Alcohol and drug use in early adolescence

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Abstract

Objectives
This analysis presents the prevalence of substance use among young adolescents. The extent to which factors such as peer behaviour, parenting practices and school commitment and achievement are associated with drinking to intoxication and other drug use is investigated.

Data source
The data are from the 1998/99 National Longitudinal Survey of Children and Youth. Analysis is based on a cross-sectional file from 4,296 respondents aged 12 to 15.

Analytical techniques
Prevalence estimates for alcohol and drug use were calculated by sex. Logistic regression models were fitted to estimate the odds of drinking to intoxication and drug use, adjusted for socio-demographic factors, peer and parent substance use, parenting practices, school commitment/attachment, emotional health and religious attendance.

Main results
In general, drinking to intoxication and drug use were more common among 14- and 15-year-olds than among 12- and 13-year-olds. The odds of drinking to intoxication and drug use were highest among adolescents whose friends used alcohol or drugs or were often in trouble, who reported low commitment to school, or whose parents had a hostile and ineffective parenting style.

Key words
adolescent behaviour, alcoholic intoxication, marijuana

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Experimenting with alcohol and drugs is fairly common among adolescents. Young people cite many reasons for such behaviour, including peer pressure, curiosity, fun and availability; they may also use alcohol and/or drugs to deal with problems or negative feelings.[1,2]

During the 1990s, adolescents seemed to become more accepting of drug and alcohol use. The Ontario Student Drug Use Survey found that between 1991 and 2001, opposition to regularly smoking marijuana fell from 61% to 42%.[3] At the same time, the percentage who strongly disapproved of using cocaine "once or twice" dropped from 55% to 41%.[3] As attitudes were changing, rates of alcohol and drug use, as well as heavy drinking, escalated among Ontario students.[3] Similar increases have been documented in the Atlantic provinces,[4] and outside Canada.[5-7] Such changes may also be reflected in Youth Court statistics, which show sharp increases in the number of drug possession and trafficking cases between 1992/93 and 2001/02.[8]

Definitions

In the multivariate analysis of data from the National Longitudinal Survey of Children and Youth (NLSCY), *age* was used as a continuous variable with a range of 12 to 15 years.

Measures of peer influence were based on youth reports of *peer substance use*, as well as parental reports of the frequency with which their child associates with *friends who are frequently in trouble* (often/sometimes or seldom/never). Adolescents were asked whether none, a few, most, or all of their friends drank alcohol. Responses were collapsed into two categories: none/a few and most/all. Peer drug use was measured by asking adolescents if their friends had tried marijuana, other drugs such as glue, solvents (paint thinner, gasoline, etc.), heroin, speed, PCP, crack/cocaine, LSD, acid, ecstasy, etc. Responses were categorized as none/a few or most/all.

Parents were asked if *drinking is a source of family tension* (yes/no), and the person most knowledgeable (PMK) about the child—usually the mother—was asked if she/he *consumes five or more drinks on an average occasion* (those who did were compared with those who drank less).

Statistics Canada establishes *low-income cut-offs* (LICOs), which are thresholds calculated for different geographic and family-size categories using the Consumer Price Index. For this study, the LICO calculated in 1996 was used to determine if an adolescent's family income placed him or her below or at/above the low-income cut-off.

Urban/rural *residence* was treated as a dichotomous variable.

Several aspects of the parent–child relationship were examined. *Hostile parenting* was based on adolescents' answers to questions "that best describe the way your parents (or step-parents, foster parents or guardians) in general have acted toward you during the last six months," specifically, how often do their parents:

- "Nag you about little things?"
- "Enforce a rule or do not enforce a rule depending on their mood?"
- "Hit you or threaten to do so?"
- "Get angry and yell at you?"

Responses ranged from 0 (never) to 4 (always). The total scores could range from a low (0) to a high (16) level of parental hostility.

Parental supervision was measured using the *parental monitoring* scale. Adolescent respondents were asked four questions about their parents' knowledge of their whereabouts and activities; specifically, how often their parents:

- "Want to know exactly where you are and what you are doing."
- "Tell you what time to be home when you go out."

- "Find out about your misbehaviour."
- "Take interest in where you are going and who you are with."

Response options ranged from 0 (never) to 4 (often). Total scores could range from a low (0) to a high (16) level of parental monitoring.

Parent–child cohesion was based on eight items describing how often each week the parent and youth spent time together: eating; watching television; playing sports; playing cards or games; having discussions; doing family projects or chores; having family outings; and visiting relatives. Response options ranged from 0 (every day) to 5 (rarely or never), with the resulting score from the combined items ranging from a low (0) to a high (40) level of cohesion (reverse scored).

Family structure was collapsed into three groups: single-, step- or two-parent (including biological and adoptive parents).

The measure of school achievement was based on the adolescents' self-reported *grades*. Adolescents were asked, "How well do you think you are doing in your school work?" Responses were collapsed into three categories: poor/very poor; average; and good/very good.

School commitment comprises seven items describing the adolescent's attitudes to school: the importance of doing well academically; making new friends; participating in activities; showing up for class on time; learning new things; expressing opinions; and participating in student council. Response options ranged from 0 (very important) to 3 (not important at all). The total score could range from a low (0) to a high (21) commitment to school (reverse scored).

Emotional problems/Anxiety was assessed using the adolescent self-reported emotional disorder/distress scale. Respondents were asked how often they were:

- unhappy, sad or depressed
- not as happy as other people their age
- too fearful or anxious
- nervous, high strung or tense.

Adolescents were also asked how often they worry a lot; cry a lot; feel miserable, unhappy, tearful or distressed; or have trouble enjoying themselves. Response options ranged from 0 (never or not true) to 3 (often or very true). Total scores could range from a low (0) to a high (16) level of emotional problems/anxiety.

Religious attendance (services or meetings) was collapsed into three groups: weekly; monthly to a few times a year; and once a year or less.

Most health consequences of alcohol and drug use typically appear later in life, but early initiation can lead to earlier problems. A previous study found that within seven years of the onset of drug use, those who had started using drugs earlier in adolescence reported more health problems than those whose use began later.[9] Earlier alcohol use has also been found to lead to more alcohol-related problems.[10,11]

This analysis, based on cross-sectional data from cycle 3 of the National Longitudinal Survey of Children and Youth (NLSCY), investigates the prevalence of, and factors associated with, substance use among 12- to 15-year-olds in 1998/99 (see *Methods* and *Limitations*). The extent to which factors such as peer influences, parent alcohol use, parenting practices and commitment to school are related to drinking to intoxication and drug use is explored (see *Definitions* and *Alcohol and drug use*).

Prevalence of alcohol and drug use

In 1998/99, approximately 4 in 10 children aged 12 to 15 (42%) reported that they had consumed at least "one drink" of alcohol at some point in the past (that is, one bottle of beer or wine cooler, one glass of wine, or one shot of liquor) (Table 1). While 17% of 12-year-olds said that they had had at least one alcoholic beverage, by age 15, the figure was 66%.

Drinking to intoxication was also common, as 22% of adolescents said that they had been drunk at least once. Again, among 12-year-olds, the proportion was low: 4%. At ages 14 and 15, the proportions who had been intoxicated were 29% and 44%, respectively.

Marijuana use, too, was fairly prevalent: 19% of 12- to 15-year-olds reported having used a cannabis product. As with alcohol consumption, use increased with age, from 3% of 12-year-olds to 38% of 15-year-olds.

Twelve- and thirteen-year-olds were not asked about hallucinogens, but 11% of teens aged 14 or 15 reported having tried them. Another 4% had used prescription drugs non-medically, and 4% had tried other drugs, such as ecstasy or cocaine.

Substance use varied somewhat by sex. Although boys were more likely to report having had a drink of alcohol, the proportions of girls who reported getting intoxicated or having used drugs were slightly higher than those for boys.

Table 1

Prevalence of substance use, by age and sex, household population aged 12 to 15, Canada excluding territories, 1998/99

At some time, tried:	Total	Age				Sex	
		12	13	14	15	Boys	Girls
	%			%			%
Alcohol							
At least one drink	42	17	29*	53*	66*	44†	39
Intoxicated	22	4^E1	10*	29*	44*	20†	24
Marijuana	19	3^E1	9*	25*	38*	20	19
Hallucinogens	11	...	...	9	13	10	12
Glue-sniffing	2	1^E2	3^E2	3^E1	2^E2	2^E1	2^E1
Non-medical use of prescription drugs	4	...	...	4^E1	4^E1	3^E2	5^E1
Other drugs‡	4^E1	...	...	3^E2	5^E1	3†E2	5^E1

Data source: 1998/99 National Longitudinal Survey of Children and Youth, cross-sectional file
* *Significantly different from estimate for previous age (p < 0.05)*
† *Significantly different from corresponding estimate for girls (p < 0.05)*
‡ *For example, heroin, speed, PCP, crack/cocaine*
E1 Coefficient of variation between 16.6% and 25.0%
E2 Coefficient of variation between 25.1% and 33.3%
... Not applicable

Methods

Data source

This analysis is based on cross-sectional data from the 1998/99 National Longitudinal Survey of Children and Youth (NLSCY), conducted every two years by Statistics Canada and Human Resources Development Canada.

The NLSCY is based on in-depth interviews with the "person most knowledgeable" about the child (the PMK—usually the mother), the PMK's spouse, the child, and in some cases, the child's teacher and principal.

The cycle 3 sample contains 32,158 children aged 0 to 15, living in the 10 provinces. This analysis focuses on a subgroup of 4,296 aged 12 to 15 in 1998/99 from the cross-sectional file (Appendix Table A), weighted to represent about 1.7 million. These adolescents comprise the oldest age cohort in cycle 3, and are the only respondents to have been asked detailed questions about their use of alcohol and drugs (see *Definitions* and Appendix Tables B and C). Data from the PMK of these adolescents are also used in the analysis.

Analytical techniques

The prevalence of lifetime alcohol and drug use was estimated for boys and girls aged 12 to 15. Among those who reported using alcohol or illicit drugs at some point, the mean age of first use was established, as well as use in relation to friends' use of alcohol and illicit drugs. Logistic regression models were fitted to estimate the odds of drinking to intoxication and using drugs in the past 12 months, while adjusting for factors known to influence the likelihood of substance use: peer substance use and behaviour, parental practices, quality of the parent–child relationship, parental alcohol abuse, school attachment and achievement, emotional health of the adolescent, religiosity, and socio-demographic factors (age and sex of the adolescent, family structure, household income, and urban or rural residence). The selection of variables was based on a review of the literature and availability on the NLSCY.

Records with missing data for any variable used in the logistic regression analysis were excluded. This reduced the sample size for analysis from 4,296 to 2,745 for the final alcohol model and from 4,296 to 2,907 for the final drug use model (see *Limitations*). Imputation was used to address the problem of partial data, or cases where respondents answered only some of the questions when the variable being measured was a scale or where a group of questions characterized a single concept. For example, the emotional problems/anxiety scale comprises eight questions. To avoid losing partial responses, scores were calculated based on the mean for the answers that were provided, but only if at least 50% of the questions had been answered. This reduced the non-response rate by up to 5% without altering the results for models fitted in this study. This method of imputation was applied to the school commitment, emotional problems/anxiety, parental monitoring, and hostile parenting scales.

Imputation was also employed for the prevalence of substance abuse. If a respondent reported never having used alcohol or various drugs or failed to answer this question, but later in the interview reported having used alcohol or drugs in the past 12 months, this positive response was imputed for such individuals in the lifetime prevalence estimates.

The data were weighted to represent the Canadian population aged 12 to 15 in 1998/99. The weights used account for unequal probabilities of sample selection, including non-response due to sample attrition. The NLSCY weights were revised in September 2003; this analysis was based on the weights prior to those revisions. To account for the complex sample design, the bootstrap technique was used to estimate coefficients of variation and confidence intervals, and to test for statistical significance of differences.[12-14] A significance level of $p < 0.05$ was established.

Average age at first use

The average age at which adolescents reported having had their first drink was 12.4 years (Table 2). Boys were slightly younger than girls when they had alcohol for the first time: 12.3 versus 12.5 years. For youth who reported having been drunk, the average age of first-time intoxication was 13.2.

Among 12- to 15-year-olds who had tried drugs, glue-sniffing began at an average age of just over 12. For other drugs, including marijuana and hallucinogens, average age at first use was older—ranging from 13.1 to 13.8.

Table 2
Average age at first use, by substance and sex, household population aged 12 to 15 who reported substance use, Canada excluding territories, 1998/99

	Both sexes	Boys	Girls
	Average age in years		
Alcohol			
At least one drink	12.4	12.3*	12.5
Intoxicated	13.2	13.2	13.2
Marijuana	13.1	13.2	13.0
Hallucinogens	13.7	13.8	13.6
Glue-sniffing	12.3	12.3	12.3
Non-medical use of prescription drugs	13.4	13.4	13.4
Other drugs†	13.8	13.1*	14.2

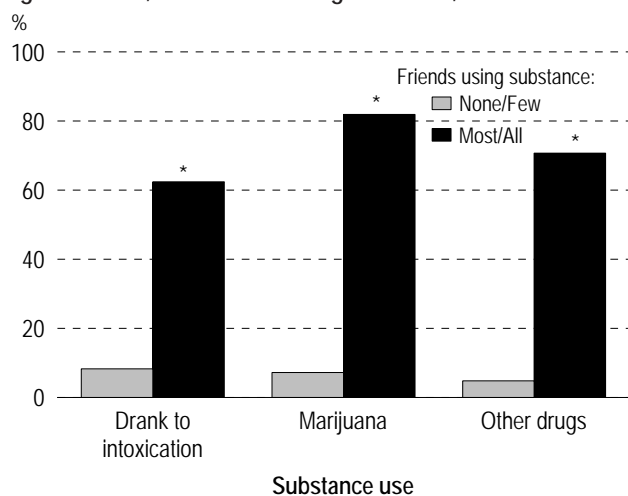*Data source*: 1998/99 National Longitudinal Survey of Children and Youth, cross-sectional file
† For example, heroin, speed, PCP, crack/cocaine
* Significantly different from corresponding estimate for girls (p < 0.05)

Adolescents and peers

A majority of adolescents who reported that most or all of their friends used alcohol, marijuana or other drugs had used those substances themselves. When a few, or none, of their friends drank or used drugs, adolescents were far less likely to have been drunk or to have used drugs.

Chart 1
Percentage reporting intoxication, marijuana or other drug use in past year, by peers' substance use, household population aged 12 to 15, Canada excluding territories, 1998/99

Data source: 1998/99 National Longitudinal Survey of Children and Youth, cross-sectional file
* Significantly different from value for "None/Few" (p < 0.05)

About 6 in 10 (62%) adolescents reported drinking to intoxication in the past year if most or all of their friends used alcohol, while only 8% of those with few or no friends who used alcohol reported being drunk in the past year (Chart 1).

Similar patterns were observed among adolescents whose peers used marijuana or other drugs: 82% used marijuana in the past year if most or all of their friends had done the same, compared with 7% with few or no marijuana-using friends.

Just over 7 in 10 (71%) adolescents reported other drug use in the past year if most or all of their friends used other drugs, while about 5% of those with few or no other drug-using friends had done so.

Alcohol and drug use

For this analysis of data from the 1998/99 National Longitudinal Survey of Children and Youth, *alcohol use* was based on responses to: "Have you ever had a drink of alcohol?" Respondents were told that a drink was one bottle or can of beer or a glass of draft, one glass of wine or a wine cooler, or one straight or mixed drink with one and a half ounces of hard liquor. Youth were asked if they had ever been *intoxicated*, at what age, and if they had been intoxicated in the past 12 months.

For *drug use*, youth were asked if they had ever tried drugs, how old they were when they first did so, and about use in the past year. Questions differed, depending on the child's age. The 12- and 13-year-olds were asked, "In the last 12 months, how often did you do: marijuana and cannabis products (joint, pot, grass, hash); glue or solvents (paint thinner, gasoline, etc.); or other drugs (heroin, speed, PCP, crack/cocaine, LSD, acid, ecstasy, etc.)?" Questions for 14- and 15-year-olds were broader: "In the last 12 months, how often did you do: marijuana and cannabis products (joint, pot, grass, hash); glue or solvents (paint thinner, gasoline, etc.); hallucinogens (LSD, acid, magic mushrooms, 'mesc' or PCP ['angel dust,' etc.]); drugs without a prescription or advice from a doctor (downers [seconal, Amytal, etc.], stimulants ['uppers,' 'Beans,' 'Christmas trees,' 'Black Beauties,' diet pills, etc.]; tranquilizers [Valium, Librium, Serax, '5/10s,' etc.]); or other drugs (like crack, cocaine, speed or ecstasy)?" Adolescents who had used any of these drugs in the past 12 months were compared with those who had not.

Peer influence persists

The influence of peer substance use is obviously strong (Appendix Table B), but it does not occur in isolation. This analysis also took into account several other factors that may be associated with adolescents' early use of alcohol or drugs (see *Methods*). Age, sex, peer behaviour, parental drinking, the parent-child relationship, family situation, school performance and commitment, emotional problems and religiosity were considered, along with socio-economic variables (household income, urban/rural residence and family structure).

The frequency with which the adolescent's friends engaged in substance use or were in trouble were important risk factors, even when the other potential confounders were taken into account (Table 3). Adolescents who reported that all or most of their friends had used alcohol had odds of having been intoxicated in the past year that were nearly 11 times as high as those with fewer friends who used alcohol. And the odds of using drugs were strikingly higher among youth who reported that all or most of their friends had used drugs. The odds of being drunk and using drugs were also higher—more than two times—among youth whose friends were frequently in trouble.

These findings reiterate the often-found strong relationship between peer and individual substance use. However, these results must be interpreted cautiously. In this, as in most studies of adolescent and peer drug use, the respondents reported on the perceived behaviour of their friends. This can be problematic because adolescents tend to project their own behaviours onto others, and this could be a large part of the observed relationship between individual and peer substance use.[15]

Further, when examining data from one point in time, it is impossible to determine a causal direction between individual and peer substance use. Although friendships may provide opportunities to learn through imitation and to reinforce behaviour, it could also be that adolescents seek friends with similar attitudes toward alcohol, drugs and "getting into trouble." Nevertheless, the findings about peer influence are consistent with those of previous research.[16,17]

Table 3
Adjusted odds ratios relating selected characteristics to reported intoxication and drug use, household population aged 12 to 15, Canada excluding territories, 1998/99

	Drank to intoxication		Used drugs	
	Adjusted odds ratio	95% confidence interval	Adjusted odds ratio	95% confidence interval
Age[†]	2.12*	1.78, 2.52	1.74*	1.47, 2.05
Sex				
Boys[‡]	1.00	...	1.00	...
Girls	1.23	0.82, 1.84	0.77	0.54, 1.11
Peer substance use				
All/Most friends use alcohol/drugs	10.82*	6.93, 16.90	32.96*	21.62, 50.24
None/A few friends use alcohol/drugs[‡]	1.00	...	1.00	...
PMK reports child's friends frequently in trouble				
Yes	2.28*	1.41, 3.70	2.27*	1.39, 3.70
No[‡]	1.00	...	1.00	...
Drinking a source of family tension				
Yes	0.92	0.34, 2.51	1.44	0.79, 2.61
No[‡]	1.00	...	1.00	...
PMK consumes 5+ drinks on average				
Yes	1.99	0.97, 4.06	1.51	0.64, 3.52
No[‡]	1.00	...	1.00	...
Hostile parenting[†]	1.11*	1.03, 1.19	1.09*	1.02, 1.16
Parental monitoring[†]	0.99	0.93, 1.05	1.01	0.95, 1.08
Parent-child cohesion[†]	0.97	0.93, 1.01	0.98	0.95, 1.02
Grades				
Poor/Very poor	2.35*	1.21, 4.54	1.33	0.50, 3.50
Average	1.11	0.71, 1.73	0.94	0.67, 1.33
Good/Very good[†]	1.00	...	1.00	...
School commitment[†]	0.93*	0.87, 0.99	0.96	0.90, 1.02
Emotional problems/ Anxiety[†]	0.93*	0.87, 1.00	1.05	0.98, 1.12
Religious attendance				
Weekly	0.61*	0.39, 0.96	1.16	0.69, 1.94
Monthly/A few times a year	0.80	0.52, 1.24	1.03	0.68, 1.58
Once a year or less[‡]	1.00	...	1.00	...
Household income				
Below low-income cut-off	1.03	0.59, 1.79	1.45	0.86, 2.46
At/Above low-income cut-off[‡]	1.00	...	1.00	...
Residence				
Urban	0.79	0.52, 1.19	0.94	0.60, 1.47
Rural[‡]	1.00	...	1.00	...
Family structure				
Single-parent	1.05	0.61, 1.79	1.08	0.65, 1.77
Step-parent	1.18	0.60, 2.34	2.01*	1.06, 3.80
Two-parent[‡]	1.00	...	1.00	...

Data source: *1998/99 National Longitudinal Survey of Children and Youth, cross-sectional file*
† *Continuous variable*
‡ *Reference category*
* *Significantly different from reference category (p < 0.05)*

Parental drinking

Researchers have clearly demonstrated the connection between substance use by youth and parental and peer attitudes towards drug and alcohol abuse, as well as parental and peer drinking and drug use patterns.[18-21] In this study, peer influences emerged as a stronger risk factor for adolescent substance use than parental drinking. Adolescents in families where drinking was a source of tension were no more likely to drink to intoxication or use other drugs than their counterparts in families not affected by this situation (Table 3, Appendix Table B). Similarly, youth in families where the parent (usually the mother), reported consuming an average of five or more drinks per occasion were no more likely to report being drunk or using drugs than were adolescents whose parent consumed less than five drinks on average. Information about parental drug use is not available in the NLSCY (see *Limitations*).

Age, parenting style and family structure

Beyond the strong relationships with peer substance use and behaviour, several other factors were found to be associated with substance use among 12- to 15-year-olds. Not surprisingly, the odds of drinking to intoxication and drug use rose considerably with age. The odds of being drunk in the past year increased by a factor of 2.1 for every year of age; the odds for drug use, by 1.7 (Table 3).

Adolescent respondents in the NLSCY were asked several questions about their relationship with their parents. Three aspects were considered in this analysis: hostile parenting, parental monitoring and parent-child cohesion (see *Definitions*). When the influences of other factors were controlled, only youth whose parents had a negative or hostile parenting style were found to have significantly high odds of drinking to intoxication or drug use. That is, parent-child interactions were often characterized by anger, threats and inconsistent enforcement of rules. The odds of being drunk and engaging in drug use increased by a factor of approximately 1.1 for every point increase in the hostile parenting scale. The causal direction of the relationship between hostile parenting and substance use cannot be inferred, however. It is possible that the parents' way of dealing with the adolescent may have changed following problem behaviours such as alcohol or drug use.

Compared with adolescents in two-parent families, those in step-parent families were more likely to have used drugs. The odds of drug use were almost double for adolescents in step-parent families than in other two-parent families. This is consistent with US research, which found that living in a step-parent family increased the risk of early delinquent behaviour.[22]

No difference by sex emerged, and neither household income nor urban/rural locale were associated with youth intoxication or drug use.

School performance and commitment

A youth's self-reported performance in and commitment to school were associated with drinking to intoxication and drug use, findings similar to those of previous studies.[23,24] Even when other possibly confounding factors were taken into account, the odds of drinking to intoxication in the past year were more than two times higher for youth who reported doing poorly or very poorly in school, compared with those who had good or very good grades (Table 3). As well, those with a stronger commitment to school were less likely to report being intoxicated than those with a weaker attachment. Neither school-related measure was associated with early drug use.

Life stressors and protective factors

Other research has found that high-risk behaviours may occur in the context of stress, as youth seek comfort, relief, or escape through drug use.[25-27] In this study, by contrast, when other influences in the adolescents' life were considered, no relationship between drug use and emotional problems emerged. And the odds of being drunk in the past year were actually lower for adolescents reporting emotional problems (Table 3). This association is opposite to that suggested by the research literature. It may be that life stressors are stronger risk factors for developing substance abuse problems later in life than for early initiation and experimentation.

Limitations

The sample of 12- to 15-year-olds from the National Longitudinal Survey of Children and Youth (NLSCY) used for this analysis contained too few records to distinguish between one-time experimenters and regular users. Frequent drug use or the quantity used per occasion may be a better indication of serious problems than reports of any drug use in the past 12 months.

As with all longitudinal surveys, the NLSCY has lost sample through attrition. The level of non-response has gradually increased, particularly for the youth questionnaire: approximately 5% of children aged 10 to 13 in the cycle 2 longitudinal sample did not complete the questionnaire in cycle 3. It is possible that those who dropped out of the survey may be at higher risk for family, school and substance use problems. As well, the most vulnerable population, street youth, would not be tracked in the NLSCY. In addition, although respondents were assured anonymity and confidentiality, the response rate for the questions about alcohol and drug use was around 80%. Consequently, the potential for non-response bias exists.

Although the NLSCY is longitudinal, this analysis is cross-sectional because a number of important measures, such as peer influence and school commitment, were available only for 1998/99. Therefore, it is not possible to draw conclusions about the causal order of these relationships. Many factors—school commitment, school achievement, family relations and emotional anxiety—may have a reciprocal relationship with substance use. For example, while having a parent with a generally negative parenting approach may be associated with early substance use, getting caught with alcohol or drugs may exacerbate the tension.

Information about parental drug use is not available from the NLSCY, but parents were asked if drinking was a source of family tension, and the person most knowledgeable (PMK) about the child—usually the mother—was asked if she/he consumed five or more drinks on an average occasion. The PMK was also asked the same question about her/his current spouse, but this was not included in the final model, as data were available only for two-parent families.

Drug use by older siblings may demystify and legitimize substance use and inspire earlier initiation. A recent study found that having older siblings who smoke increases the odds of adolescent tobacco use.[28] Similarly, a recent Ontario study found strong between-sibling associations for tobacco, alcohol and marijuana use.[29] However, data on alcohol and drug use by siblings are not available in the NLSCY.

The validity of self-reported data is unknown. Self-report of behaviours that are influenced by social norms and perceptions may be problematic. For example, youth may exaggerate their alcohol or drug use to show bravado, or they may underreport, because of embarrassment or fear of repercussions. Because the phrase "get drunk" was not explained to respondents, it is possible that this aspect of alcohol use may have been misreported.

Attendance at religious services was found to be protective against youth intoxication. The odds of being drunk in the past year were considerably lower among young people who attended religious services weekly than among those who did so once a year or less. Although other studies have suggested that involvement in religious activities is protective against drug use,[30,31] regular attendance at religious services did not translate into a lower odds of drug use.

Concluding remarks

According to data from the 1998/99 National Longitudinal Survey of Children and Youth, the main factors associated with early alcohol and drug use among adolescents involve friends, parents, and school. The odds of drinking to intoxication and other drug use were highest among 12- to 15-year-olds who reported that all or most of their friends engaged in the use of the same intoxicants, whose friends were often in trouble, or who were subject to a hostile parenting style.

This study adds to evidence suggesting that peer behaviour is closely related to an adolescent's own alcohol and drug use. While these results echo other research, the data must be interpreted cautiously as the actual level of peer use is unknown. It is also not possible to determine whether "birds of a feather flock together" or a peer-influence effect is contributing to the strength of these findings.

One aspect of the parent–child relationship was strongly associated with both alcohol and other drug use. If interactions were characterized by negative reinforcement and inconsistent enforcement of rules, the odds of adolescents getting drunk and using drugs were higher. Parental monitoring, however, was not associated with drinking to intoxication or drug use, when the effects of other influences were taken into account.

Self-reported performance in school and school commitment were important risk factors for drinking to intoxication, but not for drug use. A higher level of school commitment and better self-reported grades were related to lower odds of drinking to intoxication among adolescents. The same relationship was not found for drug use when other factors were taken into consideration.

Following the NLSCY respondents as they move through high school and beyond may reveal more about the relationships between certain risk factors and adolescent alcohol and drug use, as well as the long-term impact of early substance use on later substance use patterns and overall health. ●

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Appendix

Table A
Distribution of selected characteristics, by sex, household population aged 12 to 15, Canada, 1998/99

	Both sexes			Boys			Girls		
	Sample size	Estimated population		Sample size	Estimated population		Sample size	Estimated population	
		'000	%		'000	%		'000	%
Total	4,296	1,660	100.0	2,155	855	100.0	2,141	805	100.0
Age of child									
12	1,259	460	27.7	635	239	27.9	624	221	27.4
13	872	323	19.5	428	163	19.0	444	160	19.9
14	1,256	479	28.8	629	249	29.2	627	229	28.5
15	909	399	24.0	463	205	23.9	446	195	24.2
Drunk in past year									
Yes	624	232	14.0	274	108	12.7	350	124	15.4
No	2,819	1,091	65.7	1,448	563	65.9	1,371	527	65.5
Missing	853	338	20.3	433	184	21.5	420	154	19.1
Used drugs in past year									
Yes	633	251	15.1	302	128	15.0	331	123	15.2
No	2,924	1,107	66.7	1,465	558	65.2	1,459	549	68.3
Missing	739	302	18.2	388	169	19.8	351	133	16.5
Peer alcohol use									
All/Most friends use alcohol	761	279	16.8	335	127	14.9	426	152	18.8
None/A few friends use alcohol†	2,811	1,086	65.4	1,434	561	65.6	1,377	524	65.2
Missing	724	296	17.8	386	167	19.6	338	129	16.0
Peer drug use									
All/Most friends use drugs	468	196	11.8	220	93	10.9	248	103	12.8
None/A few friends use drugs†	3,011	1,137	68.5	1,500	581	67.9	1,511	556	69.1
Missing	817	327	19.7	435	181	21.2	382	146	18.2
PMK reports child's friends frequently in trouble									
Often/Sometimes	528	194	11.7	287	114	13.3	241	80	9.9
Seldom/Never	3,424	1,320	79.5	1,701	668	78.1	1,723	652	81.0
Missing	344	146	8.8	167	74	8.6	177	73	9.1
Drinking a source of family tension									
Yes	216	80	4.8	109	44	5.1	107	36	4.5
No†	3,967	1,531	92.2	1,995	783	91.5	1,972	748	93.0
Missing	113	49E1	3.0	51	29E2	3.4	62	21E1	2.6
PMK consumes 5+ drinks on average									
Yes	197	52	3.1	112	33	3.9	85	19	2.3
No†	3,974	1,557	93.7	1,987	796	93.0	1,987	761	94.5
Missing	125	52E1	3.1	56	27E2	3.1	69	25E1	3.1
Household income									
Below low-income cut-off	610	245	14.8	312	116	13.6	298	129	16.0
At/Above low-income cut-off†	3,609	1,379	83.1	1,799	715	83.5	1,810	665	82.6
Missing	77	36E1	2.2	44	25E1	2.9	33	11E1	1.4
Residence									
Urban	3,200	1,398	84.2	1,598	712	83.3	1,602	685	85.1
Rural†	1,054	238	14.4	530	123	14.4	524	115	14.3
Missing	42	25E1	1.5	27	20E2	2.3	15	5E2	0.6
Hostile parenting scale									
0-16	3,548	1,352	81.4	1,765	685	80.1	1,783	667	82.9
Missing	748	308	18.6	390	170	19.9	358	138	17.1
Parental monitoring scale									
0-16	3,551	1,352	81.5	1,768	685	80.1	1,783	667	82.9
Missing	745	308	18.6	387	170	19.9	358	138	17.1
Parent-child cohesion scale									
0-40	3,986	1,531	92.2	2,003	786	91.9	1,983	744	92.4
Missing	310	130	7.8	152	69	8.1	158	61	7.6
Family structure									
Single parent	842	329	19.8	420	167	19.5	422	162	20.1
Step-parent	374	141	8.5	183	66	7.7	191	75	9.3
Two-parent†	3,080	1,191	71.7	1,552	623	72.8	1,528	568	70.6
Grades									
Poor/Very poor	175	58	3.5	98	34	4.0	77	24E1	3.0
Average	1,074	396	23.8	580	221	25.8	494	175	21.7
Good/Very good†	2,324	907	54.7	1,101	432	50.5	1,223	476	59.1
Missing	723	299	18.0	376	169	19.8	347	130	16.1
School commitment scale									
0-21	3,610	1,378	83.0	1,799	697	81.4	1,811	682	84.7
Missing	686	282	17.0	356	159	18.6	330	123	15.3
Emotional problems/Anxiety scale									
0-16	3,627	1,389	83.7	1,811	706	82.6	1,816	683	84.8
Missing	669	271	16.3	344	149	17.4	325	122	15.2
Religious attendance									
Weekly	1,060	398	24.0	517	205	24.0	543	193	24.0
Monthly to a few times per year	1,434	522	31.4	728	271	31.7	706	251	31.1
Once per year or less†	1,698	697	42.0	863	356	41.6	835	342	42.5
Missing	104	44E1	2.7	47	24E2	2.8	57	20E1	2.5

Data source: 1998/99 National Longitudinal Survey of Children and Youth, cross-sectional file
Note: Because of rounding, detail may not add to totals
E1 Coefficient of variation between 16.6 and 25.0%.
E2 Coefficient of variation between 25.1% and 33.3%
† Reference category

Table B
Percentage of youth reporting intoxication and drug use, by selected characteristics, household population aged 12 to 15, Canada excluding territories, 1998/99

	In past year:	
	Drank to intoxication	Used drugs
	%	%
Age group		
12-13	4.3*	6.0*
14-15†	30.2	29.3
Sex		
Boys	16.1	18.7
Girls†	19.0	18.3
Peer substance use		
All/Most friends use alcohol/drugs	62.4*	81.2*
None/A few friends use alcohol/drugs	8.3	7.9
PMK reports child's friends frequently in trouble		
Often/Sometimes	30.1*	38.1*
Seldom/Never†	15.0	14.7
Drinking a source of family tension		
Yes	23.9E1	26.8E1
No†	17.3	18.0
PMK consumes 5+ drinks on average		
Yes	25.0E1	23.7E1
No†	17.3	18.4
Grades		
Poor/Very poor	40.0*	42.3*
Average	22.6*	22.9*
Good/Very good†	14.8	15.2
Religious attendance (%)		
Weekly	11.3*	12.3*
Monthly/A few times a year	17.2	18 3
Once a year/Never†	21.7	22.4
Household income		
Below low-income cut-off	17.0	20.8
At/Above low-income cut-off†	17.8	18.3
Residence		
Urban	16.7*	18.3
Rural†	22.8	20.2
Family structure		
Single-parent	21.2	24.2*
Step-parent	24.4	29.3*
Two-parent†	15.8	15.6

Data source: 1998/99 National Longitudinal Survey of Children and Youth, cross-sectional file
† Reference category
* Significantly different from reference category (p < 0.05)
E1 Coefficient of variation between 16.6% and 25.0%

Table C
Mean scores for parent-child relationship, school commitment and emotional health, by reported drinking to intoxication and drug use, household population aged 12 to 15, Canada excluding territories, 1998/99

	Scale				
In past year:	Hostile parenting†	Parental monitoring†	Parent-child cohesion‡	School commitment§	Emotional problems/ Anxiety†
Drank to intoxication					
Yes	6.3*	11.5*	17.2*	14.6*	3.4
No††	5.1	12.4	18.4	16.3	3.0
Used drugs					
Yes	6.3*	11.5*	17.0*	14.3*	3.7*
No††	5.1	12.4	18.4	16.3	3.1

Data source: 1998/99 National Longitudinal Survey of Children and Youth, cross-sectional file
† Range 0 (low) to 16 (high)
‡ Range 0 (low) to 40 (high)
§ Range 0 (low) to 21 (high)
†† Reference category
* Significantly different from reference category