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Toward a Policy-Relevant Typology of Cannabis Use for Canada



Analysis drawn from the 2004 Canadian Addiction Survey

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The Canadian Addiction Survey (CAS) was a collaborative initiative sponsored by Health Canada, the Canadian Centre on Substance Abuse (CCSA) and the Canadian Executive Council on Addictions (CECA)—which includes the Alberta Alcohol and Drug Abuse Commission (AADAC), the Addictions Foundation of Manitoba (AFM), the Centre for Addiction and Mental Health (CAMH), the Prince Edward Island Provincial Health Authority, and the Kaiser Foundation—the Centre for Addictions Research of BC (CAR-BC), and the provinces of Nova Scotia, New Brunswick and British Columbia. Analysis presented in this and similar reports is intended to supplement the original CAS detailed report.

Introduction

The interplay between the epidemiology of cannabis use and public policy presents a challenge due to the undiscerning way in which cannabis use is reported and interpreted from drug use surveys. Although many have argued that the moderate use of cannabis is not a major source of health and social harms (Senate, 2002), cannabis use is usually reported in a way that discourages any detailed assessment of its risk potential. It is most often reported in terms of lifetime and past-year use and this kind of reporting does not provide useful information on at-risk or excessive use of the drug—exactly the categories of use that public policy should focus on if the reduction of health and social harms is the goal. Often, in terms of survey reporting and public policy responses, it is as though all cannabis use is treated as equally problematic.

The goal of this paper is to conduct preliminary analyses and make recommendations to facilitate the development of a more discerning and useful approach to interpreting and responding to cannabis use in Canada. The first part provides background information on a policy-relevant typology for interpreting alcohol use, a typology developed in France for interpreting cannabis use, and preliminary work done by the Senate Special Committee on Illegal Drugs on a typology for interpreting cannabis use in Canada. The second part uses data from the 2004 Canadian Addiction Survey to specify a typology of cannabis use based on prevalence and frequency of use and on reported harms. The final section provides a discussion of the findings of this exercise and makes suggestions for future analyses that would further inform the development of a policy-relevant typology for interpreting cannabis use in Canada.

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Background

A Typology for Interpreting Alcohol Use. Functional typologies to interpret substance use can be used to guide the development of effective public policy responses to problematic use. For example, researchers in Canada's Yukon Territory developed a practical typology for interpreting alcohol use patterns in the early 1990s based on the pattern and frequency of alcohol use. This typology has six categories:

- 1) **abstainers** (no alcohol consumption in lifetime);
- 2) **former drinkers** (drank at some time in the past, but not in the previous 12 months);
- 3) **light-infrequent** (less than five drinks per occasion, less than four times a month);
- 4) **light-frequent** (less than five drinks per occasion, four or more times a month);
- 5) **heavy-infrequent** (five or more drinks per occasion, less than four times a month);
- 6) **heavy-frequent** (five or more drinks on a single occasion, five times a month or more).

In 2004, the Canadian Addiction Survey (CAS) determined the prevalence of self-reported drinking patterns as depicted in Tables 1 and 2 below:¹

Table 1: Percent of Respondents Aged 15+ Self-Reporting Drinking Prevalence, Canada, 2004

Drinker Type	Men	Women	Total
Abstainer	5.9	8.4	7.2
Former Drinker	12.1	14.8	13.5
Current Drinker	82.0	76.8	79.3

Source: Adlaf, et al., 2005:25

Table 2: Current Drinkers Aged 15+ Self-Reporting Drinking Patterns, Canada, 2004

Drinker Type	% of Current Drinkers
Light-Infrequent	48.9
Light-Frequent	35.1
Heavy-Infrequent	7.1
Heavy-Frequent	9.0

This typology of alcohol use can be related to public policy choices by recognizing the fact that health and social harms associated with problematic alcohol use derive predominantly from three conditions: toxicity (overdose), intoxication and dependency. The tables above suggest that in order to efficiently address harms associated with alcohol use, we must take into account pattern of use as well as quantity/frequency of use since different harms tend to stem from different patterns of use. Specifically, patterns of use towards the “heavy” drinking pole are more likely to lead to acute harms associated with toxicity and intoxication (e.g., injury and violence), while patterns of drinking towards the “frequent” drinking pole are more likely to lead to chronic harms (e.g., chronic diseases related to long-term heavy drinking and dependence).² Unfortunately no similar accepted typology of use is available to inform the development and implementation of cannabis control policy in Canada.

Existing Typologies of Cannabis Use. In recent years, functional approaches to interpreting cannabis use have emerged to help guide the development of effective policy responses in some countries. For example, France employs a six-category typology to interpret cannabis use based on frequency of consumption as depicted in Table 3 below:

1 When interpreting self-reported drinking levels and patterns from the CAS, it is important to note that alcohol use, as measured by legal sales of alcoholic beverages, were significantly under-reported in the survey. Secondary analysis of the CAS data suggests that responses regarding past-year drinking captured only about 37.5% of actual recorded sales in Canada (Stockwell et al., 2005:4).

2 It is possible to relate this typology to another useful framework for assessing alcohol use: the low-risk drinking guidelines (LRDGs). The often-cited guidelines in Canada state that men should not drink more than 14 standard drinks (containing 13.6g of pure alcohol) a week and that women should not drink more than 9. The guidelines also suggest that people should not drink more than two standard drinks on any given day. Careful epidemiological research suggests that, for healthy individuals, consumption at the LRDGs or below is less likely to lead to significantly increased risk for either acute or chronic harms.

Table 3: French Typology for Interpreting Cannabis Use

Type of Consumption	Frequency of Use	Percent of Population 18+ in 1999-2000
Abstainer	Never	78.4
Experimental	Past consumption, but not in the last year	n/a
Occasional	Between 1 and 9 times a year	6.5
Repeated	More than 9 times a year, less than 10 times per month	3.6
Regular	Between 10 and 19 times a month	1.4
Excessive	20 times or more a month	n/a

Source: OFDT (2002).

The French also collect data that allow for greater specification of problematic cannabis use by asking users to report whether, and how often, they smoke alone, in the morning and before work or school. These data are useful for identifying “at-risk” cannabis users since these behaviours are often suggested as indicators of problematic consumption.

While Canada does not currently have an accepted typology for interpreting cannabis use, the Senate Special Committee on Illegal Drugs did preliminary work on this topic in 2002. In that year, the Committee published a report entitled *Cannabis: Our Position for a Public Policy*. Among other things, the report commented on the undiscerning manner in which cannabis use is reported in Canada and around the world, and developed the following preliminary typology based on the using context, and the quantity, frequency and period of cannabis use:

Table 4: Senate Special Committee on Illegal Drugs Proposed Typology of Cannabis Use (2002)

Type of Consumption	Context of Use	Quantity	Frequency	Period and Intensity of Use
Experimental/ Occasional	Curiosity	Variable	A few times over lifetime	None
Regular	Recreational, social Mainly in the evening Mainly in a group	A few joints; Less than one gram a month	A few times a month	Spread over several years, but rarely intensive
At-Risk	Recreational and occupational (before work or school, for sport) Alone and in the mornings Under 16 years of age	Between 0.1 and 1 gram a day	A few times a week, evenings, especially weekends	Spread over several years with high intensity periods
Excessive	Occupational and personal problems; No self-regulation of use	Over one gram a day	More than once a day	Spread over several years with several months at a time of high intensity use

Source: Senate, 2002.

Toward a Policy-Relevant Typology of Cannabis Use

The Government of Canada has collected information on cannabis use infrequently via population surveys since 1970 when the Le Dain Commission undertook a national survey as part of its investigation of the non-medical use of drugs (Adlaf, Begin & Sawka, 2005). At that time, lifetime prevalence of cannabis use was estimated to be 3.5% of the population and past-year use was estimated at 1% (Senate, 2002:92). Since 1970, the rates of self-reported lifetime and past-year use of cannabis have increased dramatically as depicted in Tables 5 and 6.

The striking increase in prevalence of self-reported cannabis use over the past 25 years is especially pronounced among young people. Lifetime prevalence between the ages of 18 and 24 was estimated to be 70%

in 2004, while past-year use of 18- and 19-year-olds was estimated to be 47% (Patton & Adlaf, 2005:48). In a recent focused survey of college students in Canada, 32.1% of respondents reported using cannabis at least once in the past year, and 16.7% stated that they had used cannabis in the past 30 days (CAMH, 2005).

Statistics such as these lead some observers to call for more and stronger policy responses to cannabis use in Canada; however, due to resource constraints it will be important to develop a discerning approach to cannabis control that focuses on problematic uses that contribute significantly to health and social harms. Fortunately, three of the surveys listed above (NADS, CADS and CAS) collected more detailed data on patterns of cannabis use that can be helpful in developing a policy-relevant typology. In the following paragraphs, data from the CAS are used to inform the development of a policy-relevant typology of cannabis use for Canada.

Table 5: Percent of Respondents Aged 15 + Self-Reporting *Lifetime* Cannabis Use

Year	Survey	Men	Women	Total
1989	National Alcohol and Other Drugs Survey (NADS)	28.9	17.7	23.2
1994	Canadian Alcohol and Other Drugs Survey (CADS)	33.5	23.1	28.2
2002	Canadian Community Health Survey (CCHS 2.1)	47.0	35.9	41.3
2004	Canadian Addiction Survey (CAS)	50.1	39.2	44.5

Table 6: Percent of Respondents Aged 15 + Self-Reporting *Past-Year* Cannabis Use

Year	Survey	Men	Women	Total
1989	National Alcohol and Other Drugs Survey (NADS)	8.9	4.1	6.5
1994	Canadian Alcohol and Other Drugs Survey (CADS)	10.0	4.9	7.4
2002	Canadian Community Health Survey (CCHS 2.1)	15.5	9.1	12.2
2004	Canadian Addiction Survey (CAS) ³	18.1	10.2	14.1

³ The response rate on the CAS was very low (about 47%) so these comparisons with earlier surveys should be interpreted with caution (Stockwell et al., 2005:2).

The Canadian Addiction Survey (CAS) (2004) collected self-reported prevalence, frequency and harm data on cannabis use for people 15 years and older via a telephone-based national survey.⁴ The measures of cannabis-related harm in the CAS are based on questions from the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) developed by the World Health Organization (Henry-Edward et al., 2003). As applied to cannabis in the CAS, the ASSIST scale is scored from six questions that ask about frequency of use, health and social harms associated with a person's cannabis use, and other indicators of problems

associated with use. The six cannabis-related ASSIST questions used in the CAS are shown in Table 7. An overall ASSIST score for CAS respondents who have used cannabis in the past three months is calculated by adding the scores of these six questions, which produces a scale varying between 0 and 39. Tables 8 and 9 below depict CAS results for frequency of use and the prevalence of health and social harms for cannabis users in Canada derived from the ASSIST questions in the CAS. Combining these data and scores, we propose and populate a typology of cannabis use for Canada as depicted in Table 10.

Table 7: ASSIST Questions Incorporated into the CAS Survey with Answer Scoring

CAS Variable	Question	Scoring
<i>ascan1</i>	“How often have you used marijuana, cannabis or hashish in the past three months?”	Never = 0 Once or twice = 2 Monthly = 3 Weekly = 4 Daily or almost daily = 6
<i>ascan2</i>	“During the past 3 months, how often have you had a strong desire or urge to use cannabis, marijuana or hashish?”	Never = 0 Less than monthly = 3 Monthly = 4 Weekly = 5 Daily or almost daily = 6
<i>ascan3</i>	“During the past 3 months, how often has your use of cannabis, marijuana or hashish led to health, social, legal or financial problems?”	Never = 0 Less than monthly = 4 Monthly = 5 Weekly = 6 Daily or almost daily = 7
<i>ascan4</i>	“During the past 3 months, how often have you failed to do what was normally expected of you because of your use of cannabis, marijuana or hashish?”	Never = 0 Less than monthly = 5 Monthly = 6 Weekly = 7 Daily or almost daily = 8
<i>ascan5</i>	“Has a friend or relative or anyone else ever expressed concern about your use of cannabis, marijuana or hashish?”	Never = 0 Yes, but not in the last 3 months = 3 Yes, in the last 3 months = 6
<i>ascan6</i>	“Have you ever tried to control, cut down or stop using cannabis, marijuana or hashish?”	Never = 0 Yes, but not in the last 3 months = 3 Yes, in the last 3 months = 6

4 A detailed account of the design and methodology used in the CAS is available in Adlaf & Rehm, 2005.

Table 8: Frequency of Cannabis Use, Past-Year and Past-3-Month Users, Aged 15+, Canada, 2004

Frequency	% of Past-Year Users (n=1,851)	% of Past-3-Month Users (n=1,466)
Never in the past 3 months	20.8	0.0
Less than monthly	24.9	31.4
Monthly	16.0	20.2
Weekly	20.3	25.6
Daily or almost daily	18.1	22.8

Source: Patton and Adlaf, 2005:54 and analysis by the authors.

Table 9: Percentage Reporting Cannabis-Related Symptoms Indicative of Intervention Need, Based on the ASSIST Scale, Past-3-Month Users Aged 15+, Canada, 2004

Symptom	% of Past-3-Month Users (n=1,466)
Strong desire to use (during past 3 months)	40.4
Health, social, legal problems (during past 3 months)	6.2
Failed family or employer expectations (during past 3 months)	8.8
Friends express concern about use (lifetime)	19.8
Failed to control use (lifetime)	42.9

Table 10: Proposed Typology of Cannabis Use with Percent and Population Estimates Using ASSIST Scores of 4–26 for At-Risk Cutoff (2004)⁵

Category of User	Characteristics of Users	% of Past-3-Month Users (n = 1,466)	% of Canadian Population 15 and older	Estimated Number of Users (2004) ⁶
Abstainer	No Use in Lifetime	0	55.7	13,487,663
Past User	Used at Least Once in Lifetime but Not in Last 12 Months	0	30.4	7,361,310
Past-Recent User	Used in Past Year but Not in Last 3 Months	0	2.9	702,230
Low-Risk User	Less Than Monthly or Monthly Use in Last 3 Months AND ASSIST Score ≤ 3	26.0	2.8	678,015
Moderate-Risk User	Daily or Near Daily Use in Last 3 Months AND/OR ASSIST Score Between 4 and 26	72.3	7.9	1,912,972
Dependent/High-Risk User	ASSIST Score ≥ 27	1.7	0.2	48,430

Note: Total percent may not add to 100 due to rounding and questions that were not answered by some respondents; in addition some estimates may be slightly different from those in the detailed CAS Report (Adlaf et al., 2004) due to the fact that some respondents did not answer all questions used to create the composite typology variable.

5 The categorization of cannabis users set out in Table 10 should be interpreted as preliminary since, for the most part, epidemiological data for accurately estimating the health and social risks of different levels of cannabis use are not available. Data of this type are being collected from specific studies in different parts of the world, but we are not aware of any authoritative meta-analyses that draw the literature together in a way that would be useful for improving the specification of a typology of this sort.

6 Based on a population estimate of 24,214,835 Canadians aged 15+ in 2004.

Discussion

The percentage of population in each of the user categories in Table 10 is calculated by combining data on the frequency of cannabis use (these results are reported in Table 8) with data on reported harms and problematic use (these results are reported in Table 9). In Table 10, a score of 4-26 on the ASSIST is used to distinguish between low- and moderate-risk cannabis users. A cut-off of 4 is what is recommended by the World Health Organization to distinguish between low and moderate risk users for all illicit drugs, including cannabis.

One interesting fact about the ASSIST scale is that when it is applied to alcohol users, a score of 11 is used to distinguish between low and moderate risk drinkers. While there is a large body of epidemiological data available to assess the relative health and social risk of different levels of alcohol use that can be drawn upon to identify the appropriate cut-off score between low and moderate risk for alcohol use, no such well-articulated body of literature is yet available for cannabis (Hall, 2001). It is significant to note that any individual reporting weekly use of cannabis in the CAS receives a minimum ASSIST score of 4 and is therefore automatically categorized as a moderate-risk user based solely on their frequency of use. This effect produces a highly heterogeneous category of moderate-risk users in our typology that captures nearly three-quarters of past-three-month users, some of whom report no harms at all, some whose only risk factor is using weekly, and some who report a constellation of health and social harms.

The ASSIST is an instrument that was designed to identify the need for clinical intervention among substance users; however, in the case of the CAS, it was used in the context of general population surveillance. It is our contention that the pooling together of individuals whose only risk factors is use along with individuals who report health and social harms, even if at very low levels, could be counterproductive to the development of effective public policy and effective messaging efforts regarding cannabis use.

In a subsequent paper, we will conduct further analysis of the CAS data to develop a more detailed analysis of the 72% of cannabis users who fall into the “moderate risk” category based on the standard interpretation of the ASSIST. By applying discriminate analysis comparing data on frequency/patterns of use and data on actual, reported harms, we hope to develop a typology of Canadian users that is better specified for use in a population surveillance context. This function may allow us to classify harms reported by past-three-month users into categories based on frequency of use. Through this analysis, we will be able to more accurately determine what patterns of use correspond to specific patterns of harm.

Errata

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This report includes analyses of scores on the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), a six-item screener to measure problematic drug use. An error was recently found in one item of this screener. This item is presented in Table 7 of this report as *ascan6*. Properly stated, the question is, “Have you ever tried [AND FAILED] to control, cut down or stop using cannabis, marijuana or hashish.” The phrase “and failed” was not asked of respondents. This error may lead to inflated prevalence estimates of the symptom, *failure to control use* (as presented in Table 9) and inflated prevalence estimates of “Moderate-Risk Users” and “Dependent/High-Risk Users” in Table 10. Caution and warning should be used in making direct comparisons with other studies using the ASSIST.

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