jeux d'argent et leur niveau de participation au jeu; leur résilience (concept de soi, auto contrôle, compétence personnelle et attentes positives) et, enfin, la présence de facteurs de risque dans leur environnement. Cette étude visait l'identification des facteurs de protection qui pourraient faire l'objet d'une attention particulière lors de la mise sur pied d'activités ou de programmes de prévention et de traitement du jeu problématique pour les adolescents.

L'impact de la résilience sur le comportement de jeu problématique

Environ 81 % des élèves de la 1^{ère} à la 5^e secondaire rapportent avoir participé à une ou plusieurs activités de jeu d'argent au cours des 12 mois précédant l'enquête (83 % des garçons; 79% des filles) tandis qu'approximativement 11 % disent l'avoir fait sur une base hebdomadaire (15 % des garçons; 6 % des filles).

- Selon le niveau de participation aux jeux d'argent au cours de l'année précédant l'enquête, les résultats montrent que 19 % des participants sont des non joueurs (NJ), 70 % sont des joueurs sociaux (JS), 7 % des joueurs à risque (JÀR) et 4 % des joueurs pathologiques probables (JPP).
- Les élèves masculins semblent jouer plus fréquemment que les filles, ils sont deux fois plus susceptibles d'être classés dans la catégorie des joueurs pathologiques probables (9 % et 5 % respectivement) et quatre fois plus dans la catégorie des joueurs à risque (6 % comparativement à 1,5 %).
- Le niveau de facteurs de protection varie de façon significative en fonction du niveau de participation au jeu; plus le nombre de facteurs de protection augmente, plus la gravité ou le niveau d'implication dans les jeux d'argent diminue. La plus grande différence est observée entre les élèves non joueurs et les élèves joueurs pathologiques probables qui rapportent bénéficier du plus bas niveau de protection. Les filles, comparativement aux garçons, disent bénéficier d'un plus grand nombre de facteurs de protection

- Plus les problèmes avec le comportement de jeu augmentent, plus le niveau de facteurs de protection diminue. Les différences les plus marquées sont observées au niveau des liens sociaux, suivis de la compétence personnelle, et de la compétence sociale. De façon similaire, une exposition plus marquée aux facteurs de risque s'accompagne d'une augmentation du niveau de jeu.
- Les participants ont été regroupés dans l'une des quatre catégories de résilience : les jeunes dits *Résilients* (haut niveau de risque/ haut niveau de protection interne); les jeunes dits *Privilégiés* (faible niveau de risque/ haut niveau de protection interne); les jeunes dits *Vulnérables* (haut niveau de risque/ faible niveau de protection interne); les jeunes dits *Peu exposés* (faible niveau de risque/ faible niveau de protection interne).
- Les élèves *Vulnérables* (exposition élevée aux facteurs de risque/ faible niveau de protection interne) sont plus susceptibles de participer à des activités de jeu ou d'être qualifiés de joueurs excessifs. À l'opposé, les élèves *Privilégiés* (faible niveau d'exposition aux risques/ haut niveau de protection interne) sont moins susceptibles de s'engager dans des activités de jeux d'argent.
- Un faible niveau d'exposition aux risques tout comme un haut niveau de protection interne peuvent limiter le développement de problèmes avec le comportement de jeu. Par exemple, seulement 4 % des élèves identifiés comme étant *Résilients* (haut niveau d'exposition aux risques/ haut niveau de protection interne) sont classés dans la catégorie des joueurs à risque, et pas un seul n'est identifié comme étant un joueur pathologique probable. Parmi les élèves *Peu exposés* (faible niveau d'exposition aux risques/ faible niveau de protection interne), aucun n'est classé dans la catégorie des joueurs pathologiques probables, cette proportion n'est que de 2 % chez les élèves jugés *Privilégiés* (faible niveau de risque/ haut niveau de protection interne). Ainsi, tous les joueurs pathologiques probables et 87 % des joueurs à risque sont des élèves identifiés comme étant *Vulnérables*.

Facteurs culturels et participation aux jeux d'argent

- Les participants ont été regroupés au sein de trois groupes linguistiques : les anglophones (192 garçons, 212 filles), les francophones (141 garçons, 157 filles), et les allophones ou autres (272 garçons, 291 filles). Puisque la majorité des élèves maîtrisait deux langues, la répartition au sein des groupes anglophone et francophone s'est fait sur la base de la langue d'enseignement à l'école. Les élèves ont été regroupés dans le groupe allophone si une langue autre que le français ou l'anglais était parlée à la maison, le plus souvent l'italien (N = 199), l'espagnol (N = 107), le portugais (N = 49), l'arabe (N=47), et le chinois (N= 46).
- La plus grande proportion de joueurs hebdomadaires et de joueurs problématiques s'observe chez les garçons allophones (38 % et 23 %, respectivement), suivi des garçons anglophones (20 % et 10 %, respectivement), et des francophones (12 % et

4 % respectivement). Les filles allophones sont plus susceptibles de joueur sur une base hebdomadaire (16 %), comparativement aux filles anglophones (12 %) et francophones (8 %). Ces dernières présentent la plus faible prévalence de problèmes de jeu (1 %), comparativement aux filles allophones (5 %) et anglophones (6 %).

- Très peu de différences significatives sont observées entre les groupes linguistiques au regard des facteurs reliés aux problèmes de jeu, notamment les habiletés d'adaptation, le fonctionnement familial et la résilience.
- Bien que des difficultés d'acculturation sont associées au jeu problématique, seulement 6 % des élèves allophones rapportent avoir vécu de telles difficultés.
- Les principales variables à l'étude, à l'exception des sous-échelles, ont été utilisées comme *prédicteurs* dans une analyse de régression logistique binaire. Le sexe, l'âge, les réactions émotionnelles face aux stressors, la résilience et l'exposition aux facteurs de risques contribuent significativement à prédire la présence de problèmes de jeu (joueurs à risque et joueurs pathologiques probables combinés). La monoparentalité, le fonctionnement familial et les stratégies d'adaptation et de gestion de problèmes ne permettent pas de prédire le niveau d'implication dans le jeu. Même en contrôlant pour les effets de sexe, d'âge et celui des autres variables *prédictrices* significatives, la variable identité culturelle permet encore une amélioration de la répartition des participants selon le niveau de jeu. Les élèves allophones sont 5, 4 fois plus susceptibles que les élèves francophones d'éprouver certains problèmes de jeu.
- Seule l'interaction entre l'affiliation culturelle et la résilience est significative. Des analyses subséquentes montrent que la relation entre la résilience et le jeu problématique est plus marquée chez les élèves francophones que pour les deux autres groupes d'élèves.

Cette étude souligne la présence de plusieurs relations significatives entre la perception du nombre de facteurs de risque et de protection et le niveau d'implication dans le jeu. Par exemple, les élèves jugés *Vulnérables* (haut niveau d'exposition aux risques/ faible niveau de protection interne), sont plus susceptibles d'être considérés comme des joueurs problématiques. L'absence de différences significatives entre les élèves *Résilients* (haut niveau de risqué/ haut niveau de protection interne) et les élèves exposés à peu de risques suggère que les facteurs de protection individuels étudiés aident à prévenir le développement de conséquences négatives.

De plus, la combinaison entre un faible niveau de protection interne (réseau social, compétence personnelle et compétence sociale) et un haut niveau d'exposition aux risques (notamment, la présence d'un père joueur pathologique) semble être liée à la présence de graves problèmes de jeu (joueur pathologique probable). Il semble donc le jeu problématique s'insère, à l'instar d'autres comportements à risque, dans un modèle soulignant l'impact déterminant des facteurs de risque et de protection.

Les résultats du second volet de l'étude sont similaires à ceux de l'enquête québécoise sur le tabagisme, l'alcool, les drogues et le jeu (2002) où le taux de jeu problématique est aussi plus élevé chez les élèves du secondaire non francophone. Les résultats de la présente étude suggèrent donc que les jeunes de groupes minoritaires seraient plus à risque de développer des problèmes de jeu, en raison de facteurs autres que leur condition socio économique souvent précaire. Les recherches futures pourraient permettre de vérifier l'évolution de la prévalence des comportements de jeu chez les jeunes québécois non francophones afin de déterminer si les résultats de la présente étude sont véritablement le fruit des différences au plan des comportements de jeu ou s'ils découlent plutôt de contraintes ou limitations d'ordre méthodologiques.

EXECUTIVE SUMMARY

This report presents the results of a study that had two objectives. First, this study examined the relationship between youth gambling and resiliency and explored whether youth identified as resilient are less likely as those identified as vulnerable to engage in excessive gambling behaviour. Second, this study compared the prevalence of frequent and problem gambling among Quebec youth from different cultural backgrounds. The sample consisted of 1273 students, ages 12-19, from 12 English and French high schools across four school boards in Montreal. Participants completed questionnaires that assessed the frequency and severity of their gambling behaviour, domains of resiliency (self-concept, self-control, self-efficacy and positive outlook), as well as potential risk factors in their environment. This study aimed to identify protective factors relevant to youth gambling that could be included in the development of successful prevention and intervention programs for youth.

The Impact of Resiliency on Problem Gambling Behaviour

Overall, 80.9% of youth in grades 7 to 11 (ages 12-19) reported some gambling activities during the past year (83.1% males, 78.9% females), with 10.7% of youth reporting gambling on a weekly basis (15.5% males, 6.2% females).

- Based on reported gambling within the past year, the classification of youth gambling behaviours revealed that 19.1% of participants were Non-Gamblers, 70.3% were Social Gamblers, 7.0% were At-Risk Gamblers, and 3.7% were Probable Pathological Gamblers.
- Males tended to gamble more frequently than females and appear to be twice as likely to be classified as Probable Pathological Gamblers (9.4% males, 4.7% females) and 4 times more likely to be classified as At-Risk Gamblers (6.1% males, 1.5% females).
- Overall, the level of individual protective factors was significantly different across gambling groups. Specifically, as the amount of reported individual protective factors increased, gambling severity decreased. The largest difference was observed between the Non-Gambler and Probable Pathological Gambler groups. Probable Pathological Gamblers reported the lowest level of individual protective factors. While females reported higher levels of individual protective factors compared to males.
- As problem gambling behaviour increased, the reported level of protective factors decreased. The largest differences were observed in the domains of Social Bonding, followed by Personal Competence, and Social Competence. In a similar pattern, as gambling risk exposure increased, gambling severity also increased.

- Individuals were grouped according to performance on the IPFI into one of four categories: *Fortunate* (Low Risk/Low Protection), *Ideal* (Low Risk/High Protection), *Vulnerable* (High Risk/Low Protection) and *Resilient* (High Risk/High Protection).
- Individuals identified as *Vulnerable* (combined high risk exposure and low internal protection level) are at a greater risk of engaging in gambling activities, and/or meeting the criteria for excessive gambling behaviour. Conversely, individuals identified as *Ideal* (combined low risk exposure and high internal protection level) are the least likely to engage in gambling activities.
- Low levels of risk exposure and/or high levels of individual protective factors may inhibit the development of problem gambling behaviour. For example, only 4.3% of youth identified as *Resilient* (high risk exposure/high internal protection level) were classified as At-Risk Gamblers, and none were classified as Probable Problem Gamblers. Furthermore, none of the *Fortunate* youth (low risk exposure/low internal protective factors), and only 1.8% of the *Ideal* group (low risk exposure/high internal protective factors) were identified as Probable Problem Gamblers. The results revealed that 100% of youth identified as Probable Problem Gamblers, and 86.7% of youth identified as At-Risk Gamblers, were members of the *Vulnerable* group.

Cultural Factors Associated with Gambling

- Overall, the study population included three linguistic groups: Anglophone (English; 192 boys, 212 girls), Francophone (French; 141 Boys, 157 Girls), and Allophone (other; 272 boys, 291 girls) youth. Given that most of the youth were functionally bilingual, the English/French division was made with respect to the primary language spoken at school. In addition, youth were considered Allophone if a language other than French or English was spoken at home, most commonly Italian (N = 199), Spanish (N = 107), Portuguese (N = 49), Arabic (N=47), and Chinese (N= 46).
- Results revealed that Allophone boys had the highest proportion of youth who gambled on a weekly basis (38%) and who reported gambling problems (23%), followed by Anglophone (20% and 10% respectively), and finally Francophone (12% and 4% respectively) boys. Allophone girls were more likely to gamble weekly (16%), compared to Anglophone (12%) and Francophone (8%) girls. The latter group was found to have a lower prevalence of problem gamblers (1.3%), in contrast to Allophone (5%) and Anglophone (6%) girls.
- The linguistic groupings demonstrated few meaningful differences with respect to factors related to problem gambling, i.e., comorbidity with other risk factors, coping, family functioning and resiliency.

- Acculturation difficulties were associated with problem gambling, but only 6% of Allophone youth reported experiencing such problems.
- The principal variables examined in the study were entered as predictors in a binary logistic regression. Gender, age, emotional reactions to stress, resiliency, and risk were found to contribute significantly to the prediction of problem gambling (At-Risk Gamblers and Probable Pathological Gamblers combined); single parent status, family functioning and both task-oriented and avoidance coping strategies did not. After controlling for the relative effect of age, gender, and the significant predictor variables, the inclusion of cultural identity improved the prediction of problem gamblers. Allophones were 5.4 times more likely than Francophone youth to possess some degree of gambling problems.
- All possible interaction terms between culture and the other variables were tested; with only the interaction term between cultural affiliation and resiliency proving to be statistically significant. Subsequent analyses revealed that the relationship between resiliency and problem gambling was stronger for Francophone youth than for the other groupings.

The results of the resiliency analysis identified several significant relationships between self-reported risk and protective factors on gambling severity among adolescents. The amount of reported individual protective factors, as well as reported risk factors was related to the level of gambling severity in adolescents. For example, youth identified as vulnerable (high risk exposure/low internal protection), were more likely to meet diagnostic criteria for problem gambling. Of particular interest, was the lack of findings of significant differences between resilient (high risk/high protection) and low risk exposure groups suggesting that the individual protective factors examined in this study may help to prevent maladaptive outcomes. Moreover, it was suggested that a predictor of probable pathological gambling appears to be low-self-reported levels of individual protective factors (Social Bonding, Personal Competence and Social Competence) combined with high reported levels of risk exposure (e.g., paternal pathological gambling). Problem gambling appears to fit a similar risk/protection model as that of other adolescent high-risk behaviours.

With regards to cultural issues, the results are consistent with those of a Quebec-wide survey conducted in 2002 that found problem gambling rates to be higher among Non-Francophone youth. The study findings are important as they suggest that certain minority groups may be at increased risk for problem gambling for reasons that go beyond poverty and other disadvantages. Further research is necessary to establish whether the rate of problem gambling is increasing among the non-francophone youth population in Quebec or whether some other factor (e.g. methodological differences) is responsible for these divergent findings.

INTRODUCTION

The current study is designed to examine two important gambling issues. First, this study explores the relationship between resilience and youth gambling behaviour in order to determine if there are differences between resilient and vulnerable youth in their participation in gambling behaviours and in their development of gambling problems. Second, this study examined gambling behaviours among different linguistic groups in order to determine whether there were differences in rates of gambling behaviours among Francophone, Allophone and Anglophone adolescents.

Gambling is a popular pastime for people in most parts of the world. Literature on gambling behaviour indicates that adults, children, and adolescents all enjoy and frequently participate in gambling despite legal restrictions (Derevensky & Gupta, 2000; Gupta & Derevensky, 1998a). Recent reviews suggest that upwards of two thirds of underage youth have gambled in regulated and licensed gambling venues (Jacobs, 2000, 2004). Approximately 3% - 6% of adolescents surveyed in prevalence studies meet the criteria for pathological gambling (Derevensky & Gupta, 2000, 2004a; Jacobs, 2000, 2004), while another 7% - 10% of adolescents are at-risk for the development of severe gambling behaviour (Derevensky & Gupta, 2004a). There is further evidence that adolescent gambling behaviour begins early, between the ages of nine to eleven years of age (Gupta & Derevensky, 1998a; Jacobs, 2000, 2004), an age of onset which is earlier than that of illicit substance use (Gupta & Derevensky, 1998a). Youth gambling behaviour has become a social and political priority and is of significant societal concern (Hardoon & Derevensky, 2002) and is an increasing public health concern (Messerlian & Derevensky, 2005).

There is a growing body of literature on both youth gambling behaviour and resilience in high-risk youth. Despite a recent upsurge of interest in both fields, there is very little literature connecting the two together. Early research in the area of risky behaviours focused on delinquency, substance abuse, and other “deviant” activities. More recently, excessive gambling has also received attention. Prevention research has shifted away from identifying risk and protective factors, to examining *how* conditions improve an individual’s resistance to maladaptive outcomes. Development of prevention and treatment programs are increasingly trying to strengthen resilience skills as well as minimise risks. It is important to determine effective ways to strengthen resilience in children because in many cases it may be more difficult to eliminate risk factors (e.g., poverty). However, as considerable research has demonstrated that high risk children are at greater risk for developing maladaptive outcomes in general, prevention efforts that seek to minimize the onset of particular problem behaviours are still necessary. The most effective prevention programs are those that are conceptually driven from research on resilience (Dickson, Derevensky, & Gupta, 2002; Luthar, Cicchetti, & Becker, 2000).

Research has also demonstrated that adults from certain cultural backgrounds have higher rates of problem gambling than others. Acculturation difficulties and belonging to a cultural group that approves of gambling are two factors thought to be associated with a higher risk of developing gambling problems. Prior studies have compared rates of problem

gambling between majority groups of a given country and specific minority groups. Typically the minority groups that have been studied (e.g. Aboriginals, Blacks, Hispanics, Mauri) have been known to exhibit higher rates of problem gambling but they are also more likely to experience social and economic difficulties. Yet, little is known about the cultural influences of adolescent gambling behaviour.

LITERATURE

Risk and Protective Factors

Risk factors commonly have been shown to be early predictors of negative behavioural, psychological and mental health outcomes. However, it may also be associated with descriptions of negative life conditions including family conflict and poverty (Kaplan, 1999). Such negative outcomes may include psychopathology, excessive gambling, drug abuse, school dropout, etc. A risk factor represents an individual attribute, characteristic, situation, or context in the environment that increases the odds of acquiring and maintaining maladaptive behaviours including addictive behaviours (Kaplan, 1999). The more deficits a child exhibits, the less likely that child is to build and maintain many internal or external assets (Benson, Galbraith, & Espeland, 1995). Investigators have recognised that as the co-occurrence and accumulation of risk factors a child is exposed to over time increases, so too do maladaptive behaviours (Rutter, 1990). Risk factors are often described on a continuum. They may be inversely related, with a positive end associated with positive outcomes and a negative end associated with negative outcomes (e.g., socioeconomic status) (Masten, 2001). Sometimes a third causal factor may result in an inverse relationship between risk and protective factors. For example, a supportive older sibling (causal factor) may decrease stressful school events for younger siblings (risks) by preventing them from walking to and from school alone (risks), helping them with their homework (assets), and modelling adaptive behaviour (assets).

Protective factors represent conditions that improve an individual's resistance to risk factors and disorders. Protective factors examined across resilient youth generally include attributes of the child (temperament, IQ), familial aspects (encouragement of trust, autonomy, and initiative), and characteristics of the community (e.g., external support systems including church, youth groups, and school) which enhance competence and provide coherence (Werner & Smith, 1992). Fostering protective factors moderates the effects of internal or external risk such that development is more positive than if the protective factors had not existed (Masten et al., 1990). However, any one, single protective factor alone does not predict resilience. Etiological models emphasise complex interactions among genetic, biomedical, and psychosocial risk and protective factors (Coie et al., 1993).

The systematic examination of risk and protective factors in the field of youth gambling is only beginning. Although research has identified risk factors of problem adolescent gambling, few studies have examined protective mechanisms (Dickson, Derevensky, & Gupta, 2004; Hardoon, 2002; Kaufman, 2002). No studies have examined resilience in gambling behaviour, although recent literature has suggested its importance (Dickson et al., 2002).

Resilience

Traditionally, the major focus of prevention and intervention research has been to identify risk factors and high risk people (Leshner, 1999). However, many youth exposed to high levels of risk never develop the anticipated negative problem behaviour(s), and many thrive in spite of them, a concept referred to as *resilience*. Although there is substantial variation in definitions of resilience, two central constructs exist in all definitions, that is, *risk* or *adversity*, and *positive adaptation* or *competence* (Luthar, 1997). A widely used and simplified definition of resilience therefore relates to the presence of manifest competence despite exposure to significant adversity (Rolf, 1999). Psychological competence generally refers to internal states of well-being and/or effective functioning in the environment (Masten, Best, & Garmezy, 1990). Resilience outcomes vary according to the adversities faced, the developmental period during which adversities occur, and the individual's environment and temperament (Luthar et al., 2000). Resilience is not a unidimensional or global construct. That is, individuals may be resilient in one domain or several, but rarely in all (Luthar, 1997). For example, many resilient adolescents who demonstrate high social competence despite much adversity in their lives also report depressive symptoms. In light of these findings, domains of resilience must be differentiated.

Commonly used terms in the resilience literature include *risk* and *protective* factors. Risk factors, variables such as poverty, trauma, genetic predisposition, etc. are correlated with maladaptive coping or poor outcomes. In contrast, protective factors are behaviours (e.g. positive coping styles, prosocial relationships, etc.) are correlated with improving a person's resistance to risk factors and poor outcomes. Risk factors by themselves do not necessarily lead to vulnerability while protective factors do not necessarily lead to resilience although they are correlated (Masten et al., 1990). The standard for investigating the acquisition, development, and maintenance of addictions is to examine not only why some individuals become addicted, but also to explore why the majority do not (e.g., even those that have been exposed to caregivers with addictions or that come from high-risk environments). The risk factors that children are exposed to are often beyond a child's control (e.g., child abuse) or may not be possible to eliminate (e.g., poverty). It is therefore important to not only minimise harmful factors, but to strengthen resilience skills (Leshner, 1999).

Resilience and Youth Gambling Behaviour

Resilience researchers are increasingly cautious in using the term resilience, opting instead for more specific terms such as *educational resilience*, *emotional resilience*, and *behavioural resilience* (Luthar et al., 2000). Resilience research regarding addictive behaviours such as youth problem gambling behaviour may therefore be conceptualized as *behavioural resilience*.

There is general consensus in the youth gambling literature that biological, environmental and psychological, or bio-psycho-social factors operate in the aetiology of gambling behaviour (Blaszczynski, 2000; Derevensky & Gupta, 2004a; Hardoon & Derevensky, 2002; Kaufman, 2002). Until recently, these areas were kept separate in youth gambling research. However, researchers have begun to adopt Jacobs' (1986) *General Theory of Addictions* as a useful framework for conceptualising problem gambling behaviour and

commonalities across addictions (Dickson et al., 2002, in press; Gupta & Derevensky, 1998b; Haroon et al., 2004; Kaufman, 2002). Similarly, Dickson and her colleagues have demonstrated the large degree of overlap in risk factors between excessive gambling and other addictions (Dickson et al., 2002). This overlap has led to the inclusion of gambling problems into Jessor's (1998) *Adolescent Risk Behaviour Model* (see Dickson et al., 2004).

Cultural Influences on Gambling Behaviour

Research has shown that prevalence rates of gambling and problem gambling vary appreciably across populations and some cultural ethnic minority groups (National Research Council, 1999; Raylu & Oei, 2004; Wardman, el Guebaly, & Hodgins, 2001). A handful of studies examining gambling behaviour within a youth population found that members of certain minority groups were more likely to gamble and exhibit gambling-related problems. Wallisch (1993, 1996) observed problem gamblers to be more prevalent among minority ethnic groups, including Hispanics. Zitzow (1996), in a study of Native American adolescents, reported that 9.6% of their sample met the South Oaks Gambling Screen criteria for problem gambling, a prevalence rate that was significantly higher than the 5.6% reported for non-native adolescents. In the same study, Native Americans were also found to gamble more frequently and start at an earlier age. Similarly, Stinchfield (2000) reported that approximately 10% of African-American, American Indian, and Mexican American youth gambled daily, compared to only 4% of Caucasian and 5% of Asian American youth. However, discrepant findings have also been reported. Yet, it is probable that different ethnic minority and cultural groups are not equally affected by issues of problem gambling, a reasoning which would explain why some studies report different rates of youth problem gambling (Derevensky, Gupta, & Winters, 2003).

As is the case with all cross-cultural research, interpreting findings is complicated by the fact that numerous confounding factors may offer an alternative explanation for differences between cultural groups. For example, ethnic minorities and immigrants are more likely to experience economic hardships and have lower levels of educational attainment. Finally, even after confounding factors have been sufficiently controlled, there remains the issue of whether differences in problem gambling rates are related to values, beliefs, some other factor inherent to the groups being studied, or whether they are due to inter-cultural factors (e.g. racism, acculturation, migration).

Theoretical models are lacking in this area (Garner, 2000). In a review of cross-cultural studies examining adult gambling, Raylu and Oei (2004) postulated three interrelated categories of cultural factors that may influence problem gambling. First, they suggest that cultures that approve of or endorse gambling tend to have higher problem gambling rates. They also suggest that that immigrants or minorities who experience acculturation difficulties might be susceptible to problem gambling. Finally, individuals from minority groups are often less likely to seek professional help, thus the untreated gambling problem risks increasing in severity. While this remains true for adults there is a paucity of research examining cultural issues as it relates to youth gambling behaviours.

RESEARCH GOALS

There were two overall goals to the present study. The first explored the relationship between resilience and youth gambling behaviour in order to determine whether youth identified as *Resilient* (high external risk exposure and high individual protective factor rating) are as likely as *Vulnerable* youth (high external risk exposure and low individual protective factor rating) to demonstrate excessive gambling behaviour. This study sought to determine if there was a significant relationship between self-reported risk and protective factor scores and gambling severity. Second, this study examined gambling behaviours amongst adolescents from different cultural and linguistic backgrounds. The objective was to determine whether there were differences in the rates of gambling and problem gambling between Francophone, Anglophone and Allophone adolescents and possible reasons that may account for differences.

METHODS

Participants

Participants were selected from 12 schools across four school boards in Montreal, Quebec. A total of 1273 high school students (605 males, 660 females, 8 unspecified) drawn from 12 high schools in the Greater Montreal area participated in the study. Ages ranged from 12-18 years ($M=14.9$).

Participants were considered Anglophone or Francophone if they attended an English or French school respectively, and did not speak a third language at home. Allophone participants reported speaking a third language at home. While provincial laws determine the language of schooling, it is important to note that Allophones attend both French and English language schools. For the purposes of this study, Allophones from French and English schools were combined due to small group sizes.

The sample for analysis consisted of 298 Francophones (141 males, 157 females), 404 Anglophones (192 males, 212 females), and 563 Allophones (272 males, 291 females). Partly because some of the English schools involved in the study included grades 7 and 8 and the French schools did not, significant age differences were found ($F(2,1264) = 62.46$, $p < .001$). A Tukey post hoc analysis revealed that the mean ages of the three groups were statistically significantly different from one another; Francophone ($M = 15.68$), Anglophone ($M = 14.38$) and Allophone ($M = 14.86$). While developmental differences were minor, to maintain the integrity of the results analyses controlling for age were performed when appropriate. No age by gender interaction effects were found.

Instruments

Gambling Activities Questionnaire (GAQ). The modified Gambling Activities Questionnaire (GAQ) (Gupta & Derevensky, 1996) consists of 16 items designed to assess four major domains related to gambling behaviour. Questions within each domain are discrete and are analyzed individually. The domains include *descriptive information* on types of gambling activities, wagers, social milieu and support; *cognitive perceptions* of the amount of skill and luck involved in various gambling and non-gambling activities;

familial and peer gambling and substance abuse history; and co-morbidity with other addictive and delinquent behaviours.

DSM-IV-MR-J. The DSM-IV-MR-J (Fisher, 2000) is a revised version of the DSM-IV-J (Fisher, 1992). This instrument consists of 12 items in nine categories that relate to problem gambling behaviour including progression, preoccupation, tolerance, withdrawal and loss of control, escape, chasing behaviour, deception, illegal activities, and family or school disruption. The DSM-IV-MR-J is used as a diagnostic screen for adolescent pathological gambling behaviour. The items are modeled after the criteria for diagnosis of adult pathological gambling used in the DSM-IV (APA, 1994) and the DSM-IV-J (Fisher, 1992), its adaptation for youth. The DSM-IV-MR-J corrects for the lack of probing in the DSM-IV-J by providing multiple response options including *never, once or twice, sometimes, or often*. Individuals that report having gambled over the past year are categorised as *Social Gambler, At-Risk Gambler, or Probable Pathological Gambler (PPG)*, depending upon the frequency of gambling related behaviours. A score of four or more in the nine categories is indicative of probable pathological gambling. Internal consistency reliability for this sample is adequate, with a Cronbach's alpha = .79 [slightly higher than the Cronbach's alphas = .75 for the DSM-IV-MR-J and .78 for the DSM-IV-J screens (Fisher, 1992, 2000)].

Individual Protective Factors Index (IPFI). The IPFI (Springer & Phillips, 1992) measure is a 71-item Likert scale with items answered on a four-point scale. The IPFI is designed to assess adolescent *resiliency* in at-risk populations. To calculate the Total IPFI Score (composite mean) only 61 items are included. These 61 items are distributed across 10 subscales that constitute three domains. The Total IPFI Score is computed by adding all ten raw scale scores together and dividing by the total number of items (61). Possible scores on the IPFI range from 1 to 4. The IPFI was standardized on a sample of 2,416 youth in the United States. The internal consistency reliability for his scale is adequate, with Cronbach's alpha = .93 (consistent with the Cronbach's alpha of .93 for the original IPFI) (Springer & Phillips, 1992). Resilience in this measure is defined by the three domains of *Social Bonding, Personal Competence, and Social Competence*. These domains were identified as those most prominently referenced in the literature on protective factors associated with healthy personal and social development among youth in high risk environments.

The *Social Bonding* subscale is comprised of 18 questions. Elements of this domain include a positive response and/or commitment to the fundamental social institutions of family, school, and community. Social bonding is viewed as the ability of youth to be involved and sufficiently motivated in their social institutions, and to derive a sense of accomplishment from their efforts. Positive ties to social institutions are believed to promote pro-social behaviour. Within this domain, the IPFI incorporates three dimensions: *pro-social norms* (six questions), *school bonding* (six questions), and *family bonding* (six questions).

The focus of the *Personal Competence* subscale (consisting of 25 questions), is on individual identity. More specifically, it relates to one's sense of personal development, self-image, and outlook on life. The ability to function effectively as a decision-maker, in control of one's future is an underlying theme in much resilience research (Springer &

Phillips, 1992). The IPFI contains four dimensions within this domain: *self-concept* (six questions), *self-control* (six questions), *self-efficacy* (six questions), and *positive outlook* (seven questions).

Comprising 18 questions, the elements of the *Social Competence* subscale includes one's ability to feel responsive, caring, and flexible in social situations. These qualities elicit responses and reinforcement in social situations that generally lead to positive personal results. The IPFI has three dimensions within this domain: *assertiveness* (six questions), *confidence* (six questions), and *cooperation* (six questions).

The second part of the IPFI, the *EMT Risk Measures Addendum*, includes a series of questions concerning risk factors in the respondent's environment. This section, the *EMT Risk Measures Addendum*, while included in the manual, is not considered part of the IPFI and has not been standardized. The internal consistency reliability for this scale is adequate, with Cronbach's alpha = .91. The total number of items on the EMT Risk scale is 55. The total Risk score (composite mean) is computed by summing all raw scale scores and dividing by the total number of items. Possible scores on the EMT risk Measures Addendum range from 0.81 to 3.45. Low scores on the EMT Risk Measures Addendum reflect greater environmental risk in domains of family environment, peer associations, neighbourhood environment, and self reported behaviours.

Family Functioning. The Family Adaptability and Cohesion Scales (FACES II; Olson, Portner, & Bell, 1982) contains 30 items measuring the degree to which a youth's family engages in communal activities, and resolves problems collectively. There has been some debate as to whether these measures share a linear or curvilinear relationship to family well-being, but the bulk of comparisons with other measures suggest a linear relationship (Hampton, Hulgus, & Beavers, 1991). Respondents select among five possible answers: almost never, once in a while, sometimes, frequently, and almost always. Both cohesion ($\alpha = .85$) and adaptability ($\alpha = .84$) scales showed good internal consistency.

Coping. The Coping Inventory for Stressful Situations (CISS-adolescence; Endler & Parker, 1990a, 1990b) contains 48 items assessing the degree to which adolescents exhibit the following response patterns to stressful situations: tackling problem in an organized task-oriented manner ($\alpha = .90$), getting emotional ($\alpha = .85$), and avoidance ($\alpha = .83$), which is further divided into two subscales, seeking distraction ($\alpha = .75$) and social diversions ($\alpha = .77$). The scales have shown strong validity and test-retest reliability (Nower et al., 2004).

Procedure

All instruments were originally in English and then translated to French (see Appendix B). Questionnaires were administered in accordance with the language of instruction of the school. Students completed the 300 item questionnaire in approximately one fifty-minute period, although some students required additional time. All participation was voluntary and anonymous. Research assistants were available to respond to questions.

Questionnaires were coded by the research staff and scanned using Optical Remark Recognition software. Questionnaires that were obviously problematic (e.g., silly names, zigzag or patterned responses, illegible responses, or questionable information) were discarded. A total of 96 (7%) questionnaires were discarded leaving an overall sample size of 1,273 participants. Standard procedures were implemented for dealing with missing data.

DATA ANALYSIS: RESILIENCY

Respondents were divided into four groups based on the frequency and severity of their self-reported gambling behaviour on the DSM-IV-MR-J (past year) gambling screen and the Gambling Activities Questionnaire (GAQ). The *Non-Gamblers* include those individuals that reported negatively to participation in all gambling items on the GAQ; *Social Gamblers* were individuals who reported gambling identified by a DSM-IV-MR-J score of 0-1; *At-Risk Gamblers* include all respondents that received a DSM-IV-MR-J score of 2-3; and, *Probable Pathological Gamblers* (PPGs) were identified by a total DSM-IV-MR-J score of = 4.

Two composite mean scores for self-reported protective (IPFI) and risk factors (EMT Risk Addendum) were created for each participant. One-way ANOVAs were used to examine significant mean differences between protective factors and gambling severity, and risk factors and gambling severity. As well, composite risk and protective scores were divided into high and low quartile groupings and combined to create four categories of high risk/low protective (*Vulnerable* group), high risk/high protective (*Resilient* group) low risk/low protective (*Fortunate* group), low risk/high protective (*Ideal* group). Finally, developmental and gender differences were explored.

RESULTS: RESILIENCY

General Findings from the GAQ and DSM-IV-MR-J

The DSM-IV-MR-J and the Gambling Activities Questionnaire (GAQ) were used to classify participants into four groups [(Non-Gambler, Social Gambler, At-Risk Gambler, and Probable Pathological Gambler (PPG))] based upon past year gambling behaviour. Results revealed that 19.1% (16.9% male; 21.1% female) of adolescents were classified as Non-Gamblers, 70.3% (67.6% male; 72.7% female) as Social Gamblers, 7.0% (9.4% male; 4.7% female) as At-Risk Gamblers, and 3.7% (6.1% male; 1.5% female) as PPGs (see Table 1).

Table 1
Gambling Severity by Sex and Developmental Level

Sample	Gambling Groups ¹					
	N=1273	%	Non-Gambler ^a (n = 241)	Social Gambler ^b (n = 894)	At Risk Gambler ^c (n = 90)	Probable Pathological Gambler ^d (n = 48)
Sex						
Male	605	47.5	16.9	67.6	9.4	6.1
Female	660	51.8	21.1	72.7	4.7	1.5
Omitted	8					
Grade						
7	203	16.0	20.8	15.2	14.4	10.4
8	155	12.2	9.2	12.9	11.1	16.7
9	288	22.7	22.9	20.7	37.8	31.3
10	270	21.2	20.8	20.3	24.4	35.4
11	353	27.8	26.3	31.0	12.2	6.3
Omitted	4					

^a GAQ score (0). ^b DSM-IV-MR-J score (0-1). ^c DSM-IV-MR-J score (2-3).

^d DSM-IV-MR-J score (= 4).

¹Percentage

Risk and Individual Protective Factors

Individual Protective Factors Index (IPFI)

High scores on the IPFI reflect greater internalized protective factors in personal competence, social bonding, and social competence. Possible scores on the IPFI range from 1 to 4. The mean score for the total sample was relatively high ($M = 3.15$, $SD = 0.35$), but within the range of scores on the standardized sample ($M = 3.07 - M = 3.34$) (Springer & Phillips, 1992).

An ANOVA revealed that the mean level of individual protective factors significantly differed between gambling groups, $F(3, 1262) = 42.95$, $p < .001$. Tukey HSD statistic for post hoc comparisons revealed significant differences between mean IPFI scores for all gambling-group pair-wise comparisons with the exceptions of the Non and Social Gambler groups. More specifically, there was a significant negative linear relationship between self-reported individual protective factors and gambling related problems. As gambling severity increased, reported individual protective factors decreased. See Table 2.

Social Bonding. An ANOVA revealed that the mean level of Social Bonding scores differed significantly between gambling groups, $F(3, 1269) = 48.79$, $p < .001$. Similarly, the three subscales within the Social Bonding domain including Pro-Social Norms, School Bonding, and Family Bonding also revealed scores that differed significantly between gambling groups ($p < .001$ for all ANOVAS).

Personal Competence. An ANOVA revealed that the mean level of Personal Competence scores differed significantly between gambling groups, $F(3, 1269) = 43.00, p < .001$. Similarly, the three subscales within the Personal Competence domain including Self-Concept, Self-Control, Self-Efficacy, and Positive Outlook also revealed scores that differed significantly between gambling groups ($p < .001$ for all ANOVAS).

Social Competence. An ANOVA revealed that the mean level of Social Competence scores differed significantly between gambling groups, $F(3, 1269) = 17.18, p < .001$. Similarly, the three subscales within the Social Competence domain including Assertiveness, Confidence, and Cooperation/Contribution also revealed scores that differed significantly between gambling groups ($p < .001$ for all ANOVAS).

Table 2
Individual Protective Factors Index (Continuous Variable) by Gambling Behaviour Groupings

IPFI Sample	Gambling Groups								ANOVA
	Non-Gambler (n=241)		Social Gambler (n=894)		At-Risk Gambler (n=86)		PPG (n=45)		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>
IPFI									
Social Bonding	3.22	0.43	3.13	0.41	2.87	0.47	2.50	0.56	48.79*
<i>Pro-social norms</i>	3.20	0.49	3.12	0.45	2.84	0.56	2.54	0.65	35.38*
<i>School bonding</i>	3.41	0.44	3.30	0.51	3.14	0.58	2.64	0.72	33.48*
<i>Family bonding</i>	3.05	0.64	2.97	0.59	2.63	0.64	2.33	0.66	27.44*
Personal Competence	3.22	0.37	3.17	0.35	2.94	0.37	2.66	0.44	43.00*
<i>Self-concept</i>	3.18	0.47	3.18	0.44	2.98	0.46	2.85	0.52	13.28*
<i>Self-control</i>	2.98	0.57	2.83	0.55	2.55	0.55	2.03	0.65	45.80*
<i>Self-efficacy</i>	3.42	0.38	3.38	0.39	3.17	0.53	2.94	0.61	25.80*
<i>Positive outlook</i>	3.26	0.55	3.25	0.51	3.01	0.54	2.79	0.56	16.79*
Social Competence	3.21	0.38	3.19	0.36	3.03	0.39	2.86	0.49	17.18*
<i>Assertiveness</i>	3.04	0.42	3.00	0.44	2.88	0.49	2.80	0.54	6.14*
<i>Confidence</i>	3.34	0.53	3.39	0.46	3.23	0.54	3.12	0.68	7.30*
<i>Cooperation</i>	3.26	0.47	3.18	0.47	2.99	0.49	2.67	0.71	24.37*
Total	3.22	0.35	3.17	0.33	2.95	0.35	2.69	0.43	42.95*

Note. Range 1- 4, high scores reflect greater levels of internalized protective factors.

* Significant *F* value ($p < .001$)

EMT Risk Measures Addendum

Possible scores on this measure range from 0.81 to 3.45, with lower scores denoting the greatest possible risk. The mean overall score for the total sample was 2.16 ($SD = 0.30$). The EMT Risk Measures Addendum is not a standardized measure and as such there are no cut-off scores denoting normative level of risk exposure. An ANOVA revealed that the mean level of exposure to risk factors significantly differed between gambling groups, $F(3, 1202) = 49.19, p < .001$. Tukey HSD post hoc comparisons revealed significant differences between mean risk scores for all gambling-group pair wise comparisons. More specifically, there was a significant positive linear relationship between self-reported environmental risk factors and gambling behaviour. As gambling severity increased, self-reported risk factors also increased. As seen in Table 3, PPGs had the lowest mean scores (highest risk factors) compared to At-Risk, Social, and Non-Gamblers ($p < .001$).

Table 3
EMT Risk Measures Addendum Scores (Continuous) by Gambling Behaviour Groupings, Grade, and Gender

EMT Risk Measure Sample	EMT Risk Measures Addendum		
	<i>N</i>	<i>M</i>	<i>SD</i>
Gambling Groups			
Non-Gambler	230	2.27	0.29
Social Gambler	845	2.16	0.28
At-Risk Gambler	87	1.98	0.29
PPG	44	1.78	0.30
Total	1206	2.16	0.30
Gender			
Male	560	2.13	0.30
Female	637	2.18	0.30
Grade			
7	179	2.35	0.25
8	137	2.30	0.29
9	282	2.14	0.31
10	265	2.08	0.30
11	334	2.07	0.26

Note. Range 0.81 - 3.45, lower scores reflect greater levels of environmental risk factors.

A univariate analysis of variance revealed significant grade [$F(4, 1187) = 42.32, p < .001$] and gender [$F(1, 1187) = 9.70, p = .002$] differences for this measure. Males ($M = 2.13, SD = 0.30$) reported significantly more risk exposure than females ($M = 2.18, SD = .30$). Tukey HSD post hoc tests revealed significant differences between mean Risk scores for Grades 7 and 8 students compared with all other grades. More specifically, there was a positive linear relationship between self-reported environmental risk factors and

grade level. As grade level increased, self-reported risk exposure also increased. As seen in Table 3, grade 11 students had the lowest mean scores (highest risk factors).

Resilience

Springer and Phillips (1992), developers of the IPFI, contend that resilience is a compilation of internalized protective factors ready to be implemented in the face of adversity. However, resilience is commonly defined as competence despite significant adversity (Masten, 2001). To examine this commonly expressed concept of resilience, participants were rank ordered based upon the first and fourth quartiles for the EMT Risk Measures Addendum scores (extreme highest and lowest risk exposures). Similarly, participants were also rank ordered based upon the first and fourth quartiles for the IPFI scores (extreme lowest and highest levels of internal protective factors). Participants within these extreme groups were then combined to create four categories: High Risk/Low Protective; High Risk/High Protective; Low Risk/Low Protective; and Low Risk/High Protective. The High Risk/Low Protective group was renamed the *Vulnerable* group as these participants were simultaneously reporting the greatest levels of risk and lowest levels of protective factors. The High Risk/High Protective group was renamed the *Resilient* group as these individuals were reporting the same high levels of risk as the *Vulnerable* group but were also reporting the highest levels of internalized protective factors. The Low Risk/High Protective group was renamed the *Ideal* group as individuals in this group simultaneously reported the lowest levels of risk and the highest levels of internalized protective factors; an ideal situation. Finally, the Low Risk/Low Protective group was considered to be somewhat of an anomaly and was named the *Fortunate* group as the low levels of risk appeared to be buffering against problem gambling behaviour. The four resilience categorizations are summarized in Table 4.

Table 4
Resilience Categorizations

	Low Protection (1 st Quartile of IPFI)	High Protection (4 th Quartile of IPFI)
Low Risk (4 th Quartile of EMT Risk Measures Addendum)	FORTUNATE (Low Risk/Low Protection)	IDEAL (Low Risk/High Protection)
High Risk (1 st Quartile of EMT Risk Measures Addendum)	VULNERABLE (High Risk/Low Protection)	RESILIENT (High Risk/High Protection)

Based upon quartile cutoff scores on the IPFI.

A one-way ANOVA between cumulative DSM-IV-MR-J scores and Resilience categories revealed that the level of gambling severity significantly differed between categories, $F(3, 358) = 25.40, p < .001$. Tukey HSD post hoc comparisons revealed significant differences between mean gambling severity scores for all pair-wise comparisons that included the Vulnerable group. More specifically, the Ideal group (low risk/high protection) had the lowest gambling severity score ($M = 0.12, SD = 0.42$), followed by the Resilient group ($M = 0.17, SD = 0.49$), the Fortunate group (low risk/low protection) ($M = 0.21, SD = 0.41$), and finally the Vulnerable group ($M = 1.63, SD = 2.46$). Although the Vulnerable group mean score is only 1.63 (an average ranking of Social Gambler on the DSM-IV-MR-J), it is more than three times that of the of the mean cumulative DSM-IV-MR-J score for the entire community sample ($N = 1,273, M = 0.51, SD = 1.32$). As seen in Table 5, participants identified as Vulnerable had the highest mean scores (highest severity of gambling behaviour) compared with the Resilient, Fortunate, and Ideal groups. Interestingly, there was no significant difference between the Resilient, Fortunate, and Ideal groups despite the same high level of risk exposure reported by the Resilient group as that reported by the Vulnerable group. From these findings, it would appear plausible that individual protective factors may counter the threat of problem gambling imposed by high risk exposure.

Table 5
Resilience Categorizations by Gambling Severity

Resilience Sample	DSM-IV-MR-J Cumulative Scores		
	<i>N</i>	<i>M</i>	<i>SD</i>
Resilience Groups			
Vulnerable	146	1.63	2.46
Resilient	23	0.17	0.49
Fortunate	24	0.21	0.41
Ideal	169	0.12	0.42
Total	362	0.74	1.76

Note: The higher the score, the greater the severity of gambling behaviour.

^aVulnerable = High Risk/Low Protective. ^bResilient = High Risk/High Protective.

^cFortunate = Low Risk/Low Protective. ^dIdeal = Low Risk/High Protective.

Perhaps the most striking results were demonstrated by analyses between the resilience categories and DSM-IV-MR-J groupings which revealed that a total of 15.8% of the Vulnerable youth were classified as probable pathological gamblers. This figure is four times that of the community sample (3.7%). Similarly, 17.8% of the youth identified as Vulnerable were classified as At-Risk for developing serious gambling problems, a figure more than double that of the community sample (7.0%). Conversely, none of the Resilient, Fortunate, and Ideal youth were classified as probable pathological gamblers and only 4.3% of the Resilient youth, none of the Fortunate youth, and 1.8% of the Ideal youth were classified as At-Risk Gamblers. Despite the same level of risk exposure, Resilient youth were twice as likely to be classified as Non-Gamblers compared with Vulnerable youth (21.7% versus 11.0% respectively). Within the Resilient classification, 95.6% of

participants were identified as non-problem gamblers (Non-Gamblers or Social Gamblers). Similarly, 100% of the Fortunate group was classified as non-problem gamblers and 98.3% of the Ideal group was classified as non-problem gamblers. However, within the Vulnerable classification, only 66.5% of individuals were identified as non-problem gamblers (see Table 6). This figure is lower than the community sample prevalence rates for non-problem gamblers (89.3%). Differences between the resilience categories with respect to gambling severity were significant, $\chi^2(9, N = 362) = 85.26, p < .001$.

Table 6
Resilience Categorizations by DSM-IV-MR-J Groups

Resilience Sample DSM-IV-MR-J Groups	Resilience Groups ¹ (n=362)			
	Vulnerable ^e (n=146)	Resilient ^f (n=23)	Fortunate ^g (n=24)	Ideal ^h (n=169)
Non Gambler ^a	11.0	21.7	33.3	37.9
Social Gambler ^b	55.5	73.9	66.7	60.4
At-Risk Gambler ^c	17.8	4.3	0	1.8
PPG ^d	15.8	0	0	0

^a GAQ score (0). ^b DSM-IV-MR-J score (0-1). ^c DSM-IV-MR-J score (2-3).

^d DSM-IV-MR-J score (= 4). ^e Vulnerable = High Risk/Low Protective.

^f Resilient = High Risk/High Protective. ^g Fortunate = Low Risk/Low Protective.

^h Ideal = Low Risk/High Protective.

¹Percentage

The sample size was greatly reduced from 1,273 to 362 when the extreme quartile splits were applied to the data for establishing these resilience categorizations. To determine whether the pattern of findings would change if the number of participants were larger, a second series of analyses was executed using the top and bottom third of the data (33rd and 66th percentile splits) to establish resilience categorizations. This procedure increased the sample size to 602. Analyses between these new resilience categories and DSM-IV-MR-J groupings revealed that 12.8% of the Vulnerable youth were classified as probable pathological gamblers and 17.3% were classified as At-Risk for developing serious gambling problems, figures that were again several times those of the community sample (3.7% and 7.0% respectively). Conversely, only 3.2% of the Resilient, and none of the Fortunate or Ideal youth were classified as probable pathological gamblers. Similarly, only 4.8% of the Resilient youth, 1.7% of the Fortunate youth, and 2.4% of the Ideal youth were classified as At-Risk Gamblers. Despite the same level of risk exposure, Resilient youth were still more likely to be classified as Non-Gamblers compared to Vulnerable youth (17.5% versus 10.2% respectively) (see Table 7). Differences between the resilience categories with respect to gambling severity were again significant, $\chi^2(9, N = 602) = 107.90, p < .001$. The pattern of results demonstrated by the new categorizations (33rd and 66th percentile splits) suggests that even as the number of participants increase, the pattern of results remains very similar to the striking findings from the original quartile split resilience categorizations delineated above.

Table 7

New Resilience Categorizations (33rd and 66th Percentile Split) by DSM-IV-MR-J Groups

Resilience Sample DSM-IV-MR-J Groups	Resilience Groups ¹ (n=602)			
	Vulnerable ^e (n=226)	Resilient ^f (n=63)	Fortunate ^g (n=59)	Ideal ^h (n=254)
Non Gambler ^a	10.2	17.5	25.4	31.1
Social Gambler ^b	59.7	74.6	72.9	66.5
At-Risk Gambler ^c	17.3	4.8	1.7	2.4
PPG ^d	12.8	3.2	0	0

^a GAQ score (0). ^b DSM-IV-MR-J score (0-1). ^c DSM-IV-MR-J score (2-3).

^d DSM-IV-MR-J score (= 4). ^e Vulnerable = High Risk/Low Protective.

^f Resilient = High Risk/High Protective. ^g Fortunate = Low Risk/Low Protective.

^h Ideal = Low Risk/High Protective.

¹Percentage

A Configural Frequency Analysis (CFA) was performed to further analyse the cross tabulations. CFA is a method for analysing whether groupings of individuals in cross-tabulations are more likely than chance alone to belong to a particular cell (von Eye, 2002). Individuals belong to a *type* if their particular resilience/gambling pattern occurs more often than expected by chance alone and to an *antitype* if their particular resilience/gambling pattern occurs less often than expected by chance alone. CFA addresses whether the observed data (cells) in cross-tabulations differ significantly from expected values. The expected values are calculated using methods employed in log-linear modeling on a-priori information. This statistical method allows one to make statements about empty data space in cross-tabulations. The CFA revealed that within the extreme first and fourth quartile groupings, Vulnerable/Non-Gamblers, Ideal/At-Risk Gamblers, and Ideal/PPGs occurred less often than one could expect by chance alone (antitype). Conversely, Ideal/Non-Gamblers, Vulnerable/At-Risk Gamblers, and Vulnerable/PPGs occurred more frequently than one could expect by chance alone (type). A CFA was also carried out for the resilience categorizations based on the top and bottom third (33rd and 66th) percentile splits. The findings for this CFA were the same with the exception that Fortunate/At-Risk Gamblers and Fortunate/PPGs also occurred less often than one could expect by chance alone.

Grade and gender differences in the extreme quartile resilience categorizations were examined by creating Chi Square analyses. Gender differences [$\chi^2(3, N = 359) = 12.04, p = .007$] revealed that more females (54.7%) than males (38.3%) were likely to be identified as *Ideal*. Conversely, more males (48.5%) than females (32.3%) were likely to be identified as *Vulnerable*. There were no other conspicuous differences between gender and resilience groupings (see Table 8). Grade differences were examined by collapsing grades 7 to 11 into three groupings; 7-8, 9-10, and 11 to facilitate examination of developmental differences. Grade grouping discrepancies [$\chi^2(6, N = 360) = 87.77, p < .001$] revealed that *Vulnerable* adolescents were most prevalent in grades 9-11 (54.1% of all grade 9-10 students and 48.7% of all grade 11 students) compared to grades 7-8 (13.6% of grade 7-8 students). Conversely, grade 7-8 students were most likely to be identified as *Ideal* (79.1% of all grade 7-8 students), whereas only 35.5% of grade 9-10 students and 26.9% of grade 11

students were identified as such. As well, grade 11 students were more likely to be identified as Resilient (17.9% of all grade 11 students) than students in any other grade (see Table 8).

Table 8
Resilience Categorizations by Grade and Gender

Resilience Sample	Resilience Categorizations ¹ (n=360)			
	Vulnerable ^a (n=146)	Resilient ^b (n=22)	Fortunate ^c (n=23)	Ideal ^d (n=169)
Gender				
Male	48.5	5.4	7.8	38.3
Female	32.3	7.3	5.7	54.7
Grade				
7-8	13.6	1.8	5.5	79.1
9-10	54.1	3.5	7.0	35.5
11	48.7	17.9	6.4	26.9

^a Vulnerable = High Risk/Low Protective. ^b Resilient = High Risk/High Protective.

^c Fortunate = Low Risk/Low Protective. ^d Ideal = Low Risk/High Protective.

¹Percentage

DATA ANALYSIS: CULTURE

One-way ANOVAs and Chi Square analyses were employed for univariate comparisons of cultural groupings. The post-hoc tests selected for the ANOVAs were the Tukey test if equal variance was assumed and the Games-Howell test if it was not. For significant Chi Square results, subsequent 2 x 2 Chi Square analyses were performed comparing the prevalence rate for each individual category to the mean rate of the other categories (e.g., Anglophone Social Gamblers were compared to non-Anglophone Social gamblers).

A binary logistic regression was then carried out to examine (a) the relative effect of culture on gambling after controlling for the effects of gender, age and selected predictors of problem gambling, namely resiliency, risk, coping style and family cohesion/adaptability, and (b) possible interaction effects between culture and the other variables. The outcome variable was coded as 0 = non gambler or social gambler and 1 = at-risk or probable pathological gambler. Using the enter method, age, gender and all predictor variables except culture were entered in the first step; cultural identity (0 = Francophone, 1 = Anglophone and 2 = Allophone) was entered in the second step, and all possible interaction effects between culture and the other variables were entered in the third step. A final regression analysis with all non-significant predictors (variables and interactions) excluded from the model, was then conducted.

RESULTS: CULTURE

Cultural Differences in Gambling Behaviour

The differences between cultural groups in terms of gambling frequency and risk category are presented in Tables 9 and 10. Francophone youth gambled less frequently and had fewer gambling problems. Lower proportions of PPGs, $\chi^2(1, 601) = 9.68, p = .002$; At-Risk Gamblers, $\chi^2(1, 601) = 6.15, p = .013$; and Frequent Gamblers, $\chi^2(1, 605) = 17.69, p < .001$ were found among Francophone boys. A lower proportion of Francophone girls were classified as At-Risk Gamblers, $\chi^2(1, 660) = 8.1, p = .004$. Allophone boys appear to be at greatest risk for gambling problems, as there were higher proportions of PPGs, $\chi^2(1, 601) = 6.13, p = .013$; At-Risk Gamblers, $\chi^2(1, 601) = 22.41, p < .0005$; and Frequent Gamblers, $\chi^2(1, 605) = 35.31, p < .001$. A higher proportion of Allophone Girls were Frequent Gamblers, $\chi^2(1, 660) = 3.95, p = .047$. The risk level of Anglophones generally fell between that of the other two groups. However, it is important to note that this grouping contained almost as many PPGs as the Allophones, yet had half as many frequent gamblers, $\chi^2(1, 605) = 6.40, p = .011$. In this respect, Anglophone boys demonstrated the greatest vulnerability to severe gambling problems. Table 11 presents the percentage of boys and girls from the three cultural groupings who participated in various types of gambling at least once a month. Among the three groupings, Allophone boys demonstrated the highest involvement in almost all forms of gambling, including those most associated with PG, such as VLTs, slot machines and casino type games (Chevalier & Allard, 2001). Few between group differences were found for girls.

Table 9

Comparison of Cultural Groupings by Gambling Frequency and Risk Category - Boys

	Francophone N = 141	Anglophone N = 192	Allophone N = 270	Total N = 605
Gambling Frequency				
Never (N = 102)	24.1*	17.7	12.5*	16.9
Less than monthly (N = 195)	39.0*	38.0*	24.6*	32.2
1-3 times a month (N = 148)	24.1	24.5	24.6	24.5
Weekly or more (N = 160)	12.8*	19.8*	38.2*	26.4
Gambling Risk Level				
Non-Gambler (N = 102)	24.1*	17.7	12.5*	16.9
Social Gambler (N = 413)	71.6	72.4	64.3*	68.5
At-Risk (N = 58)	4.3*	4.7*	15.8*	9.6
Probable Pathological (N = 30)	0*	5.2	7.4*	5.0

Note. Percentages are presented. *indicates that the prevalence rate of that cultural group is significantly different ($p < .05$, two-tailed) from the mean rate of the other two cultural groups for that value.

Table 10
Comparison of Cultural Groupings by Gambling Frequency and Risk Category - Girls

	Francophone N = 157	Anglophone N = 212	Allophone N = 291	Total N = 660
Gambling Frequency				
Never (N = 139)	24.2	24.1	17.2*	21.1
Less than monthly (N = 299)	44.6	44.3	46.4	45.3
1-3 times a month (N = 139)	22.9	19.8	21.0	21.1
Weekly or more (N = 83)	8.3	11.8	15.5*	12.6
Gambling Risk Level				
Non-Gambler (N = 139)	24.2	24.1	17.2*	21.1
Social Gambler (N = 487)	74.5	70.3	73.8	73.8
At-Risk (N = 25)	0*	4.7	3.8	3.8
Probable Pathological (N = 9)	1.3	0.9	1.4	1.4

Note. Percentages are presented. *indicates that the prevalence rate of that cultural group is significantly different ($p < .05$, two-tailed) from the mean rate of the other two cultural groups for that value.

Table 11
Comparison of Cultural Groupings by Participation in Different Types of Gambling

	Boys				Girls			
	Franco	Anglo	Allophone		Franco	Anglo	Allophone	
Cards	12.8	20.9	37.1	***	13.4	14.2	18.9	
Sports pools	9.9	16.7	23.2	**	3.2	8.1	9.3	
Sports lottery	2.8	3.1	10.0	**	0.6	1.4	3.8	
Lottery	5.7	5.8	11.9	*	10.8	11.8	9.0	
Video games	6.4	8.4	12.5		1.3	1.9	2.1	
VLTs	0.7	1.0	6.7	***	0	0.9	2.8	
Bingo	0.7	2.6	3.7		3.2	2.8	4.8	
Slot Machines	2.1	0	7.4	***	0.6	2.4	3.4	
Sports/games played	7.1	13.0	23.0	***	1.9	3.3	7.6	*
Race track	0	0.5	2.2		0.6	0	2.1	
Casino-type games	0.7	3.6	8.5	**	0.6	0.9	3.8	*
Internet	1.4	1.0	4.0		0.6	0	0.7	

Note. Presented is the percentage of respondents who participate once a month or more in the gambling activity

* $p < .05$; ** $p < .01$; *** $p < .0005$

Since the Francophone youth were on average older, the same analyses were performed on a subsample consisting of 16 year old boys and girls only; this age being selected because it represented the largest group sizes. After 14 males were randomly deleted from the minority group, each group consisted of 54% females and 46% males. Consistent with the previous comparisons, cultural groupings were significantly different with respect to

problem gambling (the at-risk and probable pathological gambler categories were combined, as were the social and non-gambler categories), $\chi^2(2, 321) = 12.89, p = .002$, and gambling frequency, $\chi^2(5, 321) = 19.29, p = .004$. Allophones had the highest proportions of problem gamblers and frequent gamblers. Of the six types of gambling for which statistical comparisons are possible, i.e. less than 20% of cells have an expected count of less than five, four showed significant group differences; these were card playing, $\chi^2(2, 321) = 9.34, p = .009$, sports pools, $\chi^2(2, 321) = 13.94, p = .001$, sports lotteries, $\chi^2(2, 320) = 9.65, p = .008$ and wagering on sports and games played, $\chi^2(2, 321) = 11.21, p = .004$. Once again, Allophones showed the highest participation rates.

Unfortunately, the number of participants in each linguistic minority group was insufficient to permit more definitive and accurate estimations of their gambling behaviour. However, the prevalence of problem gambling for the largest groups is presented for information purposes. The largest minority group for boys was Italian (N = 102; 17.6% At-Risk, 8.8% PPG), followed by Hispanic (N = 46; 8.7% At-Risk, 8.7% PPG), East Asian (N = 36; 11.1% At-Risk, 8.3% PPG), and Portuguese-speaking youth (N = 25; 8.0% At-Risk, 0% PPG). The largest minority group for girls was also Italian (N = 97; 8.7% At-Risk, 1.0% PPG), followed by Hispanic (N = 61; 4.9% At-Risk, 1.6% PPG), East Asian (N = 32; 9.4% At-Risk, 0% PPG), and Portuguese-speaking youth (N = 24; 8.3% At-Risk, 0% PPG). Based upon these results, the high prevalence of gambling problems found among Allophone boys appears to be attributable to several linguistic minority groups.

Factors Related to Problem Gambling

The number of Francophone Problem Gamblers (At-Risk and PPGs combined) was insufficient to permit statistical comparisons with the problem gamblers of the other cultural groupings. As a result, Allophone problem gamblers were compared to Non-Allophones on the two dimensions of family functioning, the five variables assessing coping, the 11 subscales concerning resiliency and the eight risk factors. In summary, t-tests revealed few meaningful differences, however, Allophone problem gamblers scored higher on measures of self-control ($t = 2.00, p = .048$) and assertiveness ($t = 2.30, p = .024$) on the resiliency scale. Independent of cultural background, the factors traditionally associated with PG affected all adolescents with gambling problems in a similar manner.

Finally, whether problem gambling amongst Allophones was associated with acculturation difficulties was examined. Since almost twice as many males reported acculturation difficulties, gender issues were considered. A Chi-Square comparing respondents with respect to whether or not they had gambling problems (At-Risk and PPGs combined) and whether or not they “had a hard time fitting in” because of their cultural background, was performed. Acculturation problems was positively associated with problem gambling for males, $\chi^2(1, 272) = 8.73, p = .003$. Fifty percent of those with acculturation issues also had gambling problems, compared to 21% of Allophone youth with no acculturation problems. However, it is important to note that only 5.9% of Allophones reported having acculturation problems. The sample size was insufficient to test for differences among females.

Relative Effect of Cultural Affiliation on Problem Gambling

The principal variables examined in the study (not subscales) were entered as predictors in a binary logistic regression. Gender, age, emotional reactions to stress (CISS), resiliency (IPFI), and risk (EMT) were found to contribute significantly to the prediction of problem gambling and were included in the final regression model. Single parent status, family functioning (FACES II), and both task-oriented and avoidance coping strategies (CISS) did not add significantly to the prediction of problem gambling, so they were excluded from the final regression model. All possible interaction terms between culture and the other variables were also entered in the initial model; only the interaction term between cultural affiliation and resiliency proved significant, and was therefore entered into the final model. The Hosmer and Lemeshow test was non-significant, indicating an adequate model fit. A test for possible outliers revealed only one subject with a z-residual score above 3; this is acceptable in analyses involving a large sample size (Newton & Rudestam, 1999). Table 12 presents the final regression model, specifically the odds ratios and confidence intervals of the variables at step 2 and the β value of the interaction term at step 3. Even after controlling for the relative effect of age, gender, and predictor variables, the inclusion of cultural identity improved the prediction of problem gamblers. Allophones were 5.4 times more likely than Francophone youth to possess some degree of gambling problems. In order to understand the direction of the interaction, the sample was divided in half from the median IPFI resiliency score. While problem gamblers were generally more likely to possess low scores, subsequent analysis revealed that 100% of the Francophones with gambling problems scored below the median on this resiliency scale, compared to 84% of Anglophones, and 77% of Allophones. Hence, the relationship between resiliency and problem gambling was stronger for Francophone youth than for the other groupings. However, since older youth tend to have lower resiliency scores, this interaction effect may be attributable to the Francophone grouping being older.

Table 12
Sequential Logistic Regression Predicting Problem Gamblers - Final Model

	Odds Ratios	95% Confidence Intervals	<i>p</i> values
Step 2			
Age (age 16 and older)	0.538	.338-.857	.009
Gender (male)	3.462	2.172-5.516	.0005
Emotional reaction to stress	1.028	1.005-1.051	.01
EMT Risk factor scale	0.428	.272-.675	.0005
IPFI Resiliency scale	0.175	.094-.326	.0005
Cultural identity			
Francophone (referent)			
Anglophone	2.329	.998-5.438	.051
Allophone	5.121	2.352-11.153	.0005
Step 3			
Anglophone x Resiliency	$\beta = 3.826, p = .023$		
Allophone x Resiliency	$\beta = 4.207, p = .011$		

Note. For both Risk and Resiliency scales, a high score indicates fewer problems

DISCUSSION

Youth Gambling Behaviour

Prevalence rates for youth gambling behaviour revealed that 81.9% of youth are gambling, with most best described as *Social Gamblers* (70.3%). Social Gamblers generally gamble in an infrequent manner and experience few, if any, negative consequences. These individuals appear to have control over their gambling behaviour, gambling in a responsible manner. Problem gamblers made up 10.7% of the community sample; 7.0% At-Risk and 3.7% Probable Pathological Gamblers (PPGs). These findings are consistent with recent youth gambling prevalence research (Derevensky & Gupta, 2004a; Dickson et al., 2004; Jacobs, 2004). As expected, a greater proportion of males engaged in the At-Risk and Probable Pathological levels of gambling severity compared with females, findings that were again consistent with previous research (Jacobs, 2000, 2004; NRC, 1999). Gambling severity increased with grade level from grades 7 through 10, at which point it began to decrease toward the end of high school. Although this curvilinear trend is similar to that of other adolescent problem behaviours (Romer, 2003), it is less common in youth gambling research. However, Dickson (2004) identified a similar developmental trajectory with a rate of probable pathological gambling decreasing in the final year of Ontario high school students. Gender differences within grades revealed that male gambling behaviour followed this same trajectory across grades. However, females demonstrated only minor changes across grades and followed a different trend; first decreasing and then briefly increasing for grade 10 only.

Resilience

There exists a high degree of correlation between risk factors that predispose youth to problem gambling and those that predispose youth to other high-risk behaviours (e.g., substance abuse and delinquency) (Dickson et al., 2002, 2004). This overlap in risk factors has led to the integration of a general *Adolescent Risk Behaviour Model* set out by Jessor (1998). Despite the presence of some or many of these risk factors, certain children never develop anticipated maladaptive behaviours; such adolescents are thought to be *resilient*. The present study focused on the relationship between resilience and youth gambling behaviour. Self-reported risk exposure and individual protective factor ratings were examined in relation to gambling severity. More specifically, this research was designed to determine whether youth identified as *Resilient* (individuals with high external risk exposure and high internal protective factor rating) were as likely as youth identified as *Vulnerable* (high external risk exposure and low internal protective factor rating), *Ideal* (low external risk exposure and high internal protective factor rating), and *Fortunate* (low external risk exposure and low internal protective factor rating) to demonstrate excessive and problematic gambling behaviours. Clearly those identified as Resilient were less likely to have a gambling problem.

Risk and Individual Protective Factors

There was a significant negative linear relationship between gambling severity and degree of reported individual protective factors. As personal protection increased, gambling severity decreased. The IPFI scale has limited variability with scores ranging from only 1 to 4. The greatest scaled score difference was between the Non-Gambler and PPG groups

(0.53). The small but statistically significant discrepancies may be due in part to the large community sample size ($N = 1,266$). As such, these findings alone may not translate into practical implications for applied prevention and intervention efforts. However, it should be noted that although the potential variability in the scale was small, the relationship between IPFI ratings and gambling severity was in the anticipated direction.

The IPFI consists of three domains and 10 subscales; Social Bonding (pro-social norms, school-bonding, and family bonding), Personal Competence (self-concept, self-control, self-efficacy, and positive outlook), and Social Competence (assertiveness, confidence, and cooperation). All mean domain and subscale scores differed significantly across gambling groups in a negative linear direction, suggesting that protective factors decreased (regardless of domain or subscale) as problem gambling behaviour increased. Main effect values were greatest for the Social Bonding domain, followed by Personal Competence, and Social Competence. Main effect values for IPFI subscales were greatest for self-control, followed by pro-social norms, school bonding, family bonding, self-efficacy, cooperation, positive outlook, self-concept, confidence, and assertiveness. These results further suggest the *Adolescent Risk Behaviour Model* (Jessor, 1998) as suggested by Dickson and colleagues (2002, 2004), is a useful model for explaining excessive gambling behaviour. The protective factors listed in the model correspond to the social bonding, personal competence, and social competence domains of resilience, all of which appear to be significant in the deterrence of gambling problems in youth.

EMT Risk Measures Addendum

There was a significant positive linear relationship between gambling severity and degree of risk exposure. As gambling risk exposure increased, gambling severity also increased. Although mean differences were in the correct direction, differences were again small. The EMT Risk Measures Addendum scale, like the IPFI has limited variability with scores ranging only from 0.81 to 3.45. The greatest scaled score difference was between Non-Gamblers and PPGs (0.49). As well, unlike the IPFI, the EMT Risk Measures Addendum is not standardized. With no normative data, the relationships between risk exposure and gambling severity are more difficult to interpret. Gender differences revealed that males were significantly more likely than females to score high on risk exposure. This is consistent with the finding that males were also more likely to be classified as problem gamblers (a high-risk behaviour) than females. Not surprisingly, developmental differences between grades were significant in a positive linear direction; with risk exposure increasing with grade level. Statistically significant mean differences between gambling severity and gender and grade level were again very small. The largest grade discrepancy was between grades 7 and 11 with a mean difference of 0.28. Once again, these findings alone may not have practical significance for applied prevention and intervention efforts.

Despite variation in definitions of resilience, two central constructs exist in virtually all definitions, that is, *risk* or *adversity*, and *positive adaptation* or *competence* (Luthar, 1997). A widely used and simplified definition for resilience is therefore the existence of manifest competence in spite of exposure to significant adversity (Rolf, 1999). The IPFI was developed as an adolescent measure of resilience for high risk youth. However, the measure does not in itself include a component on adversity. Data collected for this

research was geared toward a community population rather than a high-risk population. Therefore, to examine resilience, categories of resilience were established. This was accomplished by combining extreme quartiles of risk and individual protective factor ratings together. In doing so, a *Resilient* category (high risk and high individual protection), a *Vulnerable* category (high risk and low individual protection), a *Fortunate* category (low risk and low individual protection), and an *Ideal* category (low risk and high individual protection) were established.

There were significant mean differences in cumulative gambling severity scores on the DSM-IV-MR-J between the group identified as Vulnerable and all three other resilience categories. Analyses revealed that in fact the Vulnerable group had a mean gambling severity score nine times larger than the mean of the Resilient group, eight times larger than the mean of the Fortunate group, and 13 times larger than the mean of the Ideal group. The Vulnerable group gambling severity mean score was also more than three times that of the full community sample. Individuals identified as Vulnerable (combined high risk exposure and low internal protection level) are at greatest risk of engaging in gambling activities. Conversely, the *Ideal* group (combined low risk exposure and high internal protection level) had a mean gambling severity score that was well below the mean of the sample. Individuals identified as *Ideal* are therefore least likely to engage in gambling activities, and/or to meet the criteria for excessive gambling behaviour. Even when resilience categorizations were re-established to increase the sample size by using top and bottom third (33rd and 66th) percentile splits to double the sample size, the pattern of results remained similar to that of the quartile categorizations. These results reflect recent clinical findings in the treatment of youth gambling problems (Gupta & Derevensky, 2004).

Gender differences for the quartile resilience categorizations revealed a significant trend for females to be identified as *Ideal* more frequently than males (54.7% versus 38.3%) and for males to be identified as *Vulnerable* more frequently than females (48.5% versus 32.3%). Developmental differences revealed that *Vulnerable* adolescents were most frequently in grades 9-10 (54.1% of all grades 9 and 10 students) as opposed to grades 7-8 (13.6% of all grades 7 and 8 students). Not surprisingly, this demonstrates that middle adolescence may be a particularly difficult and vulnerable time for youths. Interestingly, after grades 9-10, the ratio of youth identified as *Vulnerable* began to decrease. It would be useful to follow up this research with older participants to determine whether and when this trajectory for vulnerability continues to decrease. Grade 7 and 8 students (79.1%) were the most frequently identified as *Ideal*, while grade 11 students were the least frequently identified as *Ideal* (26.9% of all grade 11 students).

If there were no significant differences in gambling severity across resilience categorizations, similar distributions would be expected across the categorizations as those found in the general population. The gambling prevalence rates from the full community sample ($N = 1,273$; 19.1% Non-Gamblers, 70.3% Social Gamblers, 7.0% At-Risk Gamblers, and 3.7% PPGs) were consistent with those of other prevalence ratings in the general population (Derevensky & Gupta, 2004a; Dickson et al., 2004). However, analyses between the resilience categories and DSM-IV-MR-J gambling classifications revealed significant deviations from general population prevalence rates. Most remarkable was the

finding that 100% of youth classified as PPGs, and 86.7% of youth classified as At-Risk for developing severe gambling problems were members of the Vulnerable group. Strikingly, only 4.3% of youth identified as Resilient were classified as At-Risk Gamblers, and none were classified as PPGs despite their reporting equally high levels of risk exposure as the youth identified as Vulnerable. Similarly, none of the Fortunate youth were classified as problem gamblers, and only 1.8% of the Ideal group was classified as such. The figures for the Resilient, Fortunate, and Ideal youth are well below current youth problem gambling prevalence rates in the general population and in the community sample (10.7%). These findings suggest that particularly low levels of risk exposure and/or high levels of individual protective factors may inhibit the development of problem gambling behaviour. These results also support the *Adolescent Risk Behaviour Model* (Jessor, 1998) which conceptualizes risk and protective factors as interactive forces across various domains. Conversely, 37.9% of adolescents identified as Ideal and 33.3% of those identified as Fortunate were Non-Gamblers. These figures are well above that of the Non-Gambling classification in the full community sample (19.1%).

Even when resilience categorizations were re-established using top and bottom third (33rd and 66th) percentiles splits to double the sample size, the pattern of results remained strikingly similar to that of the quartile categorizations. Configural frequency analyses confirmed that the significance of these extreme findings were not due to chance alone. Vulnerable problem gamblers and Ideal Non-Gamblers occurred more frequently than expected by chance alone. Conversely, Vulnerable Non-Gamblers and Ideal problem gamblers occurred less frequently than may be expected by chance alone.

The main predictor of probable pathological gambling appears to be a low self-reported level of individual protective factors combined with a high self-reported level of risk exposure. This finding may have meaningful implications for prevention and intervention efforts that target youth gambling behaviour. Although risk exposure is sometimes difficult, if not impossible, to remedy (e.g., paternal pathological gambling, history of physical abuse), it may be possible to enhance social bonding, personal competence, and social competence skills in children.

Although there is little resilience research in the area of addictions that specifically targets adolescents, the research that does exist supports these findings. For example, research regarding children of alcoholics has demonstrated that the main predictors of delinquency and substance youth include dispositional (aggressiveness and antisociality), familial (parental characteristics and coercive disciplinary practices) and social (unpopularity) vulnerability variables (Vitaro, Dobkin, Carbonneau, & Tremblay, 1996). As well, the *Adolescent Risk Behaviour Model*, lists protective factors in various domains (biological, social, environment, personality, and behavioural) that correspond to the resilience domains of social bonding, personal competence, and social competence. The current study confirms past research which identified these dimensions as being important predictors of maladaptive outcomes for individuals. The importance of resilience research rests in its applicability to the field of prevention. It is acknowledged that gambling problem prevention efforts need to be empirically science based (Derevensky et al., 2004) with the

efficacy of these programs being dependent upon conceptually driven research on resilience (Luthar et al., 2000).

Cultural Influences on Adolescent Problem Gambling

Notable differences were found in the gambling behaviour of Anglophone, Francophone and Allophone youth. Taken with the results of previous studies, there is strong reason to believe that the rate of problem gambling and frequent gambling among Francophone youth is lower than that of other youth in the province. Given that the earlier of the two principal studies in this field (Chevalier et al., 2000) found no significant differences between Francophone and Non-Francophone youth in terms of frequent and problem gambling, one wonders whether the cultural differences in gambling behaviour may be a more recent trend amongst adolescents in Quebec. The results suggest significant differences between Anglophone and Allophone youth as well. Compared to Allophones, Anglophone boys had almost as many probable pathological gamblers, yet only half the amount of youth who gambled on a weekly basis. This may be an indication that Anglophone youth are more prone to developing gambling problems. A cautionary note should be made since each cultural grouping was represented by only several hundred youth and all were living in the same region of the province. As such, while highlighting cultural variability the prevalence rates reported in this study should not be taken as precise prevalence estimates for the entire population. In fact, given that none of the Francophone youth met the criteria for pathological gambling, one would naturally expect the true prevalence rate for problem gambling to be somewhat higher. Further research is needed to garner precise estimates of the prevalence of problem gambling among the different cultural groups in Quebec. Nevertheless, the results are consistent with the majority of cross-cultural studies in finding that cultural factors influence gambling and PG rates. They also support the conjecture of Derevensky et al. (2003) that the wide variability in prevalence rates of youth problem gambling reported in recent Quebec studies may be due to cultural and linguistic factors and not because of conceptual and methodological difficulties as suggested by Ladouceur et al. (2000). Studies reporting higher general prevalence rates of problem and pathological gamblers (e.g., Derevensky & Gupta, 2000; Gupta & Derevensky, 1998) sampled a higher proportion of Allophone and Anglophone youth than Ladouceur et al. (2000) who sampled a primarily Francophone population.

Consistent with numerous studies indicating that gambling problems are more widespread among minority youth (Wallisch, 1993, 1996; Zitzow, 1996), cultural and ethnic minority individuals demonstrated the greatest risk for problem gambling. In the present sample, these were most commonly adolescents of Italian, Hispanic, Arabic, Portuguese and Chinese decent. It should also be noted that the adolescents assessed in the current study generally attended schools located in suburbs outside of the city's center; not areas where recent immigrants typically settle upon arriving in Montreal. As well, the SES of the students in the participating schools was above the provincial average, according to data from Cowley and Marceau (2000). We therefore suspect that many of the Allophone youth tested were second or third generation immigrants, or recent arrivals from a higher socio-economic class.

A compelling question remains as to why cultural differences in the rate of problem gambling actually exist given similar opportunities and possible venues. Congruent differences were found in terms of gambling frequency (i.e., Allophones gambled the most often, followed by Anglophones, then Francophones). An examination of patterns of play demonstrated that Allophones participate more regularly in several forms of gambling, including cards, VLTs and slot machines. All of this leads us to suspect that part of the reason why Allophone, and to a lesser degree Anglophone youth, demonstrated a greater risk for gambling problems is that they participate more regularly in gambling activities, including activities associated with higher rates of general gambling problems (e.g., VLT playing). An interaction effect was found between the composite IPFI scores and culture suggesting that the link between resiliency and problem gambling may be stronger for Francophones. This is speculative as age differences between groupings may have influenced the results. Allophones may have reported more gambling problems in that they experienced difficulties integrating with the mainstream culture (Raylu & Oei, 2004). In the present study, youth who indicated that they experienced acculturation difficulties were more than three times more likely to experience gambling problems. However, overall, only a small percent (5.9%) of Allophone youth reported experiencing acculturation difficulties and as such caution in interpretation of the data is warranted.

This study was hindered by a number of methodological difficulties. Firstly, the groups were not equal with respect to age. Nevertheless, it seems unlikely that age differences distorted the main findings of this study. Firstly, analyses limited to 16 year olds yielded the same results. Secondly, the logistic regression demonstrated that culture remains a significant predictor of problem gambling even after controlling for age. Unfortunately, we were unable to obtain information on the participant's race, religion, country of origin, or other aspects of their cultural identity due to school board constraints. The generalizability of the results may be limited because the sample was drawn solely from public schools located in suburban neighbourhoods and may not be truly representative of the population at large. Private school students, rural students and dropouts may exhibit different gambling patterns. Finally, it is also possible that the Anglophone and Allophone communities in Quebec make up unique cultural groups in and of themselves, and may not be entirely representative of English-speaking and linguistic minority groups elsewhere. Migration patterns and bilingualism are but two factors that have been shown to distinguish these groups.

The current study adds to the growing body of evidence indicating that youth from different cultural backgrounds are not equally at risk of developing gambling problems. More importantly, the present results suggest that minority groups may be at increased risk for reasons that go beyond poverty and other disadvantages. Further the important role resiliency play in addressing all adolescent risk behaviours is underscored.

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