

## Patterns of Psychoactive Substance Use Among Youths in Nunavik

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### Abstract

Following a request from Inuit communities in Nunavik (Quebec, Canada), a study was conducted on psychoactive substance use among Inuit. This paper aims to describe drug use patterns of 405 Inuit students (48% boys and 52% girls) recruited in elementary schools and high-schools aged 11 to 21. The main results show that use of tobacco and cannabis is more important among Inuit youths than other students elsewhere in Quebec. Although the proportion of youth drinkers in the north is lower than elsewhere in Quebec, they meet the binge-drinking criterion more frequently. Inuit youths started to consume regularly psychoactive substances earlier and present more problematic consumption according to the DEP-ADO index. The situation is worrisome especially for the girls concerning binge drinking of alcohol, cannabis use and tobacco use. Comparison between the girls and the boys shows that the proportion of girls who are problematic users (yellow and red lights) is twice as high as that of their male counterparts.

### Keywords

Nunavik; Inuit; youths; alcohol; drugs, tobacco, patterns of use; binge drinking; DEP-ADO; risky behaviors.

### Résumé

À la suite d'une demande provenant des communautés inuit du Nunavik (Québec, Canada), une étude a été réalisée sur l'utilisation de substances psychoactives chez les Inuit. Cet article cherche à décrire les profils d'utilisation de drogue de 405 étudiants inuit (48% garçons et 58% filles) âgées entre 11 et 21 ans, recrutés dans des écoles élémentaires et secondaires. Les résultats principaux démontrent que la consommation de tabac et de cannabis est plus importante au sein des jeunes inuit que chez les étudiants des autres régions du Québec. Alors que la proportion de jeunes consommateurs d'alcool dans le nord est moins élevée que partout ailleurs au Québec, ces jeunes rencontrent plus fréquemment les critères de comportements d'alcoolisation massive. Les jeunes inuit commencent à consommer régulièrement des substances psychoactives plus tôt et présentent plus souvent des profils de consommation problématique selon l'index DEP-ADO. La situation est inquiétante en particulier en ce qui concerne les comportements reliés à l'alcoolisation massive, la consommation de tabac et de cannabis chez les jeunes filles. La comparaison entre les filles et les garçons démontre que la proportion de filles dont le comportement de consommation est problématique (lumières jaunes et rouges) est deux fois plus élevée que leur contrepartie masculine.

### Mots-clés

Nunavik; Inuit; drogues; tabac; profils d'utilisation; consommation excessive d'alcool; DEP-ADO; comportements à risque

### Resumen

A petición de las comunidades inuit de Nunavik (Quebec, Canadá), se realizó un estudio sobre la utilización de sustancias psicoactivas entre los inuit. Este artículo pretende describir los patrones de consumo de drogas de 405 estudiantes inuit (48% jovencitos y 58% jovencitas) de edades comprendidas entre los 11 y 21 años, reclutados de las escuelas primarias y secundarias. Los principales resultados muestran que el consumo de tabaco y cannabis es mayor entre los jóvenes inuit que entre los estudiantes de otras regiones de Quebec. Mientras que la proporción de bebedores jóvenes en el norte es más baja que en otras partes de Quebec, estos jóvenes enfrentan más frecuentemente los criterios de comportamiento de consumo excesivo de alcohol. Los jóvenes inuit empiezan a consumir regularmente sustancias psicoactivas más temprano y presentan más a menudo patrones de consumo problemáticos de acuerdo al índice de DEP-ADO. La situación es preocupante especialmente en lo que respecta a los comportamientos relacionados con consumo excesivo de alcohol, tabaquismo y consumo de cannabis entre las jóvenes. La comparación entre las jóvenes y los jóvenes muestra que la proporción de niñas cuyo comportamiento de consumo es problemático (luces amarillas y rojas) es dos veces más alta que la de sus homólogos masculinos.

### Palabras claves

Nunavik; Inuit; drogas; tabaco; perfil de uso; borrachera; DEP-ADO; conductas de riesgo

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## INTRODUCTION

American studies report extensive use of alcohol and other drugs among members of the First Nations (Atkins, Mosher, Rotolo and Griffin 2003; Oetting, Beauvais and Edwards 1988; Wallace, Bachmann, O'Malley, Johnson, Schulenberg and Cooper 2002). They also show the highest rate of alcohol and other drug addiction among American ethnic groups (French 2004). According to a review conducted in Quebec (Canada) by Mercier, Rivard, Guyon et Landry (2002), the situation seems equally worrisome among the Inuit in Nunavik (Quebec, Canada).

Nunavik is one of the four Inuit territories of Canada. Situated in the North of the 55th parallel, the region of Nunavik represents about the third of the total surface of Quebec (Statistique Canada 2006). Nunavimmiut form a community of about 9 000 persons distributed in 14 villages (Nunavik Regional Board of Health and Social Services (NRBHSS), 2005). This region includes 9 565 Inuits, is 19 % of the whole Canadian Inuit population (Statistique Canada 2006). The demographic characteristics of this population are very different from those of the population elsewhere in Quebec (Duhaim 2004). About 50 % of the population of Nunavik has less than 20 years old compared with 24 % for the whole Quebec (Institut de la statistique du Québec 2006). The birth rate in this region remains higher. According to the NRBHSS (2005), it would be from three to four times higher than somewhere else in Quebec. However, the infant mortality is particularly important (20.9 for 1000 inhabitants). The mortality rate is twice higher (32 %) than elsewhere in Quebec (14 %) and the rate of suicide remains superior to the national average of eight times (Canadian Centre on Substance Abuse 2005).

Mercier *et al.* (2002) found that the Nunavimmiut are very concerned over the problems of psychoactive substance (PAS) use and their impacts on physical, psychological, social and cultural well-being in their communities. In fact, as in the American studies, disturbing findings about PAS use

among the Inuit were reported in a far-reaching health survey conducted in Nunavik, in 2004, among Inuit 15 years old and over (Anctil 2008) by the Institut national de santé publique du Québec (INSPQ). Results reported that the proportion of occasional or regular alcohol consumers in Nunavik is lower (77%) than that observed elsewhere in Quebec (85%). However, the drinkers differ in the way they consume alcohol. While the proportion of binge drinkers<sup>1</sup> in the population is 7.5% elsewhere in Quebec, it is 24% in Nunavik (Anctil 2008). According to some authors, this manner of drinking is predominant among the Inuit and plays a major role in the violence, accidents, suicides, involuntary sexual contacts and problems related to family, employment and the law (Korhonen 2004; Mercier et al. 2002; Plourde et al. 2007; Wexler, Bertone-Johnson and Fernaughty 2008). A gap has also been observed relative to the use of drugs excluding alcohol. Approximately 60% of the Nunavimmiut interviewed report having used drugs in the past year, especially cannabis. This proportion is four times higher than elsewhere in Canada (Anctil 2008). Indeed, according to Patton & Adlaf (2005), 14.5% of the Canadians (15 years old and over) interviewed as part of the Canadian Addiction Survey said that they had taken drugs excluding alcohol during the past 12 months, with cannabis being the most popular substance. Finally, a major difference has also been observed regarding the use of tobacco. Whereas 77% of Nunavimmiut claim to have used tobacco daily or at least occasionally in the year preceding the INSPQ survey, this proportion is much lower elsewhere in Quebec (27%) (Anctil 2008). There are thus major differences in terms of PAS use in Nunavik and elsewhere in Quebec.

Although the phenomenon of PAS use among youth in southern Quebec has been widely studied, there is little specific information available about PAS use among youths in Nunavik. The INSPQ study (Anctil 2008) targeted the 15-and-over population in Nunavik,

<sup>1</sup> A binge drinker has 5 drinks or more per occasion.

so it did not specifically include this territory's children and younger adolescents. Additionally, most of the time, the data on them are unfortunately integrated into broader studies regarding all aboriginal peoples, including the Inuit. Nevertheless, these studies report a major drug-use problem among these young aboriginals.

Following a request from Inuit communities of Nunavik, the general objective of this study was to document and better understand PAS use by the 11- to 18-year-old Nunavimmiut and their families. To do so, a mixed research study was conducted between 2003 and 2007. Through its quantitative component, this study aimed to draw a portrait of the Inuit youths relative to their use of various drugs including alcohol and tobacco, the frequency of use, the initial age of regular use as well as the consequences and harms directly related to the use of alcohol and other drugs. This paper will focus on the quantitative component of the study.

## 1. METHOD

This research was carried out in close collaboration with the Inuit community, from defining the objectives to interpreting the results. The Inuit communities' commitment and participation were an assurance of the realism and feasibility of the research project (Fletcher 2003; Greabell, Cordes and Klein 2005). Therefore, an advisory committee was set up as of April 2003, comprising various stakeholders working on both of Nunavik's coasts: Hudson Bay and Ungava Bay and collaborated throughout the entire process. The quantitative sample consists of participants from four Nunavik communities (one small and one large from each coast) chosen by the advisory committee based on their geographical locations and population densities. The only Nunavik village where the sale of alcohol is permitted (but only in licensed bars) was included in this study.

Community members were informed of this study through the local media (newspapers, community radio, news bulletins). Participants were recruited in elementary schools and high schools. As a token of appreciation, a gift

certificate was awarded by drawing lots among the participants in each class. The plan for this research was reviewed and approved by the ethics committee of the Université du Québec à Trois-Rivières. The average participation rate in the schools was 82.2% (refusal rate=4.4% and absence rate=12.2%), 405 young students (48.4% boys; 51.6% girls) between the ages of 11 and 21 (average age: 13.91, S.D.: 2.08) participated in the quantitative component (see Table 1). Four participants were over 18 but were nevertheless included in the total sample. However, when we refer to the high-school students ( $n = 252$ ), these four students are excluded from the analyses to ensure representation comparable to high-school students under 18 elsewhere in Quebec. Finally, 149 students in the sample were recruited in elementary schools. These students are not included in the sub-sample of high-school students. The results specific to these students will be presented as well.

To screen use of alcohol and drugs in teens, we used the DEP-ADO (v3.1) screening grid (Germain, Guyon, Landry, Tremblay, Brunelle et Bergeron 2003) because it was conceived for a fast screening and allows a comparison with youth elsewhere in Quebec. A French, English or Inuktitut version of the screening grid was used depending on the participant's preference. Instructions for filling out the questionnaire were given collectively in French, English and Inuktitut through an interpreter. The DEP-ADO allows a score depending on the severity of PAS use (green light = non-problematic use; yellow light = risky use; red light = problematic use). Internal consistency of the items referring to each factor (Cronbach's alpha) varies from 0.60 to 0.86 (Tremblay, Guyon, Bergeron and Brunelle 2004). At the request of the advisory committee and because we wished to document certain contextual or problematic elements associated with PAS use, we added three questions: having been intimidated by another person under the influence of psychoactive substances, having stolen or having intimidated someone for the purpose of obtaining psychoactive substances, and having accepted to be with or go out with someone for the purpose of obtaining psychoactive substances.

**TABLE 1**  
GRADE LEVEL AND AVERAGE AGE OF PARTICIPANTS

| <i>Grade</i>       | <i>n</i>     | <i>Average Age (years)</i> | <i>Min. Age (years)</i> | <i>Max. Age (years)</i> |
|--------------------|--------------|----------------------------|-------------------------|-------------------------|
| Elementary 4       | 4            | 11.25                      | 11                      | 12                      |
| Elementary 5       | 18           | 11.22                      | 11                      | 13                      |
| Elementary 6       | 56           | 11.41                      | 11                      | 13                      |
| Elementary 7       | 71           | 12.49                      | 11                      | 14                      |
| <i>Total</i>       | <i>n=149</i> | <i>11.90</i>               | <i>11</i>               | <i>14</i>               |
| Secondary 1        | 74           | 13.77                      | 12                      | 19                      |
| Secondary 2        | 60           | 14.47                      | 13                      | 17                      |
| Secondary 3        | 43           | 15.60                      | 14                      | 18                      |
| Secondary 4        | 31           | 16.68                      | 15                      | 18                      |
| Secondary 5        | 21           | 17.24                      | 15                      | 20                      |
| Others             | 27           | 15.63                      | 11                      | 21                      |
| <i>Total</i>       | <i>n=256</i> | <i>15,07</i>               | <i>11</i>               | <i>21</i>               |
| <b>Grand total</b> | <b>405</b>   | <b>13.91</b>               | <b>11</b>               | <b>21</b>               |

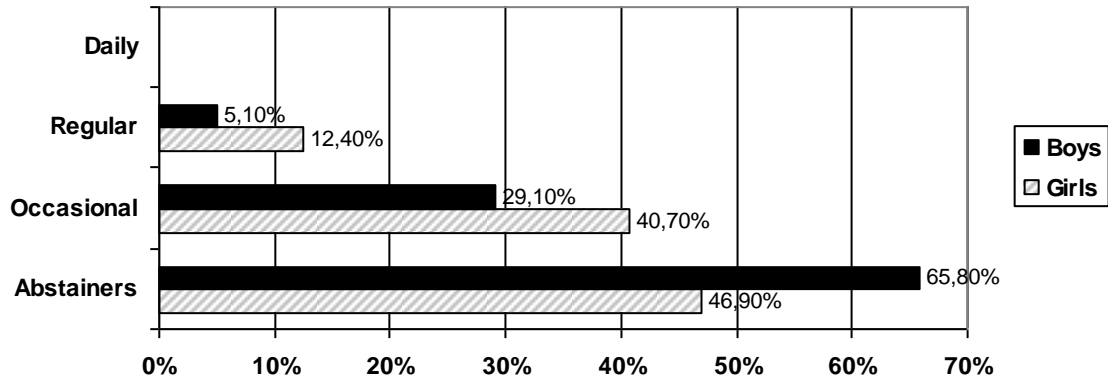
## 2. RESULTS

*Alcohol consumption.* Among all the young Inuit respondents ( $n = 405$ ), 44.0% report having consumed alcohol on at least one occasion in the past year (average age of the consumers: 14.77, S.D.: 2.11) and 20.7% claim to have drunk alcohol regularly<sup>2</sup> in their lifetime. The average age at which these drinkers began consuming alcohol regularly is 13.39 (S.D.: 2.31). Significantly more boys (65.8%) than girls (46.9%) abstained from alcohol during the 12 months preceding the survey, with a larger proportion of the girls than of their male counterparts drinking on a more regular basis ( $X^2_{(2)} = 16,47$ ,  $p < 0,001$ ) (see Figure 1). Neither the boys nor the girls drink on a daily basis. Finally, when considering only high-school students ( $n = 252$ ), the proportion of those having consumed alcohol in the past year was 54.4% while for elementary-school students ( $n = 149$ ), the proportion was 25.5%.

Youths having consumed alcohol in the past 12 months ( $n = 178$ ) were also asked about binge drinking (8 drinks or more per occasion for the boys; 5 drinks or more for the girls) during this period. More girls than boys meet this criterion and a larger proportion of the girls than of their male counterparts have done so repeatedly (twice or more) (girls: 53.3%, boys: 36.5%). Table 2 details the results for the high-school students who said they drank at least once in the past year ( $n = 137$ ). A worrisome proportion of drinkers among the elementary students repeatedly engaged in binge drinking in the past year, that is to say 21.7% of the boys and 42.9% of the girls.

<sup>2</sup> Regular drinking: once a week for at least one month.

**FIGURE 1**  
FREQUENCY OF ALCOHOL CONSUMPTION DURING THE PAST 12 MONTHS BY GENDER (N = 405)



**TABLE 2**  
BINGE DRINKING DURING THE PAST 12 MONTHS AMONG THE HIGH-SCHOOL STUDENTS WHO CONSUMED ALCOHOL DURING THE PAST 12 MONTHS

|                         | 0 to 1 time | 2 to 4 times | 5 times or more |
|-------------------------|-------------|--------------|-----------------|
| Boys (n = 52 drinkers)  | 54.0%       | 14.0%        | 32.0%           |
| Girls (n = 85 drinkers) | 39.5%       | 19.8%        | 40.7%           |

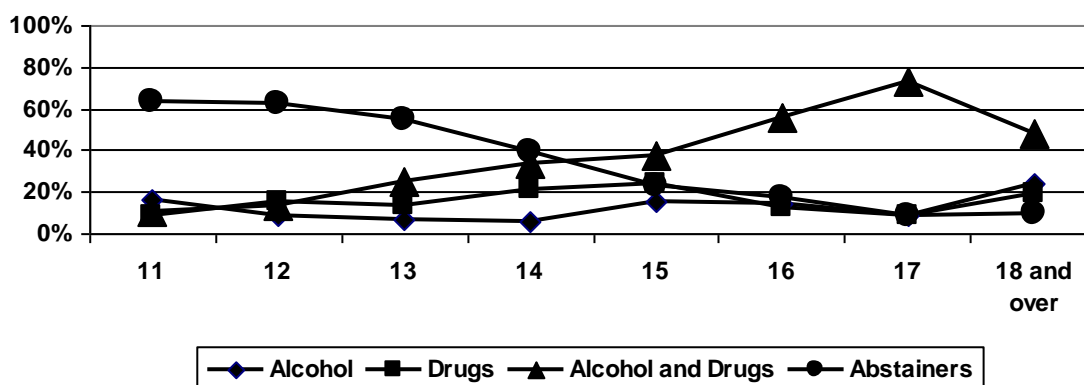
*Use of other drugs.* When asked about the use of psychoactive substances excluding alcohol, 48.1% of all the students (n = 405) reported having used them at least once in the past year (any substance), which represents 195 users of drugs other than alcohol. Among them, more girls (57.9%) than boys (42.1%) say they used drugs in the past 12 months ( $X^2_{(1, N=405)} = 6.06$ ,  $p < 0.05$ ). Among these users, more than half (59.5%) claim they are or were regular PAS users, and the average age at which regular use began is 12.92 (S.D.: 1.93). When only the high-school students are isolated (n = 252), the proportion of users in the past year is 60.3% while among the elementary students (n = 149),

it is 26.8%. We noticed that use increased significantly with the grade level ( $X^2_{(9, N=405)} = 53.80$ ,  $p < 0.001$ ), with the proportion of users of other drugs already at 51.4% among the Secondary I students. Table 3 presents the products used in the 12 months preceding the survey. Cannabis is the most popular substance, for both elementary and high-school students. Among the cannabis users in the entire sample (n = 190), 49% say they use it daily, 27% regularly and 24% occasionally. A review of the differences by gender shows that a larger proportion of the girls (57.9%) than of the boys (42.1%) use cannabis ( $X^2_{(1, N=405)} = 5.67$ ,  $p < 0.05$ ).

**TABLE 3**  
PORTRAIT OF PAS USE DURING THE PAST 12 MONTHS

|               | High-school students<br>12 to 18 years old<br>(n = 252) | Elementary students<br>11 to 14 years old<br>(n = 149) | Total sample<br>11 to 21 years old<br>(n = 405) |
|---------------|---|--|---|
| Cannabis      | 59.9%   | 24.2%  | 46.9%   |
| Hallucinogens | 1.6%  | 0.0%   | 1.0%  |
| Amphetamines  | 1.6%  | 0.7%   | 1.2%  |
| Cocaine       | 1.6%  | 0.7%   | 1.7%  |
| Solvents      | 4.0%  | 4.0%   | 4.0%  |
| Heroin        | 0.4%  | 0.0%   | 0.5%  |
| Other drugs   | 2.0%  | 0.0%   | 1.2%  |

**FIGURE 2**  
PREVALENCE OF PAS POLYCONSUMPTION BY PARTICIPANTS' AGE (N = 405)



*Polyconsumption.* Although 40.0% of all the youths in the Nunavik study claim to have abstained from all psychoactive substances in the past 12 months, 33.0% of them are "polyconsumers," that is to say consumers of both alcohol and other drugs, and this concerns the girls more than the boys ( $X^2_{(3, N=405)} = 17.41, p < 0.001$ ). Among high-school youths (n = 252), the proportion of polyconsumers is 42.5% while few of them consume alcohol (11.9%) or other drugs (17.9%) exclusively. From the viewpoint of age, the turning point in the use trajectory is at around 14.5 years old, when the rate of abstinence begins to drop (see Figure 2).

*Use of tobacco*<sup>3</sup>. All the youths (n = 405) were asked about their tobacco use as well, and 69.6% of them said that they had smoked at least once in the past year. This proportion is 79.4% among the high-school youths (n = 252) while it is 52.3% for elementary students (n = 149). Table 4 presents the distribution of the frequency of tobacco use in the past year by gender. The girls smoked daily significantly more than the boys did ( $X^2_{(5, N=405)} = 19.143, p < 0.05$ ).

<sup>3</sup> The data on the tobacco are not held in account in the calculation of screening index (DEP-ADO).

**TABLE 4**  
TOBACCO USE DURING THE PAST 12 MONTHS BY GENDER

|                          | Girls<br>(n = 209) | Boys<br>(n = 196) | Total Sample<br>(n = 405) |
|--------------------------|--------------------|-------------------|---------------------------|
| Non-smokers              | 23.0%              | 38.3%             | 30.0%                     |
| Occasional               | 12.0%              | 15.8%             | 14.0%                     |
| Once a month             | 1.9%               | 2.0%              | 2.0%                      |
| Weekends or twice a week | 5.3%               | 2.6%              | 4.0%                      |
| Three times a week       | 4.8%               | 6.6%              | 6.0%                      |
| Daily                    | 53.1%              | 34.7%             | 44.0%                     |

*Consequences of PAS use*<sup>4</sup>. The young consumers (n = 241) were asked about the consequences that they perceive as resulting directly from their PAS use during the year preceding the survey. The most frequently reported consequence concerns financial difficulties mainly caused by their PAS use (30.3%). A proportion of 22.9% reports having adopted risky behaviours (unprotected sex or that which would be unthinkable when sober, driving a 4X4 vehicle or a snowmobile or practicing a sport while under the influence, etc.). Regarding school, 19.9% admit having experienced negative consequences (absenteeism, suspension, drop in grades, loss of motivation, etc.), and an almost equal proportion (17.5%) reports having committed delinquent acts (theft, injuring someone, vandalism, selling drugs, impaired driving, etc.). Also, 18.7% say they have encountered negative consequences with respect to their family while 16.6% report experiencing negative consequences relative to their friendships or romantic relationships and 12.4% claim to have suffered problems related to their physical health (digestive problems, overdose, infection, nose irritation, injury, etc.). An equivalent proportion says they experienced psychological consequences (anxiety, depression, trouble concentrating, suicidal thoughts, etc.). The review of the differences by gender shows that comparable proportions of boys and girls report consequences linked to their PAS use. The girls differ significantly from the boys only when it comes to consequences related to their

physical health ( $X^2_{(1, N=241)} = 5.49, p < 0.05$ ) and to their friendships or romantic relationships ( $X^2_{(1, N=241)} = 10.48, p < 0.001$ ). In both cases, they report experiencing more negative consequences than their male counterparts do. Finally, close to a third of the young users (30.7%) report needing to consume more substances to obtain the same effect (tolerance) and most (90.8%) say they have not spoken about their use of alcohol or other drugs with someone involved in the field.

Further to the advisory committee's recommendations, the question of intimidation as a consequence linked to PAS use was addressed as part of the survey. All the youths in the study (n = 405), consumers and non-consumers, were therefore asked if, in the past 12 months, they had been threatened by another person who was under the influence of a PAS. And no less than 48.4% of the youths replied affirmatively. Furthermore, 9.0% say they committed a theft in the past 12 months to obtain psychoactive substances while 9.0% report having accepted to have a relationship with someone, adults in 50% of the cases, with the sole objective of obtaining psychoactive substances. Among them, more girls (69.4%) than boys (36.6%) claimed to have done so ( $X^2_{(1, N=405)} = 5.04, p < 0.05$ ).

From the information obtained in the DEP-ADO grid, a screening index was calculated to allow us to situate the severity of PAS use among the youths. Among all the participants (n = 404), 80.7% are green light while nearly 20% of the

<sup>4</sup> Excluding tobacco use.

youths were detected as problematic users (yellow light: 9.7%; red light: 9.7%). When the high-school students are isolated ( $n = 251$ ), the proportion of youths with problematic use is 27.2% (yellow light: 13.6%; red light: 13.6%). A comparison between the girls and the boys shows that the proportion of girls who are problematic users (yellow and red lights) is twice as high (26%) as that of their male counterparts (12.2%) ( $X^2_{(2, N=404)} = 12.39, p < 0.05$ ). This tendency is also true when high-school students are isolated ( $n = 251$ ); the cumulative proportion of the girls who are yellow or red lights is 35.2% while for the boys, it is 18.7% ( $X^2_{(2, N=251)} = 9.13, p < 0.001$ ). The age of the participants is significantly associated with the severity index ( $X^2_{(4, N=404)} = 23.71, p < 0.001$ ). Indeed, 74.4% of the youths who are red lights are at least 14 years old. The same is also true for the youths who are yellow lights (76.9%).

### 3. DISCUSSION

In Nunavik, alcohol and cannabis are the most used substances among youths. It may seem rather surprising to see that almost half of the youths say they consumed some in the past year while most of the communities under study have laws prohibiting the sale of this substance on the territory. However, when compared with other Quebec high-school students, there are proportionately fewer Nunavik youths who consumed alcohol in the past year. The survey carried out in 2004 by the Institut de la statistique du Québec (ISQ)<sup>5</sup> shows that 63.5% of high-school Quebec students say they consumed alcohol in the past year (Pica 2005) while the rate for our participants is 54.4%. This tendency had also been observed by Lalinec-Michaud, Subak, Ghadirian and Kovess (1991) in a comparative study conducted among Inuit students and those from rural Quebec. The difference can probably be explained in part by less availability of the product. Nevertheless, daily alcohol consumption is very rare among both Nunavik and other Quebec students.

<sup>5</sup> Since our study took place in 2004, we used the data from the 2004 ISQ survey. We believe that doing so resulted in a comparison base that better corresponds to our study.

The other significant point observed regarding alcohol consumption among Nunavik youths concerns the higher proportion of girls using alcohol in comparison with their male counterparts. They consume more and on a more regular basis than the boys and meet the binge-drinking criterion more frequently. These data differ from those in the ISQ study (2004) which reports that the boys are the ones who abuse alcohol more by binge drinking. Indeed, the proportion of boys having reported binge drinking and drinking repeatedly (at least twice last year) is 53.3%, which is higher than the boys interviewed in Nunavik (46%). The difference is more significant between the Nunavik girls (60.5%) and those elsewhere in Quebec (48.4%). This manner of drinking is particularly associated with certain risky behaviours such as impaired driving that could lead to accidents, violence, as well as delinquent acts.

It may seem surprising to see that the Nunavik girls engage more in binge drinking than the boys do. First, it should be noted that the binge-drinking criterion for the boys is more severe than the one used for the girls: eight drinks versus five drinks on a same occasion, while in the ISQ study (2004), the criterion used is the same for the boys and the girls, that is to say five drinks or more on a same occasion. In our study, the criterion of eight drinks or more was used for the boys because it is the one that resulted in good psychometric qualities for the DEP-ADO. Furthermore, the living environment in the various Inuit communities, especially those where the sale of alcohol is forbidden, can influence our results. It may be difficult for the boys to obtain eight drinks in one occasion. Additionally, when discussing the results on binge drinking with the advisory committee in June 2006, we realized that the young Inuit may not all have understood how to calculate the number of drinks per occasion. The fact that they drink liquors such as vodka in large glasses rather than in shot glasses or small glasses may have caused the results on binge drinking to be underestimated. However, this would not explain why Nunavik girls binge drink more than girls elsewhere in Quebec. Although these reservations, we can probably assume

that although we count more young abstainers in Nunavik, there are more binge drinkers among those who do drink.

Regarding the use of other drugs, we also observed major differences between the situation of the high-school students in Nunavik and that of other students in Quebec. The proportion of cannabis users in the past year among high-school students in Nunavik (59.9%) is by far larger than that of other students elsewhere in Quebec (35.5%). However, the number of users of other illicit drugs excluding cannabis is much lower among youths in Nunavik than elsewhere in Quebec. For example, 1.6% of Nunavik students claim to use amphetamines while the proportion is 10.3% for other Quebec students (Pica 2005). The difference is in the same range for cocaine. The proportion of 11- to 21-year-old Inuit students having inhaled solvents in the past year seems abnormally low (4%) to us, if we refer to the interview excerpts on the subject (qualitative component of the study) and popular belief. This could be explained by the fact that solvent use in Nunavik is more popular among children under the age of 11, whose use was not evaluated in our study. The fact remains that the prevalence of solvent use among 11- to 21-year-old Nunavik students is double the one observed among other 12- to 18-year-old Quebec students (4.0% vs. 1.9%) (Pica 2005).

As noted for the use of alcohol, the Inuit girls indicate a higher use of cannabis than their male counterparts do. This tendency was not observed among other Quebec high-school students, whose cannabis use is comparable whether for boys (35.0%) or girls (36.1%) (Pica 2005). This result raises certain questions about the fact that the girls, no matter what the substance, use more than the boys do. Moreover, the girls also reported being more affected than their male counterparts did in terms of physical and relational consequences resulting directly from their PAS use. At the June 2006 meeting with the advisory committee, we were advised that the Nunavik girls hang out in groups much more than the boys do, especially with deviant peers. Some

also raised the fact that the girls may therefore influence each other.

When comparing the proportion of users of alcohol and/or other drugs by Nunavik students to that of students elsewhere in Quebec, we notice that there are a few more users of psychoactive substances including alcohol in the North (72.1%) than in the South (64.8%). The main differences involve: the near exclusivity of cannabis as the illegal drug in Nunavik compared with a variety of other drugs used in the South (mainly cannabis), the more precocious use of drugs in the North compared with the South (a much larger proportion of users in the North in Secondary I and II, but as large a proportion in Secondary IV and V), and a larger proportion of girls than of boys who use alcohol and cannabis in the North while we see similar proportions (boys/girls) in the South. Therefore, prevention efforts must start in elementary school to reduce early initiation to PAS use, a major risk factor related to subsequent drug-use problems. It should be noted that there is almost no use of hard drugs like cocaine and heroin, which involve their share of problems (physical dependence, STI, lucrative delinquent activities to obtain drugs). One possible explanation considered by our team is less availability of these products in Nunavik.

Among the consequences that the young Inuit attribute the most to their drug use are money problems, risky behaviour (unprotected sex and that which would be unthinkable when sober...), problems in school (absenteeism, drop in school grades...) and family problems. Prevention and intervention programs must also be developed and offered to other youths who may experience, chronically or sporadically, difficulties related to their use or engage in risky behaviours after taking drugs. A good example would be unwanted pregnancies when, under the influence of alcohol, youths have unprotected sex. We also believe that additional efforts should be directed toward reducing tobacco use among the young Nunavimmiut. More than two thirds of the students reported smoking tobacco in the past year (versus 19%

in the South<sup>6</sup>). Of the Inuit students, 44% use it daily (versus 8% in the South<sup>7</sup>). Once again, it is the older students and the girls who use tobacco the most in Nunavik.

Among the 11- to 21-year-old Nunavik students, the majority (80%) exhibits no obvious or even emerging consumption problems according to the DEP-ADO index. However, 10% show signs of risky use (yellow light). These students exhibit an emerging consumption problem for which early intervention is generally recommended in the South. Another 10% of the participating students rate a red light and therefore have an obvious consumption problem for which a referral to a specialized drug rehabilitation organization is recommended. More consumption problems are exhibited by the 14-and-over students, especially the girls (27% vs. 13%). Meanwhile in the South, we see boys and girls rating a yellow or red light in similar proportions (17% vs. 15% in 2004). Finally, when we compare high-school students in Nunavik with the ones elsewhere in Quebec<sup>8</sup>, we see that 13.6% of Northern students rate a yellow light versus 10.2% in the South. The difference is more striking when we compare the proportions of young students rating a red light. The proportion of high-school students rating a red light in Nunavik is 13.6% while elsewhere in Quebec, it is 5.3%. Therefore, more than double the number of high-school students exhibit serious problems in Nunavik versus the South. If we add the proportion of students displaying an emerging problem, the importance of offering drug addiction services (health promotion, prevention, rehabilitation,

harm reduction) to Inuit students becomes even more apparent.

All these results were presented first to the members of the advisory committee in 2007. Right after, a conference was broadcasted simultaneously on the community radio to inform all Nunavimmiuts of the results of the study. A pamphlet including the major key findings of the study was sent to all the communities of Nunavik in many copies.

The portrait of consumption of the young Nunavimmiut will allow local authorities to justify the granting of supplementary funds to address PAS problems in Nunavik communities; governmental funds usually granted are distributed according to the number of pupils in schools (not many in Nunavik). Having the information on the proportion of PAS problems in Nunavik schools can be a useful argument to access more funding for health and social services in schools and elsewhere in the communities. Moreover, for many elders and leaders of the communities, the results have confirmed their perceptions of the situation regarding consumption among young Nunavimmiut, but they also allowed them to become aware of the particular situation regarding girls more serious PAS problems and the precocity of PAS use in their communities. It gives Nunavimmiut ideas on what targets to prioritize in terms of intervention strategies.

#### 4. LIMITATIONS

This study has certain limitations that must be raised. First, the language barrier may have caused some lack of understanding on both sides between the interviewer and the students who took part in the survey, although we made sure to have a person who was proficient in the Inuit language in the classrooms when gathering the information. Moreover, we believe that it may have been difficult for the youths to properly estimate their number of drinks since they don't necessarily use measuring glasses or small glasses to drink hard liquor. This may have affected the proportions of binge drinking calculated according to the number of drinks per occasion. Finally, the North-South comparisons were presented for information

<sup>6</sup> Comparison shown for information purposes only. The window used by the ISQ study (2004) to observe tobacco use among high-school students was the past 30 days, while ours refers to the past 12 months. It is likely that the gap between the two populations would have been smaller with an equivalent exploration window.

<sup>7</sup> See note above.

<sup>8</sup> The previous data are not comparable to those from the ISQ as they include the total sample comprising 11- and 12-year-old elementary-school students while the ISQ includes only 12- to 18-year-old high-school students.

purposes only, since the way the DEP-ADO data were processed for the ISQ (2005) is not statistically equivalent to ours. For example, the ISQ study used the same binge-drinking criterion for the boys and for the girls while we retained the values used when validating the tool, that is to say 8 drinks or more per occasion for the boys and 5 drinks or more per occasion for the girls. However, we should remember that this difference could only have led to a possible underestimation of binge drinking in the North, and according to our criterion, the numbers are already worrisome, especially for the girls.

## CONCLUSION

A large proportion of Nunavik youths present indexes (lights) showing problematic drug use patterns. Having said this, the apparent ease with which they can obtain alcohol and cannabis in northern Quebec although geographic remoteness and bans on alcohol in most of the communities seems to have a direct impact on the use of solvents. Therefore, the situation with solvents appears to be less alarming than that presented by the media. The prevention programs implemented during the past years may have slowed the progression of solvent use among Nunavik youths. Increased prevention and intervention efforts are nevertheless needed for the girls exhibiting a more dismal profile of use of alcohol and other drugs than their male counterparts and among elementary students to reduce early initiation. All the more since we know that early initiation is an important risk factor for problematic consumption. Finally, tobacco use remains worrisome, knowing the harmful long-term consequences it can cause. Nunavimmiut have now a better portrait of youth PAS use in their communities. Longitudinal studies could be useful to follow the PAS use trajectories of these young consumers to develop adapted prevention programs, especially for girls and concerning binge drinking and tobacco use.

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