

Rapport de recherche

PROGRAMME ACTIONS CONCERTÉES

Le projet ENHJEU : Analyse contextuelle des jeux de hasard et d'argent chez les étudiants universitaires

Chercheur principal
Sylvia Kairouz, U. Concordia

Co-chercheure
Louise Nadeau, U. de Montréal

Établissement gestionnaire de la subvention
Université Concordia

Numéro du projet de recherche
2008-JA-124820

Titre de l'Action concertée
Impacts socioéconomiques des jeux de hasard et d'argent - Phase 2, 2e concours

Partenaire(s) de l'Action concertée

Soumis au
Fonds Québécois de la recherche sur la société et la culture (FQRSC) et le Ministère de la Santé et des
Services sociaux (MSSS)

Table of Contents

- PART A – RESEARCH CONTEXT4**
 - Issue 4*
 - Main research questions..... 6*
 - Objectives and hypotheses..... 6*
- PART B – POTENTIAL SOLUTIONS AND RESULTS, IMPACTS AND
IMPLICATIONS OF THE RESEARCH.....7**
 - Audience 7*
 - Meaning 7*
 - Impacts..... 8*
 - Limits 8*
 - Messages..... 9*
 - Main potential solutions 9*
- PART C – METHODOLOGY.....10**
 - Sample 10*
 - Measures..... 10*
 - Weighting..... 10*
- PART D – RESULTS.....11**
 - Prevalence of gambling and gambling problems 11*
 - Describing gambling patterns 12*
 - Individual and contextual determinants of gambling patterns and
problems 14*
 - Alcohol and illicit drug use 16*
 - Gambling severity and associated problems..... 17*
- PART E – RESEARCH APPROACHES19**
- PART F – REFERENCE AND BIBLIOGRAPHY20**

LIST OF APPENDICES

APPENDIX 1: Literature review

APPENDIX 2: Conceptual model

APPENDIX 3: Methodology

APPENDIX 4: Tables

APPENDIX 5: Questionnaire

APPENDIX 6: Data sharing protocol and forms for ENHJEU database

APPENDIX 7: Codebook of variables

APPENDIX 8: Codebook of derived variables

PART A – RESEARCH CONTEXT

Issue.

Since its legalization, the prevalence of gambling and problem gambling has increased in western societies including Canada [1]. Gambling is now a major concern for public health particularly when dealing with social groups considered at risk such as university students. University life constitutes a crucial period in the life of almost a quarter of all Canadians, and it is associated with risky patterns of gambling and a high prevalence of problem gambling. Indeed, college students constitute a subpopulation marked by increased vulnerability to any form of risky or addictive behaviors such as at-risk drinking, tobacco and illicit drug use [2-4]. As emerging adults, they experience significant changes on both personal and social levels. Gambling as well as substance use would represent attractive opportunities for new experiences when exploring/defining self-identity [4]. Yet, most studies have either focused mainly on adult and adolescent populations, largely ignoring this middle group of young adults, or when addressing the issue of gambling and the other risk behaviors related to it, done so in a descriptive way.

A recent meta-analysis, including Canadian and US studies, reveals that between 22 and 25% of students report to gamble at least once a week [5, 6]. This prevalence rises to 52% in male subsamples [7], with between 3% and 8% of this group being identified as pathological gamblers [8-10]. Findings from the Canadian campus survey conducted with a representative sample drawn from 49 Canadian university campuses revealed that 62% of students report gambling over the year preceding the survey, with 13.2% being low-risk gamblers, while 6.2% being considered at moderate-risk for problems or problem gamblers [11]. These figures are significantly higher than the prevalence observed in the general Canadian population where there are 1.5% at moderate-risk gamblers and 0.5% problem gamblers

[12] (see appendix 1).

Despite the validity and relevance of population health state estimates produced by large epidemiological surveys, these analyses often restrict the description of gambling behaviors to an individually-based level ignoring the role of the social context as a key determinant of health behaviors. Thus, psychosocial multilevel explanatory models remain scarce. In response to these limits, this project (ENHJEU) builds on a tripartite model encompassing individual, activity-related, and contextual factors as intrinsically related determinants acting in synergy to predict patterns of gambling among university students (see appendix 2).

ENHJEU derives its conceptual background from social epidemiology theories, which view social and physical environments as crucial determinants in health behaviors [13]. It also draws on 'lifestyle' theory of health (Health Lifestyles) [14], which posits that individual behavior results from the interaction between the perceived and actual opportunities offered by the social environment (structure) and a set of choices posed before the individual by these structural conditions (also called agency). The resulting model assumes that gambling activities do not occur in a social vacuum, but in a context in which the physical, social, relational and symbolic orders largely determine the likelihood and way of playing for a player [15-18][15-18]. Thus, we recognize that contextual factors form a set of risks that interacts with individual vulnerabilities to predict gambling patterns [19]. This view of context as a more universal level of explanation was successfully applied in alcohol research, including our own work [15, 20], which revealed its ability to explain and predict risky behaviors.

Moreover, gambling often occurs in conjunction with other potentially addictive behaviors, such as alcohol consumption and illicit drug use, which together form a set of common risk factors explaining the co-occurrence [21]. Therefore, the modelling of gambling and problem gambling determinants must take these enabling factors into account.

In sum, it is our contention that comprehensive multilevel explanatory models are necessary

to support recommendations and provide basis for concerted intervention actions on the levels of both the gambler and the gambling environment.

Main research questions

For a better understanding of gambling patterns and risk of gambling dependence, we propose to examine gambling behaviors in relation to the social and physical contexts in which the activity occurs, using data both from a population survey and focus groups interviews. By adopting a multilevel approach, we will be able to address the problem of gambling on a continuum of severity, thus identifying the contextual and individual factors characterizing social gamblers, gamblers at moderate risk, or problem gamblers. However, the major contribution of this approach is to recognize that gambling behaviors remain largely dependent on the context in which they occur and, therefore, *for the same person*, gambling behaviors may vary significantly from one context to another and from one activity to another.

Objectives and hypotheses

- Estimate past year prevalence of gambling behaviors and problem gambling among university students;
- Describe the patterning of gambling behaviors and problem gambling according to 1) the characteristics of the gambler, 2) the gambling activity, and 3) the gambling context;
- Develop an integrative prediction model of the time spent gambling and the amount of money invested in the game based on individual and contextual factors;
- Estimate the prevalence of alcohol and illicit drug use among university students;
- Examine the relationship between the severity of gambling problems and the patterns of alcohol and illicit drug use and psychological distress;

PART B – POTENTIAL SOLUTIONS AND RESULTS, IMPACTS AND IMPLICATIONS OF THE RESEARCH

The ENHJEU project has several implications on the conceptual, methodological and prevention levels.

Audience

The findings are of interest to the scientific community as they bring about the importance of a multilevel, multidimensional approach when examining the patterning of gambling behaviors in the population, and their interaction with other risky behaviors. ENHJEU has shown that individual behaviors are determined by the concerted action of characteristics of the gambler, the gambling context and the gambling activity in support with traditional tripartite model in social epidemiology. For university communities, this study provides evidence-based knowledge calling for comprehensive substance-related and gambling policies on campus along with prevention efforts. The portrait that this study has generated calls for universal prevention strategies to disseminate information among students and increase awareness of the harm related to addictive behaviors. However, the study results also showed that a significant proportion of students are at-risk for multiple addictions and experience heightened levels of distress. Thus, targeted actions and specialized services might also be needed to provide support and treatment for students who report dependence to substances and/or gambling.

Meaning

One of the major conclusions of this project is to reiterate the vulnerability of students to potentially addictive behaviors. As emerging adults, students experience a major transition towards greater autonomy, negotiating new identities and relationships. Novelty is sought also through experiences involving the use of substances and gambling. Most students are likely to mature out through the years and will engage in a healthier lifestyle. However, for students experiencing severe problems, help and services should be available primarily to

accompany them through those transitional years and surely to help them overcome serious problems that might likely have an impact later in life. Thus, universal prevention focusing on environmental and contextual components and individual abilities could be thought of as promising ways to promote healthy living during the years of passage in university. Moreover, targeted interventions should be made available to support students in distress, and those who struggle with substance-related and/or gambling problems.

Impacts

This project has generated a large database on gambling collected among a representative sample of university students in Montreal. This resource is available for the community of researchers and students interested in this topic. The data sharing protocol and procedures are reproduced in appendix 6.

Beyond the mere description of gambling prevalence rates, the questionnaire details in length the contexts of gambling, including the location, the type of partners and the reported problems for 10 different activities. Using a mixed-method approach, the data provided means to generate comprehensive and insightful models for understanding the experiences of social and problem gamblers.

The study was sensitive to the multicultural identity of Montreal and provided opportunities to investigate gambling in a cultural perspective. Ultimately, this project can be thought of as a global sensor for cultural variability and more generally for the exploration of the social patterning and differences in the distribution of risky behaviors.

Limits

Population surveys have limits and ENHJEU is not an exception. Surveys response rates have been decreasing steadily over the last decade or so [2]. Those trends have been even more pronounced among younger populations including students. Although we have maximized the recruitment strategy by using a mixed-method approach, the response rate is still situated around 37%. Generally considered acceptable, this situation may raise questions about the

representativity of the sample. Although we have been able to identify an overrepresentation of women in the sample which we addressed in the weighting procedure, the ability to equally reach severe and social gamblers, heavy and light drinkers, Canadian-born students and students born abroad should be raised. The reliability of the estimation is insured by the sample size but the rate of participation of the various social groups could be a limitation to the generalizability of the results.

Messages

For the scientific community, this study reveals the importance to consider risk behaviors in relation to the context in which they occur. This multilevel approach favored a comprehensive approach of the determinants of health-related behaviors.

For universities and public health stakeholders, the study showed that prevention is needed in the university milieu targeted at the university context as well as with students. Students should be considered at a higher risk compared to the general adult population and universal and targeted prevention strategies along with adapted services are needed.

Main potential solutions

Solutions are mostly situated at the prevention level, which should be comprehensive and multilevel in nature. For instance, preventive actions are deemed to be effective when they tackle concurrently awareness and information along with comprehensive policies on campuses. Still, for university students, a harm-minimization strategy is important given the role contexts play in explaining the occurrence of excessive behaviors. However, for some students, severe gambling problems, at-risk use of substances as well as psychological distress seem to co-occur. For those severe cases, the access to specialized services and treatment should be insured through the campuses internal services and through collaborations with external specialized treatment facilities. The student population is heterogeneous and services should be shaped in a way to adequately respond to their varying needs.

PART C - METHODOLOGY

Sample

A population-based survey was conducted among university students. We employed a campus-stratified selection of undergraduate students enrolled in full-time studies in accredited universities and affiliated schools in Montreal during the 2008-2009 Fall session (see Appendix 3). Of the four universities and three affiliated schools that met the eligibility criteria, three universities and three affiliated schools agreed to participate. Within each participating university, 1,500 undergraduates were randomly selected with equal probability in the two French-speaking universities and 3,000 were selected in the English-speaking university for a total of 6,000 undergraduates. Samples were selected within schools in proportion to their population within the university. The final study sample consisted of 2,139 students for an overall response rate of 41%. Participants ranged in age between 17 and 51 years (M age = 22.62 years; SD = 4.33), of whom 62.6% were female. The survey employed a mixed-mode method, allowing students to choose between web-based and mail-based completion. The advantages are too numerous to limit oneself on one mode [22-24] (see appendix 3). Students were asked for consent to be contacted for an in-depth interview on gambling and 26 individuals took part in the follow-up study (see Appendix 3).

Measures

The questionnaire included 332 unique items covering six domains: gambling (activities, locations, partners and severity), alcohol and drug use (lifetime, past year and past month) and heavy drinking, psychological distress, impulsivity, and demographics (see appendix 3).

Weighting

Population and sampling weights have been calculated. Population weights were applied when calculating population estimates whereas sampling weights were applied when calculating estimates of proportions correcting for variance estimates.

PART D - RESULTS¹

Prevalence of gambling and gambling problems

More than half of all university students (60.5%) engaged in at least one gambling activity during the past year, with *lottery tickets* (39.3%) being the most preferred activity followed by *table poker* (19.5%) and *video lottery terminals* (VLTs)(17.6%)(see Table 1). Conversely, the least preferred gambling activities were *horse and dog racing* (0.7%), *card and board games* (3.1%), and *bingo* (3.9%). Overall, 88.6% of the student population were identified as non-problem gamblers with 41.1% being non gamblers and 47.5% non-problem gamblers (score of 0 on the CPGI). Almost 7.8% of the student population were at low risk for gambling problems (score = 1-2 on the CPGI), and 2.8% were categorized as gamblers with moderate risk for problems (score = 3-7 on the CPGI), and 0.9% as problem gamblers (score of 8 or more on the CPGI). It was estimated that a substantial segment of students who gamble were at moderate-risk for gambling problems (4.7%) or experience problems due to gambling (1.5%). Almost half of students reported betting on only one gambling activity predominantly *lottery* (56.7%), followed by *poker games* (15.8%) and *VLTs* (9.8%); 30% gambled on two activities mostly *lottery* and *VLTs* (25.4%) and *lottery* and *poker games* (18.2%) and, to a lesser extent, *lottery* and *games of skills* (8.5%) and *poker* and *VLTs* (6.3%); 13% of students gambled on three different activities and 6.9% on four activities or more (see Table 2).

Gambling and gambling problems were not equally distributed in the student population (see Table 3 & 4). Men were 1.6 times more likely to gamble and to be at-moderate risk or to experience problems with gambling compared to women. Gambling rates also differed along ethnic lines. Accordingly, students born outside Canada, and students who reported

¹ All tables are reported in appendix 4.

speaking a foreign language at home alone or along with one or both official languages were significantly less likely to gamble and to be identified at moderate-risk for problems or as problem gamblers compared to their fellow students born in Canada or those using any one official language at home.

We assessed also students' self-perception of experiencing problems in life areas due to gambling. Almost 9% of students who gambled reported experiencing problems in at least one of the four areas, the highest percentage of problems being on the financial level (6%) followed by problem with the family (3.7%), studies (3.3%) and relations with friends (3.1%). When examined by type of activities, the highest percentage of problems in all areas is reported by students who gamble on table games followed equally by those who bet on poker and sports (see Table 5).

Key Findings

University students are less likely to gamble than the general adult population but they are more likely to be at-risk for problem or problem gamblers.

Almost 6.1% of students are estimated to be at moderate risk for problems or problem gamblers.

Almost 9% of students reported experiencing problems in at least one major life areas due to gambling namely with their finances, their relations with family or friends and in their studies.

Describing gambling patterns

LOCATIONS. Gambling activities are embedded in locations.

Betting on table poker occurred predominantly in a private residence (94%) and to a lesser extent on Internet (14.6%) and in casinos (11.5%) whereas betting on VLTs mostly occurred in casinos (81.05%) and in bars (35.4%).

Bets on card and board games were mostly reported in a private residence (89.3%) whereas games of skills were mostly reported in bars (86.9%) and to a lesser extent in a private residence (17.7%) and on campus (10%)(see Table 6).

Key Findings

Gambling activities are embedded in specific contexts with poker betting mostly occurring in private locations and VLTs mostly in public areas namely bars and casinos.

The large majority of students gambled infrequently, namely less than once a month in most locations, except for betting on poker on Internet which was done more than monthly by 68% of Internet poker players. Alternatively, the analysis based on locations revealed that students who gamble on Internet primarily bet on poker (73.4%) and VLTs (19.7%) whereas gambling in a private residence is done mostly on poker (80.4%). The most prevalent form of gambling on campus is poker betting (52.9%) and games of skills (37%) whereas gambling in public spaces such as casinos and bars is mostly devoted to VLT machines (see Table 7).

PARTNERS. Gambling activities were also bounded to the social context. Betting on all gambling activities was mostly done with partners. Friends were the most reported partners for all activities including bingo (56.8%), poker (86.7%), VLTs (68.5%) games of skills (95%) and card/board games (71.7%), followed to a lesser extent by other partners such as family members and co-workers. However, sports betting were done significantly more with co-workers than family members (see Table 8).

Key Findings

Students mostly gamble with friends.

Almost 11% of students reported spending \$100 or more monthly. Almost 6% reported spending more than \$250.

Higher spending and debt were observed for online gambling.

Lower spending and debt were reported when students gamble with friends and family members.

GAMBLING SPENDING. The typical spending on gambling per month over the past 12 months among students was estimated to \$11 (median is preferred to the mean due to skewness of the distribution). A majority of students (63.6%) reported monthly spending of up to \$20, almost 5.3% between \$100 and \$250 and 5.6% more than \$250. The largest typical amounts are spent on table games and horse and dog racing (\$20) followed by poker games and sports betting (\$10). However, the largest spending was reported for poker games and

sports betting (\$10 000) and VLTs (\$5 000)(see Table 9).

GAMBLING DEBT. The typical debt due to gambling over the 12 months preceding the survey was estimated to 9\$ (median is preferred to the mean due to skewness of the distribution). A majority of students (66.7%) reported a yearly debt of up to \$20, 5.4% between \$100 and \$250 and almost 3.4% more than \$250. The largest typical debt was generated on bingo and sports betting (\$10). However, the largest debt was reported for poker games (\$20,000), games of skills (\$11,000) and sports betting (\$10,000)(see Table 10).

Individual and contextual determinants of gambling patterns and problems

The severity of gambling problems was significantly associated with the number of activities people bet or spend money on. Generally, 33% of low-risk gamblers and almost half of gamblers at moderate-risk for problems or reporting problems bet on more than two activities compared to only 16% of non-problem gamblers ($\chi^2 = 93.2$, $p < .001$). Problem

gamblers and gamblers who are at moderate risk reported betting on more than one activity on Internet ($\chi^2 = 15.5$, $p < .001$), in private residences ($\chi^2 = 11.2$, $p < .01$), in casinos ($\chi^2 = 28.8$, $p < .001$), and bars ($\chi^2 = 31.1$, $p < .001$) compared to non-problem gamblers (see Table 11).

Two of the measured gambling activities, betting on table games and betting on sports, were associated with a higher risk for problems; gamblers at low- and moderate-risk and those reporting problems were significantly more

Key Findings

Students who are at moderate-risk for problems or are problem gamblers:

Gamble on more activities;

Gamble in more locations;

Gamble higher amounts;

Have more debt;

Gambling with others mainly friends and family members is associated with less spending.

Gamblers tend to spend the most when gambling on the internet and the least when gambling in a private residence.

likely to bet on those activities than non-problem gamblers (see Table 12).

A set of regression analyses revealed that spending was significantly greater among moderate-risk and problem gamblers compared to low-risk and non-problem gamblers whereas debts were significantly higher among problem gamblers. In terms of locations, gambling on Internet was associated with greater spending and debt specifically on poker and VLT games, whereas gambling in private residences was associated with significantly lower debt related to poker. Gambling with partners particularly friends and family members was associated with significantly lower spending and debt compared to gambling alone especially when gambling on poker and VLT (see Table 13-14).

We also investigated the characteristics of the last reported gambling occasion over the last 12 months to capture individual subjective experiences. In accordance with prevalence estimates, a large proportion of students reported gambling on lottery (43.6%) followed by poker (19.4%) and VLT games (12.6%) (see Table 15). Most students reported having gambled in a private residence (37.4%) and 4.6% on Internet. Almost 75% of gambling occasions took place in the presence of other people mainly with friends (67%) and family members (18.9%). The last gambling occasion occurred equally during weekdays and on week-ends, and reasons for gambling were mostly to have fun (40.2%) and to try one's chance (26.4%).

Alcohol and illicit drug use

Almost 89.3% of university students reported drinking in the past year and 82% in the past month (see Table 16).

The prevalence of alcohol consumption was significantly lower among students reporting to speak a foreign language at home. Socio-demographic indicators also showed significant gender and cultural differences on various measures of heavy and problematic drinking.

Overall, 8.5% of students were identified as frequent heavy drinkers (see Table 17), with a higher proportion of men (OR=2.69), students born in Canada and those reporting to speak one or both official languages at home. Generally, 22.7% of university students reported a

harmful drinking (score of 8+ on the AUDIT) and 11% reported a score indicating possible dependence to alcohol (score of 11+ on the AUDIT)(see Table 18). The likelihood of reporting a heavy drinking occasion (5 drinks or more; 8 drinks or more) bi-monthly in the

Key Findings

Male students and students born in Canada are more likely to drink, drink heavily, and use cannabis and other illicit drugs.

past year and the past 30 days was higher among men, students born in Canada and those reporting to speak one or both official languages at home. Similar differences were noted for the prevalence of harmful drinking and dependence. Finally, students living with their family are less likely to be identified as dependent drinkers

(OR=.59)(see Table 20-21).

The lifetime use of cannabis was estimated to 57.6% among undergraduate students whereas 33.9% reported using cannabis in the past year and 16% in the past month (see

Key Findings

Almost 89% of university student reported drinking an alcoholic beverage in the past year:

22% reported a harmful pattern of drinking;

13% reported a score indicating potential dependence to alcohol;

Almost 34% of students have used cannabis in the past year and approximately 12% reported having used an illicit drug mostly psychedelic drugs/hallucinogens, amphetamines and ecstasy.

Table 22). It was found that 2.6% of all students and 6.9% of past year consumers reported using cannabis almost daily (see Table 23-24). Cannabis was more popular among men than women and much less popular among students born outside Canada, and those reporting to speak a foreign language at home (see Table 25). Overall, 29.5% of students reported having used an illicit drug excluding cannabis in their lifetime, 12.3% in the past year, and 3.6% in the past 30 days. Psychedelic drugs or hallucinogens were the most reported drugs (14.5%), followed by amphetamines (13.8%), and ecstasy (11.3%)(see Table 22). Students born outside Canada were less likely to use any illicit drug compared to students born in the country (see Table 26). Additionally, 16.6% of students reported being daily or occasional smokers with a lower percentage among women than men (16.6 vs. 19.9%), and among students living on campus or off campus with their families (see Table 27).

Key Findings

Gambling severity is associated with heavy drinking and substance use.

Non-problem gamblers are less likely to report a state of psychological distress.

Gambling severity and substance use

The level of severity of gambling problems was positively correlated with heavy alcohol consumption and illicit drug use. A gradient in heavy alcohol consumption was observed along the gambling severity profiles (see Table 28). For instance, compared to non-problem gamblers, problem gamblers were significantly more likely to report heavy drinking episodes in the past year (83.8% vs. 74.9%) and the past month (55.8% vs. 46.2%). Similarly, the prevalence of past year cannabis and illicit drug use increased as one moved from non-problem, low-risk, and moderate-risk to problem gambling statuses.

The findings revealed that 24.5% of students experienced some form of psychological distress over the past few weeks (see Table 29), with higher proportions among women (27.2% of women vs. 20.7% of men). The most commonly reported condition was “[feeling] constantly under strain” (39.7%), followed by “losing sleep over worry” (34.72%), and “feeling unhappy or depressed” (30.33%)(see Table 30). Psychological distress was significantly more prevalent among at-risk and problem gamblers compared to non-problem gamblers (see Table 28).

Potential Solutions

Need for environmental preventive actions to control accessibility and availability of gambling.

Need for prevention programs in university milieu.

The risk associated with poker and the increasing popularity of this activity calls for greater awareness campaigns.

PART E – RESEARCH APPROACHES

The contextual approach adopted in this project provided methodological ways to examine the multilevel determinants of gambling patterns among university students. This multifactorial approach enabled the identification of a risk profile for problem gamblers who tend to bet on multiple activities and in multiple locations. Gambling activities are embedded in specific contexts and betting on activities is done with specific partners. Some of the contexts are bearer of greater risks for excess in terms of spending and debt due to gambling. For example, gambling in a social setting with partners is associated with lower spending and debt whereas solitary gambling and gambling online are associated with greater excessive behaviors. This particularly occurred for poker betting, one of the most popular activities among students, with greater risks for problems when betting online in a solitary setting.

This study concurs with previous findings that students are a group at risk for addictive behaviors such as excessive and problem drinking, illicit drug use and gambling problems. For intervention, the study brings up two main recommendations. Firstly, large universal programs targeting the general student population are instrumental to inform and increase awareness of the risks associated with potentially addictive behaviors. Currently, those actions, mostly focused on substance use, should encompass gambling as a key determinant of healthy lifestyle. Secondly, given the vulnerability of the student population and the high prevalence of problems related to substance use and gambling, secondary prevention interventions should be made available for the at-risk and problematic students. In addition to available services on campuses, health services should build and maintain links with clinical service provided in the larger community, thus taking advantage of being geographically situated in a metropolitan area, with greater availability and access to services.

PART F – REFERENCE AND BIBLIOGRAPHY

1. Bondolfi, G. and R. Ladouceur, *Pathological gambling: an increasing public health problem*, in *Acta Psychiatrica Scandinavica*. 2001. p. 241-242.
2. Adlaf M., E., A. Demers, and L. Gliksman, *Enquête sur les campus canadiens 2004*. 2005, GRASP - Université de Montréal. p. 141.
3. Arnett, J.J., *The Developmental Context of Substance Use in Emerging Adulthood*. *Journal of Drug Issues*, 2005. **35**(2): p. 235-253.
4. Tucker, J.S., et al., *Substance Use Trajectories From Early Adolescence to Emerging Adulthood: A Comparison of Smoking, Binge Drinking, and Marijuana Use*. *Journal of Drug Issues*, 2005. **35**(2): p. 307-332.
5. Blinn-Pike, L., S.L. Worthy, and J.N. Jonkman, *Disordered Gambling among College Students: A Meta-Analytic Synthesis*. *Journal of Gambling Studies*, 2007. **23**: p. 175-183.
6. Oster, S.L. and T.J. Knapp, *Underage and pathological gambling by college students: Emerging problem on campus?* *Psychology and Education: An Interdisciplinary Journal*, 2001. **38**(2): p. 15-19.
7. LaBrie, R.A., et al., *Correlates of College Student Gambling in the United States*. *Journal of American College Health*, 2003. **52**(2): p. 53-62.
8. Ladouceur, R., D. Dube, and A. Bujold, *Prevalence of pathological gambling and related problems among college students in the Quebec metropolitan area*. *Can J Psychiatry*, 1994. **39**(5): p. 289-93.
9. Lesieur, H.R. and R.J. Rosenthal, *Pathological gambling: a review of the literature*. *Journal of gambling studies*, 1991. **7**(1): p. 5-39.
10. Engwall, D., R. Hunter, and M. Steinberg, *Gambling and other risk behaviors on university campuses*. *J Am Coll Health*, 2004. **52**(6): p. 245 - 255.
11. Kairouz, S., *Chapter 6: Gambling*, in *Canadian Campus Survey 2004*, E. Adlaf M., A. Demers, and L. Gliksman, Editors. 2005, Centre for Addiction and Mental Health: Toronto.
12. Statistics Canada, *Canadian Community Health Survey Cycle 1.2 Mental Health and Well-being - Public Use Microdata File Documentation*. 2002. p. 89.
13. Berkman, L.F. and I. Kawachi, *Social Epidemiology*. 2000, New York: Oxford Press. 391.
14. Cockerham, W.C., *Health Lifestyle Theory and the Convergence of Agency and Structure*. *Journal of Health and Social Behavior*, 2005. **46**(1): p. 51-67.
15. Kairouz, S. and T.K. Greenfield, *A comparative multi-level analysis of contextual drinking in American and Canadian adults*. *Addiction*, 2007. **102**(1): p. 71-80.

16. Giddens, A., *The Constitution of Society : Introduction to the Theory of Structuration*. 1984, University of California Press: Berkeley.
17. Kairouz, S., et al., *For all these reasons, I do...drink: A multilevel analysis of contextual reasons for drinking among Canadian undergraduates*. *Journal of Studies on Alcohol*, 2002. **63**(5): p. 600-608.
18. Klein, H. and D.J. Pittman, *Social occasions and the perceived appropriateness of consuming different alcoholic beverages*. *Journal of Studies on Alcohol*, 1990. **51**(1): p. 59-67.
19. Gupta, R. and J.L. Derevensky, *Adolescent Gambling Behavior: A prevalence Study and Examination of the Correlates Associated with Problem Gambling*. *Journal of Gambling Studies*, 1998. **14**(4): p. 319-45.
20. Demers, A., et al., *Multilevel analysis of situational drinking among Canadian undergraduates*. *Social Science & Medicine*, 2002. **55**(3): p. 415-424.
21. Arseneault, L., R. Ladouceur, and F. Vitaro, *Jeu de hasard et consommation de substances psychotropes: prévalence, coexistences et conséquences*. *Psychologie canadienne*, 2001. **42**(3): p. 173-184.
22. Biemer, P.P. and L.E. Lyberg, *Introduction to Survey Quality*. *Survey Methodology*, ed. W. Series. 2003, Hoboken, NJ: John Wiley & Sons, Inc.
23. Groves, R.M., et al., *Survey Methodology*. 2004, Hoboken, NJ: John Wiley and Sons.
24. Dillman, D.A., J.D. Smyth, and L.M. Christian, *Internet, mail, and mixed-mode surveys: the tailored design method*. 3 ed. 2008, Hoboken, NJ: Wiley & Sons.