

Canadian Campus Survey 2004

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Canadian Campus Survey

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Canadian Campus Survey, 2004 Highlights

The Survey

Funded by the Canadian Institutes of Health Research, the overall objective of the 2004 Canadian Campus Survey is to build understanding regarding the individual, social and environmental determinants of hazardous drinking. This preliminary report describes (1) the prevalence of alcohol use, other drug use, mental health and gambling problems among Canadian undergraduates interviewed in 2004, (2) relationships between these outcomes and student characteristics, and (3) whether such outcomes have changed since 1998.

Methods

A random sample of 6,282 full-time university undergraduates (41% of eligible students) drawn from 40 universities completed questionnaires by mail (56%) or online (44%) during March and April 2004. Sixty-four universities with an enrolment of about 642,000 Canadian undergraduates, met the following criteria for inclusion: (1) had a Registrar, (2) had more than 1000 full-time degree undergraduates, (3) had students physically attend classes (i.e., online universities were excluded), (4) were publicly-funded, and (5) were non-military or non-theological. Of the 64 universities (69 campuses) that met the eligibility criteria, 40 (45 campuses) agreed to participate, representing completion rates of 63% of universities and 65% of campuses. The sample of 6,282 undergraduates averaged 22 years of age ranged in age between 16 and 65 years and included 2,248 men and 4,034 women. The sample comprised, 793 students were surveyed from universities in British Columbia, 513 from the Prairies, 2,107 from Ontario, 2,076 from Québec and 793 from the Atlantic. In total, 1,088 (18%) lived in on campus, while 2,585 (42%) lived off campus with family, and 2,541 (41%) lived off campus without family.

Main Findings

Indicator	Total	M	F	*	BC	PR	ON	QC	AC	*
Alcohol										
% Past year use	85.7	84.0	87.1	*	-78.5	86.9	84.2	+89.7	+90.9	*
% Past month use	77.1	76.5	77.7		-70.6	77.4	74.5	+83.3	+83.2	*
% Heavy-frequent drinker	16.1	20.6	12.5	*	-11.7	14.6	18.8	-9.6	+24.5	*
% Hazardous/harmful drinking (AUDIT8+)	32.0	37.6	27.5	*	-26.7	29.4	33.4	-26.6	+46.5	*
% 1+ harms (AUDIT)	43.9	45.9	42.4	*	-39.0	41.3	45.1	-40.2	+55.9	*
% 1+ dependence symptoms (AUDIT)	31.6	32.5	30.9	*	29.6	30.1	31.9	30.8	36.4	
% Experiencing alcohol-related assault	10.0	10.8	9.3		-5.8	8.6	+12.6	-4.6	+16.1	*
% Reporting alcohol-related sexual harassment	9.8	4.2	14.3	*	-7.4	-6.9	9.6	11.5	+14.8	*
% Unplanned sexual relations due to alcohol	14.1	15.8	12.8	*	16.3	13.6	12.5	13.7	19.9	
Other drug use										
% Current smoker	12.7	12.0	13.2		-9.6	-8.9	11.2	+18.3	+16.9	*
% Cannabis (12m)	32.1	34.5	30.1	*	30.3	-19.4	33.0	+39.0	+36.9	*
% Cannabis (30d)	16.7	19.7	14.2	*	12.9	-9.6	17.5	+20.9	+20.6	*
% Any illicit (12m, exc. cannabis)	8.7	9.7	7.9		9.9	-4.5	8.2	+11.5	10.9	*
% Any illicit (30d, exc. cannabis)	2.2	2.3	2.1		+3.3	1.3	1.8	+3.1	2.2	*
Mental health										
% Elevated psychological distress	29.2	23.9	33.5	*	+30.7	24.8	+32.8	26.1	25.8	*
% At risk gamblers	7.9	10.5	5.9	*	7.2	7.1	8.3	6.6	+10.9	*
% Moderate or severe gambling problems	3.7	6.7	1.3	*	2.8	4.6	4.3	-1.8	4.4	*

Notes: M Men; F Women; BC British Columbia; PR Prairies; ON Ontario; QC Québec; AC Atlantic; * group difference significant at p<.05; + significantly higher than national estimate; - significantly lower than national estimate; (12m) past 12 month use; (30d) past 30 day use; AUDIT Alcohol Use Disorders Identification Test.

The Prevalence of Alcohol and Other Drug Use

- Alcohol was used by 85.7% and 77.1% of students during the past year and past 30 days, respectively. About one in ten (9.9%) were lifetime abstainers.
- Past year drinking varied by year of study (from 82.3% of first-year students to 88.9% of fourth-year students), living situation (from 83.5% among those living off campus with family to 88.1% among those living off campus without family), and region (being above average among those attending university in the Atlantic (90.9%) and in Quebec (89.7%) and below average in British Columbia (78.5%) and Ontario (84.2%)).
- By far, the most commonly used illicit drug was cannabis, used by 51.4% of students during their lifetime, 32.1% during the past 12 months, and 16.7% during the 30 days before the survey.
- Past year cannabis use varied by gender (34.5% of men vs 30.1% of women), living situation (26.9% among those living off campus with family versus 36.2% those living on campus and 35.5% of those living off campus without family), region (with use being above average among those attending university in Quebec (39.0%) and in the Atlantic (36.9%), and below average among those attending in the Prairies (19.4%)).
- Following cannabis, the most commonly used illicit drugs were hallucinogens such as magic mushrooms, mescaline and PCP (reported by 16.9% and 5.6%, during the respondents lifetime and past year) and opiates (reported 13.7%, 5.0%, and 1.0%, during the respondents lifetime, past year and past month).
- The past year use of any illicit drugs other than cannabis was significantly associated with living situation (11.2% among those residing off campus without family vs 7.6% among those living on campus and 6.6% among those living off campus with family) and region (students attending university in Quebec reported above average past year use (11.5%)). In addition, those attending university in British Columbia reported above average 30-day use (3.3% vs 2.2% nationally), and those attending in the Prairies reported below average 12-month use (4.5% vs 8.7% nationally).

Drinking Patterns

- Undergraduates display diverse drinking patterns. Two drinking types represent more than half of students: light-infrequent drinking (indicated by the usual consumption of less than 5 drinks daily and less than weekly drinking) reported by 35.8% and light-frequent drinking (indicated by the usual consumption of less than 5 drinks on the days they drink and weekly drinking) reported by 22.1%.
- Almost one-third of students reported a heavy pattern drinking, including 16.1% who reported heavy-frequent drinking (indicated by the usual consumption of more than 5 drinks on the days they drink and weekly drinking) and 11.7% who reported heavy-infrequent drinking (indicated by the usual consumption of more than 5 drinks on the days they drink and less than weekly drinking).
- Type of drinking varies according to region, gender, and year of study. In the Atlantic provinces, heavy-infrequent and heavy-frequent drinking was significantly higher than the Canadian average (22.5% vs 11.7% and 24.5% vs 16.1%, respectively) whereas in Quebec these rates were significantly lower (6.2% vs 11.7% and 9.6% vs 16.1%, respectively). Furthermore, compared to women, men were more likely to be frequent drinkers – both heavy-frequent drinkers (12.5% vs 20.6%) and light-frequent drinkers (20.8% vs 23.8%).

- The usual drinking pattern of undergraduates was significantly related to their living arrangements. Heavy-frequent drinking was significantly higher among those living on campus (24.1%) compared to 16.8% among those living off campus on their own, and 12.0% among those living with family.
- Overall, 18.5% and 6.6% of the undergraduates reported consuming 5 or more and 8 or more drinks on a single occasion, once every two weeks or more frequently. Men were more likely to report these drinking patterns than were females. Students in the Atlantic region were more likely, and students in Quebec were less likely, to report these drinking patterns than were their counterparts in the other regions of Canada. Students living on campus were between 1.5 to 2.1 times more likely to report episodic heavy drinking compared to students living with family.
- Past month drinkers reported consuming alcohol on average 1.3 times a week, for an average weekly volume of 6.4 drinks. Four of ten drinkers (41.1%) consumed 5+ drinks on one single occasion at least twice over this period, and 17.3% had 8+ drinks at least twice.
- Compared to women, men reported drinking significantly more often (1 time per week vs 1.7 times, respectively), as well as a higher amount (4.5 vs 8.9 drinks a week). Men were also more likely than women to report episodic heavy drinking as indicated by having 5+ or 8+ drinks at least twice during the past month (49.9% vs 34.2% and 25.9% vs 10.6%, respectively).
- The most notable regional differences concern occasional heavy drinking. The proportions of past month drinkers reporting 5+ and 8+ drinks at least twice over the period were significantly lower in Quebec (34.3% and 11.2%, respectively) and higher in the Atlantic provinces (49% and 24.4%, respectively,) and in Ontario (45.4% and 20.3%, respectively).
- Students' drinking was significantly related to living arrangement. Compared to students living with family, students living on campus or off campus drink more often and more heavily.
- There is a wide variability in alcohol intake based on the context of drinking. Most drinking occurred mainly on weekends (3 out of four occurrences), and off campus (86% of drinking occurrences). Students drink in bars and clubs on roughly one occasion out of three (35.5%). Nevertheless, most of the drinking occurrences take place on private premises, with over 40% of the drinking occurrences taking place in someone's home, and 7.2% in university housing (residences or fraternity houses).
- The average alcohol intake is highest when students drink during parties (6.0 drinks), and in bars (5.1 drinks) or university housing (5.7 drinks). The larger the group, the higher is the average alcohol intake (from 1.8 drinks alone to 6.2 drinks in large groups).

Hazardous and Harmful Drinking

- 32.0% of undergraduates reported hazardous or harmful patterns of drinking according to the World Health Organization's Alcohol Use Disorders Identification Test (AUDIT) screener. This rate was significantly higher among men (37.6%), those living on campus (42.7%) or living off campus without family (34.1%) and those attending university in the Atlantic (46.5%). Rates of hazardous or harmful drinking were significantly lower among students attending university in British Columbia (26.7%) or Quebec (26.6%).
- 43.9% of undergraduates reported at least one indicator of harmful drinking such as feeling guilty, experiencing memory loss or an injury and having other concerns about their drinking.

- 31.6% of undergraduates reported at least one indicator of dependent drinking such as being unable to stop, failing to perform normal everyday activities or needing a drink first thing in the morning.
- The most commonly reported harms experienced by students since the beginning of the school year were experiencing a hangover (53.4%), memory loss (25.4%), regrets (24.5%) and missing classes due to a hangover (18.8%).
- Hazardous alcohol-related behaviours were reported by students, including unplanned sexual relations (14.1%), driving after drinking too much (7.4%), engaging in unsafe sex (6.0%) and driving while drinking (3.8%).
- Secondary alcohol-related harms resulting from other students' drinking included study or sleep interruptions (32.9%), serious arguments or quarrels (17.3%), being pushed or assaulted (10.0%) and experiencing sexual harassment (9.8%).

Mental Health

- About one-third (29.2%) of undergraduates reported four or more symptoms indicative of elevated distress as measured by the 12-item General Health Questionnaire mental health screener.
- Elevated distress was highest among women than men (33.5% vs 23.9%), those attending university in British Columbia or Ontario (30.7% and 32.8% vs 29.2% nationally) and lowest among the recreationally-oriented students (21%) compared to others.
- The most common symptoms of distress were more likely reported by women than men, including feeling constantly under strain (reported by 47% of all students and 53% of women and 41% of men), lost sleep over worry (32%, 38% of women and 25% of men) and feeling unhappy or depressed (31%, 36% women and 28% of men).
- About one in thirteen (9%) reported both elevated distress and hazardous and harmful drinking (as defined by the AUDIT 8+).

Gambling Behaviours and Problems

- 61.5% of undergraduates have bet or spent money on at least one gambling activity since the beginning of the school year. The most commonly reported activities were lotteries (51%), slots and video lotteries (22.7%), casino gambling (19%), cards and dice games (17.7%) and sports betting (10.8%), the latter being particularly a male dominated activity (19.4% of men vs 4.0% of women).
- Based on the Canadian Problem Gambling Index, 7.9% of all students were identified to be at-risk for developing serious gambling problems, 2.7% with moderate problems and 1.0% with severe problems.
- Although gambling was equally reported by men and women (62.2% of men vs 61.0% of women), male gamblers were more likely than their female counterparts to be at-risk for gambling problems (17.1% of men vs 9.9% of women) and to have moderate or severe problems (10.9% of men vs 2.2% of women).
- Reporting any gambling activity increased with the year of study with significantly more gamblers among third- and fourth-year students (62.9% and 67.9%) compared to first- and second-year students (57.2% and 59.6%). However, senior students who reported gambling were less likely to be gamblers at-risk for problems (12% of

third- and fourth-year students vs 15.5% of first-year students) and gamblers with moderate problems (3.6% and 3.4% of third-year and fourth-year students vs 6.1% and 4.4% of first-year students).

- Gambling varied across regions, with more students reporting gambling during the past school year in the Atlantic (71.9% vs 61.5% nationally) and the least in British Columbia (56.8%). Students in the Atlantic who reported gambling were more likely to be gamblers at-risk for problems (15.4% vs 13.2% nationally) and gamblers with moderate problems (5.3% vs 4.4% nationally) whereas students in Quebec were the least likely to be gamblers at-risk for problems (11.6%) and gamblers with moderate problems (2.1%).

Campus Issues

- In the month before the survey, one-quarter (25.1%) of students (27.3% of men and 23.3% of women) took advantage of low priced promotions at bars on campus. In addition, 14.5% (18.0% of men and 11.8% of women) took advantage of happy hours, 12.2% (16.7% of men and 8.8% of women) took advantage of special promotions by beer companies, and 7.0% (7.5% vs 6.6%) took advantage of cover charges of unlimited drinking.
- Attendance at such promotions is associated with heavy drinking. Compared to those who do not report consuming 5+ drinks on a single occasion during the past month, heavy drinkers were more likely to report attending a happy hour (56.0% vs 78.4%); using low-priced promotions (50.5% vs 83.2%); attending beer company promotions (55.3% vs 86.1%) and unlimited cover charges (57.4% vs 84.5%).
- Generally, frequent drinkers find the campus environment conducive to their drinking, and heavy drinkers believe that the alcohol policies on their campus are not enforced.
- About one in 7 students (15.3%) would like to reside in an alcohol-free residence but do not; 3.9% of students currently reside in alcohol-free residences.

Changes between 1998 and 2004

To determine whether there were any changes in alcohol use, other drug use and mental health problems among Canadian undergraduates, the 2004 Canadian Campus Survey was compared to a similar survey conducted in 1998.

- Indicators of alcohol use show no significant change between 1998 and 2004. This includes rates of past year drinking (86.5% [84.0%-88.6% 95%CI] vs 85.7% [83.2%-87.9%]), heavy-frequent drinking (13.1% [10.0%-17.0%] vs 16.1% [13.6%-18.9%]), and hazardous and harmful drinking as measured by the overall AUDIT (30.0% [25.6%-34.9%] vs 32.0 [28.6%-35.6%]).
- In addition, the percentage of students reporting any specific AUDIT harm symptoms (feeling guilty, memory loss, injury concern of others) or one of the three AUDIT dependence symptoms (unable to stop; failed normal activities; morning drink) remained unchanged between 1998 and 2004. The percentage reporting any AUDIT harm was 43.1% [39.4%-46.9% 95%CI] in 1998 compared to 43.9% [41.0%-46.9%] in 2004, while the percentage reporting any AUDIT dependence symptom was 30.4% [27.4%-33.6%] in 1998 compared to 31.6% [29.6%-33.6%] in 2004.
- Cigarette smoking generally declined between 1998 and 2004, from 17.3% [15.2% – 19.7% 95%CI] to 13.3% [11.5% – 15.4%], and significantly so among second-year students (19.4% [16.6%-22.7%] to 11.6% [9.0%-14.8%]) and among students in the Prairies (from 14.0% [11.9%-16.5%] to 9.4% [8.2%-10.7%]).

- The past year prevalence of hallucinogens such as mescaline and mushrooms, and LSD significantly declined between 1998 and 2004, from 8.2% [7.0%-9.6% 95%CI] to 5.7% [4.6%-6.9%], and from 1.8% [1.3%-2.6%] to less than 1%.
- Among all students, the past year use of cannabis remained similar between 1998 and 2004, 28.8% [26.0%-31.6% 95%CI] vs 32.1% [28.7%-35.6%]. However, cannabis use declined among students in the Prairies, from 24.1% [21.3%-27.2%] to 19.4% [18.0%-20.8%] and increased in the Atlantic, from 26.5% [26.5%-26.6%] to 36.9% [29.8%-44.7%].
- The past year use of any 8 illicit drugs excluding cannabis (i.e., cocaine, crack, amphetamines, heroin, LSD, hallucinogens, Ecstasy and party drugs) remained stable overall between 1998 and 2004 (from 10.3% [9.0%-11.8% 95%CI] to 8.7% [7.3%-10.3%]). However, use of illicit drugs declined significantly among those attending university in the Prairies (from 9.1% [7.4%-11.3%] to 4.5% [3.7%-5.4%]).
- The prevalence of elevated psychological distress remained stable between 1998 and 2004 (29.8% [28.1%-31.5% 95%CI] vs 29.2% [27.0%-31.5%]), and also remained stable among subgroups.

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Chapter 1

Introduction

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Introduction

Addiction and mental health problems pose significant burden to the individual as well as to society. Indeed, a sizeable proportion of deaths and hospitalizations can be traced to the use and misuse of tobacco, alcohol and illicit drugs, and their chronic and acute consequences (Single, Robson, Rehm, & Xie, 1999). Moreover, estimates have pegged the direct cost to the health system to be \$4 billion per year (Single, Robson, Rehm, & Xie, 1998). Therefore, identifying the determinants of use and misuse, and developing programs and interventions to prevent or minimize the associated harms is a major public health strategy.

Much attention has been paid to children and adolescents in school and, to a lesser extent, the general population. However, one of the more critical life transitions is the path from adolescence to adulthood, and a key pathway of this transition is the shift from secondary schooling to higher education (Gore, Aseltine, Colten, & Lin, 1997). Indeed, this period can be considered as a developmental reorganization of the principal ecological contexts of family, peers, work and education (Jessor, 1993). This transition has important consequences to both the individual and society (Becker, 1993; Behrman & Stacey, 1997; Bourdieu, 1983; Stacey, 1998). Moreover, the university population is sizeable, with some 24% of Canadians having attended university (Statistics Canada, 2003).

Heavy drinking among university students is a behaviour that has the potential to negatively impact on both students' success and the campus environment. Indeed, not only is heavy drinking considered to be a key population health indicator (US Department of Health and Human Services, 2000), but the evidence suggests that the university population is at particularly increased risk given (1) that the prevalence of heavy drinking is higher among undergraduates than comparably-aged non-students (Johnston, O'Malley,

& Bachman, 2001); (2) the prevalence of ecological and campus factors such as the rate of secondary heavy drinking, i.e., students being affected by the drinking of others (Bell, Wechsler, & Johnston, 1997; Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1998; Wechsler, Lee, Gledhill-Hoyt, & Nelson, 2001); and (3) the recent increase in heavy drinking among secondary school students (Adlaf & Paglia, 2001).

Although there has been a long tradition of studying alcohol use among college students in the United States (Johnston et al., 2001; Perkins & Wechsler, 1996; Straus & Bacon, 1953; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994; Wechsler et al., 2001), the history of such research in Canada is recent and sparse. Indeed, although there have been a handful of single or multi-campus studies in Canada (Caleekal-John & Goodstadt, 1983; Gliksman, Newton-Taylor, Adlaf, & Giesbrecht, 1997; Mathieson, Faris, Stam, & Egger, 1992; Spence & Gauvin, 1996), only two national university surveys have been conducted, one in 1970 as part of the LeDain Commission (Lanphier & Phillips, 1971; LeDain, 1973), and the 1998 Canadian Campus Survey (CCS) (Gliksman, Demers, Adlaf, Newton-Taylor, & Schmidt, 2000), upon which the 2004 survey was partly based.

The most current and comprehensive national study was conducted in 1998 (Gliksman et al., 2000), and was based on earlier Ontario surveys (Gliksman, Engs, & Smythe, 1989; Gliksman et al., 1997; Gliksman, Newton-Taylor, Adlaf, DeWit, & Giesbrecht, 1994). The 1998 Canadian Campus Survey showed that in the two months prior to the survey (between September and November), 81% of the students consumed alcohol, and of those, 63% reported having had 5 drinks or more, and 35% reported 8 drinks or more on at least one occasion (Gliksman, Adlaf, Demers, & Newton-Taylor, 2003). On average, Canadian undergraduates drank heavily once every two weeks during this period; not surprisingly 38% reported having a hangover at least once during this period (Gliksman et al., 2000). Based on the World Health Organization's Alcohol Use Disorders Identification Test (AUDIT) (Allen, Litten, Fertig, & Babor, 1997; Saunders, Aasland, Amundsen, & Grant, 1993), 15% of the Canadian undergraduates are considered to be problem drinkers, just under half (43%) experienced at least one of four consequences related to harmful drinking, and 30% reported at least one of three indicators of alcohol dependence (Gliksman et al., 2000).

Although a direct comparison of these results with those from the US studies cannot be drawn -- as the measures and the time frame are not the same -- the prevalence of heavy episodic drinking during the past year appears to be slightly lower among Canadian undergraduates (Kuo et al., 2002). Moreover, the 1998 CCS showed that the characteristics of the drinking setting and of the individual are equally important in understanding undergraduate alcohol intake (Demers et al., 2002; Kairouz, Gliksman, Demers, & Adlaf, 2002).

Objectives

The 2004 CCS, funded by the Canadian Institutes for Health Research, is the most comprehensive addiction and mental health survey conducted among university undergraduates. The objectives are (1) to understand how undergraduates' alcohol use and misuse are affected by the interaction between individual and contextual factors, (2) to investigate the common and unique determinants of heavy alcohol intake among Canadian versus American undergraduates, and (3) to investigate the types of addiction and mental health comorbidities, including alcohol, drugs, mental health and gambling problems. It should be noted that this study is the first Canadian study to address gambling problems among university students.

This Report

The purpose of this report is to describe (1) the prevalence of alcohol use, other drug use, mental health and gambling problems among Canadian undergraduates, (2) how such outcomes vary according to student characteristics, and (3) whether such outcomes have changed since 1998.

Method

Design

The 2004 CCS employed a campus-stratified, single-stage selection of undergraduates enrolled in full-time studies at 64 accredited universities during the 2003-2004 academic year. The survey employed a mixed-mode methodology, allowing students to choose between a web-based and a mail-based interview.

In total, 64 universities met the following criteria for inclusion: (1) had a Registrar, (2) had more than 1000 full-time degree undergraduates, (3) had students physically attend classes (i.e., online universities were excluded), (4) were non-military or religious, and (5) were publicly-funded. These 64 universities represent 642,390 undergraduates listed in the Association of Universities and Colleges of Canada's Directory of Canadian Universities.

Because a key objective of this project is to assess the influence of campus-based ecological factors, the primary sampling unit was the university campus. Eligible students included full-time undergraduates, which included students enrolled in professional schools such as Law and Medicine, but without an undergraduate degree. Within each participating university, 350 undergraduates were randomly selected with equal probability.

Data collection

The survey used a mixed-mode strategy, employing both web-based and mail-based methods during the spring of 2004. Although such methods may generate measurement differences (Dillman, 2000), their use has several advantages (Biemer & Lyberg, 2003; Groves et al., 2004). First, internet surveys of university populations have found results comparable to the standard mail mode (Couper, 2000). Indeed, a recent experimental survey found no significant differences in demographics, response rates and item completion between college students randomly assigned to mail or web modes (Pealer, Weiler, Pigg, Miller, & Dorman, 2001). This study also found that undergraduates were more likely to answer socially threatening items (e.g., forced intercourse, suicide attempts) using the web mode. Second, mixed-mode strategies are becoming the method of choice to increase response rates. In fact, providing respondents with a choice of mode is a strategy that can help improve rates (Dillman, 2000).

Although conducting web-based surveys among university populations is one of the most feasible methods given their higher internet coverage rates (Dillman, 2000), difficulties remain in obtaining full coverage sampling frames because a large percentage of students use personal and public internet services rather than the standard university domain name. For example, a recent University of Toronto dissertation found that only 53% of enrolled undergraduates had an active (last 12 months) email account using the university domain name (Freeman, 2002). Consequently, our sample was drawn from a frame based on postal addresses provided by each university.

Questionnaire Content

The student instrument is largely based on the 1998 Canadian Campus Survey (Gliksman et al., 2000) and Harvard's College Alcohol Student survey (Wechsler et al., 1998). In total, the questionnaire consisted of 251 unique items covering six broad domains: alcohol consumption and patterns; heavy episodic drinking; hazardous and harmful drinking; non-medical drug use; psychological distress; and gambling problems. The questionnaire is available at http://www.camh.net/research/population_life_course.html.

Procedures

Presidents of each university were solicited for their permission to survey students and to obtain the necessary postal information. The project was approved by the Research Ethics Boards of the Joint Centre for Addiction and Mental Health and University of Toronto and the University of Montreal. In addition, of the 64 universities approached for participation, 15 required separate REB approval. Upon university approval, a random sample of students was generated either by university staff (24 universities) or by research staff (16 universities).

All students were mailed a package that included a paper copy of the questionnaire and a cover letter. The letter described the study goals and informed students that they could either complete and return the paper copy of the questionnaire or could complete the survey on-line. In order to increase participation, a lottery incentive was employed. Students completing questionnaires by March 15 had a chance to win one of two laptop computers, and students completing questionnaires by March 30 had a chance to win one of six \$500, and one of ten \$200, cash prizes.

Respondents were assured that participation was voluntary and that their answers would remain completely confidential. They were also informed that their names would not be connected to their responses and that they could refuse to answer any question or participate in the study at any time with no effect on their academic status.

Data collection, which included 4 contacts, occurred over a 9-week period beginning March 1 to April 30, 2004 (between March 1 to April 30 for mail surveys and between March 4 to April 27 for online interviews – see Table 1.1).

Table 1.1 Contact Schedule

Date	Contact
March 1	Letter, questionnaire, website and PIN# to all respondents
March 8	Letter reminder, website and PIN# to all respondents
March 15	Letter, questionnaire, website and PIN# to all respondents
March 26	Final letter reminder, website and PIN# to all respondents
April 27	Web data collection closed
April 30	Mail data collection closed

Mail Mode

The mail questionnaire was 18 pages in length (20 pages in French) and was printed in an 8 1/2" by 11" double-sided booklet format. Each questionnaire included a 6-digit user number on the front cover page. Respondents were provided a paid, business reply envelope in which to return completed copies of the paper questionnaire. Upon their return, mailed questionnaires were imaged scanned. Any queries were flagged for evaluation. Verifiers reviewed any ambiguous data electronically and manually selected the

correct responses. There were two modes of verification: (1) Check Box Verify - verifiers were prompted to review any check boxes that the software flagged as ambiguous (e.g. the density of the check was below or above a specified criteria), and (2) Mass Verify - the program sent verifiers all images that were interpreted as numeric digits (hand written numbers). The verifiers accepted these interpretations or indicated changes as required. The program then translated all images into the appropriate numerical value.

Web Mode

The on-line survey, administered by the Ipsos-Reid Group, consisted of 85 web pages and employed software (Confirmit®) that allowed for immediate verification of data, complex skip patterns, and item randomization. Students who chose web completion were instructed to go to a secure website to complete the survey on-line. Respondents were asked to enter the unique 6-digit user number and 5-digit password code found on their cover letter. These numbers ensured that participants remained anonymous and that the same respondent could complete a survey only once.

The web survey employed the interactive (non-scrollable) method. Respondents navigated through the questionnaire one screen at a time and were not able to view the whole questionnaire by scrolling. Typically, most screens contained several items with radio button input (see example below).

The on-line survey method allowed for specific controls on survey responding. For single response questions, respondents could provide only one response or could leave the question unanswered. In addition, skip patterns were programmed so that respondents were directed to specific questions based on their survey responses. Respondents were provided with a progress bar, an email address, and toll-free phone number to use if they had problems accessing or completing the survey. Respondents were also able to stop the questionnaire and return at a later date. Participants could either complete the questionnaire in English or in French. The average web questionnaire completion length was 31 minutes.

Example Web Page

The screenshot shows a web browser window with the Ipsos logo and a progress bar at 0%. The main content is a survey question: "How important is it for you to participate in the following campus activities?" with the instruction "(CHECK ONE RESPONSE IN EACH ROW.)". Below this is a table with five columns: "Very Important", "Important", "Somewhat Important", and "Not Important". Each row represents a different campus activity, and each cell contains a radio button for selection.

	Very Important	Important	Somewhat Important	Not Important
Parties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Athletics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Arts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Academics (non-class conferences, lectures, symposia)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Political associations/organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recreational clubs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Student associations/organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cultural/ethnic/religious associations/organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Navigation buttons: << >>

In total, 3,540 students (56%) chose to complete the survey by mail, and 2,742 (44%) completed the survey online. Mode differences for outcome variables were generally nominal. Of 54 outcomes, only 6 differed significantly at $p < .05$. Moreover, confidence intervals between estimates for the two modes overlapped for all six differences.

Participation

Of the 64 universities (69 campuses) that met the eligibility criteria, 40 (45 campuses) agreed to participate, representing completion rates of 63% of universities and 65% of campuses (Table 1.2). Of the 24 universities that did not participate, 4 did not respond to our request, 14 refused, 3 did not obtain Research Ethics approval and 3 were removed due to poor data quality (see data quality).

Table 1.2 University and Campus Participation

	Allocated		Participated	
	University	Campus	University	Campus
British Columbia	10	(10)	6	(6)
Prairies	10	(11)	3	(4)
Ontario	17	(21)	12	(16)
Quebec	14	(14)	13	(13)
Atlantic	13	(13)	6	(6)
TOTAL	64	(69)	40	(45)

Within each campus, the initial allocation of randomly selected students was 350. The adjusted allocation resulted in 15,353 of which 6,282 interviews were deemed to be eligible (41%) (Table 1.3). The adjusted allocation removed ineligible cases such as foreign or incomplete addresses and duplicates. Campus student completion rates ranged from 24% to 55%. The overall response rate including both campus and student completion was 26.7% ($65\% * 41\%$).

Table 1.3 Student Participation

	Population	Initial Allocation	Adjusted Allocation	Valid Completions	Student Completion Rate
British Columbia	75,963	2,100	2,044	793	38.8
Prairies	101,991	1,400	1,354	513	37.9
Ontario	271,517	5,600	5,483	2,107	38.4
Quebec	125,513	4,500	4,430	2,076	46.9
Atlantic	67,406	2,100	2,047	793	38.7
TOTAL	642,390	15,700	15,358	6,282	40.9

Data and Sample Quality

Data Weighting

To ensure that each respondent represented their appropriate representation in the population, our data were weighted according to four factors: (1) the sampling fraction of selected students within each

campus; (2) an adjustment for non-response within each campus; (3) an adjustment for the gender distribution within each campus; and (4) an adjustment to ensure that the sample distribution corresponds to the five regions.

Sample Characteristics

Table 1.4 shows characteristics of the 2004 sample. Respondents, who ranged in age between 16 and 65 years, averaged 22 years of age, and there were about 1.8 females for each male. Respondents' year of study was well distributed with 32% being first-year students and 20% being fourth-year students. Fewer than one-in-five (18%) lived on campus. Another 42% lived off campus with family, and another 41% lived off campus without family. Most respondents were never married (91%); however, 8% were married or living with a partner and 1% reported being divorced, separated or widowed. About four-in-five respondents (83%) were born in Canada and 17% were born outside Canada.

Table 1.4 Sample Characteristics of the 2004 CCS

	N	Unweighted %	Weighted %
Gender			
Men	2248	35.8	44.4
Women	4034	64.2	55.6
Mean age (range 16-65 years)		21.9	21.8
Year			
First	2001	31.9	29.9
Second	1579	25.1	23.8
Third	1430	22.8	23.8
Fourth	1272	20.2	22.5
Living arrangement			
On campus	1088	17.5	18.3
Off campus with family	2585	41.6	40.2
Off campus without family	2541	40.9	41.4
Marital status			
Never married	5685	90.7	91.4
Married/partnered	515	8.2	7.6
Divorced/separated	69	1.1	1.0
Region			
British Columbia	793	12.6	11.8
Prairies	513	8.2	15.9
Ontario	2107	33.5	42.3
Quebec	2076	33.1	19.5
Atlantic	793	12.6	10.4
Born			
Canada	5183	82.6	78.6
Outside Canada	1090	17.4	21.4
Survey Mode			
Online	2742	43.7	46.7
Mail	3540	56.3	53.5

Data Quality

A thorough review of data quality identified 3 universities whose data contained serious flaws such as mismatched ID numbers and high mail returns. These 3 universities were removed from the data.

Micro-editing procedures were employed to ensure data quality. Critical edit scanning assessed errors in ID numbers, invalid values and item non-response. Minimally complete cases were defined by (1) students who reported being a full-time undergraduate (ineligible part-time and graduate students were excluded) and (2) students who reported valid values for sex and age. This process resulted in 6,282 cases for analysis after the removal of 399 respondents.

One indication of data quality is the magnitude and pattern of item missing values. The key outcomes of the survey - alcohol use, drug use and mental health outcomes - all showed under 1% of missing values and all showed that most respondents answered all questions.

Sample Quality

Response rates are a key feature of data quality because if respondents differ from non-respondents in important ways, survey estimates may be biased. The magnitude of potential bias, however, is a function of both the size of the response rate and the difference between respondents and non-respondents (Groves & Couper, 1998).

Although only 41% of students completed the survey, student completion rates for large national university surveys usually do not exceed 65%. For example, the *National College Health Risk Behavior Survey*, conducted in 1995 by the CDC in the U.S., resulted in 65% of students completing a questionnaire (Centres for Disease Control and Prevention, 1997). More recently, the 2001 *College Alcohol Study*, conducted by Harvard University, resulted in 52% of students completing the questionnaire (Wechsler et al., 2002).

We used several strategies to evaluate the quality of our sample. First, we compared our CCS estimates to the *Canadian Community Health Survey Cycle 1.2*, a Statistics Canada survey that maintains a high response rate (77% for Cycle 1.2). To ensure a meaningful comparison, we selected 18 to 24 year olds who reported (1) being a full-time student and (2) whose highest level of education was having some post-secondary education, but not a Bachelor's degree. This sample, which was interviewed between May and December 2002, resulted in 747 respondents. Although this comparison is not perfect (e.g., some respondents may be in college rather than university; the CCHS employed in-house Computer Assisted Personal Interviews; the CCHS was fielded in 2002 rather than 2004; and there are minor questionnaire wording differences), it still provides a crude benchmark for some estimates.

As seen in Table 1.5, drinking status among the total samples from the CCS and CCHS are similar: abstainers (9.9% vs 7.7%), former drinkers (4.4% vs 6.2%), monthly drinkers (47.5% vs 49.0%) and for weekly drinkers (38.3% vs 37.1%). There is, however, some suggestion that fewer women in the CCS, compared to the CCHS, reported monthly drinking (53.8% vs 61.7%), but more reported weekly drinking (33.4% vs 25.5%). These data also show that reports of lifetime cannabis use were generally within sampling error for the total sample and for women, but fewer men in the CCS than in the CCHS reported cannabis use (51.5% vs 62.7%).

Table 1.5 Comparison of the 2004 CCS to the 2002 Canadian Community Health Survey

	Total		Men		Women	
	CCS 2004	CCHS 2002	CCS 2004	CCHS 2002	CCS 2004	CCHS 2002
Drinking Status						
Abstainer (%)	9.9	7.7	9.1	10.9	9.1	6.4
95% CI	8.1-12.0	5.0-10.4	4.7-13.2	8.9-13.2	7.2-11.4	3.1-9.6
Former (%)	4.4	6.2	5.9	5.1	3.8	6.4
95% CI	3.6-5.3	3.6-8.8	1.9-10.1	3.7-6.9	3.0-4.9	3.6-9.3
Monthly (%)	47.5	49.0	36.4	39.6	53.8	61.7
95% CI	45.4-49.6	32.4-41.8	29.1-43.7	36.8-42.4	51.4-56.1	55.6-67.8
Weekly+ (%)	38.3	37.1	48.7	44.5	33.4	25.5
95% CI	35.1-41.6	32.4-41.8	41.2-56.1	40.4-48.7	30.4-35.5	20.3-30.7
Lifetime Cannabis Use (%)	51.4	57.6	51.5	62.7	51.4	52.4
95% CI	47.9-54.9	53.0-62.3	47.1-55.8	55.7-69.0	48.0-54.7	46.3-58.6

Second, we assessed whether campus response rates were correlated with some of our key outcome variables. Our data might be suspect if campuses with low response rates were systematically lower or higher than campuses with high response rates. For each campus, we assessed six outcomes -- heavy drinking, AUDIT 8+, past year cannabis use, any past year illicit drug excluding cannabis, General Health Questionnaire (GHQ 4+), and the Canadian Problem Gambling Index (CPGI) by calculating the mean and correlating it with the mean campus response rate. Although correlations among the 45 campuses ranged between -.30 and +.28, none of the correlations were significant at the $p < .05$ level with Bonferroni adjustments.

Third, we assessed whether universities that participated differed from those that did not. Unfortunately, the only data available for both groups was enrollment and region. Universities that participated did not differ significantly in enrollment compared to universities that did not participate (11,489 vs 7,616, $t=1.66$, $p=.102$). Participating universities, however, did differ from non-participating ones according to region ($\chi^2_{4df}=11.99$, $p=.017$). Overall, 62% of campuses participated, with rates highest in Quebec (93%), followed by Ontario (71%), British Columbia (60%), the Atlantic (46%) and the Prairies (30%). Note that post-stratification adjustments described earlier ensure appropriate regional representation in the sample.

The 1998 Survey

To assess changes in substance use and mental health indicators, we compared the 2004 sample to our prior 1998 sample (Gliksman et al., 2000). The 1998 CCS employed a stratified two-stage cluster selection of undergraduates enrolled in full-time studies at accredited universities during the 1998-99 academic year. The sample was stratified equally according to five regions: British Columbia; Prairies; Ontario; Quebec; and Atlantic Provinces. Four universities per region were selected with probability-proportional-to-size (i.e., larger universities had a higher probability of selection than smaller universities)

for all regions except British Columbia, which sampled all 4 universities with certainty. In total, 23 universities (including the randomly selected replacements) were approached, of which 16 agreed to participate. Within each university, 1,000 students were randomly selected with equal probability. Sixteen thousand questionnaires were mailed, of which 15,188 were deemed eligible mailings. A total of 7,800 eligible and useable completions, representing about 442,000 Canadian undergraduates, were returned, for a 51% student cooperation rate. Mean student cooperation rates varied from 42% to 64% by university and from 46% (Ontario) to 59% (Quebec) by region. Table 1.6 compares features of the 1998 and 2004 samples.

Table 1.6 A Comparison Between the 1998 and 2004 CCS Samples

	1998	2004
Target population	Full-time undergraduates at accredited universities during 1998-1999 academic year. Eligible universities included: (1) have a Registrar, (2) have more than 1000 full-time degree undergraduates, (3) have physical students (i.e., online universities are excluded), (4) are non-military, and (5) are publicly funded.	Full-time undergraduates enrolled at all 64 accredited universities during 2003-2004 academic year. Eligible universities included: (1) have a Registrar, (2) have more than 1000 full-time degree undergraduates, (3) students physically attend classes (i.e., online universities are excluded), (4) are non-military, and (5) are publicly funded.
Sample design	Two-stage cluster selection: (1) 4 universities selected PPS within each of the 5 regional strata, and (2) 1000 students selected with equal probability within each university.	Single-stage selection of 350 undergraduates stratified by university campus.
Sample size	16 universities/ 7,800 students	40 universities/ 6,282 students
Fieldwork	9-week period: October 30 – December 3, 1998. Four mailings	9-week period: March 1- April 30, 2004. Four mailings
Mode	Self-administered mail	Respondent-choice mixed-mode: mail or web
Participation rates	16/23 universities 51% students	40/63 universities 41% students

Table 1.7 shows that, despite some differences in methods between the 1998 and 2004 surveys, the key sample characteristics remained unchanged.

Table 1.7 Sample Characteristics, 2004 vs 1998

	1998		2004	
	N	%	N	%
Total	7,800		6,282	
Men	2,881	45.6	2,248	44.4
Women	4,913	54.4	4,034	55.6
First year	1,901	25.9	2,001	29.9
Second year	1,910	25.3	1,579	23.8
Third year	2,044	25.4	1,430	23.8
Fourth year	1,941	23.4	1,272	22.5
On campus	1376	16.8	1,088	18.3
Off campus with family	3325	46.8	2,585	42.9
Off campus without family	3054	36.4	5,595	39.4
British Columbia	1,795	9.8	793	11.8
Prairies	1,464	18.4	513	15.9
Ontario	1,277	40.5	2,107	42.3
Quebec	2,304	22.5	2,076	19.5
Atlantic	954	8.8	793	10.4

Note: Ns are unweighted; percentages are weighted.

X^2 sex= 0.370; p=0.545

X^2 year of study=0.975; p=0.361

X^2 residence=1.22; p=0.295

X^2 region=0.098; p=0.974

Report & Analysis

This report describes some of the main findings from the 2004 CCS, including key outcomes such as the prevalence of alcohol and other drug use (Chapter 2), the patterns of alcohol use (Chapter 3), the prevalence of alcohol problems (Chapter 4), the prevalence of poor mental health (Chapter 5), the prevalence of gambling behaviours and problems (Chapter 6), a description of the campus environment (Chapter 7), changes in various outcomes between 1998 and 2004 (Chapter 8), and a summary of findings (Chapter 9).

The outcome variables are described in their respective chapters; however, the following measures are used throughout this report.

Table 1.8 Measures Used Throughout this Report

Measure	Categories
Sex	men; women
Year of study	1 st – 4 th year
Living arrangement	On campus; Off campus with family; Off campus without family
Region	British Columbia; Prairies; Ontario; Quebec; Atlantic
Extracurricular Orientation	
To capture the social life on campus, students were asked how important it is for them to participate in eight extra-curricular campus activities, based on a four-point scale from very important (3) to not important (0). Principal component analysis identified two factors, one representing recreational-oriented activities (parties, athletics and recreational clubs) and one representing cultural-oriented and political-oriented activities (arts, non-class conferences/lectures/symposia, students associations, cultural/ethnic/religious and political associations/organizations). These two factors were then used to generate a 4-category typology based on the four cells of the recreational factor (divided at a value of 1.5 and higher vs others) by the cultural factor (divided at a value of 1.5 and lower vs others).	
students who highly value participating in recreational-oriented activities <u>and</u> do not highly value participating in cultural-oriented activities	Recreationally-oriented
students who do not highly value participating in recreational-oriented activities <u>and</u> highly value participating in cultural-oriented activities	Intellectually-oriented
students who highly value participating in both recreational-oriented <u>and</u> cultural-oriented activities	Bi-oriented
students who do not highly value participating in recreational-oriented activities <u>nor</u> in cultural-oriented activities	A-oriented

Analysis

All estimates based on the 2004 CCS were corrected for the clustered sample using Taylor series methods employed by Stata (StataCorp, 2003). Although the 2004 CCS was technically stratified by campus, our analysis treated campus as a clustered primary sampling unit in order to ensure that statistical inference was not affected by a clustering effect (Snijders & Bosker, 1999). For estimation purposes, the 45 campuses were identified as primary sampling units within a single stratum, and all estimates were weighted as described earlier. In addition, based on the coefficient of variation, some estimates were suppressed due to unreliability.

To assess changes between 2004 and 1998, we pooled the two surveys into a single data file represented by 6 strata (5 based on regions of the 1998 survey and 1 strata representing the 2004 survey) and 61 PSUs (16 in 1998 and 45 in 2004) (Korn & Graubard, 1999). Wald tests were used to determine significant year effects. We assessed a model that included five main effects for year (1998 vs 2004), gender (men vs women), year of study (represented by 3 dummy variables), region (represented by 4 effect-coded contrasts) and mode (web vs mail to control for potential mode differences), and three year interactions: year-by-gender (to assess differential year changes between men and women), year-by-study (to assess differential year changes according to year of study), and year-by-region (to assess differential year changes according to region). In the absence of a significant year interaction, a significant change would be indicated by a significant Wald test for the year effect.

Study Limitations

Although the 2004 CCS is the most extensive addiction and health survey conducted among Canadian undergraduates, there are several important limitations. Most notably, not all students responded to the survey, so the potential for non-response bias cannot be ignored, despite relatively good sample characteristics. Second, because students were free to choose the mode of interview, we cannot fully assess the character of mode differences. Fortunately, there was little evidence of sizeable mode differences for our main outcome variables. Third, the timing of the survey, fielded during March and April, could influence some alcohol-related outcomes associated with spring break. Finally, our data are based on self reports, and we must accept some level of underreporting of the more undesirable behaviours, even in face of the literature indicating that self-report surveys generally provide useful public health data (Brenner, Billy, & Grady, 2003; Sloboda, 2005).

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Chapter 2

The Prevalence of Alcohol and Other Drug Use

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This chapter describes the prevalence of alcohol and other drug use among Canadian undergraduates. Although research generally shows that illicit drug use is lower among university students compared to their non-university counterparts (Johnston, O'Malley, Bachman, & Schulenberg, 2004), university administrators and student services staff at Canadian universities rank heavy drinking, underage drinking and illicit drug use as the top three problems facing university students on campus.

Measures used in this chapter

	Description
	Alcohol
Lifetime	Lifetime prevalence was based on the question, "Have you ever in your life consumed an alcoholic drink (more than a sip) ?" (Q5)
Past year	"During the past 12 months, how often, on average, did you consume alcohol drinks?", with the response "never" defined as negative and the responses "less than once a month" to "every day" defined as positive (Q8)
Past month	Past 30 day prevalence was based on "During the past month, how many times did you consume alcoholic drinks?", with the response 'never' defined as negative and the responses 'once' through '40 or 'more times' defined as positive. (Q12)
	Cigarettes
Current smoker	Smoked 100 or more cigarettes in lifetime (Q35) <u>and</u> smoked during past 30 days. (Q38)
	Illicit Drug Use
	For the 15 drugs below, respondents were asked "When was the last time, if ever, that you used the following drugs? (1) never in life, (2) in life, but not in past 12 months, (3) in past 12 months, but not in past 30 days, and (4) used in past 30 days.

Con't...

	Description
Cannabis	...Marijuana or hashish (Q41a)
Crack cocaine	...Crack cocaine (Q41b)
Cocaine	...Other forms of cocaine (Q41c)
Barbiturates	...Barbiturates (prescription-type sleeping pills like Seconal, Nembutal, downs or Yellow Jackets) (Q41d)
Stimulants	...Ritalin, Dexedrine or Adderall (Q41e)
Amphetamines	...Other amphetamines (methamphetamine, crystal meth, speed, uppers, ups) (Q41f)
Tranquillizers	...Tranquillizers (prescription-type drugs like Valium, Librium, Xanax, Ativan, Klonopin) (Q41g)
Heroin	...Heroin (Q41h)
Opiates	...Other opiate-type prescription drugs (codeine, morphine, Demerol, Percodan, Percodet, Vicodin, Darvon, Darvocet) (Q41i)
LSD	...LSD (Q41j)
Hallucinogens	...Other psychedelics or hallucinogens like mushrooms, mescaline or PCP (Q41k)
Ecstasy	...Ecstasy (MDMA) (Q41l)
Party drugs	...Other "party drugs" (Ketamine, Special K, GHB) (Q41m)
Steroids	...Anabolic steroids (either injections like Depo-testosterone Durbolin, or pills like Anadrol, Dianabol or Winstrol) (Q41n)
Performance drugs	...Other performance-enhancing drugs (growth hormone, diuretics, ephedrine) (Q41o)
Any Illicit Drug excluding cannabis	Used one or more of the following 8 drugs: crack cocaine; powder cocaine; amphetamines (methamphetamines, crystal meth, speed, uppers); heroin; LSD; psychedelics or hallucinogens like mushrooms, mescaline or PCP; Ecstasy (MDMA); "party drugs" (Ketamine, Special K, GHB)

Overall Prevalence (Table 2.1)

As seen in Table 2.1, alcohol is used by 90.1%, 85.7% and 77.1% of students during their lifetime, past year and month, respectively. By far, the most commonly used illicit drug is cannabis, used by 51.4% of students during their lifetime, 32.1% during the past year, and 16.7% during the month before the survey. Following cannabis, the most commonly used drugs are hallucinogens, such as magic mushrooms, mescaline and PCP (reported by 16.9% and 5.6%, during the respondents' lifetime and past year) and opiates (reported 13.7%, 5.0%, and 1.0%, during the respondents lifetime, past year and past month). Although up to 1 in 20 students report lifetime use of some drugs, past year rates of use are generally 2% or lower, and past month use is clearly uncommon.

Subgroup Differences

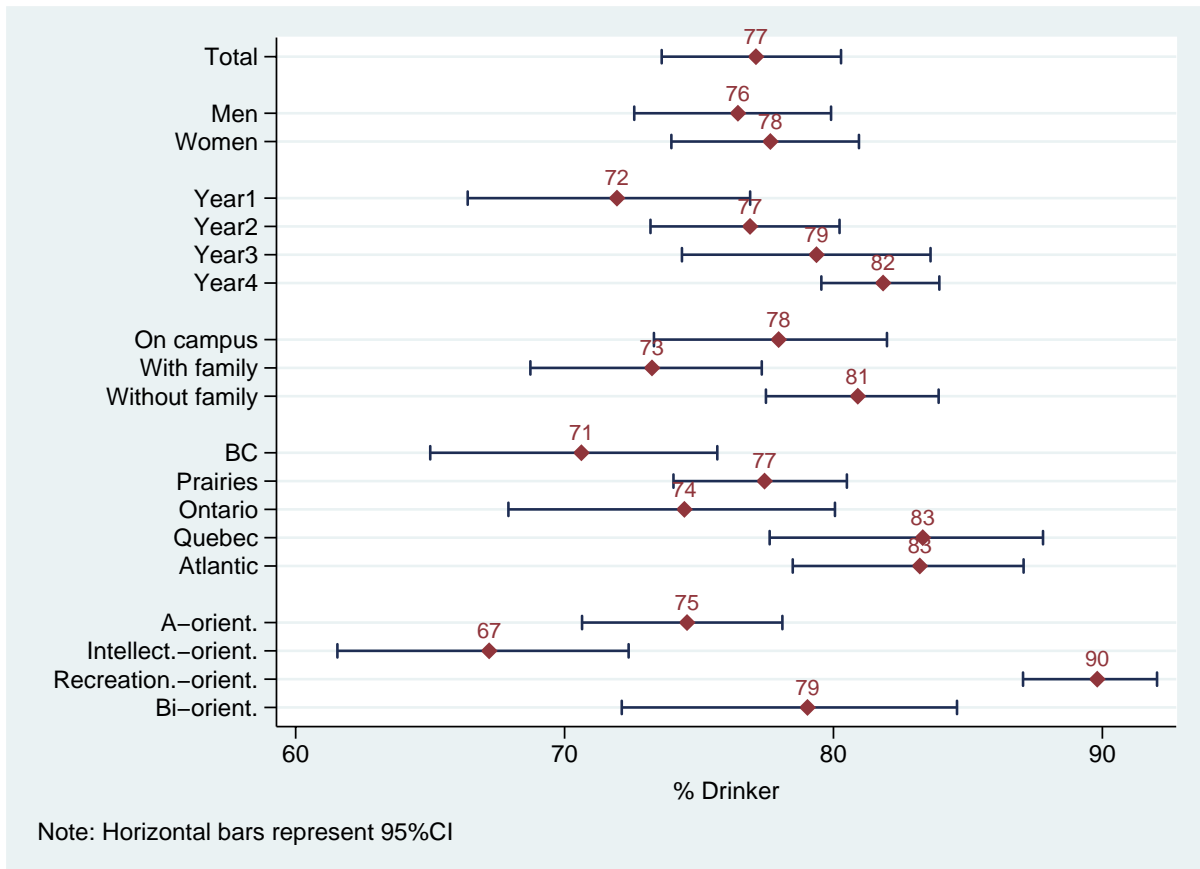
Alcohol Use (Table 2.2; Figure 2.1)

Variation in both 12-month and 30-day drinking is associated with year of study, region and extracurricular orientation. Past year drinking varies from 82.3% among first year students to 88.9% among fourth-year students, and past 30-day drinking varied from 71.9% to 81.9%, respectively.

Past month drinking is lowest among those living off campus with family (73.3%) especially when compared with those living off campus without family (80.9%).

The prevalence of drinking is above average among those attending university in Quebec and the Atlantic (89.7% and 90.9% respectively vs 85.7% nationally for past year drinking, and 83.3% and 83.2% respectively vs 77.1% for past month drinking). Below average rates are reported by those attending university in British Columbia (78.5% vs 85.7% nationally for past year drinking and 70.6% vs 77.1% for past 30 day drinking).

Figure 2.1 Percentage Reporting Past Month Alcohol Use, CCS 2004



Intellectually-oriented students report the lowest rate of both past year (75.4% vs 85% of A-oriented or Bi-oriented and 95.4% of recreationally-oriented) and past month drinking (67.2% vs 74.6% of A-oriented, 79.0% of Bi-oriented and 89.8% of recreationally-oriented).

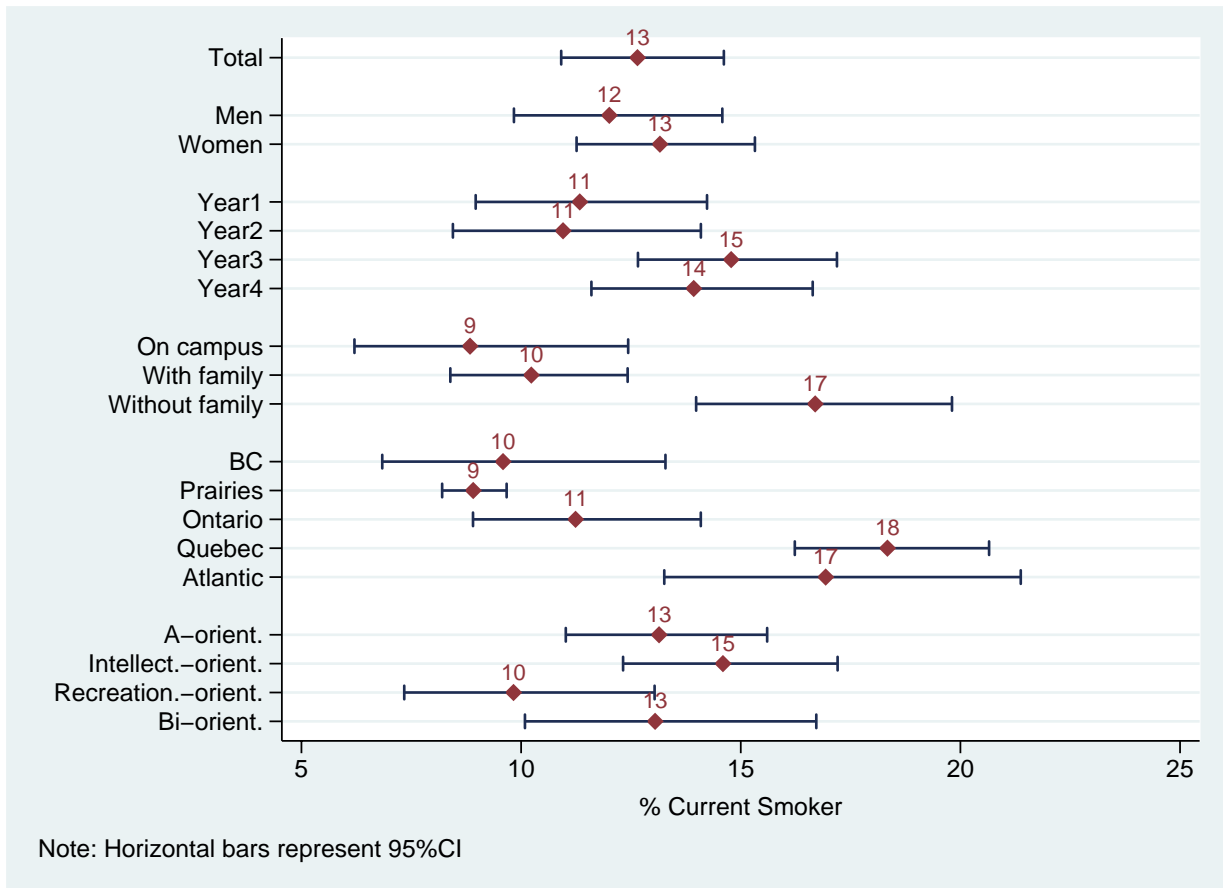
Recency of reading week is nominally associated with both past year and past month drinking. Students reporting that their reading week occurred 1 to 2 weeks ago reported the highest rate of drinking (87.2% and 79.6% respectively) compared to those reporting reading week 3 to 4 weeks ago (85.3% and 76.5% respectively) and those reporting no reading week (83.0% and 72.8% respectively).

Past year drinking varies by gender, while past month drinking does not.

Cigarette Use.....(Table 2.3; Figure 2.2)

Variation in current smoking is significantly associated with year of study, living situation, and region. Current smoking is highest among third year students compared to first year students (14.8% vs 11.3%).

Figure 2.2 Percentage Reporting Current Smoking, CCS 2004



Smoking is highest among those living off campus without family compared to those living with family (16.7% vs 10.2%).

Compared to the national estimate of 12.7%, the prevalence of smoking is above average among those attending university in Quebec (18.3%) and the Atlantic provinces (16.9%) and lowest among those from British Columbia (9.6%) and the Prairies (8.9%).

Current smoking is not significantly related to gender or extracurricular orientation.

Cannabis Use(Table 2.4; Figure 2.3)

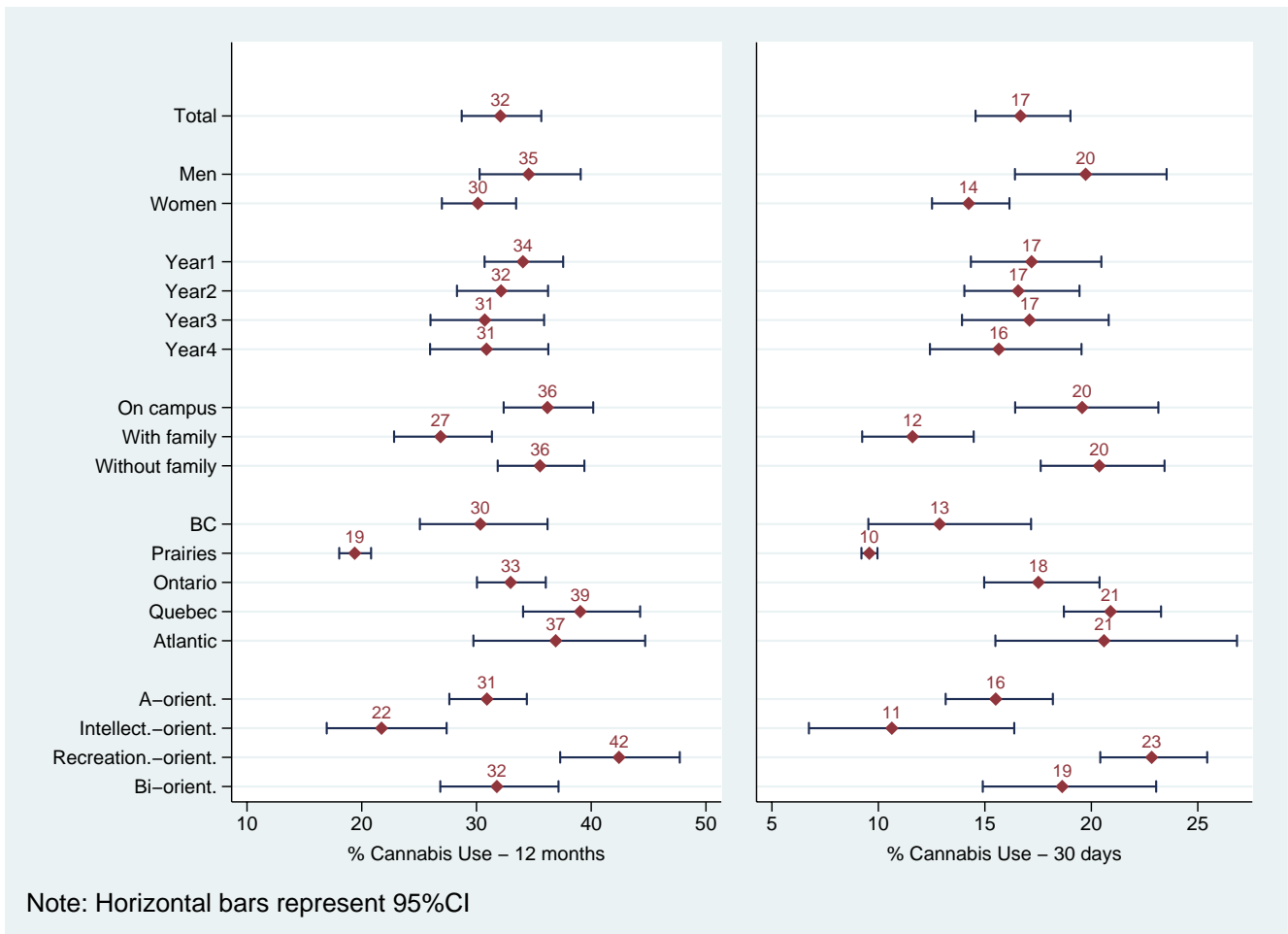
Variation in past year and past month cannabis use is associated with gender, living arrangement, region and extracurricular orientation.

Men are more likely than women to have used cannabis during the past year (34.5% vs 30.1%) and during the past month (19.7% vs 14.2%).

Both past year and past month cannabis use is lowest among those living off campus with family (26.9% and 11.6%) versus those living on campus (36.2% and 19.6%) and those living off campus without family (35.5% and 20.4%).

Both past year and past month cannabis use is above average among those attending university in Quebec (39.0% vs 32.1% nationally; and 20.9% vs 16.7% nationally) and in the Atlantic (36.9% vs 32.1% nationally; and 20.6% vs 16.7% nationally), and below average among those in the Prairies (19.4% vs 32.1% nationally; and 9.6% vs 16.7% nationally).

Figure 2.3 Percentage Reporting Past Year and Past Month Cannabis Use, CCS 2004



Intellectually-oriented students are less likely to report both past year and past month cannabis use (21.7% vs 30.9% of A-oriented, 31.8% of Bi-oriented and 42.4% of recreationally-oriented, and 10.6% vs 15.5% of A-oriented, 18.6% of Bi-oriented and 22.8% of recreationally-oriented).

Year of study is not significantly associated with past year or past month cannabis use.

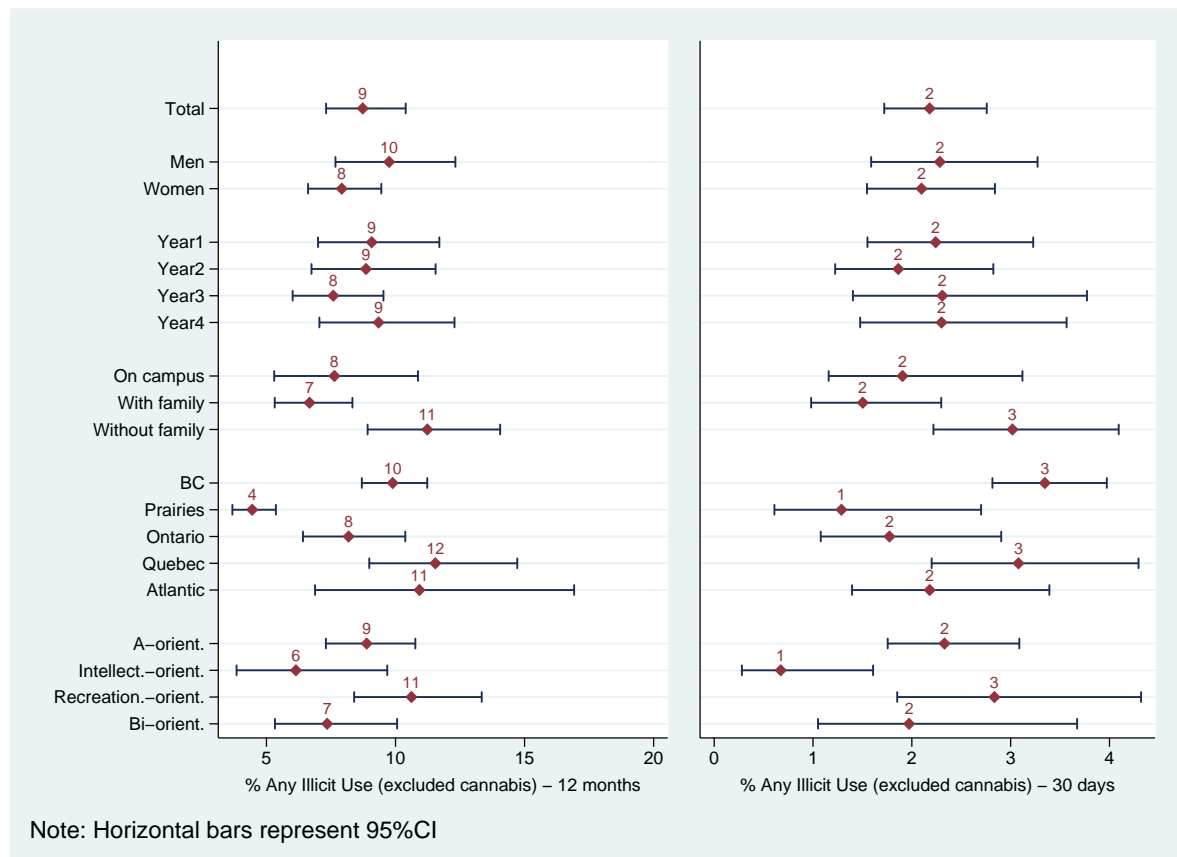
In addition to prevalence of cannabis use, we also assess the reported frequency that cannabis was used during the past 12 months (Table 2.5). Among the past year users, over half (54.3%) report use less than once a month; and about one-in-five report use weekly and monthly. About 6.3% of users report daily cannabis use.

Other Illicit Drug Use.....(Table 2.6; Figure 2.4)

The use of any of eight illicit drugs other cannabis (crack cocaine; powder cocaine; amphetamines [methamphetamine, crystal meth, speed, uppers]; heroin; LSD; psychedelics or hallucinogens like mushrooms, mescaline or PCP; Ecstasy (MDMA); “party drugs” [Ketamine, Special K, GHB]) is significantly associated with living arrangement and region for past year use. The same pattern is found for past month use, and there is a significant association with extracurricular orientation.

Unlike the use of alcohol and cannabis, the dominant difference according to living arrangement is a higher rate of illicit drug use among those residing off campus without family (11.2% vs 7.6% among those living on campus and 6.6% among those living off campus with family for past year use, and 3.0% vs 1.9 and 1.5%, respectively for past month use).

Figure 2.4 Percentage Reporting Any Past Year and Past Month Illicit Drug Use (excluding cannabis), CCS 2004



Students attending universities in Quebec report above average past year and past month use (11.5% vs 8.7% nationally, and 3.1% vs 2.2% nationally, respectively). In addition, those attending university in British Columbia report above average 30-day use (3.3% vs 2.2% nationally), and those attending in the Prairies report below average 12-month use (4.5% vs 8.7% nationally).

As with the prior drug-use outcomes, intellectually-oriented students report lower rates of past year use (6.1%) and past month use (0.7%).

Gender and year of study are not significantly associated with illicit drug use other than cannabis.

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Table 2.1 Lifetime, 12-month and 30-day Prevalence of Alcohol and Other Drug Use, Canadian Undergraduates (N=6,282), 2004

	Lifetime		12 month		30 day	
	%	95%CI	%	95%CI	%	95%CI
Alcohol	90.1	88.0 – 91.9	85.7	83.2 – 87.9	77.1	73.6 – 80.3
Cannabis	51.4	47.9 – 54.9	32.1	28.7 – 35.6	16.7	14.5 – 19.0
Hallucinogens	16.9	14.9 – 19.2	5.6	4.6 – 6.9	s	s
Opiates	13.7	12.6 – 15.0	5.0	4.3 – 5.8	1.0	0.8 – 1.4
Ecstasy (MDMA)	8.3	7.2 – 9.5	2.5	2.0 – 3.1	s	s
Amphetamines	7.7	6.2 – 9.6	2.6	1.8 – 3.8	s	s
LSD	6.2	4.8 – 7.9	s	s	s	s
Tranquillizers	5.2	4.3 – 6.2	2.0	1.6 – 2.6	1.0	0.7 – 1.4
Cocaine	4.7	3.8 – 5.9	2.1	1.5 – 3.0	s	s
Performance drugs	4.5	3.7 – 5.6	2.1	1.7 – 2.6	s	s
Barbiturates	4.0	3.2 – 4.9	1.5	1.1 – 2.1	s	s
Stimulants	3.5	2.6 – 4.7	1.2	0.9 – 1.8	s	s
Party drugs (Ketamine, GHB)	2.6	1.9 – 3.4	s	s	s	s
Crack	2.4	1.8 – 3.2	s	s	s	s
Anabolic steroids	s	s	s	s	s	s
Heroin	s	s	s	s	s	s
Any illicit (exc. cannabis)	---	---	8.7	7.3 – 10.4	2.2	1.7 – 2.8

Notes: s – data suppressed due to unreliability.

Table 2.2 12-month and 30-day Prevalence of Alcohol Use, Canadian Undergraduates (N=6,282), 2004

	12 month			30 day		
	%	95%CI	OR	%	95%CI	OR
Total	85.7	83.2-87.9		77.1	73.6-80.3	--
Gender		**			ns	
Men	84.0	81.5-86.3	0.80**	76.5	72.6-79.9	0.93
Women	87.1	84.2-89.5	Ref	77.7	74.0-81.0	Ref
Year of study		**			***	
First	82.3	77.5-86.2	Ref	72.0	66.4-76.9	Ref
Second	85.3	82.1-88.0	1.24	76.9	73.2-80.2	1.30*
Third	87.5	84.8-89.7	1.51**	79.4	74.4-83.6	1.50**
Fourth	88.9	86.1-91.2	1.73**	81.9	79.6-83.9	1.76***
Living arrangement		ns			**	
On campus	86.5	83.3-89.1	1.40	78.0	73.3-82.0	1.44*
Off campus with family	83.5	79.7-86.8	Ref	73.3	68.7-77.3	Ref
Off campus without family	88.1	85.5-90.2	1.36	80.9	77.5-83.9	1.45**
Region		***			**	
British Columbia	78.5	73.8-82.6	0.55***	70.6	65.0-75.7	0.65***
Prairies	86.9	84.0-89.3	1.00	77.4	74.1-80.5	0.92
Ontario	84.2	80.2-87.6	0.86	74.5	67.9-80.1	0.85
Quebec	89.7	84.8-93.1	1.46*	83.3	77.6-87.8	1.51**
Atlantic	90.9	88.5-92.9	1.47**	83.2	78.5-87.1	1.32*
Extracurricular Orientation		***			***	
Recreationally oriented	95.4	93.2-97.0	7.81***	89.8	87.1-92.0	4.72***
Intellectually oriented	75.4	70.3-80.0	Ref	67.2	61.6-72.4	Ref
Bi-oriented	85.3	80.4-89.2	2.06***	79.0	72.1-84.6	1.95***
A-oriented	84.7	81.8-87.2	1.96***	74.6	70.6-78.1	1.45**
Reading week		*			**	
1-2 weeks ago	87.2	84.6-89.5	1.45*	79.6	76.8-82.1	1.51**
3-4 weeks ago	85.3	82.0-88.1	1.21	76.5	71.5-80.8	1.23
Not yet	83.0	79.0-86.3	Ref	72.8	67.0-77.9	Ref

Notes: ns not significant; * p <.05; ** p <.01; p <.001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Table 2.3 Prevalence of Current Cigarette Smoking, Canadian Undergraduates (N=6,282), 2004

	%	95%CI	OR
Total	12.7	10.9-14.6	
Gender	ns		ns
Men	12.0	9.8-14.6	.89
Women	13.2	11.3-15.3	Ref
Year of Study	*		*
First	11.3	9.0-14.2	Ref
Second	11.0	8.4-14.1	.96
Third	14.8	12.7-17.2	1.36**
Fourth	13.9	11.6-16.6	1.27
Living Arrangement	***		***
On campus	8.8	6.2-12.4	.85
Off campus with family	10.2	8.4-12.4	Ref
Off campus without family	16.7	14.0-19.8	1.74**
Region	***		***
British Columbia	9.6	6.8-13.3	.72*
Prairies	8.9	8.2-9.7	.67**
Ontario	11.2	8.9-14.1	.90
Quebec	18.3	16.2-20.7	1.66**
Atlantic	16.9	13.3-21.4	1.38**
Extracurricular Orientation	ns		ns
Recreationally oriented	9.8	7.3-13.0	.65*
Intellectually oriented	14.6	12.3-17.2	Ref
Bi-oriented	13.1	10.1-16.7	.89
A-oriented	13.1	11.0-15.6	.883

Notes: ns not significant; * p <.05; ** p <.01; p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Table 2.4 12-month and 30-day Prevalence of Cannabis Use, Canadian Undergraduates (N=6,282), 2004

	12 month			30 day		
	%	95%CI	OR	%	95%CI	OR
Total	32.1	28.7–35.6		16.7	14.6-19.0	
Gender		**			**	
Men	34.5	30.3–39.1	1.23**	19.7	16.4-23.5	1.48**
Women	30.1	27.0–33.5	Ref	14.2	12.5-16.2	Ref
Year of study		ns			ns	
First	34.1	30.7–37.6	Ref	17.2	14.3-20.5	Ref
Second	32.1	28.3–36.2	0.92	16.6	14.0-19.4	0.97
Third	30.7	26.0–35.9	0.85	17.1	13.9-20.8	0.99
Fourth	30.9	26.0–36.3	0.86	15.7	12.4-19.5	0.89
Living Arrangement		***			***	
On campus	36.2	32.4–40.2	1.47**	19.6	16.4-23.2	1.80**
Off campus with family	26.9	22.8–31.4	Ref	11.6	9.2-14.5	Ref
Off campus without family	35.5	31.9–39.4	1.55**	20.4	17.6-23.4	2.01**
Region		***			***	
British Columbia	30.3	25.1–36.2	0.96	12.9	9.5-17.2	0.79
Prairies	19.4	18.0–20.8	0.53**	9.6	9.2-10.0	0.56**
Ontario	33.0	30.0– 6.0	1.08	17.5	15.0-20.4	1.13
Quebec	39.0	34.1–44.3	1.41**	20.9	18.7-23.4	1.41**
Atlantic	36.9	29.7–44.7	1.31*	20.6	16.0-26.8	1.42*
Extracurricular Orientation		***			***	
Recreationally oriented	42.4	37.3-47.7	2.56**	22.8	20.4-25.4	2.31**
Intellectually oriented	21.7	17.0-27.4	Ref	10.6	6.7-16.4	Ref
Bi-oriented	31.8	26.9-37.2	1.65**	18.6	14.9-23.0	1.86*
A-oriented	30.9	27.6-34.4	1.60**	15.5	13.2-18.2	1.52

Notes: ns not significant; * p <.05; ** p <.01; p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Table 2.5 Frequency of Cannabis Use Among Past Year Users, Canadian Undergraduates (N=2,232), 2004

	%	95%CI
Less than once a month	54.3	51.6 – 56.9
Once a month	10.4	8.3 – 13.0
2-3 times a month	10.4	8.9 – 12.1
Once a week	6.7	5.3 – 8.4
2-3 times a week	7.1	5.7 – 8.9
4-5 times a week	4.9	3.9 – 6.0
About every day	6.3	4.8 – 8.3

Table 2.6 12-month and 30-day Prevalence of Any Illicit Drug Use excluding Cannabis, Canadian Undergraduates (N=6,282), 2004

	12 month			30 day		
	%	95%CI	OR	%	95%CI	OR
Total	8.7	7.3-10.4		2.2	1.7-2.8	
Gender		ns			ns	
Men	9.7	7.7-12.3	1.26	2.3	1.6-3.3	2.3
Women	7.9	6.6-9.4	Ref	2.1	1.5-2.8	Ref
Year of Study		ns			ns	
First	9.1	7.0-11.7	Ref	2.2	1.6-3.2	Ref
Second	8.9	6.7-11.6	0.98	1.9	1.2-2.8	0.83
Third	7.6	6.1-9.5	0.82	2.3	1.4-3.8	1.03
Fourth	9.3	7.1-12.3	1.03	2.3	1.5-3.6	1.03
Living Arrangement		***			**	
On campus	7.6	5.3-10.9	1.09	1.9	1.2-3.1	1.21
Off campus with family	6.6	5.3-8.3	Ref	1.5	1.0-2.3	Ref
Off campus without family	11.2	8.9-14.1	1.84**	3.0	2.2-4.1	2.09**
Region		***			*	
British Columbia	9.9	8.7-11.2	1.16	3.3	2.8-4.0	1.52**
Prairies	4.5	3.7-5.4	0.49***	1.3	0.7-2.7	0.57
Ontario	8.2	6.4-10.4	0.95	1.8	1.1-2.9	0.80
Quebec	11.5	9.0-14.7	1.42*	3.1	2.2-4.3	1.44*
Atlantic	10.9	6.9-16.9	1.32	2.2	1.4-3.4	0.99
Extracurricular Orientation		ns			*	
Recreationally oriented	10.6	8.4-13.3	1.74	2.8	1.8-4.3	4.25**
Intellectually oriented	6.1	3.8-9.7	Ref	0.7	0.3-1.6	Ref
Bi-oriented	7.4	5.3-10.1	1.18	2.0	1.1-3.7	2.95*
A-oriented	8.9	7.3-10.8	1.48	2.3	1.8-3.1	3.50**

Notes: ns not significant; * p <.05; ** p <.01; p <.001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Chapter 3

Drinking Patterns

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Campus drinking culture has been characterized as a “wet culture” of heavy drinking (Gliksman, Adlaf, Demers, Newton-Taylor, 2003; Wechsler, 2000). However, drinking is a multifaceted phenomenon and to understand how undergraduates drink, different aspects of their drinking patterns need to be examined. How often and how much do they drink? How often do they drink in excess? The latter is a particularly important public health issue, as intoxication is known to lead to harmful consequences (Demers & Quesnel-Vallée, 1999). This chapter provides an overview of undergraduate drinking patterns according to gender, year of study, living arrangements, region and students’ involvement in extracurricular activities.

Our description is three-fold. First, we describe patterns of past year drinking among the total sample of students. Second, we describe past month drinking patterns, a period during which students were on campus and, thus, may have been more sensitive to the campus environment. Third, based on our earlier work (Demers et al., 2002, Kairouz et al., 2002), we describe the context in which students drink.

Measures used in this chapter

Measures	Description
Drinking Typology	The drinkers’ typology is a 6-category variable derived from drinking status (Q5), drinking frequency (Q8), and the usual quantity consumed per drinking day (Q9). Lifetime Abstainers: never had an alcoholic beverage in their life Former Drinkers: had an alcoholic beverage in their life, but not during the past 12 months.

Cont’...

Measures	Description
	Drinkers: usually consume less than 5 drinks on days that they drink <u>and</u> drink less than once a week
	Light-Frequent Drinkers: usually consume less than 5 drinks on days that they drink <u>and</u> drink at least once a week.
	Heavy-Infrequent Drinkers: usually consume 5 drinks or more on days that they drink <u>and</u> drink less than once a week
	Heavy-Frequent Drinkers: usually consume 5 drinks or more per day <u>and</u> drink at least once a week.
Average Weekly Frequency	The average weekly frequency is based on the question: “How often, on average, did you consume alcohol drinks in the past 12 months?(Q8) in the past month? (Q12)” The response categories (every day, 4-6 times a week, 2-3 times a week, once a week, 1-3 times a month, less than once a month) were transformed into number of drinking days per week (respectively: 7, 5, 2.5, 0.5, 0.2) to estimate the average weekly frequency.
Average Weekly Volume	The average volume is derived using both the frequency of drinking (Q8, Q12) and the usual quantity consumed when drinking (Q9, Q13), over the past 12 months and over the past month. This measure, known as the QF (quantity x frequency), is the most commonly used to estimate volume. To obtain an average weekly estimate volume was divided by 52 and by 4.3 for the past 12 month and the past month, respectively.
Frequency of 5+ and 8+ Drinks on a Single Occasion	The frequency of 5+ and 8+ drinks per occasion were derived from three questions: frequency of drinking at certain levels per occasion (between 5 and 7 drinks (Q10a, Q14a), between 8 and 11 drinks (Q10b, Q14b), 12 or more drinks (Q10c, Q14c)) over the past 12 months and over the past month. The summation of the responses to these questions was divided respectively by 26 and by 2 to estimate the bi-monthly frequency of 5+ and 8+ over the past 12 months and over the past month.
Drinking Context Variables	The drinking context variables and reasons for drinking refer to the most recent drinking occasion over the past month. These variables are derived from a set of questions about drinking setting (circumstances, place and time), drinking partners (group size, composition of the group, relationship), alcohol intake and other drug use, and the reason for drinking on that specific occasion (Q20a-Q20e).

Population Overview of Undergraduate Drinking (Tables 3.1 and 3.2; Figure 3.1)

This section provides a population overview of undergraduate drinking over the past year. Therefore, all rates reported in this section are estimated for the overall population rather than strictly for the drinking population.

As noted in chapter 2, 86% of undergraduates report having consumed alcohol at least once over the previous year. The prevalence of drinking is slightly higher among women than men (87% vs 84%, respectively). Quebec and the Atlantic region display the highest prevalence of drinking (89.7% and 90.9%, respectively), whereas British Columbia showed the lowest. The prevalence of drinking increases steadily as students progress in their studies (from 82% in the first year to 89% in the fourth year). No significant difference in prevalence is observed based on students’ living arrangement. However, intellectually-oriented students are less likely to be drinkers (75%), while recreationally-oriented students are more likely to be drinkers (95%).

Usual Drinking Patterns

Roughly one-third (35.8%) of undergraduates are Light-Frequent drinkers, i.e., usually drink less than once a week and consume less than 5 drinks on the days they drink; another 22% are light drinkers who

drink once a week or more (drinkers). However, whereas the usual drinking pattern of most students is one of moderation, an appreciable number of students are heavy drinkers, i.e., usually have five or more drinks on the days they drink. Overall, more than one in four usually drink heavily when they do drink, specifically 11.7% are heavy but infrequent drinkers, and 16.1% are Heavy/Frequent drinkers. Table 3.1 reveals significant variations in drinking types according to region, gender, year of study and extracurricular orientation (Figure 3.1). In the Atlantic provinces, the rates of Heavy-Infrequent and Heavy-Frequent drinkers are significantly higher than the Canadian average (22.5% vs 11.7% and 24.5% vs 16.1%, respectively) whereas in Quebec these rates are significantly lower (6.2% vs 11.7% and 9.6% vs 16.1%, respectively). Furthermore, compared to women, men are more likely to be frequent drinkers – both Heavy-Frequent drinkers (12.5% vs 20.6%) and Light-Frequent drinkers (20.8% vs 23.8%), and conversely, females are more likely to be light infrequent drinkers, compared to males (41.9% vs 28.1%).

Regarding year of study, no differences exist in the prevalence of Heavy-Infrequent drinking and of Heavy-Frequent drinking. However, students in the third and fourth year are more likely to be light drinkers, and less likely to be lifetime abstainers.

The usual drinking pattern of undergraduates is significantly related to their living arrangement. Heavy-Frequent drinking is significantly higher among those living on campus (24.1%) compared to 16.8% among those living off campus on their own, and 12.0% among those living with family.

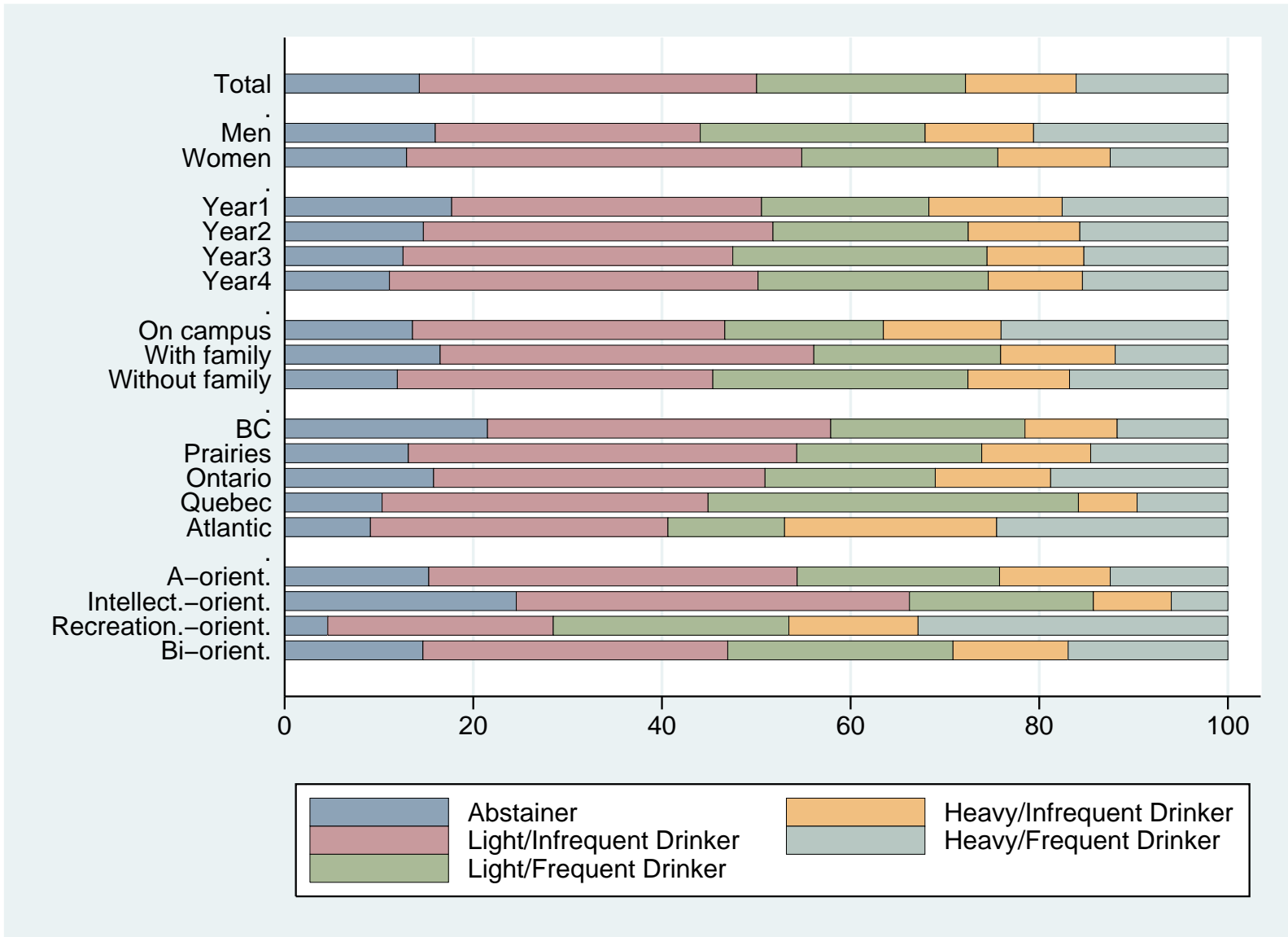
The usual drinking pattern is also associated with extracurricular orientation. One-third (32.9%) of recreationally oriented students are Heavy-Frequent drinkers compared to 6% of intellectually-oriented students (Figure 3.1).

Episodic Heavy Drinking

The usual drinking pattern provides a relevant but partial view of student drinking. The results indicate that most undergraduates do not usually drink in excess (the majority are Light-Frequent drinkers), but this does not mean that they never drink in excess. On the contrary, many undergraduates drink in excess on most days they drink (Heavy-Infrequent and Heavy-Frequent drinkers). Table 3.2 completes the overview of students' drinking patterns by examining episodic heavy alcohol use. Episodic heavy drinking, or "binge drinking," has been associated with an increased risk of a wide range of acute problems, such as physical injury and violence (Demers & Quesnel-Vallée, 1999). We use two criteria to define episodic heavy drinking: (1) the consumption of five or more drinks on a single occasion twice a month or more often, and (2) a more stringent criteria of reporting eight drinks twice a month or more.

Overall, 18.5% and 6.6% of the undergraduates report consuming 5+ and 8+ drinks on a single occasion, twice a month or more. Men are 2.1 times more likely than women to report having 5+ drinks twice a month or more, and 4.5 times more likely for 8+ drinks. Compared to the national average, students in the Atlantic region are, respectively, 1.7 times and 2.2 times more likely to report 5+ and 8+ drinks per occasion twice a month or more. It is noteworthy that, although Quebec students are significantly less likely to report 5+ drinks as their typical way of drinking (Heavy-Infrequent and Heavy-Frequent drinkers), they are not less likely to report episodic heavy drinking. Students living in university residence and, to a lesser extent, students living off campus on their own are between 1.5 to 2.1 times more likely to report episodic heavy drinking compared to students living with family. Finally, in comparison to intellectually-oriented students, recreationally-oriented students are 5 times more likely to report 5+ drinks and 8+ drinks on a single occasion at least once every two weeks. No significant difference was found based on the year of study.

Figure 3.1 Drinking Typology, CCS 2004



Drinking Patterns among Past Month Drinkers..... (Tables 3.3 and 3.4; Figure 3.2)

Tables 3.3 and 3.4 show past month drinking patterns, a period during which students were on campus (Results for past year drinkers are presented in Tables 3.6 and 3.7, but not discussed.)

Among past month drinkers, 24.2% are Heavy-Frequent drinkers, i.e., drink weekly and usually have 5+ drinks (Table 3.3). Variations according to gender, region, year of study, and extracurricular orientation follow the pattern described in the previous section. No significant differences were found between students whose schedule included a reading week during the period and those whose schedule did not.

Past month drinkers report consuming alcohol on average 1.3 times a week, for an average weekly volume of 6.4 drinks (Table 3.4). Four of ten drinkers (41.1%) consumed 5+ drinks on one single occasion at least twice over this period, and 17.3% had 8+ drinks at least twice (Figure 3.2). The proximity of reading week was not a significant factor.

Compared to females, males report drinking significantly more often (1 times a week vs 1.7 times, respectively), as well as a higher amount (4.5 drinks a week vs 8.9). Males are also more likely than females to report episodic heavy drinking as indicated by having 5+ or 8+ drinks at least twice during the past month (49.9% vs 34.2% and 25.9% vs 10.6%, respectively).

Quebec's undergraduates report drinking slightly more often than the Canadian average, whereas students from Ontario and the Atlantic provinces report a higher weekly volume. However, the most notable regional differences concern occasional heavy drinking. The proportions of past month drinkers reporting 5+ and 8+ drinks at least twice over the period are significantly lower in Quebec (34.3% and 11.2%, respectively) and higher in the Atlantic provinces (49% and 24.4%, respectively) and in Ontario (45.4% and 20.3%, respectively).

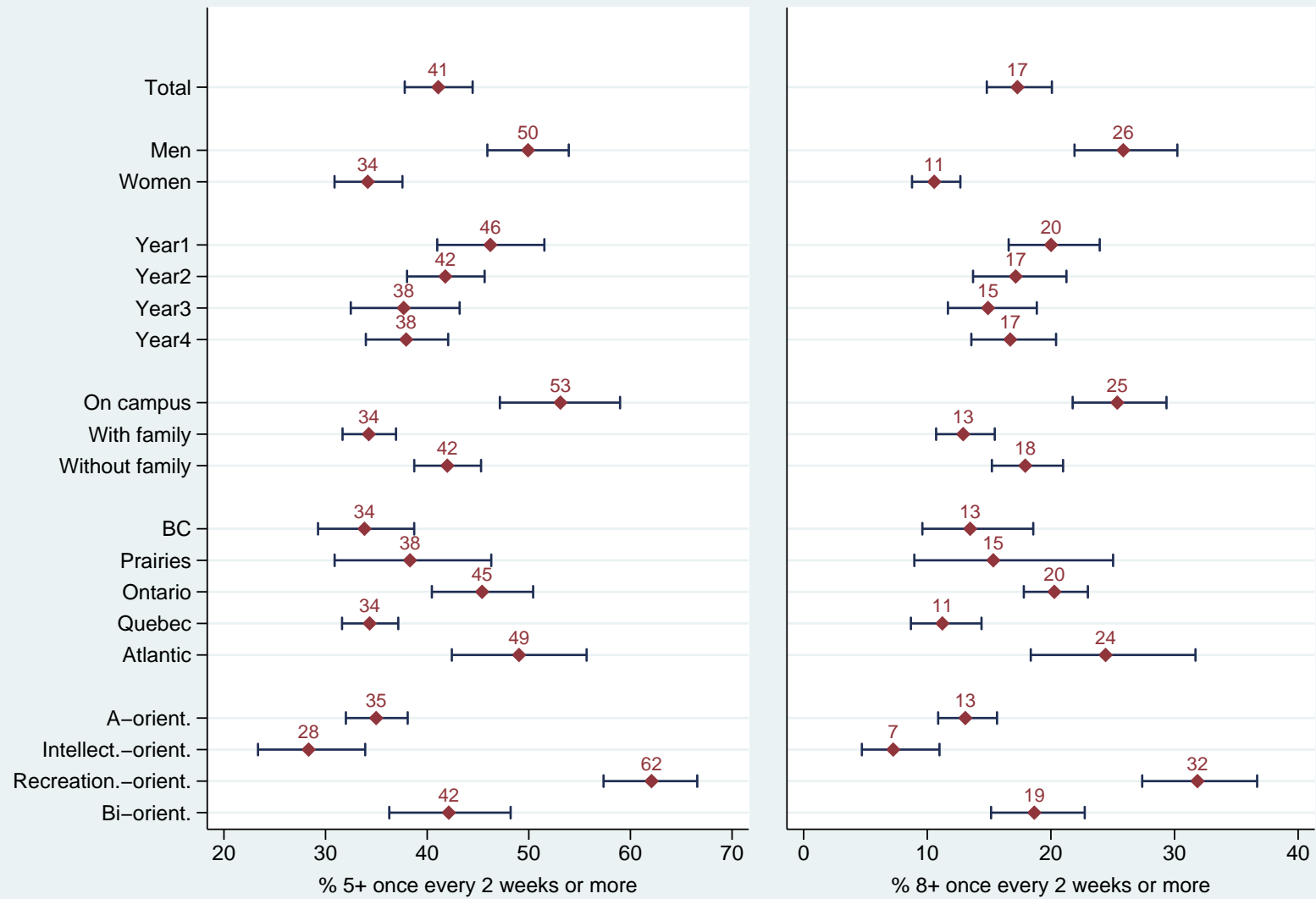
Small differences occur in drinking patterns according to the year of study. However students' drinking is significantly related to living arrangement and extracurricular orientation. Compared to students living with family, students on campus and those living off campus on their own drink more often and are more likely to drink heavily. Regarding extracurricular orientation, students who value recreational-oriented activities report drinking more often, a higher amount, and are more likely to drink heavily. Over 60% of these students report having 5+ drinks per occasion and 30% report 8+ drinks per occasion at least twice over the past month.

Drinking Context among Past Month Drinkers (Table 3.5)

There is a great variability in alcohol intake based on the context and reason for drinking. Table 3.4 shows the distribution of students according to the characteristics of the drinking context and the average alcohol intake in these contexts for the last drinking occasion.

Undergraduate drinking occurs mainly on weekends (3 out of four occasions), and off campus (86% of drinking occasions). Students drink in bars and nightclubs on roughly one occasion out of three (35.5%). Nevertheless, most of the drinking occasions take place on private premises, with over 40% of the drinking occasions taking place in someone's home, and 7.2% in university residences or fraternity houses.

Figure 3.2 Percentage Reporting 5+ Drinks and 8+ Drinks At Least Twice During the Past Month, Among Past Month Drinkers, CCS 2004



Note: Horizontal bars represent 95%CI

Getting together (41%) and parties (28%) are the most common circumstances in which students drink. However, 11.3% report that drinking occurs under no specific circumstances. About two-thirds (64.4%) of drinking occasions involve a meal.

Drinking is a social activity. Students drink with others, mainly other students (64%) and friends or acquaintances (88%). One out of five (19.6%) occasions involve a large group (more than 10 persons) and two out of five (39.3%), a group of four to ten persons. Solitary drinking is rare (2% of the occasions).

The most common reasons for drinking are to celebrate (29%) and to be sociable (25%). About one-in-four students report drinking to add to the enjoyment of a meal or to enjoy the taste. It should be noted, however, that in 7% of the drinking occasions, the purpose of drinking is to become intoxicated.

The average alcohol intake is largest when students drink during parties (6.0 drinks), and in bars (5.1 drinks) or university housing (5.7 drinks). The larger the group, the higher the average alcohol intake (from 1.8 drinks alone to 6.2 drinks in large groups). Surprisingly, no significant difference in the average alcohol intake was found when undergraduates drink with their friends (5.1 drinks) or with their family (4.9 drinks). However, when they drink with people not as close to them such as acquaintances, the average intake is lower (2.3 drinks). Finally, not surprisingly, the average alcohol intake is larger when the reason for drinking is to get inebriated (8.3 drinks) and lower when it is to enjoy the taste (2.6 drinks), enjoy a meal (2.1 drinks) or to relax (3.5).

One aspect of drinking that has been overlooked is illicit drug use when drinking. Our data reveals that cannabis is consumed in 9% of the drinking occasions and other illicit drugs in less than 1% of the cases. The average alcohol intake increases significantly when illicit drugs are consumed: from 4.3 drinks when no illicit drug is consumed, up to 6.8 drinks when cannabis alone is consumed, and just over 9 drinks when illicit drugs including cannabis are consumed.

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Table 3.1 Drinkers Typology During the Past 12 Months by Gender, Year of Study, Living Arrangement, Region and Extracurricular Orientation, Canadian Undergraduates, 2004

	Total Sample																	
	% Lifetime abstainer			% Former drinkers			% Light-Infrequent drinkers			% Light-Frequent drinkers			% Heavy-Infrequent drinkers			% Heavy-Frequent drinkers		
	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR
Total	9.9	8.1-12.1	-	4.4	3.6-5.4	-	35.8	33.7-37.9	-	22.1	19.2-25.4	-	11.7	10.1-13.6	-	16.1	13.6-18.9	-
Gender			*			ns			***			**			ns			***
Men	10.9	8.9-13.3	1.2 *	5.1	3.7-6.9	1.4	28.1	25.2-31.2	0.5 ***	23.8	20.5-27.5	1.2 **	11.5	9.6-13.7	1.0	20.6	17.1-24.6	1.8 ***
Women	9.1	7.2-11.5	Ref	3.8	3.0-4.9	Ref	41.9	39.9-43.9	Ref	20.8	17.9-24.0	Ref	11.9	9.8-14.4	Ref	12.5	10.4-14.8	Ref
Year of Study			***			ns			**			**			ns			ns
First	13.6	10.2-17.9	Ref	4.1	3.2-5.3	Ref	32.9	30.9-34.9	Ref	17.7	13.8-22.6	Ref	14.1	11.8-16.8	Ref	17.6	14.3-21.4	Ref
Second	10.0	7.7-12.9	0.7 *	4.7	3.3-6.6	1.2	37.1	33.9-40.3	1.2	20.7	17.0-25.0	1.2	11.8	9.6-14.5	0.8	15.7	12.8-19.1	0.9
Third	8.3	6.3-10.8	0.6 ***	4.3	3.2-5.7	1.0	35.0	30.1-40.2	1.1	27.0	23.1-31.2	1.7 ***	10.3	7.9-13.2	0.7	15.3	12.3-18.8	0.8
Fourth or more	6.6	5.3-8.3	0.4 ***	4.5	3.1-6.6	1.1	39.1	36.1-42.1	1.3 ***	24.4	21.0-28.2	1.5 **	10.0	7.6-13.1	0.7	15.4	12.1-19.4	0.8
Living arrangement			ns			ns			*			***			ns			***
On campus	10.7	8.2-13.9	0.8	2.8	1.8-4.4	0.6	33.1	30.2-36.2	0.8 *	16.8	13.4-20.8	0.9	12.5	10.5-14.7	0.9	24.1	19.5-29.2	2.3 ***
Off Campus with family	12.1	9.1-16.0	Ref	4.4	3.3-5.7	Ref	39.6	35.8-43.5	Ref	19.8	16.0-24.3	Ref	12.2	10.3-14.3	Ref	12.0	10.0-14.3	Ref
Off Campus without family	7.1	5.4-9.2	0.6	4.9	3.7-6.4	1.1	33.4	31.2-35.7	0.7 **	27.1	23.4-31.1	1.4 **	10.8	8.5-13.5	0.9	16.8	14.2-19.7	1.5 ***
Region			***			**			**			***			***			***
British Columbia	13.3	11.2-15.6	1.7 ***	8.3	5.7-11.8	1.8 ***	36.4	33.7-39.2	1.0	20.6	19.5-21.7	0.9	9.8	8.4-11.4	0.9 *	11.7	8.9-15.3	0.7 *
Prairies	8.3	6.4-10.5	1.0	4.9	3.4-6.8	1.0	41.2	36.6-45.9	1.3 **	19.6	18.2-21.2	0.9 *	11.6	10.2-13.1	1.0	14.6	9.0-22.6	1.0
Ontario	12.5	9.6-16.0	1.5 **	3.3	2.4-4.6	0.7 *	35.1	32.7-37.6	1.0	18.1	16.1-20.2	0.9 *	12.2	10.5-14.2	1.0	18.8	15.2-23.0	1.3
Quebec	6.8	4.3-10.5	0.7	3.6	2.5-5.0	0.7 *	34.6	31.1-38.2	1.0	39.3	34.4-44.3	2.7 ***	6.2	4.9-7.8	0.5 ***	9.6	7.7-12.0	0.6 ***
Atlantic	4.2	3.2-5.5	0.5 ***	4.8	3.5-6.6	1.0	31.5	27.9-35.4	0.8 ***	12.4	11.6-13.2	0.5 ***	22.5	18.6-27.0	2.3 ***	24.5	19.0-31.1	1.9 ***
Extracurricular Orientation			***			***			***			ns			*			***
A-oriented	10.2	8.1-12.7	0.5 ***	5.1	4.0-6.5	0.8	39.1	37.0-41.1	0.9	21.5	18.3-25.0	1.1	11.7	10.1-13.6	1.5 *	12.5	10.3-15.1	2.2 **
Intellectually-oriented	18.6	14.6-23.4	Ref	6.0	4.3-8.3	Ref	41.7	37.8-45.7	Ref	19.5	16.1-23.4	Ref	8.3	6.0-11.2	Ref	6.0	3.8-9.5	Ref
Recreationally-oriented	3.3	2.0-5.3	0.1 ***	1.3	0.7-2.5	0.2 ***	23.9	20.6-27.5	0.5 ***	25.0	20.4-30.2	1.4	13.7	11.2-16.7	1.8 **	32.9	28.7-37.3	7.0 ***
Bi-oriented	10.6	7.6-14.5	0.5 ***	4.1	2.5-6.6	0.6	32.3	28.0-36.9	0.7 *	23.9	19.1-29.4	1.3	12.2	8.6-17.1	1.5 *	16.9	13.4-21.1	3.0 ***

Notes: ns not significant; * p <.05; ** p <.01; *** p <.001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Table 3.2 Drinking Patterns During the Past 12 Months, Canadian Undergraduates, 2004

	<u>Total Sample</u>								
	% Drinkers			% 5+ once every 2 weeks or more			% 8+ once every 2 weeks or more		
	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR
Total	85.7	83.2-87.9	-	18.5	16.1-21.1	-	6.6	5.3-8.2	-
Gender			**			***			***
Men	84.0	81.5-86.3	0.8	24.9	21.3-28.9	2.1	11.4	9.0-14.3	4.5
Women	87.1	84.2-89.5	Ref	13.4	11.5-15.6	Ref	2.8	2.1-3.6	Ref
Year of Study			**			ns			ns
First	82.3	77.5-86.2	Ref	17.7	15.3-20.5	Ref	6.7	5.1-8.8	Ref
Second	85.3	82.1-88.0	1.2	18.3	16.0-21.0	1.1	6.1	4.5-8.1	0.9
Third	87.5	84.8-89.7	1.5	18.4	14.6-22.8	1.0	6.9	5.1-9.3	1.0
Fourth or more	88.9	86.1-91.2	1.7	19.8	16.6-23.4	1.1	6.7	4.8-9.2	1.0
Living arrangement			ns			***			**
On campus	86.5	83.3-89.1	1.4	22.8	19.5-26.5	1.8	9.0	7.2-11.2	2.1
Off Campus with family	83.5	79.7-86.8	Ref	14.6	12.3-17.1	Ref	4.7	3.2-6.8	Ref
Off Campus without family	88.1	85.5-90.2	1.4	20.6	17.9-23.6	1.5	7.5	6.1-9.3	1.7
Region			***			**			***
British Columbia	78.5	73.8-82.6	0.5	13.7	10.4-17.7	0.7	6.3	4.8-8.2	1.0
Prairies	86.9	84.0-89.3	1.0	17.6	11.1-26.7	0.9	4.5	1.4-14.1	0.7
Ontario	84.2	80.2-87.6	0.9	20.1	16.7-23.9	1.1	7.3	6.2-8.7	1.1
Quebec	89.7	84.8-93.1	1.5	14.7	11.9-18.1	0.8	4.1	3.3-5.0	0.6
Atlantic	90.9	88.5-92.9	1.5	26.1	19.5-33.8	1.7	11.9	9.1-15.4	2.2
Extracurricular Orientation			***			***			***
A-oriented	84.7	81.8-87.3	1.9	14.9	12.9-17.3	1.8	4.9	3.7-6.5	2.1
Intellectually-oriented	75.4	70.3-80.0	Ref	8.5	6.2-11.5	Ref	2.3	1.1-4.7	Ref
Oriented-oriented	95.4	93.2-97.0	7.8	35.7	31.9-39.7	5.4	14.6	11.9-17.7	5.7
Bi-oriented	85.3	80.4-89.2	2.1	18.3	14.6-22.6	2.3	6.4	4.3-9.4	2.5

Notes: ns not significant; * p <.05; ** p <.01; *** p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Table 3.3 Drinkers Typology During the Past 30 Days by Gender, Year of Study, Living Arrangement, Region, Extracurricular Orientation and Reading Week, Canadian Undergraduates, 2004

	<u>Among Drinkers</u>											
	% Light/Infrequent Drinkers			% Light-Frequent Drinkers			% Heavy-Infrequent Drinkers			% Heavy-Frequent Drinkers		
	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR
Total	28.8	26.4-31.3	-	41.2	37.3-45.2	-	5.9	4.8-7.1	-	24.2	20.9-27.8	-
Gender			***			ns			ns			***
Men	23.6	20.6-26.9	0.6 ***	40.8	36.0-45.8	1.0	4.8	3.7-6.3	0.7	30.8	25.8-36.4	1.9 ***
Women	32.8	30.6-35.2	Ref	41.5	37.7-45.4	Ref	6.7	5.0-8.9	Ref	19.0	16.2-22.1	Ref
Year of Study			ns			**			ns			**
First	28.0	25.1-31.2	Ref	36.0	30.4-41.9	Ref	5.9	4.4-7.8	Ref	30.1	24.7-36.1	Ref
Second	30.9	26.9-35.2	1.1	37.6	32.3-43.1	1.1	7.2	5.8-9.0	1.2	24.3	20.4-28.8	0.7
Third	28.1	24.5-32.2	1.0	45.9	39.7-52.2	1.5 *	4.8	3.3-6.8	0.8	21.2	16.9-26.2	0.6 **
Fourth or more	28.2	24.8-31.8	1.0	46.1	42.1-50.2	1.5 *	5.5	4.1-7.3	0.9	20.2	16.2-25.0	0.6 **
Living Arrangement			***			ns			ns			***
On campus	25.1	21.5-29.0	0.7 ***	33.9	28.5-39.8	0.8	5.3	3.8-7.5	0.8	35.7	30.6-41.2	2.1 ***
Off Campus with family	33.7	29.7-37.9	Ref	40.5	36.0-45.2	Ref	6.0	4.6-7.8	Ref	19.8	16.8-23.2	Ref
Off Campus without family	25.9	23.5-28.5	0.7 **	44.7	39.8-49.8	1.1	6.0	4.5-7.9	1.0	23.4	20.2-26.8	1.3 **
Region			**			***			***			***
British Columbia	35.7	32.2-39.4	1.4 ***	40.0	35.5-44.7	1.0	5.0	3.1-8.0	0.9	19.2	13.2-27.1	0.8
Prairies	31.9	25.4-39.1	1.1	40.6	39.3-42.0	1.0	4.6	3.3-6.5	0.8	22.9	16.4-30.9	1.0
Ontario	28.6	26.2-31.1	1.0	37.3	33.8-40.9	0.9	6.3	4.5-8.7	1.1	27.9	24.3-31.8	1.2
Quebec	23.3	19.2-28.1	0.7 **	59.1	54.8-63.1	2.4 *	4.2	3.1-5.7	0.7 *	13.4	10.9-16.5	0.5 ***
Atlantic	28.6	24.5-33.0	0.9	23.8	18.7-29.8	0.5 *	9.9	8.0-12.2	1.8 ***	37.7	30.0-45.9	2.2 ***
Extracurricular Orientation			***			*			ns			***
A-oriented	31.8	29.2-34.6	0.7 **	42.2	37.9-46.7	0.9	6.2	4.8-8.1	1.2	19.7	16.9-22.9	2.1 **
Intellectually-oriented	39.7	33.6-46.0	Ref	44.3	38.4-50.3	Ref	5.3	3.4-8.1	Ref	10.8	6.9-16.4	Ref
Recreationally-oriented	17.6	14.9-20.7	0.4 ***	36.1	31.4-41.2	0.7 *	5.5	3.9-7.6	1.1	40.8	35.7-46.1	5.2 ***
Bi-oriented	26.1	22.0-30.7	0.6 **	42.6	37.2-48.3	0.9	5.5	3.4-8.6	1.1	25.8	20.7-31.6	2.7 ***
Reading week			ns			ns			ns			ns
1-4 weeks ago	31.3	27.4-35.4	0.9	43.4	36.1-51.0	0.9	6.7	4.3-10.3	0.8	18.6	13.6-24.9	1.4
Not yet/ 5+ weeks ago	28.3	25.8-30.9	Ref	40.9	36.7-45.3	Ref	5.7	4.7-7.0	Ref	25.1	21.7-28.8	Ref

Notes: ns not significant; * p <.05; ** p <.01; *** p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Table 3.4 Drinking Patterns During the Past 30 Days by Gender, Year of Study, Living Arrangement, Region, Extracurricular Orientation and, Reading Week, Canadian Undergraduates, 2004

	<u>Total Sample</u>			<u>Among Drinkers</u>									
	% drinkers			Average Weekly frequency		Average Weekly volume		% 5+ once every 2 weeks or more			% 8+ once every 2 weeks or more		
	%	95%CI	OR	Mean	95%CI	Mean	95%CI	%	95%CI	OR	%	95%CI	OR
Total	77.1	73.6-80.3	-	1.3	1.2-1.4	6.4	5.7-7.2	41.1	37.8-44.5	-	17.3	14.8-20.1	-
Gender			ns	***		***				***			***
Men	76.5	72.6-79.9	0.9	1.7	1.5-1.8	8.9	7.5-10.3	49.9	45.9-53.9	1.9	25.9	21.9-30.2	3.0
Women	77.7	74.0-81.0	Ref	1.0	1.0-1.1	4.5	4.1-4.9	34.2	30.9-37.6	Ref	10.6	8.8-12.7	Ref
Year of Study			***	ns		ns				*			ns
First	72.0	66.4-76.9	Ref	1.3	1.1-1.5	7.4	6.0-8.8	46.2	41.0-51.5	Ref	20.0	16.6-24.0	Ref
Second	76.9	73.2-80.2	1.3	1.2	1.1-1.4	6.3	5.0-7.6	41.8	38.0-45.7	0.8	17.2	13.7-21.3	0.8
Third	79.4	74.4-83.6	1.5	1.3	1.2-1.5	5.8	4.9-6.7	37.7	32.5-43.2	0.7	14.9	11.7-18.9	0.7
Fourth or more	81.9	79.6-83.9	1.8	1.4	1.3-1.5	6.1	5.1-7.2	37.9	34.0-42.1	0.7	16.7	13.6-20.4	0.8
Living Arrangement			**	**		***				***			***
On campus	78.0	73.3-82.0	1.4	1.5	1.2-1.7	9.2	7.2-11.2	53.1	47.2-59.0	2.1	25.4	21.8-29.4	2.3
Off Campus with family	73.3	68.7-77.3	Ref	1.2	1.1-1.2	5.1	4.5-5.7	34.3	31.7-36.9	Ref	12.9	10.7-15.5	Ref
Off Campus without family	80.9	77.5-83.9	1.4	1.4	1.3-1.5	6.5	5.8-7.2	42.0	38.7-45.3	1.5	17.9	15.2-21.0	1.6
Region			**	**		**				***			***
British Columbia	70.6	65.0-75.7	0.6	1.2	1.1-1.3	5.7	4.9-6.5	33.8	29.3-38.7	0.8	13.5	9.6-18.6	0.8
Prairies	77.4	74.1-80.5	0.9	1.2	1.1-1.2	5.1	3.7-6.5	38.3	30.9-46.3	0.9	15.3	9.0-25.0	0.9
Ontario	74.5	67.9-80.1	0.8	1.3	1.2-1.5	7.4	6.4-8.4	45.4	40.5-50.4	1.2	20.3	17.8-23.0	1.3
Quebec	83.3	77.6-87.8	1.5	1.5	1.3-1.6	5.2	4.4-6.0	34.3	31.6-37.2	0.7	11.2	8.7-14.4	0.6
Atlantic	83.2	78.5-87.1	1.3	1.2	1.1-1.4	8.0	6.1-9.8	49.0	42.4-55.7	1.5	24.4	18.4-31.7	1.8
Extracurricular Orientation			***	***		***				***			***
A-oriented	74.6	70.7-78.1	1.5	1.2	1.1-1.3	5.2	4.6-5.8	35.0	32.0-38.1	1.4	13.1	10.9-15.7	1.9
Intellectually-oriented	67.2	61.6-72.4	Ref	1.1	0.9-1.2	4.0	3.2-4.8	28.3	23.4-33.9	Ref	7.2	4.7-11.0	Ref
Recreationally-oriented	89.8	87.1-92.0	4.7	1.8	1.6-2.0	10.8	8.9-12.7	62.1	57.4-66.6	3.8	31.9	27.4-36.7	5.2
Bi-oriented	79.0	72.1-84.6	2.0	1.4	1.2-1.5	6.1	5.1-7.1	42.1	36.3-48.2	1.7	18.7	15.2-22.7	2.7
Reading Week			**	ns		ns				ns			ns
1-4 weeks ago	77.8	74.4-80.9	0.7	1.3	1.2-1.4	6.6	5.8-7.4	41.6	38.4-44.9	0.9	17.6	15.0-20.6	0.8
Not yet/ 5+ weeks ago	72.8	67.0-77.9	Ref	1.2	1.0-1.5	5.7	4.4-7.0	37.4	30.6-44.8	Ref	14.7	11.1-19.2	Ref

Notes: ns not significant; * p <.05; ** p <.01; *** p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Table 3.5 Drinking Context, Characteristics and Average Alcohol Intake Based on Last Drinking Occasion Among Drinkers in the Past 30 Days, Canadian Undergraduates, 2004

Drinking Context/Characteristics	Alcohol Intake			
	%	95%CI	Mean	95%CI
Total	100.0	-	4.6	4.3-4.9
Circumstance			***	
Party	28.1	26.0-30.3	6.0	5.5-6.5
Get together	41.3	38.9-43.6	4.3	3.9-4.7
Other	19.3	18.0-20.7	4.3	3.9-4.7
No specific circumstance	11.3	10.1-12.8	2.9	2.3-3.4
Meal			ns	
With a meal	64.4	62.0-66.7	4.5	4.2-4.8
Without a meal	35.6	33.3-38.1	4.7	4.3-5.2
Living Arrangement			**	
On campus	13.6	11.3-16.2	5.2	4.8-5.6
Off campus	86.4	83.8-88.7	4.5	4.2-4.8
Location			***	
Someone's home	41.8	38.7-45.0	4.4	4.1-4.8
University Residence	6.6	4.7-9.3	5.7	5.1-6.3
Fraternity/Sorority house	0.6	0.3-1.1	5.9	3.2-8.6
Restaurant	9.7	8.3-11.2	2.5	2.2-2.9
Bar/disco/pub/tavern	35.5	32.9-38.2	5.1	4.8-5.5
Other	5.8	5.0-6.8	4.5	3.5-5.6
Days of the week			*	
Week days	25.1	22.7-27.7	4.2	3.8-4.6
Week-end (Friday, Saturday, Sunday)	74.9	72.3-77.4	4.7	4.4-5.1
Group Size			***	
Alone	2.1	1.7-2.8	1.8	1.4-2.2
2 persons	12.8	11.6-14.2	2.6	2.4-2.9
3-4 persons	26.2	24.6-27.7	3.7	3.3-4.1
4-10 persons	39.3	37.8-40.9	5.2	4.7-5.7
More than 10 persons	19.6	18.2-21.0	6.2	5.7-6.7
Group Composition			***	
Men	12.3	10.9-13.9	4.5	3.9-5.1
Women	9.8	8.9-10.8	3.3	2.9-3.7
Mixed gender	77.9	76.4-79.3	4.9	4.5-5.2
Mainly university students	64.2	59.9-68.2	5.0	4.7-5.4
Not mainly university students	35.8	31.8-40.1	4.0	3.7-4.3

Con't...

Drinking Context/Characteristics	Alcohol Intake			
	%	95%CI	Mean	95%CI
Relationship With Most Drinking Partners			***	
Friends	78.3	76.6-79.8	5.1	4.8-5.4
Acquaintance	10.3	8.9-11.9	2.3	2.1-2.5
Family members	6.8	5.9-7.8	4.9	4.0-5.7
Other	4.6	4.0-5.4	2.9	2.2-3.7
Reason for Drinking			***	
To be sociable	24.7	22.0-27.6	4.5	4.0-5.0
To add to the enjoyment of a meal	11.2	9.1-13.6	2.1	1.9-2.3
To help me relax	7.1	6.1-8.2	3.5	2.9-4.1
To forget my worries	2.6	2.1-3.3	6.0	4.8-7.2
To feel less inhibited or shy	2.1	1.7-2.6	4.9	4.1-5.8
To get high or drunk	6.7	5.4-8.3	8.3	7.6-9.0
To celebrate	28.7	26.8-30.7	5.8	5.4-6.1
To enjoy the taste	13.5	12.4-14.7	2.6	2.4-2.9
Other	3.4	2.8-4.2	4.2	3.6-4.8
Drug Use			***	
No drugs	90.3	88.4-91.9	4.3	4.0-4.6
Cannabis only	8.9	7.4-10.7	6.8	6.1-7.4
Other drugs (with or w/o cannabis)	0.8	0.5-1.1	9.2	6.6-11.7

Notes: ns not significant; * p <.05; ** p <.01; *** p < .001

Table 3.6 Drinkers Typology During the Past 12 Months by Gender, Year of Study, Living Arrangement, Region, and Extracurricular Orientation, Canadian Undergraduates, 2004

	<u>Among Drinkers</u>											
	% Light-Infrequent drinkers			% Light-Frequent drinkers			% Heavy-Infrequent drinkers			% Heavy-Frequent drinkers		
	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR
Total	41.7	38.7-44.8	-	25.8	22.6-29.4	-	13.7	11.9-15.7	-	18.8	16.1-21.8	-
Gender			***			**			ns			***
Men	33.4	29.5-37.6	0.5 ***	28.4	24.5-32.6	1.3 ***	13.7	11.5-16.2	1.0	24.5	20.7-28.9	2.0 ***
Women	48.1	45.4-50.9	Ref	23.9	20.7-27.4	Ref	13.7	11.3-16.4	Ref	14.3	12.1-16.9	Ref
Year of Study			ns			**			**			ns
First	39.9	37.0-42.9	Ref	21.6	17.0-27.0	Ref	17.2	14.5-20.3	Ref	21.4	17.7-25.5	Ref
Second	43.5	39.6-47.4	1.2	24.3	20.0-29.2	1.2	13.9	11.4-16.8	0.8 *	18.4	15.1-22.2	0.8
Third	40.0	34.3-46.0	1.0	30.8	26.5-35.5	1.6 ***	11.7	9.2-14.9	0.6 **	17.5	14.2-21.4	0.8
Fourth or more	44.0	40.3-47.7	1.2	27.5	23.3-32.0	1.4 *	11.2	8.6-14.5	0.6 **	17.4	14.0-21.4	0.8
Living Arrangement			**			***			ns			***
On campus	38.3	34.4-42.4	0.7 ***	19.5	15.5-24.2	0.8	14.4	12.3-16.9	0.9	27.8	23.0-33.2	2.3 ***
Off Campus with family	47.4	42.7-52.3	Ref	23.7	19.4-28.6	Ref	14.5	12.4-17.0	Ref	14.3	12.0-17.0	Ref
Off Campus without family	38.0	35.5-40.5	0.7 ***	30.7	26.4-35.4	1.4 **	12.2	9.7-15.3	0.9	19.1	16.4-22.1	1.5 **
Region			***			***			***			***
British Columbia	46.4	43.5-49.2	1.2 **	26.2	24.0-28.6	1.1	12.5	10.6-14.6	1.0	15.0	11.9-18.6	0.8
Prairies	47.4	41.1-53.8	1.3 *	22.6	20.3-25.0	0.9 *	13.3	11.9-14.8	1.0	16.8	10.7-25.3	0.9
Ontario	41.7	37.5-46.1	1.0	21.4	19.3-23.8	0.9 *	14.5	12.7-16.6	1.0	22.3	18.8-26.3	1.3 *
Quebec	38.5	33.3-44.0	0.9	43.8	39.7-48.0	2.6 ***	6.9	5.7-8.4	0.4 ***	10.7	8.9-12.9	0.5 ***
Atlantic	34.7	30.3-39.4	0.7 ***	13.6	12.5-14.8	0.5 ***	24.7	20.6-29.4	2.2 ***	27.0	21.1-33.9	1.8 ***
Extracurricular Orientation			***			ns			ns			***
A-oriented	46.1	43.4-48.8	0.7 ***	25.3	21.8-29.2	1.0	13.9	11.9-16.0	1.3	14.7	12.2-17.7	2.0
Intellectually-oriented	55.3	50.7-59.7	Ref	25.9	21.5-30.8	Ref	11.0	8.1-14.6	Ref	8.0	5.0-12.3	Ref
Recreationally-oriented	25.1	21.7-28.7	0.3 ***	26.2	21.4-31.6	1.0	14.4	11.7-17.5	1.3	34.4	30.0-39.1	5.4 ***
Bi-oriented	37.9	32.4-43.7	0.5 ***	28.0	22.7-33.9	1.1	14.3	10.1-19.9	1.3	19.9	16.1-24.3	2.7 ***

Notes: ns not significant; * p <.05; ** p <.01; *** p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Table 3.7 Drinking Patterns During the Past 12 Months by Gender, Year of Study, Living Arrangement, Region and Extracurricular Orientation, Canadian Undergraduates, 2004

	<u>Total Sample</u>			<u>Among Drinkers</u>									
	<u>% drinkers</u>			<u>Average Weekly frequency</u>		<u>Average Weekly volume</u>		<u>% 5+ once every 2 weeks or more</u>			<u>% 8+ once every 2 weeks or more</u>		
	%	95%CI	OR	Mean	95%CI	Mean	95%CI	%	95%CI	OR	%	95%CI	OR
Total	85.7	83.2-87.9	-	1.0	1.0-1.1	4.7	4.2-5.3	21.6	19.1-24.3	-	7.8	6.3-9.6	-
Gender			**	***		***				***			***
Men	84.0	81.5-86.3	0.8	1.2	1.1-1.4	6.3	5.3-7.3	29.7	25.8-33.8	2.3	13.8	11.1-17.1	4.8
Women	87.1	84.2-89.5	Ref	0.9	0.8-0.9	3.5	3.2-3.9	15.4	13.4-17.7	Ref	3.2	2.5-4.2	Ref
Year of Study			**	ns		ns				ns			ns
First	82.3	77.5-86.2	Ref	1.0	0.9-1.1	5.0	4.1-5.8	21.6	19.0-24.3	Ref	8.3	6.3-10.8	Ref
Second	85.3	82.1-88.0	1.2	1.0	0.9-1.1	4.5	3.7-5.3	21.5	18.9-24.3	1.0	7.3	5.4-9.6	0.9
Third	87.5	84.8-89.7	1.5	1.0	0.9-1.1	4.4	3.8-5.1	21.0	16.7-26.1	0.9	8.0	5.9-10.8	0.9
Fourth or more	88.9	86.1-91.2	1.7	1.1	1.0-1.2	5.1	4.1-6.0	22.3	19.1-25.8	1.0	7.6	5.5-10.3	0.9
Living Arrangement			ns	***		***				***			**
On campus	86.5	83.3-89.1	1.4	1.1	1.0-1.2	6.3	5.3-7.4	26.4	23.1-30.1	1.8	10.5	8.5-13.0	2.0
Off Campus with family	83.5	79.7-86.8	Ref	0.9	0.8-1.0	3.7	3.3-4.2	17.4	15.0-20.2	Ref	5.7	4.0-8.2	Ref
Off Campus without family	88.1	85.5-90.2	1.4	1.1	1.0-1.2	5.0	4.5-5.6	23.4	20.7-26.4	1.5	8.7	7.1-10.6	1.6
Region			***	**		*				**			***
British Columbia	78.5	73.8-82.6	0.5	0.9	0.8-1.1	4.0	2.9-5.2	17.4	13.9-21.6	0.8	8.2	6.5-10.2	1.1
Prairies	86.9	84.0-89.3	1.0	0.9	0.8-1.0	3.6	2.6-4.6	20.2	13.2-29.8	0.9	5.3	1.6-15.8	0.7
Ontario	84.2	80.2-87.6	0.9	1.0	0.9-1.1	5.3	4.5-6.2	23.9	20.7-27.3	1.2	8.9	7.7-10.2	1.2
Quebec	89.7	84.8-93.1	1.5	1.2	1.1-1.3	4.3	3.6-4.9	16.4	13.7-19.6	0.7	4.6	3.8-5.4	0.5
Atlantic	90.9	88.5-92.9	1.5	0.9	0.8-1.0	5.8	4.5-7.1	28.7	21.7-36.9	1.6	13.4	10.5-16.9	2.1
Extracurricular Orientation			***	***		***				***			***
A-oriented	84.7	81.8-87.3	1.9	0.9	0.8-1.0	3.8	3.3-4.2	17.6	15.4-20.2	1.7	5.9	4.4-7.8	1.9
Intellectually-oriented	75.4	70.3-80.0	Ref	0.8	0.7-0.9	2.8	2.0-3.5	11.2	8.4-14.8	Ref	3.1	1.5-6.2	Ref
Recreationally-oriented	95.4	93.2-97.0	7.8	1.4	1.3-1.6	8.7	7.4-10.0	37.4	33.3-41.8	4.2	15.6	12.7-19.0	4.5
Bi-oriented	85.3	80.4-89.2	2.1	1.1	1.0-1.2	4.6	3.8-5.4	21.4	17.5-25.9	2.0	7.6	5.3-11.0	2.3

Notes: ns not significant; * p <.05; ** p <.01; *** p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Chapter 4

Hazardous and Harmful Drinking

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In addition to inquiring about the quantity, frequency and pattern of drinking, the CCS included a detailed assessment of the extent to which undergraduates are at risk of harm, or actually have experienced harm, from their drinking. In this chapter, we present (1) indicators of hazardous, harmful and dependent drinking as measured by the Alcohol Use Disorders Identification Test (AUDIT); (2) indicators of general hazardous consequences as measured by 7 alcohol-related hazards; (3) indicators of general harmful consequences as measured by 9 alcohol-related harms; and (4) indicators of secondary campus alcohol harms as measured by 4 consequences (see Table below). These items ask about problems and behaviours well-documented to be associated with higher risk of social problems, disease, injury or death (Hingson, Heeren, Winter, & Wechsler, 2005).

The AUDIT, a 10-item questionnaire developed by the World Health Organization, is a screening tool that identifies hazardous and harmful drinking patterns of drinking as well as alcohol dependence. We use the cut-off score of 8+ to identify hazardous and harmful patterns of drinking. A recent examination of the AUDIT in relation to the Composite International Diagnostic Interview Substance Abuse Module (CIDI) and the timeline follow-back procedures to assess drinking history revealed that a cut-off score of 8+ had a sensitivity of .82 and a specificity of .78 to detect high risk drinking among college students (Kokotailo, Egan, Gangnon, Brown, Mundt, & Fleming, 2004). In addition, we also examine the percentage of students who report any of the 4 AUDIT alcohol-related harms and the percentage who report any of the 3 AUDIT dependence symptoms (see Table below).

Finally, the CCS inquired about 4 negative consequences students may have experienced as a result of their peers' drinking, rather than due to their personal drinking (listed in Table below). The risk of college students experiencing harm due to alcohol use by their peers has been shown to be considerable in other studies of college students (Hingson et al., 2005).

Measures used in this chapter

Measure	Description
Hazardous or harmful drinking (AUDIT)	Percentage scoring 8 or higher on the total 10-item AUDIT scale (see AUDIT items below)
AUDIT harms	Percentage reporting at least one of the 4 AUDIT harms <ul style="list-style-type: none"> - feeling guilty or remorse (Q21d) - experiencing memory loss after drinking (Q21e) - reporting an alcohol-related injury (Q21g) - concern of others' expressing concern about their drinking (Q21h)
AUDIT dependence	Percentage reporting at least one of the 3 AUDIT dependence symptoms <ul style="list-style-type: none"> - being unable to stop drinking (Q21a) - failing to perform normal activities (Q21b) - needing a first drink in the morning (Q21c)
General harmful consequences	Percentage reporting 9 alcohol-related harms experienced since the beginning of the school year (Q22 as above) <ul style="list-style-type: none"> - had hangover (Q22a) - regretted action (Q22j) - memory loss (Q22i) - missed class due to hangover (Q22e) - missed class due to drinking (Q22b) - had trouble with school administration (Q22g) - had trouble with campus or local police (Q22n) - arrested for driving while impaired (Q22d) - been hurt or injured (Q22p)
General hazardous consequences	Percentage reporting 7 alcohol-related hazards experienced since the beginning of the school year (Q22 as above) <ul style="list-style-type: none"> - had unplanned sexual relations (Q22k) - had unsafe sex (Q22l) - drove car after drinking too much (Q22c) - drank alcohol while driving (Q22h) - lost job (Q22f) - unable to cut down (Q22m) - needed more alcohol to become high (Q22o)
Alcohol-related harms	Percentage reporting 4 alcohol-related harms related to the use of alcohol by other students, based on the following question: "Since the beginning of the school year, how often have you experienced any of the following because of other students' drinking?" <ul style="list-style-type: none"> - had a serious argument or quarrel (Q25a) - been pushed, hit or assaulted (Q25b) - had your studying or sleep interrupted (Q25c) - experienced sexual harassment (Q25d)

The Alcohol Use Disorders Identification (AUDIT)						
Questions		0	1	2	3	4
1.	On average, do you consume alcoholic drinks? (Q8)	Never	Less than monthly	1-4 times a month	2-3 times a week	4 or more times a week
2.	On the days when you drink, how many drinks do you usually have? (Q9)	1	2 or 3	4	5 to 7	8 or more
3.	How often do you have five or more drinks on one occasion? (Q21f)	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
4.	How often during the last year have you found that you were not able to stop drinking once you had started? (Q21a)	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
5.	How often during the last year have you failed to do what was normally expected of you because of drinking? (Q21b)	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
6.	How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session? (Q21c)	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
7.	How often during the last year have you had a feeling of guilt or remorse after drinking? (Q21d)	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
8.	How often during the last year have you been unable to remember what happened the night before because of your drinking? (Q21e)	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
9.	Have you or someone else been injured because of your drinking? (Q21g)	No		Yes, but not in the last year		Yes, during the last year
10.	Has a relative, friend, doctor or other health care worker been concerned about your drinking or suggested you cut down? (Q21h)	No		Yes, but not in the last year		Yes, during the last year

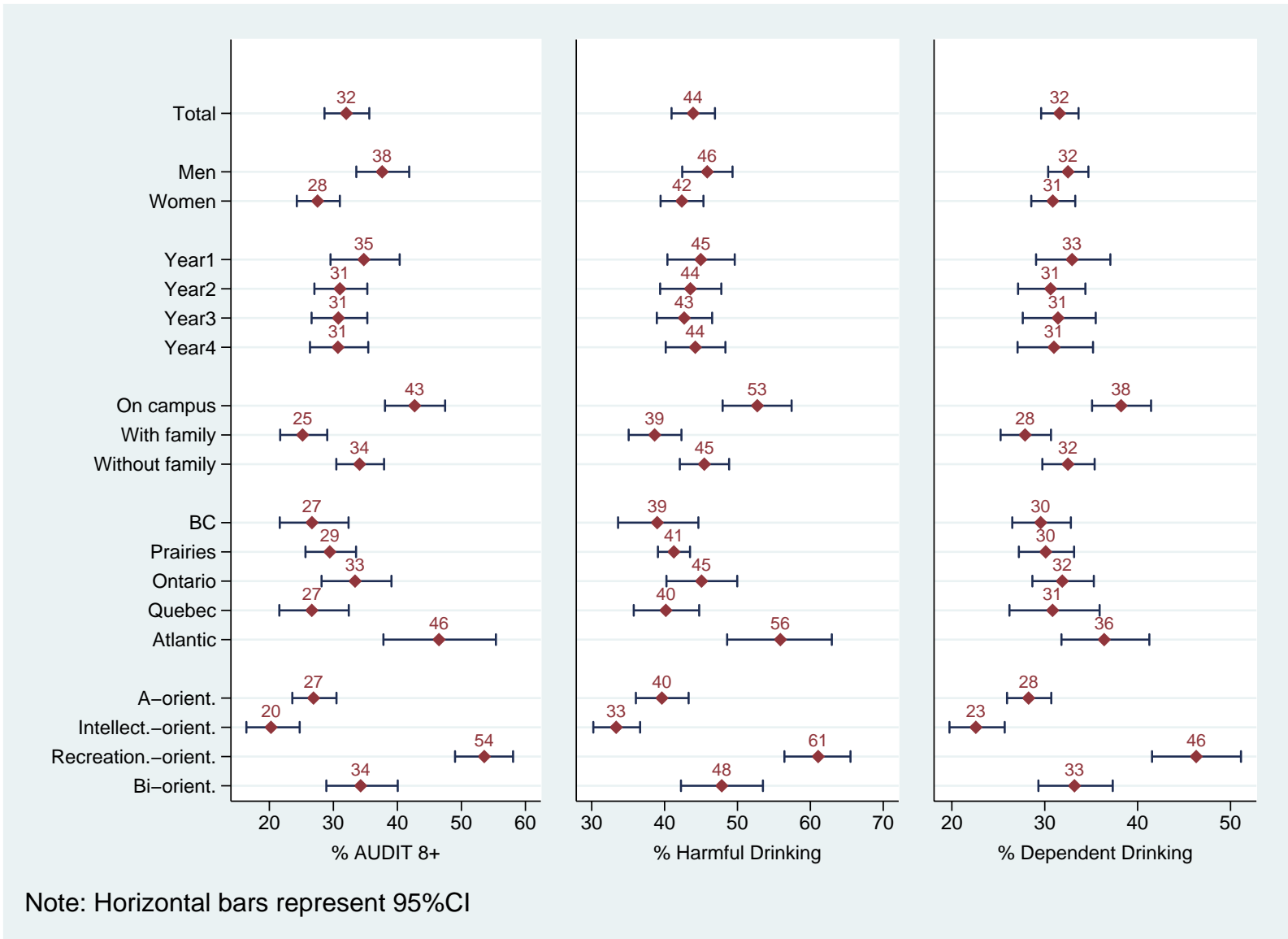
Note: Consumption items based on Canadian standard drink of 13.6 grams of alcohol; AUDIT values range between 0 and 40, with values of 8 or higher indicating hazardous or harmful drinking.

AUDIT Measures of Hazardous and Harmful Drinking..... (Table 4.1; Figure 4.1)

About one-third (32.0%) of undergraduates drink hazardously or harmfully (score of 8+ on the AUDIT). Males are significantly more likely than females to do so (37.6% vs. 27.5%, respectively; see Table and Figure 4.1). Students living on campus or living off campus without family, students from the Atlantic region, and students that are not intellectually-oriented, are more likely than their counterparts to drink at this risky level. Students attending university in British Columbia or Quebec are less likely than their counterparts to drink hazardously or harmfully.

Table 4.1 and Figure 4.1 also show that 43.9% of students report at least one indicator of harmful drinking and 31.6% report at least one indicator of dependent drinking. It is important to note that these percentages are often higher than the overall AUDIT 8+ because they only require students to report one or more symptoms, whereas the overall AUDIT requires reports of multiple symptoms. Thus, in this college population, the AUDIT score of 8+ provides the most conservative measure of harmful drinking. However, all three measures have the same set of independent predictors.

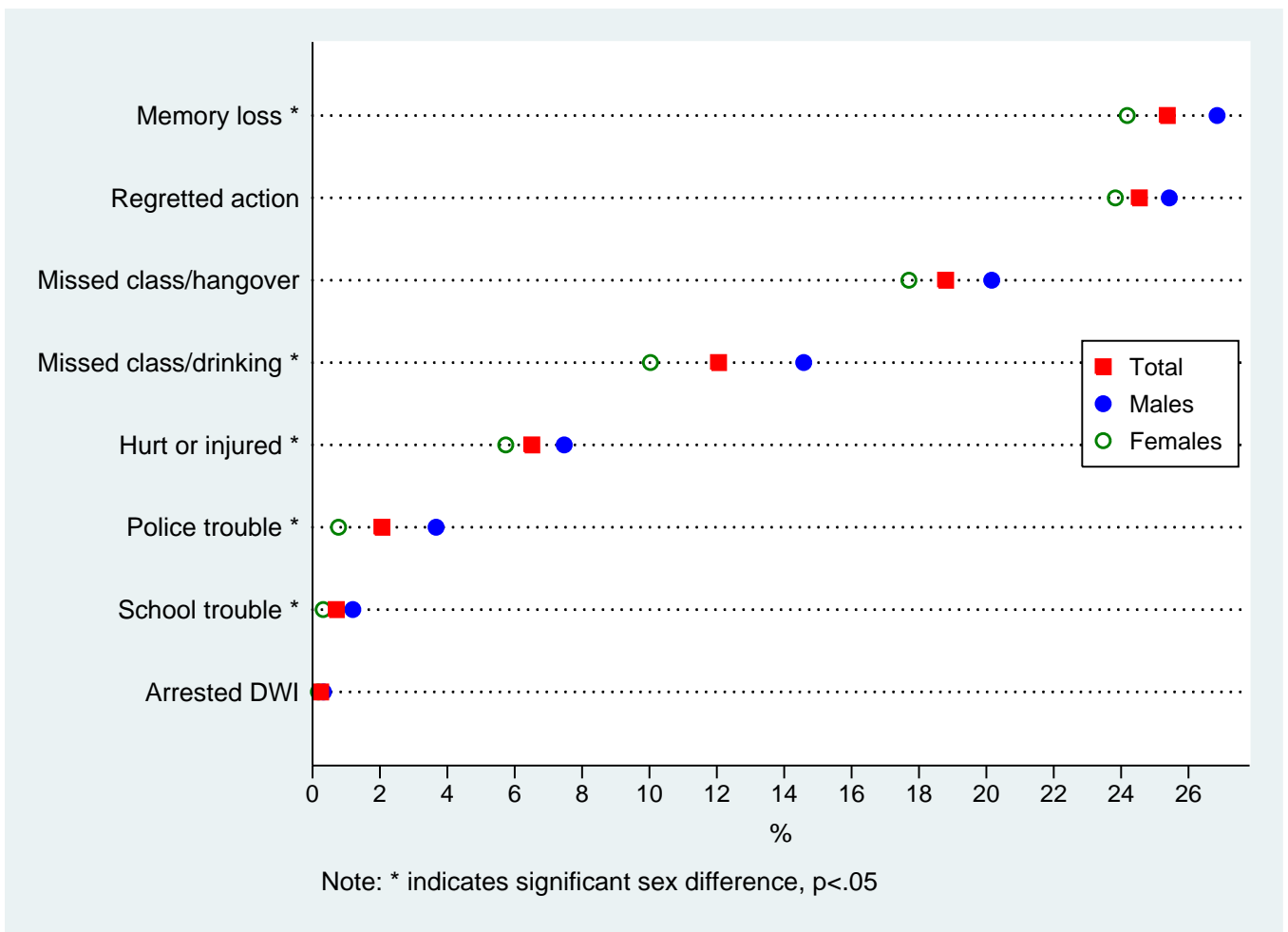
Figure 4.1 Percentage Reporting AUDIT8+, any AUDIT Harms and any AUDIT Dependence, CCS 2004



General Harmful and Hazardous Consequences(Tables 4.2-4.3; Figures 4.2-4.3)

The percentages of students who report general harmful consequences range from 53.4% (had a hangover) to less than 1% (arrested for driving while impaired). We also see, in Figure 4.2, that experiencing memory loss, missing class due to drinking, trouble with campus or local police, trouble with school administration, and being hurt or injured are significantly more common among male than female students.

Figure 4.2 Percentage Reporting Harmful Alcohol Consequences, CCS 2004



The percentages of students reporting general hazardous consequences range from 14.1% (unplanned sexual relations) to less than 1% (having lost one's job). Figure 4.3 shows that significantly more males than females report unplanned sex relations (15.8% vs 12.8%), needing a lot more alcohol to become high or drunk (15.8% vs 11.2%), driving a car after drinking too much (9.4% vs 5.8%), drinking while driving (5.4% vs 2.5%), and not being able to cut down (3.6% vs 1.7%).

Figure 4.3 Percentage Reporting Hazardous Alcohol Consequences, CCS 2004

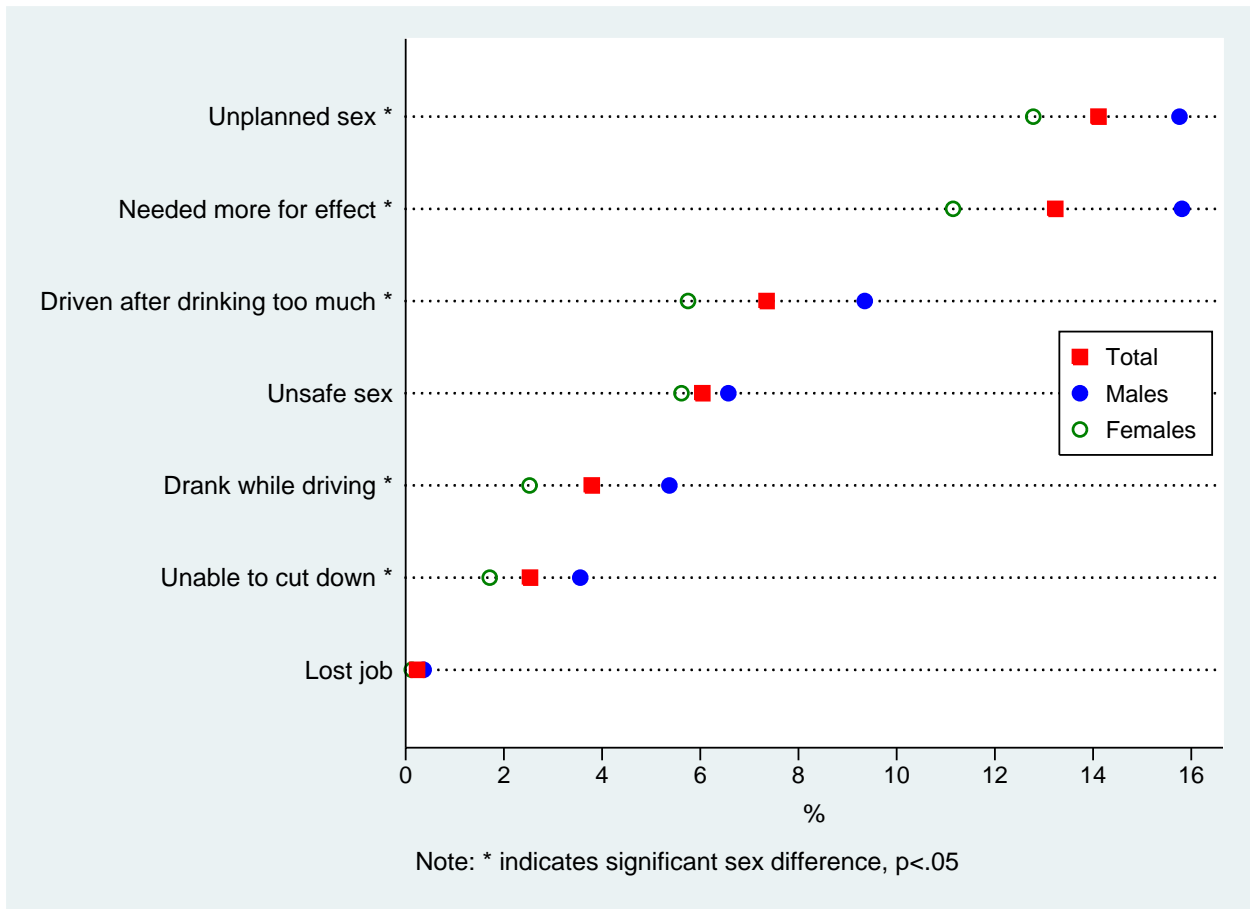


Table 4.3 shows which groups of students are at risk of selected consequences and behaviours. In the case of unplanned sexual relations, we see that male students, students living on campus or off campus without family, and recreationally-oriented and bi-oriented students are at increased risk of having unplanned sex relations while drinking. Students' year of study, and region, are not significant determinants of unplanned sexual relations while drinking.

Regarding alcohol-impaired driving, we see that male students, students in their third or higher year of study, students living on campus, students from British Columbia, and recreationally or A-oriented students are at increased risk of this hazardous behaviour. Of note is that students from Ontario are at half the risk of alcohol-impaired driving than are students from other regions of Canada.

Regarding missing classes due to drinking, male students, students living on campus or off campus without family, students from Ontario, and recreationally- or bi-oriented students are at increased risk of this harmful consequence.

Alcohol-related Harms Resulting from Other Students’ Drinking .(Table 4.4; Figure 4.4)

The percentages of students who report negative consequences due to drinking by other students range from 32.9% (studying or sleep interrupted) to about 10% (sexual harassment). Figure 4.4 also shows that significantly more females than males report experiencing studying or sleep interruption (35.2% vs. 30.1%, respectively), and sexual harassment (14.3% vs 4.2%, respectively).

Figure 4.4 Percentage Reporting Alcohol-related Harms due to Other Students’ Drinking, CCS 2004

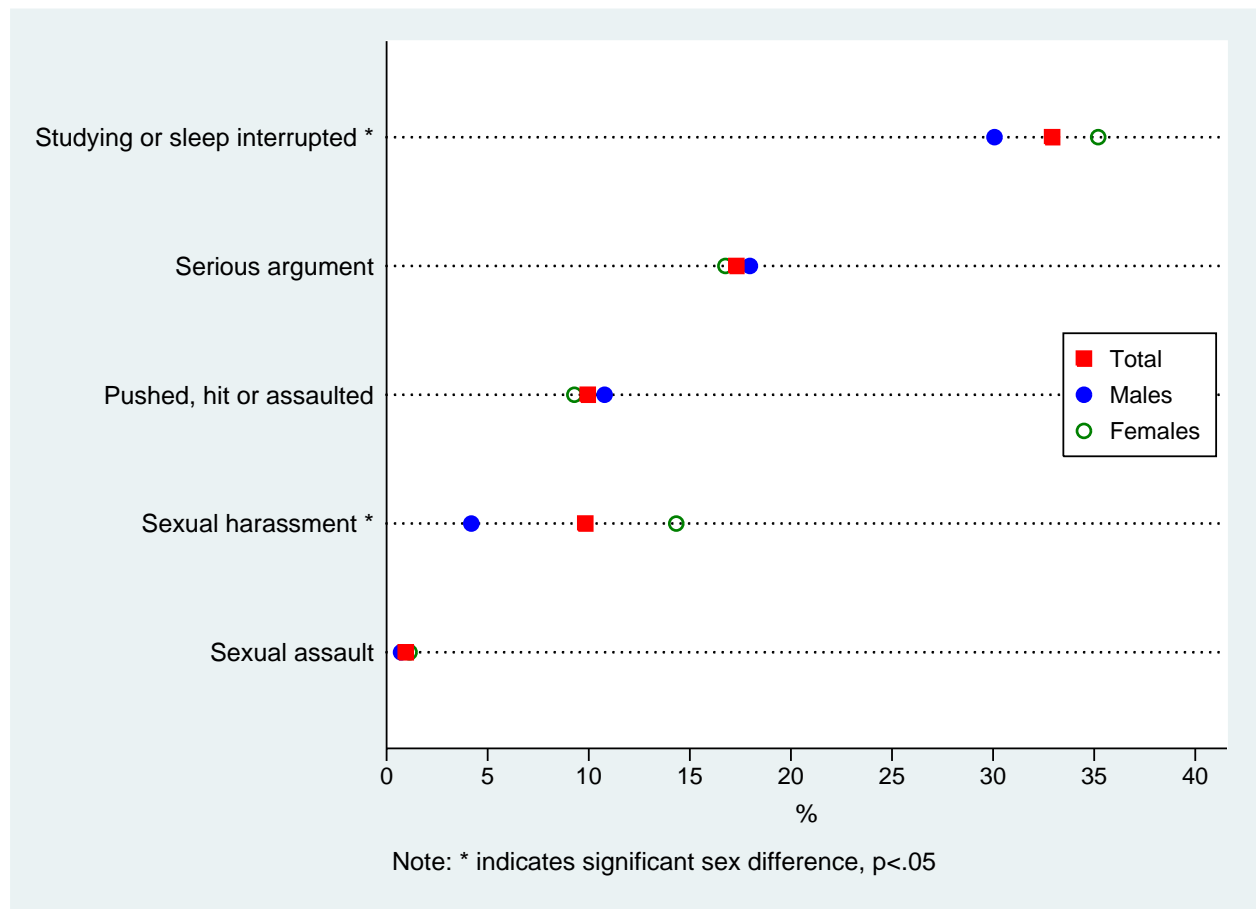


Table 4.4 also shows which groups of undergraduates are at risk of these secondary harms. In general, students residing on campus or off campus without family, students from the Atlantic provinces, and Ontario to a lesser extent, and recreationally- or bi-oriented students show a significantly higher risk of experiencing negative consequences compared to their counterparts. In general, students from British Columbia and Quebec are at a lower risk of experiencing negative consequences due to drinking compared to undergraduates nationally.

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Table 4.1 Percentage Reporting Alcohol Problems in Past 12 Months by Gender, Year of Study, Living Arrangement, Region, Extracurricular Orientation and Reading Week, Canadian Undergraduates, 2004

	AUDIT 8+			Harmful Drinking			Dependent Drinking		
	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR
Total	32.0	28.6-35.6		43.9	41.0-46.9		31.6	29.6-33.6	
Gender			***			**			**
Men	37.6	33.6-41.8	1.6 ***	45.9	42.4-49.3	1.2 **	32.5	30.4-34.7	1.2 **
Women	27.5	24.3-31.0	ref	42.4	39.5-45.3	ref	30.9	28.6-33.3	ref
Year of Study			ns			ns			ns
First	34.8	29.6-40.4	ref	45.0	40.4-49.6	ref	32.9	29.1-37.1	ref
Second	31.0	27.0-35.3	0.9	43.5	39.4-47.8	0.9	30.6	27.1-34.4	1.0
Third	30.8	26.6-35.3	0.8	42.7	38.9-46.5	0.9	31.4	27.6-35.5	1.0
Fourth or more	30.7	26.4-35.4	0.8	44.2	40.2-48.4	1.0	31.0	27.1-35.2	0.9
Living Arrangement			***			***			***
On campus	42.7	38.1-47.5	2.2 ***	52.7	48.0-57.4	1.7 ***	38.2	35.1-41.5	1.5 ***
Off campus with family	25.2	21.7-29.0	ref	38.6	35.1-42.3	ref	27.9	25.3-30.7	ref
Off campus without family	34.1	30.5-37.9	1.6 ***	45.5	42.1-48.9	1.2 **	32.5	29.7-35.4	1.2 **
Region			**			***			ns
British Columbia	26.7	21.6-32.4	0.8 *	39.0	33.6-44.6	0.8 **	29.6	26.5-32.8	0.9
Prairies	29.4	25.6-33.5	0.9	41.3	39.1-43.5	0.9	30.1	27.2-33.2	1.0
Ontario	33.4	28.2-39.1	1.0	45.1	40.3-50.0	1.0	31.9	28.7-35.3	1.0
Quebec	26.6	21.6-32.4	0.7 *	40.2	35.8-44.8	0.8 ***	30.8	26.2-35.9	1.0
Atlantic	46.5	37.8-55.4	1.9 ***	55.9	48.6-62.9	1.5 ***	36.4	31.8-41.3	1.1
Extracurricular Orientation			***			***			***
A-oriented	26.9	23.6-30.5	1.4 *	39.6	36.1-43.3	1.4 ***	28.3	25.9-30.7	1.4 **
Intellectually-oriented	20.3	16.4-24.7	ref	33.4	30.2-36.6	ref	22.6	19.8-25.7	ref
Recreationally-oriented	53.6	49.0-58.1	4.2 ***	61.1	56.4-65.5	3.1 ***	46.3	41.6-51.1	2.9 ***
Bi-oriented	34.3	28.9-40.1	2.0 ***	47.8	42.2-53.5	1.9 ***	33.2	29.3-37.3	1.7 ***
Reading Week			ns			**			ns
1-2 weeks ago	30.9	27.7-34.2	1.1	43.7	40.3-47.0	1.2	31.1	28.4-33.9	1.0
3-4 weeks ago	33.9	28.9-39.3	1.3 *	45.7	41.6-49.8	1.3 **	32.8	30.1-35.7	1.1
Not yet or 5 or more weeks ago	28.6	23.8-34.0	ref	38.9	33.3-44.8	ref	28.6	24.2-33.5	ref

Note: ns = not significant * p < .05; **p < .01; ***p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study

Table 4.2 Percentage Reporting Problems Due to Alcohol Use Since Beginning of School Year, Canadian Undergraduates, 2004

	Total		Men		Women		Gender Difference
	%	95%CI	%	95%CI	%	95%CI	
Harmful Drinking							
Had hangover	53.4	49.6-57.2	52.2	47.8-56.6	54.3	50.7-57.9	ns
Regretted action	24.5	22.1-27.2	25.4	22.3-28.9	23.8	21.3-26.6	ns
Memory loss	25.4	23.0-27.9	26.9	24.3-29.6	24.2	21.7-26.9	**
Missed class/hangover	18.8	15.6-22.5	20.2	16.1-25.0	17.7	14.8-21.0	ns
Missed class drinking	12.1	10.0-14.5	14.6	11.6-18.2	10.0	8.2-12.2	**
Trouble with school administration	0.7	0.4-1.1	1.2	0.7-2.0	0.3	0.2-0.6	***
Trouble with campus or local police	2.1	1.6-2.7	3.7	2.7-5.0	0.8	0.4-1.4	***
Arrested DWI	0.2	0.1-0.4	0.3	0.1-0.7	0.2	0.1-0.4	ns
Been hurt or injured	6.5	5.5-7.7	7.5	6.0-9.2	5.7	4.8-6.9	*
Hazardous Drinking							
Unplanned sex relations	14.1	12.0-16.5	15.8	12.6-19.6	12.8	11.2-14.6	*
Had unsafe sex	6.0	5.1-7.1	6.6	5.1-8.5	5.6	4.7-6.7	ns
Driven car after drinking too much	7.4	5.8-9.3	9.4	7.3-11.9	5.8	4.3-7.7	***
Drinking while driving	3.8	2.8-5.2	5.4	3.8-7.5	2.5	1.8-3.5	***
Lost Job	0.2	0.1-0.4	0.4	0.2-0.8	0.1	0.1-0.3	ns
Tried to cut down, but couldn't	2.5	2.0-3.2	3.6	2.7-4.7	1.7	1.3-2.2	***
Needed a lot more alcohol to become high or drunk	13.2	11.6-15.0	15.8	13.2-18.8	11.2	9.8-12.7	***

Note: ns = not significant * p < .05; **p < .01; ***p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study

Table 4.3 Percentage Reporting Problems Due to Alcohol Use Since Beginning of School Year by Gender, Year of Study, Living Arrangement, Region, Extracurricular Orientation and Reading week, Canadian Undergraduates, 2004

	Unplanned Sex Relations			Impaired Driving			Missing Classes		
	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR
Total	14.1	12.0-16.5		7.4	5.8-9.3		12.1	10.0-14.5	
Gender			*			***			**
Men	15.8	12.6-19.6	1.3 *	9.4	7.3-11.9	1.7 ***	14.6	11.6-18.2	1.5 **
Women	12.8	11.2-14.6	ref	5.8	4.3-7.7	ref	10.0	8.2-12.2	ref
Year of Study			ns			**			ns
First	15.1	12.3-18.4	ref	5.5	3.6-8.4	ref	11.9	9.3-15.0	ref
Second	14.1	11.7-17.0	0.9	6.0	4.5-8.1	1.1	12.4	9.9-15.5	1.1
Third	14.3	10.6-18.9	0.9	9.5	7.4-12.1	1.8 **	12.2	9.6-15.3	1.0
Fourth or more	12.6	10.3-15.4	0.8	8.9	6.9-11.4	1.7 **	11.9	9.5-14.7	1.0
Living arrangement			*			***			***
On campus	18.1	13.6-23.6	1.6 *	2.6	1.5-4.6	0.3 ***	17.1	13.6-21.3	2.3 ***
Off campus with family	11.9	9.5-14.7	ref	8.6	6.6-11.0	ref	8.6	6.7-11.0	ref
Off campus without family	14.6	12.6-16.8	1.3 *	8.4	6.6-10.6	0.9	13.4	11.0-16.3	1.6 ***
Region			ns			**			***
British Columbia	16.3	11.3-23.0	1.1	10.3	9.2-11.6	1.3 *	8.8	6.0-12.7	0.8
Prairies	13.6	10.1-18.2	0.9	11.3	6.2-19.7	1.4	13.4	8.8-19.7	1.3
Ontario	12.5	9.3-16.4	0.8	4.4	3.1-6.2	0.5 ***	14.8	11.8-18.5	1.4 *
Quebec	13.7	12.1-15.5	0.9	9.3	6.8-12.4	1.2	6.0	4.3-8.2	0.5 ***
Atlantic	19.9	13.2-28.7	1.5	6.5	4.5-9.4	0.8	13.9	7.7-23.9	1.4
Extracurricular Orientation			***			***			***
A-oriented	11.4	9.8-13.2	1.2	7.0	5.7-8.6	1.7 **	9.6	8.0-11.6	1.2
Intellectually-oriented	9.3	6.8-12.7	ref	4.0	2.7-5.9	ref	8.2	5.7-11.9	ref
Recreationally-oriented	22.7	17.3-29.1	2.8 ***	11.7	8.1-16.5	2.9 ***	21.1	16.9-26.1	2.8 ***
Bi-oriented	18.4	14.3-23.3	2.2 ***	5.6	3.6-8.8	1.4	12.9	9.0-18.2	1.6 *

Con't.....

	Unplanned Sex Relations			Impaired Driving			Missing Classes		
	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR
Reading Week			ns			ns			**
1-2 weeks ago	14.0	12.5-15.6	1.1	7.8	5.9-10.1	1.1	11.2	8.6-14.3	1.3
3-4 weeks ago	14.5	11.1-18.7	1.1	6.9	5.4-8.9	0.9	13.7	11.2-16.6	1.6 **
Not yet or 5 or more weeks ago	13.1	10.1-16.9	ref	7.4	4.7-11.5	ref	9.0	6.5-12.4	ref

Note: ns = not significant * p < .05; **p < .01; ***p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study

Table 4.4 Students Reporting Negative Consequences From Other Students' Drinking Since the Beginning of School Year by Gender, Year of Study, Living Arrangement, Region and Extracurricular Orientation, Canadian Undergraduates, 2004

	Serious argument or quarrel			Been pushed, hit or assaulted			Studying or sleep interrupted			Experienced sexual harassment		
	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR
Total	17.3	15.1-19.8		10.0	8.1-12.2		32.9	28.2-38.0		9.8	8.4-11.5	
Gender			ns			ns			***			***
Men	18.0	15.2-21.2	1.1	10.8	8.4-13.7	1.2	30.1	25.8-34.7	0.8 **	4.2	2.9-6.1	0.3 ***
Women	16.8	14.7-19.1	ref	9.3	7.5-11.4	ref	35.2	29.9-40.9	ref	14.3	12.7-16.2	ref
Year of Study			ns			ns			*			**
First	17.5	14.8-20.7	ref	10.6	8.8-12.8	ref	37.1	30.1-44.6	ref	11.7	9.7-14.1	ref
Second	17.5	14.6-21.0	1.0	10.4	7.6-14.0	1.0	33.2	27.7-39.2	0.8	10.5	8.5-13.0	0.8
Third	16.5	13.4-20.3	0.9	8.9	6.5-12.0	0.8	30.4	25.3-36.1	0.7 **	7.9	6.2-10.0	0.7 **
Fourth or more	17.5	15.1-20.3	1.0	9.7	7.9-11.9	0.9	29.8	25.8-34.1	0.7 **	8.6	6.4-11.4	0.7 **
Living Arrangement			***			***			***			**
On campus	23.9	20.1-28.3	2.0 ***	15.3	12.6-18.4	2.1 ***	68.3	62.4-73.7	12.5 ***	12.7	10.7-15.0	1.6 **
Off campus with family	13.8	11.3-16.8	ref	8.0	6.3-10.0	ref	15.1	13.1-17.4	ref	7.9	6.1-10.2	ref
Off campus without family	17.8	15.4-20.5	1.3 **	9.7	7.1-13.1	1.2	34.9	30.2-39.9	3.0 ***	10.6	8.8-12.7	1.4 *
Region			***			***			***			***
British Columbia	13.7	11.2-16.6	0.8 *	5.8	4.0-8.4	0.7 *	30.4	25.6-35.6	1.0	7.4	6.4-8.7	0.8 **
Prairies	19.0	17.7-20.5	1.2 *	8.6	7.2-10.2	1.0	27.2	22.8-32.2	0.9	6.9	5.9-8.0	0.7 ***
Ontario	19.3	16.0-23.3	1.2	12.6	9.7-16.2	1.5 **	41.7	33.5-50.3	1.6 **	9.6	7.6-12.1	1.0
Quebec	9.7	7.8-11.9	0.5 ***	4.6	3.7-5.7	0.5 ***	17.8	13.4-23.4	0.5 ***	11.5	8.6-15.2	1.2
Atlantic	24.8	17.4-34.1	1.7 **	16.1	11.6-21.9	2.1 ***	37.1	31.1-43.6	1.4 **	14.8	11.5-18.9	1.6 ***
Extracurricular Orientation			***			***			***			***
A-oriented	13.4	11.6-15.4	0.8	6.9	5.5-8.6	0.9	27.3	23.1-32.0	0.8 *	7.9	6.7-9.4	0.8 *
Intellectually-oriented	15.7	12.1-20.2	ref	7.5	5.5-10.2	ref	33.2	28.4-38.3	ref	10.6	8.7-12.8	ref
Recreationally-oriented	27.8	24.0-32.0	2.1 ***	17.7	13.5-23.0	2.6 ***	42.9	36.4-49.8	1.6 ***	11.7	9.4-14.5	1.5 *
Bi-oriented	21.3	16.9-26.6	1.5 *	14.9	10.9-19.9	2.1 **	43.9	37.2-50.8	1.6 ***	15.4	11.7-20.1	1.8 **

	Serious argument or quarrel			Been pushed, hit or assaulted			Studying or sleep interrupted			Experienced sexual harassment		
	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR	%	95%CI	OR
Reading Week			ns			ns			*			ns
1-2 weeks ago	17.0	14.0-20.4	1.2	9.1	6.7-12.2	1.0	28.6	24.0-33.6	0.7 *	11.1	9.3-13.3	1.2
3-4 weeks ago	18.3	15.1-22.0	1.3	10.9	8.8-13.3	1.2	35.5	29.2-42.3	1.0	8.9	7.3-10.8	0.9
Not yet or 5 or more weeks ago	14.4	11.7-17.6	ref	9.2	7.2-11.7	ref	35.1	29.0-41.7	ref	9.5	6.7-13.2	ref

Note: ns = not significant * p < .05; **p < .01; ***p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Chapter 5

Mental Health

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This chapter examines self-reported psychological distress as measured by the 12-item General Health Questionnaire (GHQ) (Goldberg, 1978, Goldberg, Oldehinkel & Ormel, 1998; McDowell & Newell, 1996). The GHQ-12 examines components of psychological distress such as ability to cope with stress, depression, social functioning and self-confidence. This mental health screener, which emphasizes changes during the past few weeks in symptom conditions (e.g., “more than usual”, “much more than usual”), has been extensively used and validated in a large number of studies and across a wide variety of populations, including Canadian students (McDowell & Newell, 1996; Goldberg, Oldehinkel, & Ormel 1998; Gliksmann, Demers, Adlaf, Newton-Taylor & Schmidt, 2000; Adlaf, Gliksmann, Demers & Newton-Taylor, 2001).

The GHQ-12 is based on the first 12 symptoms listed in Tables 5.1 and 5.2, as well as in Figure 5.1. Although the standard cut-off value indicating significant distress is 3 or higher, Goldberg et al. (1998) suggests using a more conservative value of 4 or higher when data are distributed as ours. Thus, students reporting 4 or more of these symptoms are considered to be in a state of poor mental health, referred to as “elevated psychological distress” in this chapter. An additional measure was included with the GHQ-12 to assess suicidal ideation (repeated thoughts about taking one’s life).

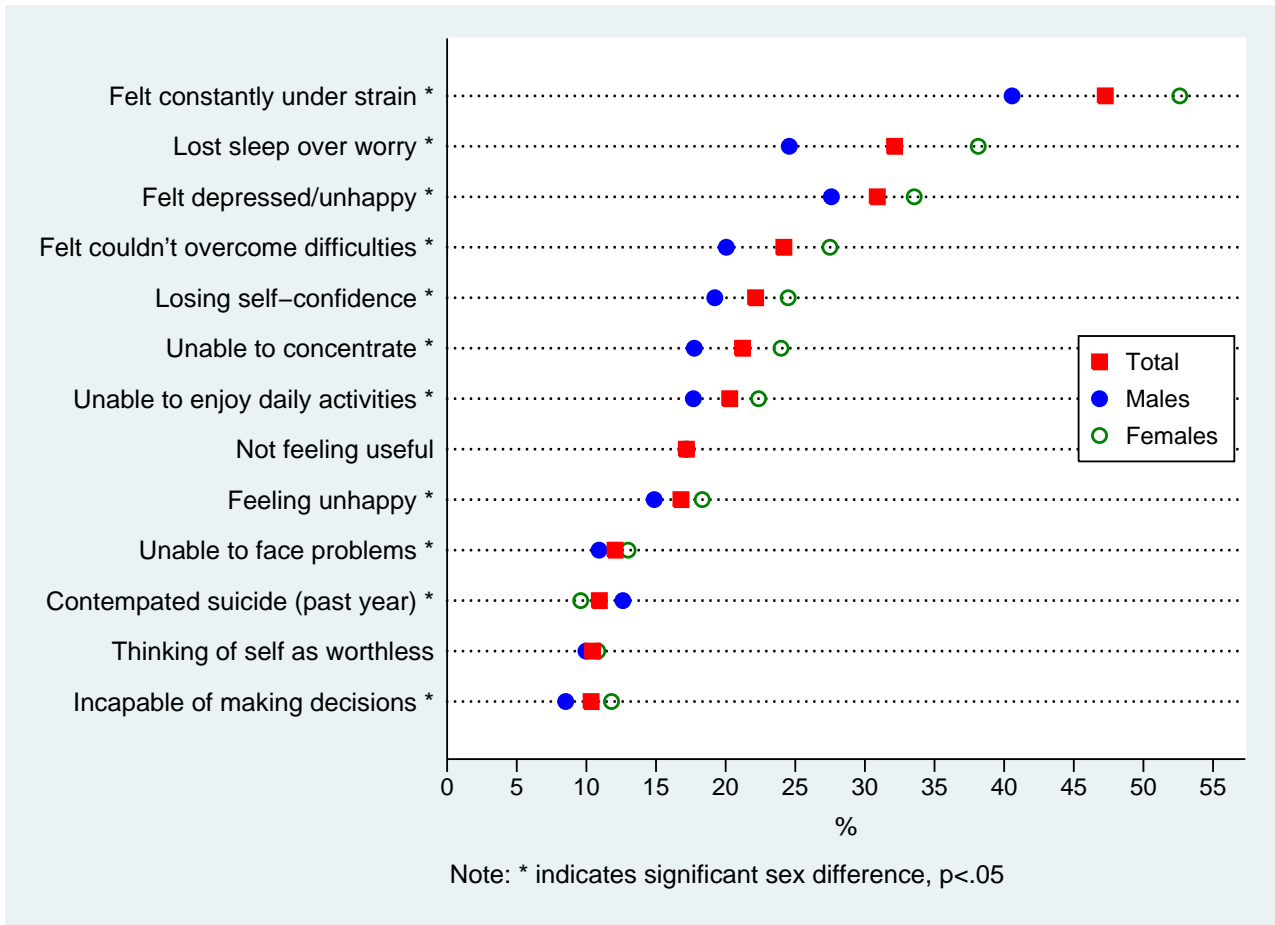
Symptoms of Psychological Distress (Tables 5.1-5.2; Figure 5.1)

The most commonly reported symptoms of psychological distress are feeling constantly under stress (47.3%), followed by losing sleep over worry (32.1%) and feeling unhappy or depressed (30.9%). Between one-fifth and one-quarter report difficulties overcoming problems (24.2%), losing confidence (22.2%), being unable to concentrate (21.2%) and not enjoying daily activities (20.3%). Fewer students report symptoms such as not feeling useful (17.2%), feeling unhappy (16.8%), feeling worthless (10.4%), being unable to face up to problems (12.1%), and being incapable of making decisions (10.3%). Eleven percent of students report having suicidal thoughts.

There are significant gender differences for ten of the twelve GHQ items, as well as the suicidal ideation measure. For each of these, a higher percentage of women report experiencing the particular item compared to men. For example, a significantly higher percentage of women, compared to men, report feeling constantly under stress (52.6% vs 40.6%, respectively), being unable to concentrate (24.0% vs

17.8%), feel that they could not overcome difficulties (27.5% vs. 20.1%), and are losing confidence in themselves (24.5% vs. 19.2%). However, a higher percentage of men (12.6%) report having suicidal thoughts than do women (9.6%).

Figure 5.1 Percentage Reporting Symptoms of Psychological Distress, by Gender, CCS 2004

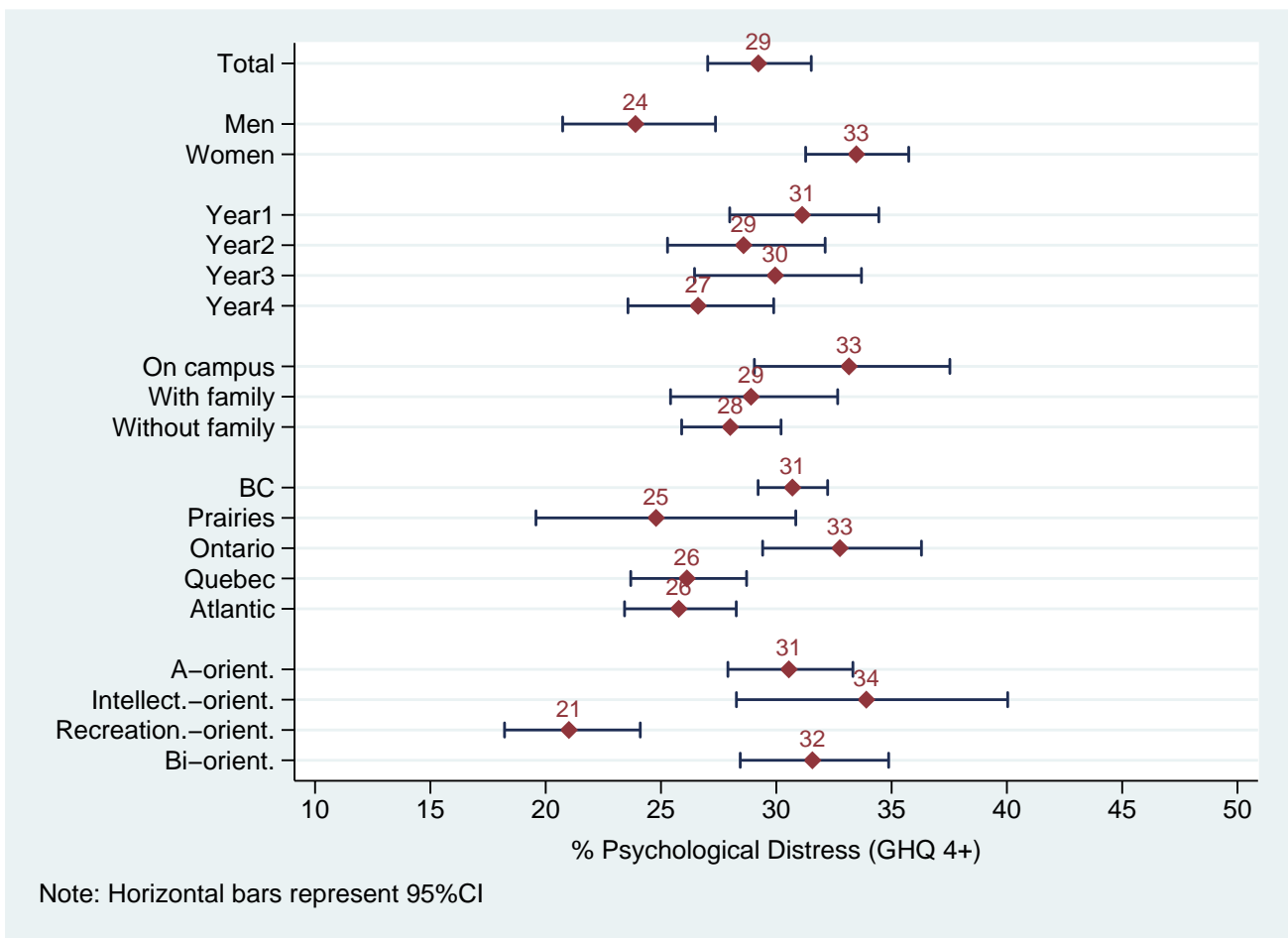


Most symptoms of psychological distress do not significantly differ according to students' year of study. However, reports of feeling unhappy or depressed and not being reasonably happy all things considered do significantly differ, with the pattern showing that fourth year students the least likely to report these symptoms compared to students in the other years

Prevalence of Elevated Psychological Distress.....(Table 5.3; Figure 5.2)

Almost one-third (29.2%) of all undergraduate university students report experiencing elevated psychological distress, as measured by reporting at least four of the twelve GHQ symptoms. The prevalence of elevated psychological distress is significantly related to gender, region, and extracurricular orientation. Compared to men, a higher percentage of women report psychological distress (23.9% vs 33.5%, respectively). Also, a higher percentage of students attending university in British Columbia (30.7%) and Ontario (32.8%) report psychological distress compared to the national average (29.2%). Psychological distress is also significantly related to students' extracurricular orientation. In particular, the highest percentage of students reporting psychological distress are those that are intellectually-oriented (33.9%). Recreationally oriented students are least likely to report psychological distress (21.0%).

Figure 5.2 Percentage Reporting Elevated Psychological Distress, GHQ4+, CCS 2004



Elevated psychological distress is not significantly related to year of study, as rates are fairly similar among the four years. Although students living on campus are slightly more likely to report psychological distress compared to students residing off campus, this difference is not significant.

Elevated Psychological Distress and Hazardous Drinking (Table 5.4)

We also examined the overlap between elevated psychological distress (GHQ-12) and hazardous drinking as measured by the AUDIT8+ (see Chapter 4 for details regarding the AUDIT). It is important to note that 47.8% of all Canadian undergraduates do not have scores indicating problems within either measure. Twenty percent of students report psychological distress with no indication of problem drinking. Twenty-three percent of students report signs of hazardous drinking. Nine percent of students are identified as having both psychological distress and hazardous drinking patterns.

Chapter References:

- Adlaf, E., Gliksman, L., Demers, A. & Newton-Taylor, B. (2001) The prevalence of elevated psychological distress among Canadian undergraduates: findings from the 1998 Canadian Campus Survey. Journal of American College Health 50(2) 67-74.
- Gliksman, L., Demers, A., Adlaf, E., Newton-Taylor, B. & Schmidt, K. (2000) *Canadian Campus Survey*. Toronto: Centre for Addiction and Mental Health.
- Goldberg, D. (1978) *Manual of the General Health Questionnaire*. London: Nelson Publishing Company.
- Goldberg, D. Oldehinkel, T. & Ormel, J. (1998) Why GHQ threshold varies from one place to another. Psychological Medicine, 28, 915- 921.
- McDowell, I. & Newell, C. (1996) *Measuring Health*. (2nd ed.) New York: Oxford University Press.

Table 5.1 Percentage Reporting Negative Symptoms of GHQ(12) by Gender, Canadian Undergraduates, 2004

	Total		Gender				Gender Difference
	%	95%CI	%	Men 95% CI	Women %	Women 95%CI	
Unable to concentrate	21.2	19.9 - 22.7	17.8	15.8 - 19.9	24.0	22.3 - 25.8	***
Lost sleep over worry	32.1	30.3 - 34.0	24.6	21.9 - 27.4	38.1	35.9 - 40.5	***
Felt weren't playing useful part in things	17.2	15.2 - 19.4	17.2	14.0 - 21.0	17.2	15.6 - 18.8	ns
Felt incapable of making decisions about things	10.3	9.4 - 11.4	8.5	6.9 - 10.4	11.8	10.6 - 13.1	**
Felt constantly under strain	47.3	45.5 - 49.1	40.6	37.3 - 43.9	52.6	50.5 - 54.7	***
Felt could not get over difficulties	24.2	22.2 - 26.3	20.1	17.7 - 22.7	27.5	25.2 - 29.9	***
Unable to enjoy daily activities	20.3	18.5 - 22.2	17.7	15.4 - 20.2	22.4	20.5 - 24.4	***
Unable to face up to problems	12.1	11.0 - 13.3	10.9	9.3 - 12.7	13.0	11.7 - 14.5	*
Feeling unhappy or depressed	30.9	29.1 - 32.7	27.6	24.7 - 30.7	33.5	31.5 - 35.7	**
Losing confidence in self	22.2	20.4 - 24.0	19.2	16.9 - 21.8	24.5	22.5 - 26.6	***
Think of self as worthless person	10.4	9.2 - 11.8	10.0	8.0 - 12.3	10.8	9.8 - 12.0	ns
Have not been feeling reasonably happy - all things considered	16.8	15.3 - 18.4	14.9	13.3 - 16.7	18.3	16.5 - 20.4	***
Idea of taking own life keeps coming into mind	10.9	9.2 - 13.0	12.6	10.3 - 15.3	9.6	7.9 - 11.6	**

Note: ns = not significant * p < .05; **p < .01; ***p < .001

Table 5.2 Percentage Reporting GHQ (12) Symptoms by Year of Study, Canadian Undergraduates, 2004

	Total		Year of Study								Year Difference
	%	95%CI	First		Second		Third		Fourth		
			%	95%CI	%	95%CI	%	95%CI	%	95%CI	
Unable to concentrate	21.2	19.9 - 22.7	22.7	20.6 - 24.9	19.9	17.3 - 22.7	22.3	19.2 - 25.7	19.6	17.3 - 22.3	ns
Lost sleep over worry	32.1	30.3 - 34.0	33.0	29.4 - 36.7	31.5	29.0 - 34.1	33.9	30.2 - 37.7	29.8	26.6 - 33.3	ns
Felt weren't playing useful part in things	17.2	15.2 - 19.4	18.8	16.3 - 21.7	17.1	14.1 - 20.6	18.5	14.5 - 23.3	13.7	11.7 - 16.0	ns
Felt incapable of making decisions about things	10.3	9.4 - 11.4	10.3	8.7 - 12.2	10.1	7.9 - 12.8	11.4	9.7 - 13.3	9.5	8.1 - 11.2	ns
Felt constantly under strain	47.3	45.5 - 49.1	49.4	45.6 - 53.2	46.6	42.6 - 50.6	47.8	43.7 - 51.9	44.6	40.9 - 48.3	ns
Felt could not get over difficulties	24.2	22.2 - 26.3	26.6	22.6 - 31.1	24.7	21.6 - 28.1	24.0	20.7 - 27.7	20.6	18.5 - 22.8	ns
Unable to enjoy daily activities	20.3	18.5 - 22.2	19.7	17.1 - 22.6	20.4	17.5 - 23.7	20.7	18.0 - 23.6	20.5	17.4 - 24.0	ns
Unable to face up to problems	12.1	11.0 - 13.3	11.6	9.8 - 13.7	11.8	9.5 - 14.6	13.4	11.0 - 16.2	11.6	10.0 - 13.4	ns
Feeling unhappy or depressed	30.9	29.1 - 32.7	32.5	30.0 - 35.1	33.4	30.1 - 36.8	30.5	27.8 - 33.5	26.5	22.9 - 30.4	**
Losing confidence in self	22.2	20.4 - 24.0	23.5	20.6 - 26.7	22.2	19.0 - 25.7	22.6	19.9 - 25.4	19.9	16.7 - 23.4	ns
Think of self as worthless person	10.4	9.2 - 11.8	11.7	9.8 - 14.0	10.5	8.5 - 13.0	11.2	8.6 - 14.4	7.9	6.6 - 9.5	ns
Have not been feeling reasonably happy - all things considered	16.8	15.3 - 18.4	17.6	15.6 - 19.8	16.10	13.6 - 18.9	18.8	16.2 - 21.6	14.3	12.2 - 16.8	*
Idea of taking own life keeps coming into mind	10.9	9.2 - 13.0	11.3	9.0 - 14.2	12.7	9.7 - 16.4	11.4	9.2 - 14.0	8.1	6.8 - 9.6	**

Note: ns = not significant * p < .05; **p < .01; ***p < .001

Table 5.3 Percentage Reporting Elevated Psychological Distress (GHQ 4+) by Gender, Year of Study, Living Arrangement, Region and Extracurricular Orientation, Canadian Undergraduates, 2004

	Psychological Distress (GHQ 4+)		
	%	95%CI	OR
Total	29.2	27.0 - 31.5	
Gender			***
Men	23.9	20.7 - 27.4	0.62 ***
Women	33.5	31.3 - 35.7	ref
Year of Study			ns
First	31.1	28.0 - 34.5	ref
Second	28.6	25.3 - 32.1	0.87
Third	30.0	26.5 - 33.7	0.95
Fourth	26.6	23.6 - 29.9	0.80
Living Arrangement			ns
On campus	33.2	29.1 - 37.5	1.20
Off Campus with family	28.9	25.4 - 32.7	ref
Off Campus without family	28.0	25.9 - 30.2	0.97
Region			***
British Columbia	30.7	29.2 - 32.2	1.16 **
Prairies	24.8	19.6 - 30.8	0.87
Ontario	32.8	29.4 - 36.3	1.25 **
Quebec	26.1	23.7 - 28.7	0.90
Atlantic	25.8	23.4 - 28.3	0.89
Extracurricular Orientation			***
A-oriented	30.6	27.9 - 33.3	0.88
Intellectually-oriented	33.9	28.3 - 40.0	ref
Recreationally-oriented	21.0	18.2 - 24.1	0.56 ***
Bi-oriented	31.6	28.4 - 34.9	0.93

Note: ns = not significant * p < .05; **p < .01; ***p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study

Table 5.4 Percentage Reporting Overlap Between Psychological Distress (GHQ12) and Alcohol Use Disorder Identification Test (AUDIT 8+), Canadian Undergraduates, 2004

	Prevalence	
	%	95%CI
Neither GHQ12 (4+) nor AUDIT (8+)	47.8	45.5 - 50.2
GHQ12 (4+) but not AUDIT (8+)	20.2	18.2 - 22.3
AUDIT (8+) but not GHQ12 (4+)	22.9	20.1 - 26.1
Both GHQ12 (4+) and AUDIT (8+)	9.1	7.8 - 10.5

See Chapter 4 for details regarding the AUDIT.

Chapter 6

Gambling

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Gambling has developed into a popular pastime among the general population and university students alike (Ladouceur, Dubé and Bujold, 1994; LaBrie, Shaffer, LaPlante and Wechsler, 2003; Lesieur, Cross, Frank, Welch, White, Rubenstein, et al. 1991; Engwall, Hunter and Steinberg, 2005). This chapter describes the gambling habits of Canadian undergraduate students. We begin by describing the prevalence of gambling and various gambling activities. We then describe the prevalence of gambling problems and examine the type of problems that are reported by gamblers. Finally, we compare undergraduate students to a sample of similarly-aged non-students derived from the 2002 *Canadian Community Health Survey*.

Gambling measures used in this chapter

Measure	Description
Gambling Activities	
	For the eight gambling activities below, respondents were asked “During the past school year, how often did you bet or spend money on each of the following gambling activities?”, with the response “never” defined as negative and the responses “a few times a year” to “daily” defined as positive (Q44). ... Buying lottery or raffle tickets (Q44a) ... Playing a slot machine or video lottery terminal (Q44b) ... Betting on horse or dog races (Q44c) ... Betting on sports event (Q44d) ... Card dice or other games (Q44e) ... Betting with a bookie (Q44f) ... Internet betting or gambling (Q44g) ... Casino gambling (Q44h)
Gambling	
Past school year	Past school year gambling prevalence is based on the question “During the past school year, how often did you bet or spend money on each of the following gambling activities?” (Q44a-Q44h). Those who report a positive response on at least one of the 8 activities are considered gamblers.
Gambling Problems	
Past 12-month	Problem gambling is based on the 9-item Canadian Problem Gambling Index (CPGI). The CPGI is a measure of gambling problems in the general population and distinguishes between non-problem gamblers (score = 0), those at risk for developing problems (score = 1 or 2), those with moderate gambling problems (score = 3 to 7) and those with severe problems (score = 8 or more), (Ferris and Wynne, 2001).

Gambling and Gambling Activities (Table 6.1; Figures 6.1 - 6.2)

Overall Prevalence

Overall, 61.5% of undergraduate students bet or spent money on at least one gambling activity since the beginning of the school year. *Lottery and raffle tickets* are the most popular activities (51%) followed by *slot machines/video lottery* (22.7%), *casino gambling* (19%), *card dice or other games* (17.7%), and *sports event betting* (10.8%). The three least reported activities are *betting on horse or dog races* (3.7%), *internet gambling* (1.5%), and *betting with a bookie* (0.8%). On average, students gamble at 1.3 activities, with men reporting significantly more gambling than women (1.5 in comparison to 1.1 for women). Moreover, 5.3% of undergraduates report gambling at least weekly.

Subgroups Differences

Gender: The percentages of men and women who gamble are not significantly different (62.2% vs 61%, respectively). However, with the exception of slot machine/lottery gambling, men are more likely to report betting on all activities compared to women. *Betting with a bookie* and *betting on sports events* are especially male-dominated activities.

Year of Study: The percentage of students reporting any gambling activity increases with year of study. Generally, there are more gamblers among the third- and fourth-year students. Furthermore, third and fourth year students are most likely to report spending money on *slot machine/video lottery*, *lottery tickets*, and *gambling in casinos*.

Living Arrangement: Generally, the prevalence of gambling is comparable between students living in university housing and those living off campus with or without family. However, students living in university housing are more likely to report *Internet gambling* than students living off campus with or without family (2.5% vs 1% and 1.6%, respectively) and more betting on sports events (12.9% vs 8.7% of those living off campus without family).

Region: Geographical variation exists, with the lowest percentage of gamblers in British Columbia (56.8%) and the highest in the Atlantic (71.9%). For specific activities, more students report spending money on *lottery/raffle tickets* in the Atlantic (63.1%) compared to the other regions, as well as *betting on card, dice or other games* (19.8%) in comparison to the lowest rate observed in Quebec (13.4%). Betting on *sports events* is also more prevalent in the Atlantic and the Prairies (14% and 13.5%) compared to lower rates in British Columbia and Quebec (8.4% and 7.8%). Finally, *betting on horse or dog races* is most prevalent among Ontario students (5.2%).

Extracurricular Orientation: Intellectually-oriented students are least likely to report gambling activities (51.9% compared to 60.7% of those who are A-oriented and 66.8% of those who are recreationally-oriented or bi-oriented). Furthermore, they are less likely to report spending money on the three most popular gambling activities, namely *lottery or raffle tickets* (44.9% compared to 50.7% of the A-oriented students and 54.2% of the recreationally-oriented and bi-oriented students), *slot machine/video lottery* (18.1% compared to 23% of the A-oriented students and 24.2% of the recreationally-oriented and bi-oriented students), and *casino gambling* (13.3% compared to 18.1% of the a-oriented students and 23.5% of the recreationally-oriented and bi-oriented students). Students who are recreationally-oriented and, to a lesser extent, those who are bi-oriented are more likely to report *betting on horse or dog races* (6.2% and 4% compared to 3.3% of A-oriented students and 1.9% of intellectually oriented students), *betting on sports events* (20.2% and 13.5% compared to 8.4% of A-oriented students and 5% of intellectually-oriented students), and *spending money on card, dice or other games* (26.3% and 21.1% compared to 15.2% of A-oriented students and 13.5% of intellectually-oriented students). Finally, *betting with a bookie* is most likely among bi-oriented students (1.9% compared to 1.5% of recreationally oriented students and 0.3% of A-oriented or intellectually-oriented students).

Figure 6.1 Percentage Reporting Any Gambling since the Beginning of School Year, CCS 2004

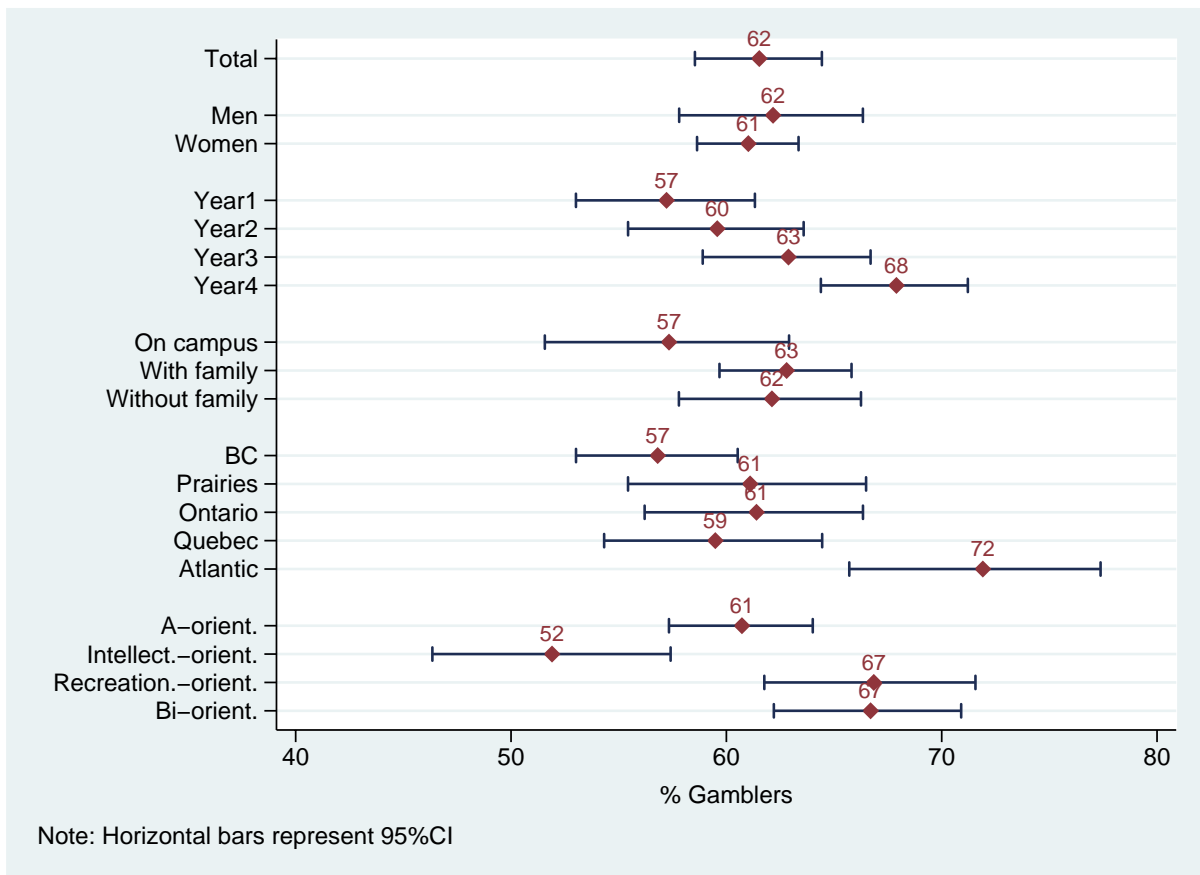


Figure 6.2a Percentage Reporting Gambling Activities since the Beginning of School Year, CCS 2004

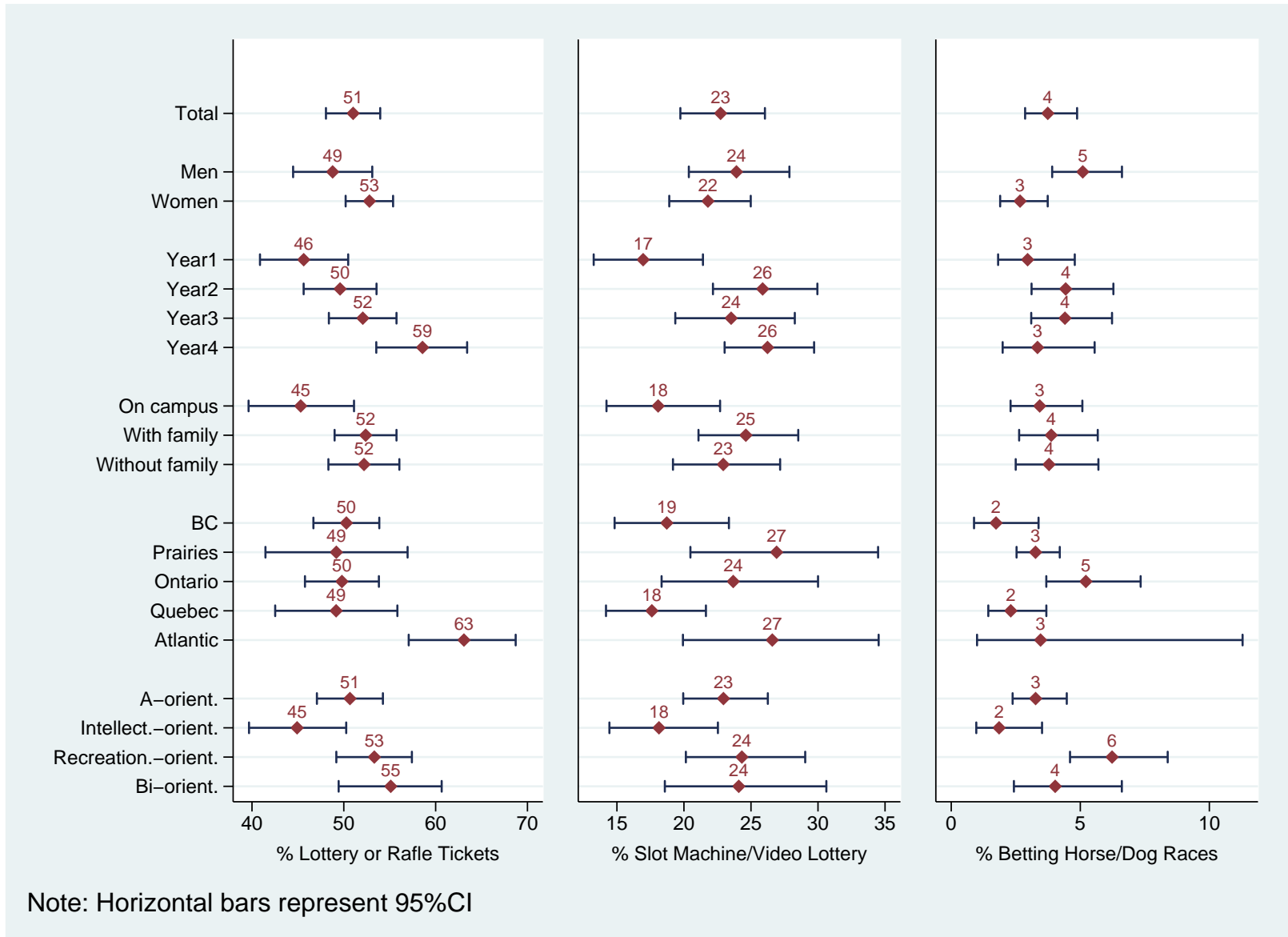
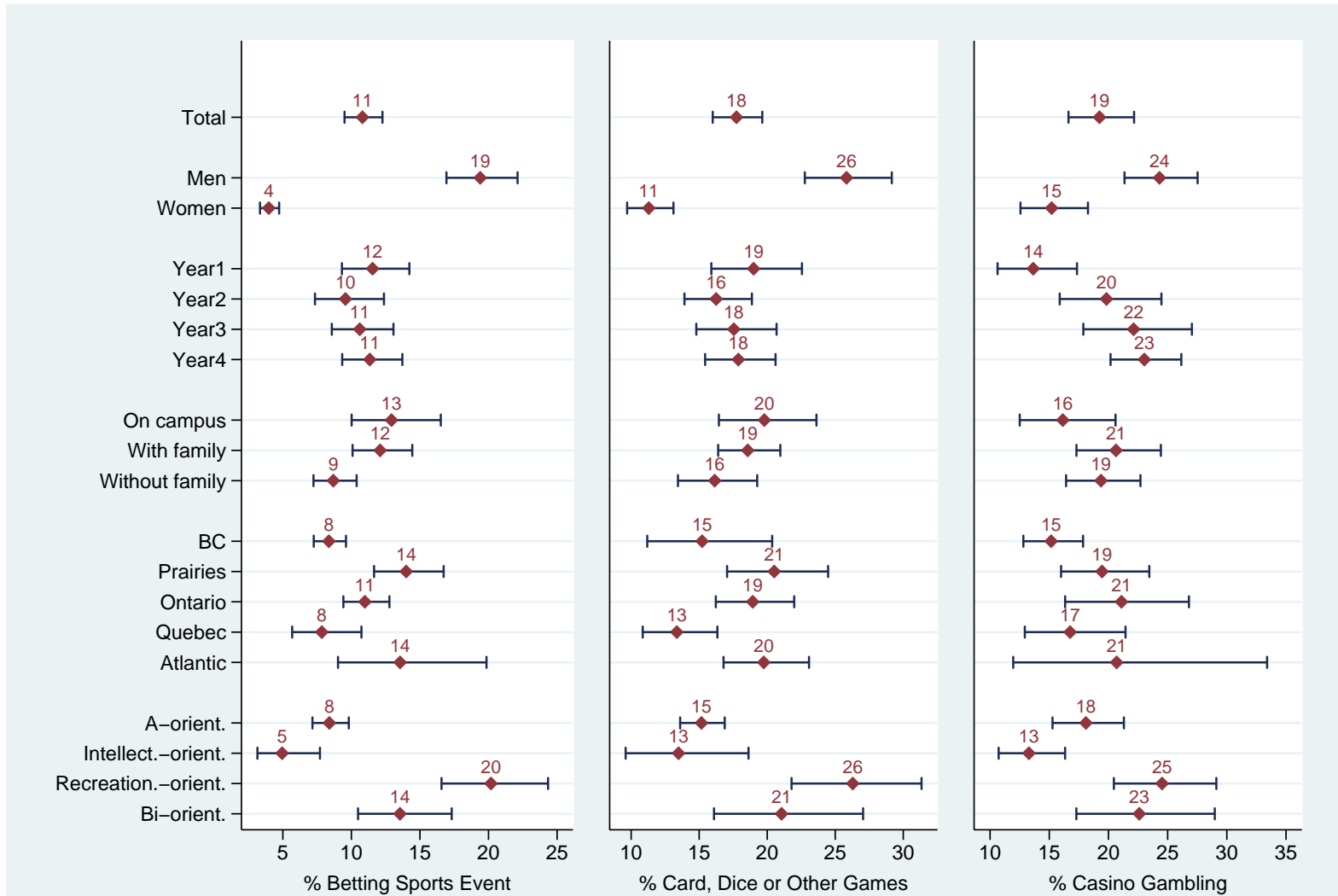


Figure 6.2b Percentage Reporting Gambling Activities since the Beginning of School Year, CCS 2004



Note: Horizontal bars represent 95%CI

Gambling Problem Severity(Table 6.2; Figure 6.3)

Overall Prevalence

Among the 3,726 students who reported at least one gambling activity during the last school year, the majority are non-problem gamblers (80.7%) (score of 0 on the CPGI), while 13.2% are at-risk for developing a gambling problem, and 6.2% have a moderate or severe gambling problem. The patterns of gambling severity differ according to the major demographic variables except for living arrangement. In this case, the prevalence of non-problematic and problematic gambling does not differ between students living on campus and those living off campus with or without their family.

Subroup Differences

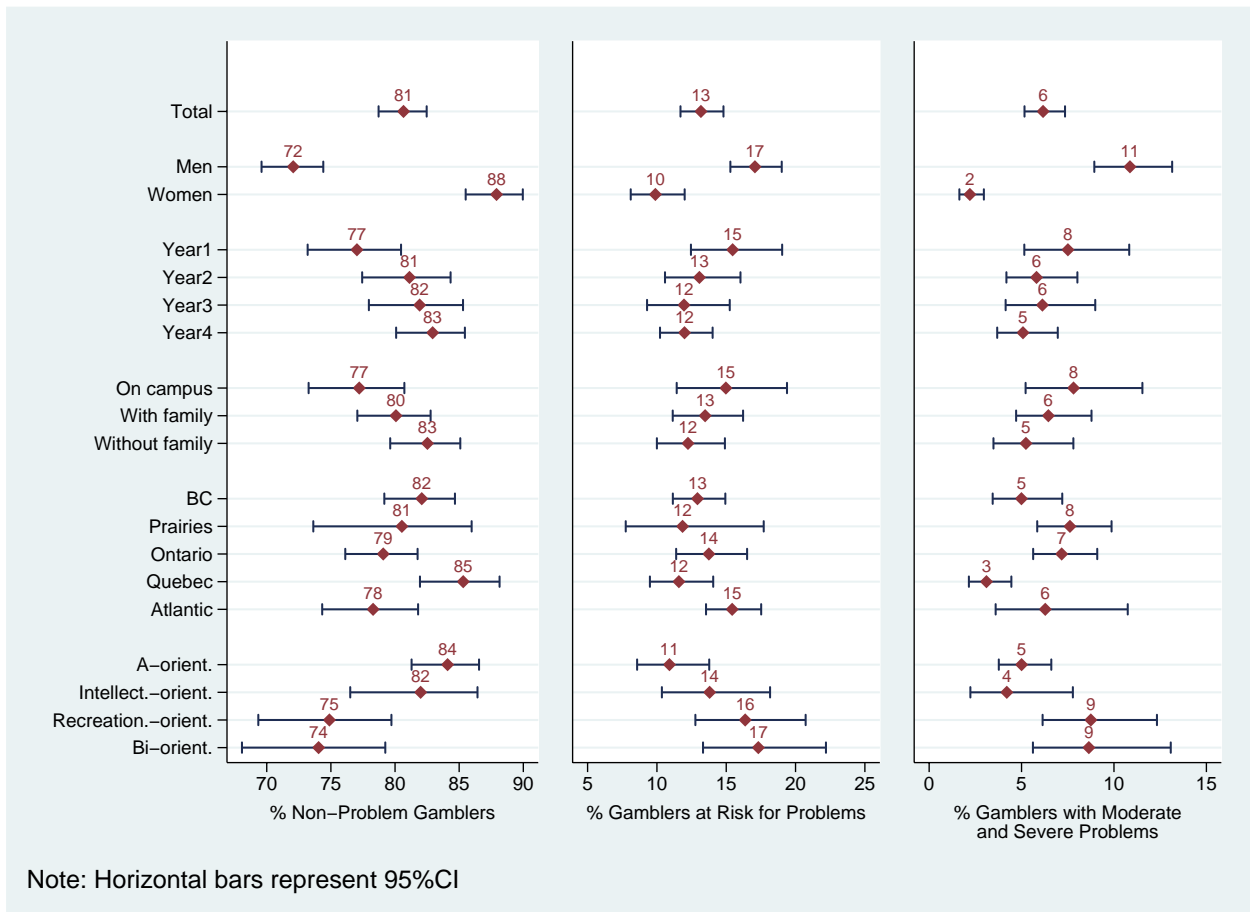
Gender: Although the prevalence of gambling is similar for men and women, more men report problems with gambling compared to women, and this proportion increases with the severity of the problem. Thus, women who gamble are more likely to be non-problematic compared to men. Men are twice as likely to be at risk for problems compared to women (17.1% vs 9.9%), and 6 times more likely to have moderate or severe gambling problems (10.9% vs 2.2%).

Year of Study: Although the prevalence of gambling increases with the year of study, fewer senior students are at risk for problems or have moderate or severe problems. Thus, compared to first-year students, fewer second- third- and fourth-year students are at risk for problems (15.5% vs 13.1% of second-year students, 12% of third- and fourth-year students) and as having moderate or severe problems (7.5% vs 5.8%, 6.1%, and 5.1%).

Region: Three regions show significant differences in gambling problem severity indicators, compared to the national averages. Quebec has the highest prevalence of non-problem gamblers (85.3%). This province also has the lowest rates of gamblers at risk for problems (11.6%) and the lowest rate of gamblers with moderate or severe problems (3.1%). The Atlantic region has the highest rate of at-risk gamblers (15.4%), whereas the Prairies have the highest rate of gamblers with moderate or severe problems (7.6%).

Extracurricular Orientation: There is a lower proportion of non-problem gamblers among recreationally-oriented or bi-oriented students (84.1% for those who are A-oriented and 82% for those who are intellectually-oriented in comparison to 74.9% for those recreationally-oriented, and 74% for bi-oriented). Conversely, there is a tendency, although not significant, for bi-oriented and recreationally-oriented students to have an increased risk for gambling problems (17.3% and 16.4%) in comparison to those who are A-oriented (10.9%) or intellectually-oriented (13.8%), as well as a higher probability of having moderate or severe problems (8.6% for bi-oriented students and 8.7% for recreationally-oriented vs. 5% for those who are A-oriented and 4.2% for those who are intellectually-oriented).

Figure 6.3 Percentage Reporting Non-problem Gambling, At-risk Gambling and Moderate or Severe Problem Gambling, CCS 2004



Gambling Problem Severity and Types of Problems..... (Table 6.3)

Specific gambling problem indicators were measured by the Canadian Problem Gambling Index (CPGI). The three most reported problems are: *going back another day to try to win back the money that one has lost* (9.3%), followed by *betting more than one can afford to lose* (8%), and *felt guilty about the way one gamble* (6.5%). The three least reported problems are: *gambling causing financial problems for the gambler or his/her household* (2.1%), *gambling causing health problems (stress or anxiety)* (2.3%), and *borrowing money or selling anything to gamble* (2.7%).

The prevalence of specific problems differs significantly according to the severity of gambling problems. For instance, gamblers at risk for problems and gamblers with moderate/severe problems equally report *gambling to win back the money they lost*, *betting more than they afford to lose* and *feeling guilty about their gambling behaviour* whereas the two groups show differences in the six remaining indicators. A significantly higher percentage of gamblers with moderate/severe problems report needing to gamble larger amounts of money to get the same feeling of excitement (62.6% vs 37.4% for at-risk gamblers); people criticizing their betting (76% vs 24% for at-risk gamblers); feeling they might have problem with gambling (83% vs 17% for at-risk gamblers); borrowing money or sold anything to gamble (66.4% vs 33.7% for at-risk gamblers); gambling causing them health problems (81.7% vs 18.3% for at risk

gamblers); and gambling causing financial problems for them and their household (86% vs 14.1% for at-risk gamblers).

Undergraduate Students Gambling Habits: A Comparison with Non-Students.....(Table 6.4)

Table 6.4 compares gambling behaviours and problems among undergraduate students and young adults from the same age group (20-24 years-old) who were not involved in part- or full-time studies at the time of the survey. The latter sample, which is derived from the *Canadian Community Health Survey (CCHS – cycle 1.2)* (Gravel, et al. 2004), is representative of the 20-24 age group in the general population. The purpose of this section is to examine whether undergraduate student differ in their gambling behaviours and problems compared to their non-student counterparts.

Overall, the prevalence of gambling among undergraduate students is significantly lower compared to non-students (61.5% vs 73.6% in the CCHS). These differences were also observed among women (61% vs 69.9% in the CCHS), as well as men (62.2% vs 77% in the CCHS). However, there is no difference between these two groups in the average number of gambling activities. Finally, there are no notable differences between the groups in the proportion of non-problem gamblers, and gamblers with moderate/severe problems. However, the proportion of gamblers at risk for problems is significantly higher among undergraduate students than non-students (7.9% vs 4% in the CCHS). This difference is observed among the men only (10.5% vs 4.4% in the CCHS), while no such difference was found among the women (5.9% vs 3.5% in the CCHS). Comparisons between the Canadian Campus Survey (CCS) and the Canadian Community Health Survey (CCHS) should be interpreted with caution given that potential methodological differences exist between the surveys. On one hand, the surveys differ in the procedure used for data collection. Given that data collection spanned a longer period in the CCHS (spring 2003 and December 2003 vs March 2004 and May 2004 for the CCS), the CCHS is likely to capture a more diverse reality of students' lives and a wider variety of critical periods, such as the beginning and the ending of the school year and summer breaks. Another difference exists in the mode of collection, with CCHS mostly using face-to-face interviews (14% of the samples interviewed by telephone) whereas, the CCS collected data through mailed questionnaires or secured electronic web format questionnaires.

Significant differences also exist in the measurement of gambling. Although each survey used a set of measures of gambling activities to identify gamblers and the CPGI to assess gambling problems among those who gamble, they did not make use of the same criteria to assign respondents to the various categories of gamblers. In both surveys, those respondents reporting no gambling activities were identified as 'Not Gambled'. In the CCS, all those who reported at least one gambling activity were asked to complete the CPGI questionnaire and were accordingly labelled as 'Non-Problem Gamblers' (CPGI score = 0), 'Gamblers at Risk for Problems' (CPGI score =1-2), 'Gamblers with Moderate Problems' (CPGI score =3-7), and 'Gamblers with Severe Problems' (CPGI score =8 or more). Conversely, in the CCHS, an additional criterion measuring the respondents' self-perceived gambling status was used to assign the gamblers in the various categories. Thus, respondents who perceived themselves as non-gamblers did not report on the CPGI measure and only reported on the gambling activities. Among those, respondents who reported gambling more than five times on at least one gambling activity were categorized as 'Non-Gamblers' whereas those who reported gambling less than five times on all the gambling activities were categorized as 'Non-Problem Gamblers'. This category also included those who perceived themselves as gamblers and who reported gambling less than five times on all gambling activities as well as those who perceive themselves as gamblers and who had a score of zero on the CPGI. Finally, those who perceive themselves as gamblers and who have reported gambling more than five times on at least one gambling activity have been categorized according to their score on the CPGI – 'Non-Problem Gamblers' (CPGI score = 0), 'Gamblers at Risk for Problems' (CPGI score =1-2),

‘Gamblers with Moderate Problems’ (CPGI score =3-7), and ‘Gamblers with Severe Problems’ (CPGI score =8 or more). One last difference concerns the wording of the question concerning the gambling activities. In the CCS, respondents were asked to report their gambling activities since the beginning of the school year – spanning a period of six to eight months – whereas for the CCHS, respondents were asked to report on their gambling activities during the last 12 months. In sum, differences in the methodology of the two surveys are important to take into consideration when interpreting differences between the CCHS and the CCS as they may create distortions in the data and affect the results.

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Table 6.1 Prevalence of Gambling and Specific Gambling Activities during Past School Year by Gender, Year of Study, Living Arrangement, Region and Extracurricular Orientation among Canadian Undergraduates (N=6,282), 2004

	Gamblers		Lottery or raffle tickets		Slot machine or video lottery		Betting horse or dog races		Betting sports event		Card, dice or other games		Betting with a bookie		Internet betting/gambling		Casino gambling	
	N = 3726		N = 3383		N = 1419		N = 217		N = 596		N = 1016		N = 46		N = 79		N = 1141	
	%		%		%		%		%		%		%		%		%	
	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR
Total	61.5	-	51.0	-	22.7	-	3.7	-	10.8	-	17.7	-	0.8	-	1.5	-	19.2	-
	(58.5-64.4)		(48.1-54.0)		(19.7-26.0)		(2.9-4.9)		(9.5-12.3)		(16.0-19.6)		(0.5-1.2)		(1.1-2.0)		(16.6-22.2)	
Gender	ns		*		ns		***		***		***		***		***		***	
Men	62.2	1.0	48.8	0.8*	23.9	1.1	5.1	2.0***	19.4	5.8***	25.8	2.7***	1.6	14.2***	3.5***	24.3	1.8***	
	(57.8-66.3)		(44.5-53.1)		(20.4-27.9)		(3.9-6.6)		(16.9-22.1)		(22.8-29.2)		(1.0-2.6)		(1.7-3.7)		(21.4-27.5)	
Women	61.0	Ref	52.8	Ref	21.8	Ref	2.7	Ref	4.0	Ref	11.3	Ref	0.1	Ref	0.7	Ref	15.2	Ref
	(58.6-63.4)		(50.2-55.4)		(18.9-25.0)		(1.9-3.7)		(3.3-4.7)		(9.7-13.1)		(0.0-0.4)		(0.5-1.1)		(12.6-18.3)	
Year of Study	***		**		***		ns		ns		ns		ns		ns		***	
First	57.2	Ref	45.6	Ref	17.0	Ref	3.0	Ref	11.5	Ref	19.0	Ref	0.7	Ref	1.2	Ref	13.6	Ref
	(53.0-61.3)		(40.9-50.5)		(13.3-21.4)		(1.8-4.8)		(9.3-14.2)		(15.9-22.6)		(0.3-1.5)		(0.7-2.0)		(10.6-17.3)	
Second	59.6	1.1	49.6	1.2	26.0	1.7***	4.4	1.6	9.6	0.8	16.3	0.8	0.7	1.1	1.3	1.1	19.8	1.6**
	(55.4-63.6)		(45.6-53.6)		(22.2-30.0)		(3.1-6.3)		(7.3-12.4)		(13.9-18.9)		(0.3-1.6)		(0.5-2.8)		(15.9-24.5)	
Third	62.9	1.3**	52.1	1.3**	23.5	1.5**	4.4	1.5	10.6	0.9	17.5	0.9	0.7	1.0	2.1	1.7	22.1	1.8***
	(58.9-66.7)		(48.4-55.7)		(19.4-28.3)		(3.1-6.2)		(8.6-13.1)		(14.8-20.7)		(0.3-1.9)		(1.3-3.6)		(17.9-27.1)	
Fourth or more	67.9	1.6***	58.6	1.7***	26.2	1.7***	3.3	1.1	11.3	1.0	17.9	0.9	1.1	1.6	1.5	1.2	23.0	1.9***
	(64.4-71.2)		(53.5-63.4)		(23.0-29.7)		(2.0-5.6)		(9.3-13.7)		(15.4-20.6)		(0.5-2.1)		(0.8-2.6)		(20.2-26.2)	
Living Arrangement	ns		ns		ns		ns		**		ns		ns		**		ns	
On campus	57.3	0.9	45.3	0.8	18.1	0.8	3.4	0.9	12.9	1.1	19.8	1.1	0.5	0.4	2.5	3.0***	16.2	0.9
	(51.6-62.9)		(39.6-51.1)		(14.2-22.7)		(2.3-5.1)		(10.0-16.5)		(16.5-23.6)		(0.2-1.1)		(1.6-4.0)		(12.5-20.6)	
Off Campus with family	62.8	Ref	52.4	Ref	24.6	Ref	3.9	Ref	12.1	Ref	18.6	Ref	1.1	Ref	1.0	Ref	20.6	Ref
	(59.7-65.8)		(49.0-55.7)		(21.1-28.5)		(2.6-5.7)		(10.1-14.4)		(16.4-21.0)		(0.5-2.3)		(0.6-1.5)		(17.3-24.4)	
Off Campus without family	62.1	0.9	52.2	0.9	22.9	0.9	3.8	1.0	8.7	0.7***	16.1	0.9	0.6	0.6	1.6	1.5	19.4	0.9
	(57.8-66.3)		(48.3-56.1)		(19.2-27.2)		(2.5-5.7)		(7.2-10.4)		(13.4-19.3)		(0.3-1.2)		(1.1-2.3)		(16.4-22.7)	

Con't....

Region	Gamblers		Lottery or raffle tickets		Slot machine or video lottery		Betting horse or dog races		Betting sports event		Card, dice or other games		Betting with a bookie		Internet betting/gambling		Casino gambling	
	N = 3726		N = 3383		N = 1419		N = 217		N = 596		N = 1016		N = 46		N = 79		N = 1141	
	%		%		%		%		%		%		%		%		%	
	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR
	**		**		ns		*		***		**		ns		ns		ns	
British Columbia	56.8 (53.0-60.5)	0.8**	50.3 (46.7-53.9)	0.9	18.7 (14.8-23.4)	0.8	1.7 (0.9-3.4)	0.6	8.4 (7.3-9.6)	0.7**	15.2 (11.2-20.4)	0.8	0.3 (0.1-1.4)	0.5	1.5 (0.7-3.2)	1.1	15.2 (12.8-17.9)	0.8
Prairies	61.1 (55.4-66.5)	0.9	49.2 (41.5-56.9)	0.9	26.9 (20.5-34.5)	1.2	3.3 (2.5-4.2)	1.1	14.0 (11.7-16.7)	1.4*	20.5 (17.1-24.5)	1.2	1.1 (0.3-4.5)	1.6	0.9 (0.4-2.2)	0.7	19.5 (16.0-23.5)	1.0
Ontario	61.4 (56.2-66.3)	1.0	49.8 (45.8-53.8)	0.9	23.7 (18.3-30.0)	1.1	5.2 (3.7-7.3)	1.8**	11.0 (9.4-12.8)	1.0	18.9 (16.2-22.0)	1.1	0.8 (0.5-1.5)	1.2	1.9 (1.2-3.0)	1.4	21.1 (16.3-26.8)	1.2
Quebec	59.5 (54.3-64.5)	0.9	49.2 (42.5-55.8)	0.9	17.6 (14.2-21.6)	0.8	2.3 (1.4-3.7)	0.8	7.8 (5.7-10.7)	0.7**	13.4 (10.9-16.3)	0.7**	0.6 (0.3-1.4)	0.9	0.9 (0.6-1.4)	0.7	16.8 (12.9-21.4)	0.9
Atlantic	71.9 (65.7-77.4)	1.5***	63.1 (57.1-68.7)	1.5***	26.6 (19.9-34.5)	1.2	3.5 (1.0-11.3)	1.2	13.5 (9.0-19.9)	1.5*	19.8 (16.8-23.1)	1.3**	0.9 (0.5-1.4)	1.3	2.0 (1.2-3.4)	1.5	20.7 (12.0-33.4)	1.1
Extracurricular Orientation	***		*		*		**		***		*		*		***		***	
A-oriented	60.7 (57.3-64.0)	1.4**	50.7 (47.1-54.3)	1.3*	23.0 (19.9-26.3)	1.4*	3.3 (2.4-4.5)	1.7	8.4 (7.2-9.8)	1.6*	15.2 (13.6-16.9)	1.1	0.5 (0.3-0.9)	4.3	1.3 (0.9-1.9)	1.0	18.1 (15.3-21.3)	1.4*
Intellectually-oriented	51.9 (46.4-57.4)	Ref	44.9 (39.7-50.3)	Ref	18.1 (14.4-22.5)	Ref	1.9 (1.0-3.5)	Ref	5.0 (3.1-7.7)	Ref	13.5 (9.6-18.6)	Ref	0.1 (0.01-0.8)	Ref	1.1 (0.5-2.7)	Ref	13.3 (10.7-16.3)	Ref
Recreationally-oriented	66.9 (61.8-71.6)	1.9***	53.3 (49.2-57.4)	1.5**	24.3 (20.1-29.1)	1.5**	6.2 (4.6-8.4)	3.2**	20.2 (16.6-24.3)	3.7***	26.3 (21.8-31.3)	1.9**	1.5 (0.8-2.8)	10.3*	1.6 (0.8-2.9)	1.0	24.5 (20.5-29.1)	2.0***
Bi-oriented	66.7 (62.2-70.9)	1.9***	55.1 (49.4-60.7)	1.6**	24.1 (18.6-30.6)	1.5**	4.0 (2.4-6.6)	2.1*	13.5 (10.5-17.3)	2.6***	21.1 (16.1-27.1)	1.6	1.9 (0.9-4.1)	16.2*	2.9 (1.6-5.1)	2.3	22.6 (17.3-29.0)	1.9***

Notes: ns not significant; * p <.05; ** p <.01; *** p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Table 6.2 Severity of Gambling Problems by Gender, Year of Study, Living Arrangement, Region, Extracurricular Orientation among Canadian Undergraduates who have Reported Gambling during the Past School Year, 2004

	Non-Problem Gamblers		Gamblers at risk for problems			Gamblers with moderate or severe problems		
	%	95%CI	%	95%CI	OR	%	95%CI	OR
	N = 3085		N = 455			N = 186		
Total	80.7	78.7-82.5	13.2	11.7-14.8	-	6.2	5.2-7.4	-
Gender					***			***
Men	72.1	69.6-74.4	17.1	15.3-19.0	2.1 ***	10.9	8.9-13.2	6.1 ***
Women	87.9	85.5-90.0	9.9	8.1-12.0	-	2.2	1.6-3.0	-
Year of Study					*			*
First	77.0	73.2-80.5	15.5	12.5-19.0	-	7.5	5.1-10.8	-
Second	81.1	77.4-84.3	13.1	10.6-16.0	0.8	5.8	4.2-8.0	0.8
Third	81.9	78.0-85.3	12.0	9.3-15.3	0.7	6.1	4.1-9.0	0.7
Fourth or more	82.9	80.1-85.5	12.0	10.2-14.0	0.7 *	5.1	3.7-7.0	0.6 *
Living Arrangement					ns			ns
On campus	77.2	73.3-80.7	15.0	11.4-19.4	1.1	7.8	5.2-11.5	1.2
Off Campus with family	80.1	77.1-82.8	13.5	11.1-16.2	-	6.5	4.7-8.8	-
Off Campus without family	82.5	79.6-85.1	12.2	10.0-14.9	0.9	5.2	3.5-7.8	0.9
Region					***			***
British Columbia	82.1	79.2-84.7	12.9	11.2-14.9	1.0	5.0	3.4-7.2	0.9
Prairies	80.5	73.6-86.0	11.9	7.8-17.7	0.9	7.6	5.8-9.9	1.3 *
Ontario	79.1	76.1-81.8	13.8	11.4-16.5	1.1	7.2	5.6-9.1	1.3
Quebec	85.3	81.9-88.2	11.6	9.5-14.1	0.8 *	3.1	2.2-4.4	0.5 ***
Atlantic	78.3	74.3-81.8	15.4	13.5-17.5	1.3 ***	6.3	3.6-10.7	1.3
Extracurricular Orientation					**			**
A-oriented	84.1	81.3-86.6	10.9	8.6-13.8	0.7	5.0	3.8-6.6	1.0
Intellectually-oriented	82.0	76.5-86.4	13.8	10.4-18.2	-	4.2	2.2-7.8	-
Recreationally-oriented	74.9	69.3-79.7	16.4	12.8-20.7	1.1	8.7	6.1-12.3	1.5
Bi-oriented	74.0	68.1-79.2	17.3	13.3-22.2	1.2	8.6	5.6-13.1	1.8

Notes: ns not significant; * p <.05; ** p <.01; *** p < .001; Ref, reference group; Region contrasts versus national average; OR=odds ratio; OR's adjust for sex and year of study.

Table 6.3 Prevalence of Gambling Problem Indicators (CPGI) by Severity of Gambling Problems, Canadian Undergraduates, 2004

	Reported problems		Gamblers at risk for problems N = 455		Gamblers with moderate or severe problems N = 185	
	%	95%CI	%	95%CI	%	95%CI
	Try to win back the money you lost	9.3	8.2-10.6	53.9	48.2-59.5	46.1
Bet more than you could afford to lose	8.0	6.6-9.7	46.3	39.6-53.1	53.7	46.9-60.4
Felt guilty about the way you gamble	6.5	5.3-7.8	41.0	31.5-51.2	59.0	48.8-68.5
Needed to gamble larger amounts of money to get same feeling of excitement	5.8	4.9-6.8	37.4	28.5-47.3	62.6	52.7-71.5
People criticized your betting/ told you you have a gambling problem	4.5	3.6-5.6	24.0	14.8-36.4	76.0	63.6-85.2
Felt you might have problem with gambling	4.4	3.6-5.3	17.0	10.8-25.8	83.0	74.2-89.2
Borrowed money or sold anything to gamble	2.7	2.1-3.5	33.7	22.4-47.1	66.4	52.9-77.6
Gambling caused you health problems (stress or anxiety)	2.3	1.8-3.0	18.3	9.1-33.5	81.7	66.5-90.9
Gambling caused you financial problems for you or your household	2.1	1.6-2.7	14.1	6.3-28.4	86.0	71.6-93.7

Table 6.4 Prevalence of Gambling, Average Number of Reported Gambling Activities and Severity of Gambling Problems among Canadian Undergraduates (CCS 2004, N=6,282), and a Sub-Sample of Non-students Aged 20-24 (Canadian Community Health Survey, N=1,841)

	MEN				WOMEN				POPULATION TOTAL			
	CCHS N = 962		CCS N = 2248		CCHS N = 879		CCS N = 4034		CCHS N = 1841		CCS N = 6282	
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
Gamblers	77.0	73.6-80.5	62.2	57.8-66.3	69.9	65.7-74.1	61.0	58.6-63.4	73.6	70.9-76.3	61.5	58.5-64.4
	Mean		Mean		Mean		Mean		Mean		Mean	
Number of reported gambling activities	1.5	1.3-1.6	1.5	1.4-1.7	1.1	1.0-1.2	1.1	0.1-1.2	1.3	1.2-1.4	1.3	1.2-1.4
Type of Gamblers^a	N = 962		N = 2186		N = 879		N = 3845		N = 1840		N = 6031	
Not gambled ^b	20.5	16.0-24.9	38.7	34.5-43.1	27.5	22.4-32.6	40.8	38.3-43.3	23.8	20.6-27.1	39.8	36.8-42.9
Non-Pathological Gamblers ^c	51.1	45.6-56.7	44.2	41.1-47.3	51.1	45.6-56.6	52.1	50.1-54.0	51.1	47.2-55.0	48.5	46.4-50.7
Gamblers at risk for problems	4.4	2.3-6.5	10.5	9.2-11.9	3.5	1.5-5.5	5.9	4.7-7.3	4.0	2.5-5.5	7.9	6.8-9.2
Gamblers with moderate problems	2.9	1.2-4.6	4.5	3.3-6.2	1.2	0.0-2.4	1.2	0.8-1.6	2.1	1.1-3.1	2.7	2.0-3.5
Gamblers with severe problems	1.1	0.0-2.2	2.1	1.4-3.3	0.3	0.0-0.9	0.1	0.1-0.4	0.7	0.1-1.3	1.0	0.7-1.6
Non-gamblers ^d	20.0	15.7-24.3			16.4	12.4-20.3			18.3	15.4-21.2		

^a An additional category labelled Non-Gamblers was added in the CCHS. Any difference between the CCHS and the CCS should be interpreted with precaution as the criteria for assigning gamblers in the categories differ between the two surveys.

^b This category includes, both in the CCS and the CCHS, respondents who did not report any gambling activity.

^c In the CCS, this category includes those who have a score of 0 on the CPGI. For the CCHS, this category also includes respondents who had reported Gambling less than five times during the last 12 months on all the gambling activities.

^d This category includes respondents who perceive themselves as non-gamblers and who have reported having gambled more than 5 times on at least one activity. These respondents gambled frequently enough to be asked the problem gambling questions but were not asked these questions because, when asked the first problem gambling question, objected that "I do not gamble".

Chapter 7

The Campus Environment

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This chapter addresses several campus environmental factors, and their relationships to alcohol consumption and related behaviours and attitudes.

Measures used in this chapter

Measures	Description
Attendance at campus events	Q24a-Q24d
Awareness of campus alcohol interventions	Q26a-Q26e
Opinion and beliefs about policy options	<p><u>General Control:</u></p> <ul style="list-style-type: none">-- University administration should exercise more control over alcohol use (Q27a)-- There should be more alcohol-free social events or activities (Q27b)--Alcohol should be sold at campus sports events (Q27c)-- Increasing the price of alcohol served on campus pubs and at campus activities would decrease consumption (Q27i)-- The drinking age should be increased (Q27k)-- There should be more advertising against drinking (Q27l)--Ban advertisements of alcohol availability at campus events and parties (Q27m) <p><u>Campus Security:</u></p> <ul style="list-style-type: none">-- Campus police should conduct more spot checks for alcohol use (Q27d)-- Campus police should conduct more spot checks for drug use (Q27e)-- Students caught dealing drugs should be expelled (Q27f)-- Serving staff at campus functions where alcohol is served should refuse to serve customers who are intoxicated (Q27j)

Con't....

Measures	Description
	<u>Education/Prevention</u> -- There should be more alcohol education programs (Q27g) -- There should be more drug education programs (Q27h)
Norms	<u>Campus alcohol norms:</u> -- Students here admire drinkers (Q32a) -- It's important to show how much you can drink and still hold your liquor (Q32b) -- You can't make it socially without drinking (Q32c) -- Drinking is an important part of university experience (Q32d) <u>Perceptions of alcohol regulations:</u> -- Rules about drinking are almost never enforced (Q32e) -- Alcohol is easily available on campus (Q32f) -- Alcohol use is a problem for students on my campus (Q32g)

In addition, we present the prevalence rates for many of these measures according to students' drinking typology, heavy episodic drinking, as well as by gender, year of study, living arrangement, region of the country, and extracurricular orientation.

Attendance at Alcohol Campus Events.....(Tables 7.1, 7.2 & 7.3)

Table 7.1 presents two types of information. Part A in the upper panel shows the percentage of students attending specific types of alcohol-related events on campus in the 30 days prior to the survey, for the total sample, and by gender. Overall, the types of events that attract the majority of students are promotions of low cost drinks, with a quarter (25.1%) of students likely to attend such events. This is followed by attendance at Happy Hours (15%), at beer company promotions (12%), and finally at events that have unlimited drinking after paying a cover charge (7%). Males are more likely to attend each of these types of alcohol events, with the exception of those events that offer unlimited drinking for one cover charge. This finding is a little incongruous, insofar as males tend to drink more and would get a "bigger bang for the buck" at this type of event. It is interesting to note that a number of provinces prohibit Happy Hour events, which may have influenced the relatively low attendance at these events. In addition, special promotions by beer companies, in which alcohol is freely distributed, are prohibited across the country, and sponsorship of alcohol-specific events by the beverage alcohol industry is also prohibited in most provinces. It would be interesting to determine, in detail, the types of beer company promotion events that 12% of students attend, given the general illegality of these types of events.

Part A of Table 7.2 presents the same attendance data by students' drinking typology. The data show the percentages of students within each typology who indicated that they had attended such an event. Within each drinking typology, attendance is highest at bars with low priced promotions, presumably for low priced alcohol products. Across the typologies, attendance is lowest at bars that provide unlimited alcohol for an initial cover charge. Attendance at happy hours and at beer company promotions fall in-between the other types of events. It is interesting to speculate about the percentages within each typology who indicated that they had attended alcohol-related events that are, for all intents and purposes, illegal in many jurisdictions. It would be easy to speculate that these responses are exaggerated, but the fact that the patterns across typologies, with larger percentages of frequent drinkers reporting attendance at each of these events suggest that there is validity to these responses. It appears that a great deal of illegal alcohol promotion is occurring on the campuses across the country.

Table 7.3 shows that attendance at these events is associated with heavy alcohol use. Regardless of gender, students who report attendance at an alcohol-related event are more likely to report consuming 5

or more drinks on a single occasion at least once in the past month. For example, 78.4% of those who attended a happy hour event report heavy drinking compared to 56% of students who did not attend a happy hour event. It appears that heavy episodic drinkers are more likely to seek out or find themselves at these events than non-heavy episodic drinkers – although the majority of those not attending such events also are 5+ drinkers.

Awareness of Alcohol Interventions On Campus (Tables 7.1 & 7.2)

Universities are typically involved with alcohol awareness and education programs that aim to reduce alcohol use or related harms among students. Students were asked whether or not they had been exposed to five types of alcohol-related interventions or activities on campus since the beginning of the school year. Table 7.1 (Panel B) presents students’ awareness (or recall) of these interventions on their campus broken down by gender. Among the five activities, students are most likely to be exposed to alcohol-related posters or signs around the university (52%). This is followed by announcements in student newspapers (29%), mailings or handouts (15%), attending lectures, meetings or workshops (5%), and by attending special courses (2%). With the exception of recalling articles in student newspapers -- where a larger percentage of men than women report having seen the articles -- there are no significant gender differences.

Table 7.2 (Panel B) presents these same data according to drinking typology. The results indicate the percentages of students within each typology who attend or are aware of an alcohol education activity on campus. Within each typology, the pattern of awareness or exposure is very similar. The highest percentages are for passive activities – those that require little effort – while the lowest percentages are for activities in which students have to participate. Specifically, students are most likely to be aware of posters or signs, followed by reading announcements or articles in the student newspapers, followed by having received mailings or handouts. Students are least likely to attend a lecture or meeting or take a special course on alcohol.

Opinions and Beliefs About Alcohol Policy Options(Tables 7.4A, 7.4B & 7.5B)

Table 7.4A shows opinions and beliefs about alcohol issues on campus for the entire sample. Based on an exploratory factor analysis, these items are grouped into three factors - issues of general control, campus security/policing and education/prevention.

Regarding general control issues, we see that about one-third hold neutral attitudes about alcohol controls. Generally students are more likely to favour less alcohol control. For example, a sizeable percentage strongly disagree or disagree with the following statements: the drinking age should be increased (69%); increasing the price of alcohol on campus would decrease consumption (59%); advertisements of alcohol availability should be banned (50%); university administration should exercise more control over alcohol use (43%); and alcohol should be sold at campus sports events (41%).

However, a majority of students endorse aspects of campus security and enforcement. Over half of students agree or strongly agree with the following statements: serving staff at campus functions should refuse intoxicated customers (66%); students caught dealing drugs should be expelled (63%); campus police should conduct more spot checks for alcohol (54%) or drug use (54%).

In contrast to the issue of control and policing, attitudes regarding substance use education and prevention are fairly neutral, with 51% and 43% being neutral regarding education programs on campus.

Table 7.4B presents students' opinions about what may be appropriate alcohol policies for campuses according to gender, year of study, living arrangement, region of the country and extracurricular orientation. Again, responses to the policy options were collapsed into the same three broad categories: general control policies, security/policing policies, and education/prevention policies.

With respect to the three policy options, women have more positive attitudes with respect to each of the three policy categories than do men. First year students have the least positive attitudes towards the security/policing option, but show no differences with respect to the other two options. Increased policing may be an issue for first year students because many of them may be underage and increased policing may mean less availability. Certainly the fact that upper year students have attitudes that are more positive suggests that this may be the case. Students who live off campus with their families are most supportive of security/policing policies, while students who live off campus without their families are more supportive of education/prevention policies than those living on campus, perhaps because students in university housing are more likely to be exposed to these education programs in their residences and are more reactive. There were no differences in general control policies by living arrangement. There was one regional effect with respect to the policy options. Students from the Prairies are most supportive of security/policing policies, conceivably because of the generally more conservative attitudes in this region of the country, while students from Quebec are least favorable towards security/policing policies, conceivably because of the general attitude towards less intervention that exists in Quebec.

For each of the three policy options, there was an effect of extracurricular orientation and in each case a similar pattern was found. Those who are intellectually-oriented, regardless of their degree of recreational orientation, are most supportive of these policy options. Students who are not intellectually-oriented but are recreationally-oriented tend to have the least positive attitude towards these policies.

Table 7.5B presents these same data broken down by drinking typology. For each of the three policy options, a consistent pattern was found: Heavy/Frequent drinkers are least likely to endorse any of the three policy options, followed by Light/Frequent drinkers, Heavy/Infrequent drinkers, Light/Infrequent drinkers, past 12 month abstainers, and then by lifetime abstainers who are most supportive of the policy options.

Alcohol Norms and Regulations (Tables 7.4B, 7.5A, 7.5B & 7.6)

Table 7.5A shows student norms regarding alcohol for the entire sample. Based on an exploratory factor analysis, these items are grouped into two factors – campus alcohol norms and perceptions of alcohol regulation.

Despite the popular image of the dominance of alcohol on campuses, only a minority of students shows strong pro-alcohol norms. Most notably, a minority agrees or strongly agrees with the following statements about their campus: students here admire drinkers (8%); it's important to show how much you can drink and still hold your liquor (17%); and you can't make it socially without drinking (16%). Still, there is substantial variation in the overall perception of the importance of drinking as part of the university experience. When asked whether "drinking is an important part of university experience", 34% agreed, while 44% disagreed and 22% were neutral.

Perceptions of campus alcohol regulations are also shown in Table 7.5A. Perhaps the most notable finding here is that only 14% of students agree or strongly agree that alcohol use is a problem on their campus (with 47% disagreeing or strongly disagreeing and 39% being neutral).

Table 7.4B presents opinions about the alcohol norms and regulations for their campuses according to gender, year of study, living arrangement, region of the country and extracurricular orientation. As above,

responses to the specific questions in this section were collapsed into two broad categories: alcohol norms (perceptions about the extent to which their campuses are pro-alcohol) and alcohol regulations (perceptions about the extent to which alcohol regulations are enforced on their campuses).

Men perceive their campuses to be more pro-alcohol than do women. There are no differences in perceptions about the degree to which alcohol regulations are enforced on their campuses.

There are no differences based on year of study for either of these measures.

Students living on campus perceive their campuses to be more pro-alcohol than do students living off campus without their families. Students living with their families are least likely to feel that their campuses have pro-alcohol norms. In addition, students living on campus are least likely to feel that their campuses enforce alcohol regulations.

There are no regional differences with respect to perceptions about the alcohol norms on campus. However, with respect to perceptions about the enforcement of alcohol regulations on their campuses, students in Ontario are the least likely to feel that their campuses enforce alcohol regulations, while students in the Prairies are most likely to feel that their campuses enforce alcohol regulations.

Students who are recreationally-oriented, regardless of their intellectual orientation, are more likely to perceive their campuses to have pro-alcohol norms compared to those who are not recreationally oriented, regardless of their intellectual orientation. On the other hand, students who are not intellectually-oriented, and recreationally-oriented, are least likely to believe that alcohol regulations are enforced on their campuses.

Table 7.5B presents the data on perceptions about pro-alcohol norms and alcohol regulation enforcement broken down by drinking typology. Heavy/Frequent drinkers are most likely to perceive their campuses as having a pro-alcohol environment. In decreasing order, they are followed by Light-Frequent drinkers, Heavy-Infrequent drinkers, Light-Infrequent drinkers, past 12 month abstainers, and finally by lifetime abstainers who are least likely to perceive their campuses as being pro-alcohol. With respect to alcohol regulation enforcement, Heavy/Frequent drinkers are least likely to believe that alcohol regulations are enforced on their campuses, followed by Heavy-Infrequent drinkers, then Light/Frequent drinkers, Light-Infrequent drinkers, lifetime abstainers, and then past 12 month abstainers. Overall, the typology breakdowns suggest that frequent drinkers find the campus environment more conducive to their drinking, and that heavy drinkers believe that the alcohol policies on their campuses are not enforced.

Student Residence (Table 7.6)

Among all students, only 3.9% currently live in specially designated alcohol-free university housing, and an additional 15.3% of those currently not living in such housing would like to live somewhere where alcohol is prohibited. Just under one-quarter, (22.9%) of the students currently live in specially designated smoke-free university housing and an additional 69.4% would like to live in a smoke-free environment (see Table 7.6). Because of the manner in which the questions were asked, we cannot state that the preferred housing that is either alcohol-free or tobacco-free is university housing. Their preference may refer to off-campus housing. However, it is interesting, nonetheless, that approximately 20% of the students either live in alcohol-free dorms or would like to live in an alcohol-free environment somewhere, and that about 82% of the students want some form of tobacco-free environment in which to live. There appear to be opportunities to create this type of housing that would entice significant proportions of the student population.

Safe Alcohol Consumption

Students were asked what they thought was a safe amount of alcohol for males and females to consume at a single drinking occasion. There was no significant gender difference regarding a safe consumption level for female drinkers, both groups feel that about 3.7 drinks per occasion is safe. However, males and females have different views about what is a safe consumption level for male drinkers: male students think that they and their peers can drink more alcohol safely per occasion (5.2 drinks) than do female students (5.0 drinks), although the difference is not terribly large. Both male and female students believe that males can drink more per occasion safely than can females.

Table 7.1 Students' Attendance at Alcohol Campus Events and Awareness of Alcohol Interventions On Campus by Gender, Canadian Undergraduates, 2004

	Total		Men		Women		Gender difference
	%	95%CI	%	95%CI	%	95%CI	
A. Past month attendance							
Happy Hours	14.5	12.0-17.4	18.0	14.7-21.9	11.8	9.5-14.6	***
Low priced promotions at bar	25.1	22.3-28.1	27.3	23.6-31.3	23.3	20.7-26.2	*
Special promotions by beer companies	12.2	10.4-14.4	16.7	14.1-19.7	8.8	7.2-10.8	***
Cover charge for unlimited drinks at a bar	7.0	5.7-8.5	7.5	5.8-9.7	6.6	5.5-7.9	ns
B. Campus alcohol interventions since beginning of school year							
Attended lecture, meeting or workshops	5.5	4.5-6.6	5.8	4.4-7.6	5.2	4.2-6.4	ns
Received mailings or handouts	15.0	12.7-17.6	14.5	11.7-17.8	15.4	13.0-18.2	ns
Seen posters or signs	51.6	47.7-55.5	50.7	46.5-54.8	52.3	48.1-56.5	ns
Read announcements or articles in students newspapers	29.3	23.9-31.0	31.8	28.3-35.5	27.3	23.9-31.0	**
Taken a special college course on alcohol and other student life issues	2.1	1.6-2.8	2.1	1.3-3.2	2.2	1.7-2.8	ns

Notes: p < .05; **p < .01; ***p < .001
 ns = not significant

Table 7.2 Students' Attendance at Alcohol Campus Events and Awareness of Alcohol Interventions On Campus by Drinkers' Typology, Canadian Undergraduates, 2004

	Drinkers' Typology											
	Lifetime abstainer		Past 12 months abstainer		Light/Infrequent drinker		Light/Frequent drinker		Heavy-Infrequent drinker		Heavy/Frequent drinker	
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI
A. Past month attendance												
Happy Hours	-	-	-	-	7.7	5.9 - 10.0	19.9	15.6 - 24.9	8.0	5.3 - 11.7	27.0	21.7 - 32.9
Low priced promotions at bar	-	-	-	-	11.6	10.3 - 12.9	28.5	24.1 - 33.3	22.1	18.6 - 26.0	52.5	47.1 - 57.7
Special promotions by beer companies	-	-	-	-	3.6	2.7 - 4.7	16.4	13.2 - 20.2	7.7	5.3 - 11.2	28.4	24.2 - 33.1
Cover charge for unlimited drinks at a bar	-	-	-	-	2.4	1.9 - 3.1	9.3	7.1 - 12.0	4.1	2.5 - 6.6	15.9	13.0 - 19.2
B. Campus alcohol interventions												
Attended lecture - meeting or workshops	10.8	7.8 - 14.8	4.9	2.7 - 8.9	4.2	3.2 - 5.6	3.9	2.9 - 5.4	5.6	4.0 - 7.7	7.1	5.6 - 9.1
Received mailings or handouts	22.5	17.5 - 28.4	11.0	7.3 - 16.1	13.7	11.3 - 16.6	13.1	10.1 - 17.0	15.8	11.8 - 20.8	16.1	12.8 - 20.0
Seen posters or signs	64.2	59.6 - 68.6	46.7	37.8 - 55.8	50.1	46.2 - 54.1	49.3	43.0 - 55.5	49.5	44.3 - 54.6	53.3	47.4 - 59.2
Read announcements or articles in students newspapers	44.2	40.0 - 48.5	25.2	19.2 - 32.4	28.4	24.3 - 33.0	25.8	20.7 - 31.6	26.2	21.5 - 31.6	30.8	26.9 - 35.1
Taken a special college course on alcohol and other student life issues	2.7	1.4 - 4.9	3.1	1.5 - 6.5	1.7	1.1 - 2.5	2.4	1.4 - 4.2	1.5	0.8 - 2.7	2.7	1.9 - 3.8

Table 7.3 Percentage Reporting 5+ Drinks on a Single Occasion in the Past 30 Days by Students' Attendance at Events On Campus, Canadian Undergraduates, 2004

	Total		Men		Women	
	%	95%CI	%	95%CI	%	95%CI
Past month attendance						
Happy Hours (row %)	***		***		***	
Yes	78.4	74.0-82.3	83.4	78.2-87.5	72.6	66.5-78.0
No	56.0	52.5-59.4	61.9	57.0-66.6	51.6	48.6-54.7
Low priced promotions at bar	***		***		***	
Yes	83.2	80.1-85.9	88.6	83.0-92.5	78.3	74.2-81.9
No	50.5	47.2-53.7	56.3	51.3-61.2	46.1	43.4-48.8
Special promotions by beer companies	***		***		***	
Yes	86.1	83.4-88.4	86.4	81.2-90.4	85.6	81.5-88.9
No	55.3	51.8-58.8	61.3	56.0-66.4	51.1	48.1-54.0
Cover charge for unlimited drinks at a bar	***		***		***	
Yes	84.5	79.3-88.6	84.8	77.8-89.9	84.3	77.0-89.6
No	57.4	54.0-60.8	64.3	59.9-68.5	52.1	48.9-55.2

Notes: * p < .05; **p < .01; ***p < .001
 ns = not significant

Table 7.4A Opinions and Beliefs About Policy Options and Alcohol Norms & Regulations On Campus, (Overall Percentages), Canadian Undergraduates, 2004

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
General Control					
University administration should exercise more control over alcohol use	14	29	37	15	5
There should be more alcohol-free social events or activities	10	24	35	22	9
Alcohol should be sold at campus sports events	14	27	31	22	6
Increasing the price of alcohol served on campus pubs and at campus activities would decrease consumption	23	36	14	21	6
The drinking age should be increased	34	36	20	7	4
There should be more advertising against drinking	7	20	43	24	7
Ban advertisements of alcohol availability at campus events and parties	15	35	34	11	5
Campus Security/Policing					
Campus police should conduct more spot checks for alcohol use	6	13	27	37	17
Campus police should conduct more spot checks for drug use	7	13	26	32	22
Students caught dealing drugs should be expelled	4	11	22	29	34
Serving staff at campus functions where alcohol is served should refuse to serve customers who are intoxicated	3	10	21	44	22
Education/Prevention					
There should be more alcohol education programs	2	10	51	32	5
There should be more drug education programs	2	8	43	38	9

Table 7.4B Opinions and Beliefs About Policy Options and Alcohol Norms and Regulations On Campus by Gender, Year of Study, Living Arrangement, Region and Extracurricular Orientation, Canadian Undergraduates, 2004

	<u>Policy Options</u>						<u>Alcohol Norms and Regulations</u>			
	General control policies		Security/policing policies		Education/prevention policies		Pro Alcohol norms		Alcohol regulations	
	Mean	95%CI	Mean	95%CI	Mean	95%CI	Mean	95%CI	Mean	95%CI
Total	1.7	1.7-1.8	2.6	2.6-2.7	2.4	2.3-2.4	1.7	1.7-1.8	2.0	1.9-2.0
Gender	***		***		***		***		ns	
Men	1.7	1.6-1.7	2.5	2.5-2.6	2.3	2.2-2.4	1.8	1.8-1.9	2.0	2.0-2.1
Women	1.8	1.7-1.8	2.7	2.6-2.7	2.4	2.4-2.5	1.7	1.6-1.7	2.0	1.9-2.0
Year of Study	ns		***		ns		ns		ns	
First	1.8	1.7-1.8	2.5	2.5-2.6	2.3	2.3-2.4	1.7	1.7-1.8	2.0	1.9-2.0
Second	1.8	1.7-1.8	2.7	2.6-2.7	2.4	2.3-2.5	1.7	1.7-1.8	2.0	1.9-2.0
Third	1.7	1.7-1.8	2.6	2.6-2.7	2.4	2.3-2.4	1.7	1.7-1.8	2.0	1.9-2.1
Fourth or more	1.7	1.6-1.8	2.7	2.6-2.7	2.4	2.4-2.4	1.7	1.7-1.8	2.0	2.0-2.1
Living Arrangement	ns		**		*		***		*	
On campus	1.7	1.6-1.7	2.5	2.4-2.6	2.3	2.3-2.4	1.8	1.8-1.9	1.9	1.9-2.0
Off campus with family	1.8	1.7-1.8	2.7	2.6-2.7	2.4	2.3-2.4	1.7	1.6-1.7	2.0	1.9-2.0
Off Campus family	1.7	1.7-1.8	2.6	2.5-2.7	2.4	2.4-2.4	1.7	1.7-1.8	2.0	2.0-2.1
Region	ns		***		ns		ns		***	
British Columbia	1.7	1.7-1.8	2.6	2.5-2.7	2.4	2.3-2.4	1.6	1.6-1.8	2.0	1.9-2.2
Prairies	1.8	1.7-1.9	2.7	2.7-2.8	2.3	2.2-2.4	1.7	1.7-1.7	2.1	2.1-2.1
Ontario	1.7	1.6-1.7	2.6	2.5-2.7	2.4	2.3-2.4	1.8	1.7-1.8	1.9	1.9-2.0
Quebec	1.8	1.7-1.9	2.5	2.5-2.6	2.4	2.3-2.4	1.7	1.6-1.7	2.0	1.9-2.1
Atlantic	1.7	1.6-1.8	2.7	2.6-2.7	2.5	2.4-2.6	1.7	1.6-1.8	2.0	2.0-2.1

Continued.....

	<u>Policy Options</u>						<u>Alcohol Norms and Regulations</u>			
	General control policies		Security/policing policies		Education/prevention policies		Pro Alcohol norms		Alcohol regulations	
	Mean	95%CI	Mean	95%CI	Mean	95%CI	Mean	95%CI	Mean	95%CI
Extracurricular Orientation	***		***		***		***		***	
A-oriented	1.8	1.7-1.8	2.6	2.6-2.6	2.3	2.3-2.3	1.7	1.6-1.7	2.0	1.9-2.1
Intellectually oriented	2.0	2.0-2.1	2.9	2.8-3.0	2.7	2.6-2.7	1.6	1.6-1.7	2.1	2.0-2.2
Recreationally oriented	1.4	1.3-1.5	2.5	2.4-2.6	2.3	2.2-2.3	1.9	1.8-1.9	1.9	1.8-1.9
Bi-oriented	1.8	1.7-1.9	2.6	2.5-2.7	2.6	2.5-2.6	1.8	1.7-1.9	2.0	1.9-2.1

Notes: * p < .05; **p < .01; ***p < .001 ns = not significant

Table 7.5A Opinions and Beliefs About Policy Options and Alcohol Norms and Regulations On Campus, (Overall Percentages), Canadian Undergraduates, 2004

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Campus alcohol norms					
Students here admire drinkers	10	36	46	7	1
It's important to show how much you can drink and still hold your liquor	20	39	24	15	2
You can't make it socially without drinking	27	42	15	13	3
Drinking is an important part of university experience	15	29	22	30	4
Perception of alcohol regulations					
Rules about drinking are almost never enforced	5	24	52	16	2
Alcohol is easily available on campus	3	16	24	44	13
Alcohol use is a problem for students on my campus	11	36	39	11	3

Table 7.5B Opinions and Beliefs About Policy Options and Alcohol Norms and Regulations On Campus by Drinkers' Typology, Canadian Undergraduates, 2004

	Policy Options						Alcohol Norms and Regulations			
	General control policies		Security/policing policies		Education/prevention policies		Pro Alcohol Norms		Alcohol Regulations	
	Mean	95%CI	Mean	95%CI	Mean	95%CI	Mean	95%CI	Mean	95%CI
Total	1.7	1.7-1.8	2.6	2.6-2.7	2.4	2.3-2.4	1.7	1.7-1.8	2.0	1.9-2.0
Typology	***		***		***		***		***	
Lifetime abstainer	2.5	2.5-2.6	3.0	2.9-3.1	2.7	2.6-2.7	1.5	1.4-1.6	2.2	2.0-2.3
Past 12 months abstainer	2.4	2.3-2.5	3.0	2.9-3.1	2.6	2.5-2.7	1.6	1.4-1.7	2.2	2.1-2.3
Light/Infrequent drinker	1.9	1.8-1.9	2.8	2.7-2.8	2.5	2.4-2.5	1.6	1.6-1.7	2.0	2.0-2.1
Light/Frequent drinker	1.5	1.4-1.5	2.4	2.3-2.5	2.3	2.2-2.3	1.8	1.7-1.9	2.0	1.9-2.0
Heavy-Infrequent drinker	1.6	1.5-1.6	2.5	2.5-2.6	2.3	2.2-2.4	1.8	1.7-1.8	1.9	1.9-2.0
Heavy/Frequent drinker	1.2	1.1-1.3	2.2	2.1-2.2	2.1	2.1-2.2	2.0	1.9-2.0	1.9	1.8-1.9

Table 7.6 Alcohol-free and Smoke-free Residential Status, Canadian Undergraduates, 2004

Question	Yes		No	
	%	95%CI	%	95%CI
Among all students				
Lives in specially designated campus alcohol-free residence	3.9	3.2-4.7	96.1	95.3-96.8
Not living in campus alcohol-free type of housing but would like to do so	15.3	13.6-17.1	84.8	82.9-86.4
Lives in specially designated campus smoke-free residence	22.9	19.3-27.1	77.1	72.9-80.7
Not living in campus smoke-free type of housing but would like to do so	69.4	67.0-71.6	30.6	28.4-33.0

Chapter 8

Changes Between 1998 and 2004

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This chapter describes changes in key substance use and mental health measures collected in 1998 and in 2004. Specifically, we compare alcohol use, hazardous and harmful drinking, cigarette use, illicit drug use, and elevated psychological distress in the 6-year interval separating the two surveys.

It is important to note that results presented in this chapter refer to two independent cross-sectional surveys of undergraduates, one conducted in 1998 (Gliksman et al., 2000) and the other conducted in 2004. Although the target population is comparable between the two surveys, other aspects, such as differences in response rates and survey mode, may introduce variation in both percentage estimates and their errors (see Chapter 1 for a description of sample differences).

Measures used in this chapter

Measure	Description
	Alcohol use
Past year drinking	"During the past 12 months, how often, on average, did you consume alcoholic drinks?", with the response "never" defined as negative and the responses ranging from "less than once a month" to "every day" defined as positive
Heavy frequent drinking	"During the past 12 months, on a single occasion, how many times did you have 5 or more drinks?", with the responses "weekly" or more often defined as positive and "less than weekly" defined as negative.
	Hazardous and Harmful Drinking
Hazardous or harmful drinking (AUDIT8+)	Percentage of respondents scoring 8 or more on the Alcohol Use Disorders Identification Test (AUDIT). (See Chapter 4 for a full description of the AUDIT)

Con't....

Measure	Description
AUDIT harms	Percentage reporting at least one of the 4 AUDIT harms - feeling guilty or remorse (Q21d) - experiencing memory loss after drinking (Q21e) - reporting an alcohol-related injury (Q21g) - others' expressing concern about their drinking (Q21h)
AUDIT dependence	Percentage reporting at least one of the 3 AUDIT dependence symptoms - being unable to stop drinking (Q21a) - failing to perform normal activities (Q21b) - needing a first drink in the morning (Q21c)
Cigarette Use	
Current smoking	Percentage of respondents who reported that they have smoked 100 or more cigarettes in lifetime <u>and</u> had smoked during past 30 days.
Other drug use	
Past year cannabis use	Percentage of respondents who reported that they used marijuana or hashish at least once in the past 12 months in response to the question: "When was the last time, if ever, that you used the marijuana or hashish?"
Past year illicit drug use other than cannabis	Percentage of respondents who reported that they used one or more of the following 8 drugs during the 12 months before the survey: crack cocaine, cocaine, amphetamines (methamphetamines, crystal meth, speed, uppers, ups), heroin, opiates, LSD, other hallucinogens (mushrooms, mescaline, PCP), or ecstasy.
Mental Health	
Elevated psychological distress	Percentage of respondents who scored 4 or more on the GHQ scale, indicating elevated psychological distress. (See Chapter 5 for details of the GHQ.)

Analysis of Change between 1998 and 2004

To assess any change between 1998 and 2004, we pooled the two surveys into a single data file represented by 6 strata (5 based on regions of the 1998 survey and 1 strata representing the 2004 survey) and the 61 campus primary sampling units (PSUs) (16 in 1998 and 45 in 2004) (Korn & Graubard, 1999). Wald tests were used to determine significant year effects. We fitted a model that included five main effects for year (1998 vs 2004), gender (men vs women), year of study (represented by 3 dummy variables), region (represented by 4 effect-coded contrasts) and mode (web vs mail, to control for potential mode differences), and three year interactions: year-by-gender (to assess differential year changes between men and women), year-by-study (to assess differential year changes according to year of study), and year-by-region (to assess differential year changes according to region). In the absence of a significant year interaction, a significant change from 1998 to 2004 would be indicated by a significant Wald test for the survey year main effect. Differential subgroup change (i.e., different changes among men and women) would be indicated by a significant year-by-subgroup interaction. If significant year main effects or year interactions were found, we also examined whether or not the confidence intervals for the 2004 prevalence estimate(s) overlapped with the 1998 confidence intervals, and if they did not, this was used to infer that changes in subgroups occurred between 1998 and 2004. (Note: confidence intervals that overlap suggest that the two estimates do not differ significantly.)

Results

Past Year Prevalence of Alcohol Use, Cigarette Use, and Other Drug Use (Table 8.1)

Only two drugs, hallucinogens and LSD, show statistically significant decreases and confidence intervals that do not overlap. Other hallucinogens declined from 8.2% in 1998 to 5.7% in 2004, and LSD declined from 1.8% to less than 1%. No other drug changed significantly between 1998 and 2004.

Table 8.1 Changes in Past Year Alcohol Use, Cigarette Use and Other Drug Use, Canadian Undergraduates, 1998 vs 2004

Measure	1998		2004		
	%	95%CI	%	95%CI	
Alcohol	86.5	84.0-88.6	85.7	83.2-87.9	
Cannabis	28.8	26.0-31.6	32.1	28.7-35.6	
Cigarettes	17.3	15.2-19.7	13.3	11.5-15.4	
Any illicit drug use (excluding cannabis)	10.3	9.0-11.8	8.7	7.3-10.3	
Other hallucinogens	8.2	7.0-9.6	5.7	4.6-6.9	*
Ecstasy	2.4	1.6-3.4	2.5	2.0-3.1	
Amphetamines	1.8	1.5-2.1	2.6	1.8-3.8	
LSD	1.8	1.3-2.6	s	s	*
Cocaine	1.6	1.3-2.00	2.1	1.5-3.0	
Anabolic steroids	s	s	s	s	
Crack	s	s	s	s	
Heroin	s	s	s	s	

Notes: *p < .05 significant difference between years
s – data suppressed

Changes in Alcohol Use and Hazardous and Harmful Drinking

Past-Year Alcohol Use.....(Table 8.2)

There are no statistically significant changes between 1998 and 2004 in the percentage of undergraduates who report consuming alcohol in the 12 months preceding each survey. Moreover, the absence of significant year interactions indicate that current drinking rates have also remained stable among student subgroups.

Table 8.2 Changes in Prevalence of Past Year Alcohol Use by Gender, Year of Study and Region, Canadian Undergraduates, 1998 vs 2004

	1998		2004		Within-group change '04 vs '98	Year interaction
	%	95%CI	%	95%CI		
Total	86.5	84.0-88.6	85.7	83.2-87.9	ns	
Gender						ns
Men	85.3	82.8 - 87.4	84.0	81.5 - 86.3		
Women	87.5	84.5 - 90.0	87.1	84.2 - 89.5		
Year of study						ns
First	84.9	81.3 - 87.9	82.3	77.5 - 86.2		
Second	85.6	83.5 - 87.4	85.3	82.1 - 88.0		
Third	86.8	84.5 - 88.9	87.5	84.8 - 89.7		
Fourth	88.9	84.5 - 92.1	88.9	86.1 - 91.2		
Region						ns
British Columbia	84.0	78.1 - 88.5	78.5	73.8 - 82.6		
Prairies	86.4	81.7 - 90.1	86.9	84.0 - 89.3		
Ontario	82.6	78.2 - 86.2	84.2	80.2 - 87.5		
Quebec	92.3	85.5 - 96.1	89.7	84.9 - 93.1		
Atlantic	92.2	91.7 - 92.7	90.9	88.5 - 92.9		

Notes. 'ns' refers to a non-significant Wald statistic for either a main effect for year or an interaction between survey year and other variables.

***p < .001; **p < .01; *p < .05

Heavy Frequent Alcohol Use..... (Table 8.3)

There are no statistically significant changes between 1998 and 2004 in the percentage of undergraduates who report consuming 5 or more drinks on a single occasion weekly or more often during the 12 months before each survey. Moreover, the absence of year interactions indicates that the prevalence of heavy frequent alcohol use was stable within the categories of gender, year of study and region.

Table 8.3 Changes in the Percentage of Heavy Frequent Drinking by Gender, Year of Study and Region, Canadian Undergraduates, 1998 vs 2004

	1998		2004		Within-group change '04 vs '98	Year interaction
	%	95%CI	%	95%CI		
Total	13.1	10.0-17.0	16.1	13.6-18.9	ns	
Gender						ns
Men	18.0	13.9-23.0	20.6	17.1-24.6		
Women	9.1	7.0-11.7	12.5	10.5-14.8		
Year of study						ns
First	13.6	9.4-19.1	17.6	14.3-21.4		
Second	13.6	10.2-17.9	15.7	12.8-19.1		
Third	12.5	9.9-15.6	15.3	12.4-18.7		
Fourth	12.9	9.3-17.6	15.4	12.1-19.4		
Region						ns
British Columbia	13.8	9.5-19.6	11.7	8.9-15.3		
Prairies	15.6	12.0-20.0	14.6	9.0-22.6		
Ontario	13.1	6.9-23.6	18.8	15.2-23.0		
Quebec	9.4	7.2-12.2	9.6	7.7-12.0		
Atlantic	17.0	12.0-23.5	24.5	19.0 - 31.0		

Notes. 'ns' refers to a non-significant Wald statistic for either a main effect for year or an interaction between survey year and other variables.

***p < .001; **p < .01; *p < .05

Hazardous or Harmful Drinking (AUDIT8+).....(Table 8.4)

There are no statistically significant changes between 1998 and 2004 in the percentage of undergraduates who drink at hazardous or harmful levels (8+ cut-off score on the Alcohol Use Disorders Identification Test (AUDIT)). In 1998, 30.0% (25.6% - 34.9%) met the AUDIT cut-off score of 8 or greater, compared to 32.0% (28.6% - 35.6%) for all 2004 respondents. Using a more conservative criterion for defining problem drinking (i.e., an AUDIT score of 11 or greater), these percentages were 15.1% (12.6%-17.9%) and 18.0% (15.7%-20.6%) for 1998 and 2004 respondents, respectively (data not tabulated). The absence of year interactions indicates that the prevalence of hazardous or harmful drinking was stable within the categories of gender, year of study and region.

Table 8.4 Changes in Alcohol Use Disorder Identification Test (AUDIT8+) by Gender, Year of Study and Region, Canadian Undergraduates, 1998 vs 2004

	1998		2004		Within-group change '04 vs '98	Year interaction
	%	95%CI	%	95%CI		
Total	30.0	25.6-34.9	32.0	28.6-35.6	ns	
Gender						ns
Men	36.9	32.8-41.2	37.6	33.6-41.8		
Women	24.3	19.8-29.4	27.5	24.3-31.0		
Year of study						ns
First	32.4	28.0-37.2	34.8	29.6-40.3		
Second	29.4	24.5-34.9	31.0	27.1-35.3		
Third	29.0	25.9-32.3	30.8	26.6-35.3		
Fourth	29.1	22.6-36.6	30.7	26.4-35.4		
Region						ns
British Columbia	27.9	20.3-37.0	26.7	21.7-32.3		
Prairies	35.7	28.2-44.0	29.4	25.7-33.5		
Ontario	29.0	19.6-40.7	33.4	28.2-39.0		
Quebec	24.1	23.2-25.0	26.6	21.6-32.4		
Atlantic	40.3	39.5-41.1	46.5	37.9-55.3		

Notes. 'ns' refers to a non-significant Wald statistic for either a main effect for year or an interaction between survey year and other variables.

***p < .001; **p < .01; *p < .05

AUDIT Harmful Drinking (Table 8.5)

There is no statistically significant change between 1998 and 2004 in the percentage of undergraduates who report at least one of the four AUDIT harm symptoms (feeling guilty, memory loss, injury concern of others). In 1998, 43.1% (39.4%-46.9%) of all respondents reported one or more harms compared to 43.9% (41.0%-46.9%) in 2004. The absence of year interactions indicates that the prevalence of AUDIT harmful drinking was stable within the categories of gender, year of study and region.

Table 8.5 Changes in Prevalence of AUDIT Harmful Drinking Symptoms, by Gender, Year of Study and Region, Canadian Undergraduates, 1998 vs 2004

	1998		2004		Within-group change '04 vs '98	Year interaction
	%	95%CI	%	95%CI		
Total	43.1	39.4 - 46.9	43.9	41.0 - 46.9	ns	
Gender						ns
Men	45.4	42.0 - 48.7	45.9	42.4 - 49.3		
Women	41.2	36.9 - 45.6	42.4	39.5 - 45.3		
Year of study						ns
First	46.3	42.4 - 50.2	45.0	40.4 - 49.6		
Second	42.0	36.8 - 47.5	43.5	39.4 - 47.8		
Third	41.5	39.4 - 43.6	42.7	39.0 - 46.5		
Fourth	42.5	40.0 - 49.2	44.2	40.2 - 48.3		
Region						ns
British Columbia	40.7	32.3 - 49.7	39.0	33.7 - 44.6		
Prairies	49.3	43.4 - 55.1	41.3	39.1 - 43.5		
Ontario	40.2	32.4 - 48.4	45.1	40.3 - 49.9		
Quebec	41.1	36.6 - 45.9	40.2	35.8 - 44.7		
Atlantic	51.2	48.2 - 54.2	55.9	48.6 - 62.9		

Notes. 'ns' refers to a non-significant Wald statistic for either a main effect of year or an interaction between survey year and other variables.

***p < .001; **p < .01; *p < .05

AUDIT Dependent Drinking (Table 8.6)

There is no statistically significant change between 1998 and 2004 in the percentage of undergraduates who report at least one of the three AUDIT dependent drinking symptoms (unable to stop; failed normal activities; morning drink). In 1998, 30.4% (27.4%-33.6%) of all respondents reported one of more dependence symptoms compared to 31.6% (29.6%-33.6%) in 2004. The absence of year interactions indicates that the prevalence of AUDIT dependence symptoms was stable within the categories of gender, year of study and region.

Table 8.6 Changes in Prevalence of AUDIT Dependent Drinking Symptoms, by Gender, Year of Study and Region, Canadian Undergraduates, 1998 vs 2004

	1998		2004		Within-group change '04 vs '98	Year interaction
	%	95%CI	%	95%CI		
Total	30.4	27.4-33.6	31.6	29.6-33.6	ns	
Gender						ns
Men	31.8	28.6 - 35.2	32.5	30.4 - 34.7		
Women	29.2	25.7 - 33.0	30.9	28.6 - 33.3		
Year of study						ns
First	34.0	30.5 - 37.7	32.9	29.1 - 37.0		
Second	30.1	27.2 - 33.1	30.6	27.2 - 34.4		
Third	28.1	26.9 - 30.4	31.4	27.7 - 35.5		
Fourth	29.3	23.8 - 35.4	31.0	27.1 - 35.2		
Region						ns
British Columbia	30.2	24.5 - 36.6	29.6	26.5 - 32.8		
Prairies	32.0	27.6 - 36.8	30.1	27.2 - 33.1		
Ontario	27.6	22.1 - 33.9	31.9	28.7 - 35.3		
Quebec	32.0	27.4 - 37.0	30.8	26.2 - 35.9		
Atlantic	36.0	25.3 - 48.2	36.4	31.8 - 41.2		

Notes. 'ns' refers to a non-significant Wald statistic for either a main effect for year or an interaction between survey year and other variables.

***p < .001; **p < .01; *p < .05

Changes in Cigarette Smoking (Table 8.7)

Current cigarette smoking declined non-significantly between 1998 (17.3% [15.2% - 19.7%]) and 2004 (13.3% [11.5%-15.4%]). However, year interactions reveal two significant subgroup declines: one among second year students (from 19.4% [16.6%-22.7%] in 1998 to 11.6% [9.0%-14.8%] in 2004), and the other among students attending universities in the Prairies (from 14.0% [11.9%-16.5%] to 9.4% [8.2%-10.7%]).

Table 8.7 Changes in Prevalence of Cigarette Smoking, by Gender, Year of Study and Region, Canadian Undergraduates, 1998 vs 2004

	1998		2004		Within-group change '04 vs '98	Year interaction
	%	95%CI	%	95%CI		
Total	17.3	15.2-19.7	13.3	11.5-15.4	ns	
Gender						ns
Men	16.2	14.1-18.5	12.8	10.5-15.6		
Women	18.3	15.4-21.5	13.7	11.8-15.9		
Year of study						***
First	17.1	14.5-20.0	12.0	9.5-15.0		
Second	19.4	16.6-22.7	11.6	9.0-14.8	*	
Third	18.2	16.4-20.2	15.5	13.4-17.7		
Fourth	14.3	11.0-18.4	14.7	12.2-17.6		
Region						**
British Columbia	11.6	9.1-14.6	10.1	7.4-13.8		
Prairies	14.0	11.9-16.5	9.4	8.2-10.7	*	
Ontario	18.6	14.5-23.6	11.7	9.4-14.5		
Quebec	19.5	16.3-23.1	19.6	17.3-22.1		
Atlantic	19.2	15.8-23.0	17.8	13.9-22.6		

Notes. 'ns' refers to a non-significant Wald statistic for either a main effect for year or an interaction between survey year and other variables.

***p < .001; **p < .01; *p < .05

Year-by-year of study: F(3,55) = 7.78, p < .001

Year-by-region : F(4,55) = 2.96, p < .02

Changes in Illicit Drug Use

Cannabis (Table 8.8)

Among all students, the past year use of cannabis remained stable between 1998 and 2004, varying from 28.8% (26.0%-31.6%) to 32.1% (28.7%-35.6%), and also remained stable for both men and women. However, a significant year-by-region interaction shows that cannabis declined significantly among those attending university in the Prairies (from 24.1% [21.5%-26.9%] in 1998 to 19.4% [18.0%-20.8%]) and increased among those in the Atlantic (from 26.5% [26.5%-26.6%] to 36.9% [29.8%-44.7%]). Although there was also a significant year-by-year of study interaction, all of the confidence intervals for the 1998 and 2004 prevalence estimates overlapped suggesting non-significant change over time.

Table 8.8 Changes in Past Year Prevalence of Cannabis Use, by Gender, Year of Study and Region, Canadian Undergraduates, 1998 vs 2004

	1998		2004		Within-group change '04 vs '98	Year interaction
	%	95%CI	%	95%CI		
Total	28.8	26.0-31.6	32.1	28.7-35.6	ns	
Gender						ns
Men	29.6	27.4 – 32.0	34.6	30.3 – 39.1		
Women	28.0	24.1 – 32.3	30.1	27.3 – 33.4		
Year of study						*
First	29.3	26.9 – 31.9	34.1	30.7 – 37.5		
Second	31.5	27.2 – 36.2	32.1	28.3 – 36.2		
Third	28.2	26.2 – 30.3	30.7	26.0 – 35.9		
Fourth	25.7	21.2 – 30.8	30.9	26.0 – 36.2		
Region						***
British Columbia	30.1	21.9 – 39.8	30.3	25.1 – 36.2		
Prairies	24.1	21.5 – 26.9	19.4	18.0 – 20.8	*	
Ontario	27.2	21.6 – 33.7	33.0	30.1 – 36.0		
Quebec	35.6	31.4 – 40.0	39.0	34.1 – 44.3		
Atlantic	26.5	26.5 – 26.6	36.9	29.8 – 44.7	*	

Notes. 'ns' refers to a non-significant Wald statistic for either a main effect for year or an interaction between survey year and other variables.

***p < .001; **p < .01; *p < .05

Year-by-region: $F(4,55) = 6.23$, $p < .001$

Year-by-year of study: $F(3,55) = 3.37$, $p < .03$

Illicit Drug Use Other than Cannabis (Table 8.9)

Among all students, the past year use of any illicit drug excluding cannabis varied non-significantly between 1998 and 2004, from 10.3% (9.0%-11.8%) to 8.7% (7.3%-10.3%). Use significantly changed among one group only: The use of illicit drugs declined among students attending university in the Prairies, from 9.1% (7.4%-11.3%) in 1998 to 4.5% (3.7%-5.4%) in 2004.

Table 8.9 Changes in the Past Year Use of Any Illicit Drug Excluding Cannabis, by Gender, Year of Study and Region, Canadian Undergraduates, 1998 vs 2004

	1998		2004		Within-group change '04 vs '98	Year interaction
	%	95%CI	%	95%CI		
Total	10.3	(9.0 - 11.8)	8.7	7.3 - 10.3	ns	
Gender						ns
Men	11.8	10.2 - 13.5	9.7	7.7 - 12.3		
Women	9.1	7.5 - 11.0	7.8	6.6 - 9.3		
Year of study						ns
First	12.2	9.5 - 15.6	9.0	7.0 - 11.6		
Second	9.9	8.5 - 11.5	8.9	6.8 - 11.5		
Third	10.2	8.1 - 12.7	7.4	5.9 - 9.3		
Fourth	8.9	6.7 - 11.8	9.3	7.1 - 12.3		
Region						***
British Columbia	14.6	10.2 - 20.5	9.6	8.4 - 10.8		
Prairies	9.1	7.4 - 11.3	4.5	3.7 - 5.4	*	
Ontario	11.3	8.6 - 14.8	8.2	6.4 - 10.3		
Quebec	9.4	8.5 - 10.3	11.5	9.0 - 14.7		
Atlantic	5.9	5.8 - 6.0	10.9	6.9 - 16.9		

Notes. 'ns' refers to a non-significant Wald statistic for either a main effect for year or an interaction between survey year and other variables.

***p < .001; **p < .01; *p < .05

Year-by-region: F(4,55) = 10.04, p < .001

Changes in Elevated Psychological Distress (Table 8.10)

There are no statistically significant changes in the overall prevalence of elevated psychological distress among undergraduates from 1998 (29.8%) to 2004 (29.2%). Moreover, analyses showed no significant interaction effects involving survey year and gender, year of study, or region, indicating that changes in mental health problems were not observed among these subgroups between 1998 and 2004.

Table 8.10 Changes in Prevalence of Mental Health Problems (GHQ4+), by Gender, Year of Study and Region, Canadian Undergraduates, 1998 vs 2004

	1998		2004		Within-group change '04 vs '98	Year interaction
	%	95%CI	%	95%CI		
Total	29.8	(28.1 - 31.5)	29.2	27.0 - 31.5	ns	
Gender						ns
Men	23.4	21.6 - 25.2	23.9	20.8 - 27.3		
Women	35.2	33.1 - 37.3	33.5	31.3 - 35.7		
Year of study						ns
First	33.9	30.5 - 37.4	31.1	28.0 - 34.4		
Second	30.3	27.9 - 32.8	28.6	25.3 - 32.1		
Third	28.6	26.2 - 31.1	30.0	26.5 - 33.7		
Fourth	25.9	23.7 - 28.2	26.6	23.6 - 29.9		
Region						ns
British Columbia	30.8	29.9 - 31.7	30.7	29.2 - 32.2		
Prairies	27.6	24.6 - 30.8	24.8	19.6 - 30.8		
Ontario	30.8	27.2 - 34.7	32.8	29.4 - 36.3		
Quebec	30.7	28.9 - 32.5	26.1	23.7 - 28.7		
Atlantic	26.1	22.9 - 29.5	25.8	23.4 - 28.3		

Notes. 'ns' refers to a non-significant Wald statistic for either a main effect for year or an interaction between survey year and other variables.

***p < .001; **p < .01; *p < .05

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Chapter 9

Summary & Discussion

Demographic Overview

If we restrict attention to 8 outcomes of some public health concern (Heavy/Frequent drinking; AUDIT8+ (Alcohol Use Disorders Identification Test); AUDIT harm; AUDIT dependence; smoking; past year cannabis use; past year illicit drug use (excluding cannabis) and elevated distress) we find that the most robust factors are as follows:

- Region, significant in 7 of 8 outcomes
 - Although the regional differences varied, there was a general pattern showing rates were lower in BC, and higher in the Atlantic and Quebec.
- Extracurricular orientation, significant in 7 of 8 outcomes
 - By far, the dominant pattern occurred for intellectually-oriented students, who reported the lowest rates for 5 outcomes. For past year illicit drug use, A-oriented students reported the highest rate, and for elevated distress recreationally-oriented students reported the lowest rate.
- Living arrangement, significant in 7 of 8 outcomes
 - The dominant pattern here occurred for those living off campus with family, who reported the lowest rates for 5 of 8 outcomes. For past year illicit drug use and cigarette smoking, those living off campus without family reported the highest rates.
- Gender, significant in 6 of 8 outcomes
 - With the exception that women were more likely than men to report elevated distress, men were more likely than women to report higher rates of alcohol and other drug use.
- Year of study, significant in 1 of 8 outcomes.
 - For cigarette smoking, third-year students reported the highest rates.

How Do University Students Differ from Other Populations?

University students are more likely than their non-university counterparts¹ to

- report elevated distress
 - For example, 42% of Ontario students (38% nationally) compared to 17% of Ontario adults aged 18 to 29 years report elevated distress based on the GHQ3+. (See also Adlaf, Gliksman, Demers, & Newton-Taylor, 2001).
- use hallucinogens during the past year (5.6% vs 4.2%)

and less likely to

- use cocaine during the past year (2.1% vs 7.4%)
- use ecstasy during the past year (2.5% vs 5.4%)

Outcomes that do not differ significantly between students and non-students include

- Past year cannabis use (32.1% vs 38.9%)
- AUDIT8+ (32.0% vs 35.1%)

Canadian university students are more likely than American college students surveyed in 2003 by the Monitoring The Future study (Johnston, O'Malley, Bachman, & Schulenberg, 2004) to

- drink in the past month (77.1% vs 66.2%)

and less likely to

- binge drink (consume 5+ drinks on single occasion during past 2 weeks) (30.2% vs 38.5%) (See also Kuo et al., 2002)
- use cocaine in the past year (2.1% vs 5.4%)
- use ecstasy in the past year (2.5% vs 4.4%)
- use hallucinogens in the past year (5.6% vs 7.4%)

Outcomes that do not differ significantly between Canadian and American students include

- Lifetime and past year cannabis use (51.4% vs 50.7% and 32.1% vs 33.7%, respectively)
- Past year drinking (85.7% vs 81.7%).

¹ Because the GHQ is available only for Ontario adults, for elevated distress, comparisons are restricted to Ontario adults aged 18 to 29 years (Adlaf & Ialomiteanu, 2001). For all other measures, comparisons are based on 384 non-students aged 18 to 24 years derived from the Canadian Addiction Survey (Adlaf, Begin, & Sawka, 2005)

Some Encouraging Findings

There were several encouraging findings.

- While most students drink, the majority of undergraduates do not drink excessively. About one half can be classified as light drinkers.
- There were declines in cigarette smoking, use of hallucinogens and LSD between 1998 and 2004.
- Although there are public perceptions that students perceive university as an opportunity for excess, two-thirds of students disagree that drinking is an important part of the university experience.

Some Public Health Flags

The following findings should be viewed as potential public health concerns.

- About one-third of students drink in a hazardous manner, and this, in turn, increases the probability of acute adverse consequences such as accidents, violence episodes, and alcohol poisoning.
- Moreover, about one in ten students report serious consequences due to drinking.
 - 14%, representing about 90,500 students nationally, reported having unplanned sex due to alcohol use.
 - 10%, representing about 64,200 students nationally, reported experiencing an alcohol-related assault.
 - 6.5%, representing about 41,700 students, reported an alcohol related injury.
- One-third of students report elevated distress, and this percentage remains similar to that found in 1998. Moreover, as noted above, comparisons to non-university young adults indicate that rates of distress among university students are more than twice as high as non-students.

Some Implications

Universities cannot resolve such issues themselves. Firstly, one important predictor of binge drinking on campus is binge drinking during high school. Thus, although some campus environments are conducive to heavy drinking opportunities, hazardous drinking is a behaviour that, for many, develops before university. Secondly, most drinking occasions occur off campus, where universities have no authority. This means that community and university involvement, and wider alcohol controls are necessary to reduce the harms related to hazardous drinking.

Still, our data point to two areas that could be strengthened. First, although most universities have existing alcohol policies, enforcement seems to vary. About half of students believed that there should be more enforcement related to alcohol, such as more spot checks conducted by security staff. We also found that heavy drinkers believed that alcohol policies are not enforced.

Second, there should be a greater emphasis to discourage alcohol promotion on campus. We found that a quarter of students took advantage of low-priced alcohol promotions and 7% took advantage of cover charges with unlimited drinking. Such promotions are disconcerting given research literature showing that alcohol price and access are important determinants of alcohol-related harm.

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