

Crime Associated with Alcohol and Drugs among Offenders in Ontario Provincial Prisons

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Executive Summary

In June 1996, the Canadian Centre on Substance Abuse (CCSA) revealed the results of the first Canadian study on the costs of alcohol and drug abuse (Single *et al.*, 1996) which found total costs of \$18.5 billion, including \$9.6 billion for tobacco, \$7.5 billion for alcohol and \$1.4 billion for illicit drugs. The authors note that these figures are cautious estimates, because it was impossible to determine certain costs, such as the number of violent or lucrative crimes related to the intoxication or addiction of the offender.

Over the past 20 years, many studies (see Brochu, 1995 for a review of literature on the subject) have shown a strong relationship between alcohol and drug use and abuse and the perpetration of criminal acts. Despite the large number of studies on this topic, it was impossible for Single *et al.* (1996) to estimate the proportion of crimes associated with the use or abuse of psychoactive substances. The main objective of the present study is to fill this gap and estimate the proportion of crimes associated with alcohol and drug use and abuse among Ontario provincial inmates. Following a first study done by Pernanen, Cousineau, Brochu, and Sun (2002), the theoretical models used in this report are based on the work of Goldstein (1985). This study, like the one by Pernanen *et al.* (2002), uses two of the three models developed by Goldstein (1985): the intoxication model and the economic-compulsive model.

The intoxication model recognizes that consumption of psychoactive substances affects commission of a criminal act, mainly because of their mind-altering properties. The economic-compulsive model considers the link between drug dependence and crime, acknowledging that being dependent on an illicit drug and using it on a regular basis can place a considerable financial burden on a consumer's budget and life and recognizing that criminal acts may be committed as a means of acquiring money to support dependence on psychoactive substances.

The combination of these two models should allow accurate description of the relation between substance use and crime. However, we must remember that this relationship is very complex, and thus any definitive conclusions must be made cautiously (Brochu 2005a and b).

We did not consider the systemic aspect of Goldstein's tripartite model because it considers only the indirect relation between drugs and crime, focusing on events related to criminal gangs and drug dealing while the present study is concerned with estimating the proportion of crimes that can be directly attributed to the use and abuse of alcohol and illicit drugs.

Pernanen *et al.* (2002) was based on three samples of federal inmates and two samples of provincial inmates (male and female) from the province of Quebec. The present study attempts to replicate this previous study using a sample of inmates from Ontario provincial detention centers in order to see if data from Quebec provincial male and female samples can be generalized to the other provinces of Canada. The specific objective of this report is therefore to estimate the proportion of crimes committed by Ontario provincial male and female inmates that can be attributed to alcohol and illicit drug use. In order to do this, two different sets of variables are examined: the first set is related to the intoxication component and the second set to the economic-compulsive component of the calculation of the fraction of crimes attributable to the consumption of psychoactive substances. The data collected are then compared to those obtained by Pernanen *et al.* study (2002).

The data collection method used in Pernanen *et al.* (2002) was also used in the present report, allowing our estimates to be easily compared with the previous study. Four instruments -- the abbreviated Computerized Lifestyle Assessment Instrument (CLAI), a calendar instrument, the Alcohol Dependency Scale (ADS), and the Drug Abuse Screening Test (DAST) -- were used to collect data regarding the criminal behaviour and substance use habits of the detainees.

Four Ontario correctional facilities agreed to participate in the study: the Central East Correctional Centre in Lindsay, the Central North Correctional Centre in Penetanguishene, and the Maplehurst Correctional Complex and the Vanier Centre for Women in Milton. Following Pernanen *et al.* (2002), our main investigative tool was self evaluation reports regarding the role of illicit drugs and alcohol in the criminal acts committed by those in our sample. In total, 388

inmates were contacted by the interviewers. 62 were found to be ineligible to participate¹ and 91 refused to participate, leaving 235 inmates willing to collaborate in the investigation process: 104 women incarcerated at the Vanier Centre, 50 men from the Central East Correctional Centre in Lindsay, 70 inmates from the Central North Correctional Centre, and 11 from the Maplehurst Correctional Complex.

Profile of criminality for both men and women detained in Ontario provincial prisons

Inmates in the sample were asked to identify the most serious crime for which they were presently incarcerated. These crimes were then divided into four categories. The three categories of crime first identified are violent crimes (murder, manslaughter, infanticide or criminal negligence, attempted murder, assault or wounding, abduction or kidnapping, sex offence), gainful crimes (robbery, attempted robbery or armed robbery, break and enter, theft, possession of stolen property, fraud or forgery, extortion, prostitution, gaming and betting) and drug crimes (drug importation, drug trafficking, drug possession, drug cultivating).

According to self-reported data, more than 40% of the most serious crimes for which those in the sample were currently incarcerated were not included in the three pre-established categories. Those crimes are therefore considered in a fourth category labelled “other crimes.” This category includes crimes such as possession of weapon, driving while impaired, other traffic offences, mischief or vandalism, public disorder, escape, being unlawfully at large, parole/probation violation, default of fine payment, and other types of offences. The most serious crimes for the women inmates in our sample were mainly gainful crimes (including prostitution crimes).

When the calendar instrument, which takes into account all crimes committed over a period of three years, not just the most serious crime for which the offender is currently incarcerated, is considered, the main category for male inmates becomes drug crimes. For female inmates it remains gainful crime.

¹ Regarding eligibility criteria, participants had to have been sentenced and admitted to detention within the past month. The only exception to this rule was during the last three months of the study in Penetanguishene, where the inclusion period was extended to 5 weeks after we encountered difficulties in finding people who fit the eligibility criteria.

Alcohol and illicit drug use and dependence among men and women detained in Ontario provincial prisons

Male detainees who, according to the ADS, were found to be dependent on alcohol had committed mainly probation violations and traffic offences (“other crimes”), while those dependent on drugs according to the DAST had committed mainly gainful crimes and “other crimes.” Female inmates considered dependent on alcohol and/or on drugs had committed mainly gainful crimes. Moreover, it appears that those who were only dependent on drugs had committed many drug crimes in addition to gainful crimes. It is interesting to note that while a significant percentage of both males and females in the samples indicated they had used both alcohol and drugs in the six month period before their last arrest (54% of the male sample and 47% of the female sample), a larger proportion of men indicated that they had used alcohol only (28% compared to 9% for the women) and a larger proportion of women indicated that they had used drugs only (37% compared to 12% for the men) during this period of time. Only 7% of men and 8% of women indicated they had not used any psychoactive substance in the six months preceding their last arrest.

Intoxication model

Data related to the intoxication model show that 27% of the male sample and 4% of the female sample committed their most serious crime under the influence of alcohol only. It appears that more women than men committed their most serious crime while under the influence of illicit drugs only (51% vs. 18%). The proportion of offenders who committed their most serious crime under the influence of both alcohol and illicit drugs is relatively similar (17% of the male sample and 23% of the female sample). Finally, data show that an important proportion of offenders (39% of the male sample and 22% of the female sample) were not under the influence of any psychoactive substance when they committed their most serious crime.

Keeping in mind that a large part of the detainees reported using psychoactive substances on a regular basis, we need to remember that intoxication alone does not indicate that the substance was *responsible* for the commission of the crime; we therefore asked those in our samples if they

believed that the crime would have been committed if they had not been intoxicated. For the men, it appears that 63% of the most serious crimes committed under alcohol intoxication alone were attributed to alcohol use, 87% of those crimes committed under illicit drug intoxication only were attributed to drug use, and 64% of the crimes committed under intoxication from both alcohol and drugs were attributed to the use of both alcohol and drugs. Those in the female sample attributed 50% of their most serious crimes to the consumption of alcohol only, 61% to the use of drugs only, and 71% to alcohol and drug use together.

Corrected attributable fractions from the intoxication model indicate that 17% of male offenders in the Ontario provincial prisons sample attributed commission of their most serious crime to the influence of alcohol only, while 15% attributed it to the influence of illicit drugs only. 11% of the male sample attributed commission of their most serious offence to the influence of both alcohol and drugs. As for the female sample, 2% attributed commission of their most serious offence to the influence of alcohol only, 30% attributed it to the influence of illicit drugs only, and 16% considered the consumption of both alcohol and drugs to be responsible for the commission of their most serious crime.

Economic-compulsive model

Data related to the economic-compulsive model indicate that 39% of the female inmate sample reported having committed their most serious offence in order to get illicit drugs only, which is a significantly higher figure than that for male inmates, where only 18% indicated that they had committed their most serious crime to get illicit drugs. The data collected show other differences between genders with regard to the proportion of most serious crime committed to obtain alcohol only (5% of the male sample and 2% of the female) and the proportion of most serious crime committed in order to get both alcohol and illicit drugs (8% of the female sample and 4% of the male). The need to get alcohol and/or illicit drugs was not related to the commission of crimes for a majority of detainees included in our samples; 73% of male inmates and 51% of female inmates indicated that they did not commit their most serious crime in order to obtain psychoactive substances.

In order to identify more precisely the proportion of economic-compulsive crimes that included a compulsion component, we introduced a reduction factor (alcohol/drug dependence) to the data previously obtained. Among all inmates who attributed their most serious crime to the need to get alcohol, 100% of males and 100% of females were considered dependent according to the ADS. Thus we can state that 100% of the most serious crimes committed in order to get alcohol for personal use are attributable to individuals who are dependent on alcohol. Doing the same analysis with all respondents who attributed their most serious crime to the need to get drugs, it appears that 67% of males and 46% of females were dependent according to DAST criteria. Taking the average of the two samples (e.g. males and females), we find that 57% of participants who attributed their most serious crimes to the search for drugs are dependent on drugs according to the DAST. Regarding all detainees who attributed their most serious crime to the need to obtain alcohol and drugs altogether, 100% of males and 63% of females were dependent on both alcohol and drugs. Thus, a mean of 82% of the participants who attributed their most serious crimes to obtaining alcohol and drugs are, according to the ADS and DAST, dependent on alcohol and on drugs. Finally, it appears that the male inmates in the sample had a slightly higher tendency to commit serious offences in order to get alcohol rather than drugs (17% vs. 14%). The female inmate sample data showed that women were more likely to commit serious crimes to obtain drugs rather than alcohol (29% vs. 2%).

Combined models

The proportions of crimes attributable to dependence or to intoxication are not mutually exclusive. In fact, an important number of crimes committed in order to get drugs are committed by intoxicated individuals. Thus we cannot simply combine the percentages for dependence and intoxication to determine the fraction of crimes that can be attributed to the influence of psychoactive substances. Calculating proportions for crimes attributable to both dependence and intoxication and to dependence and intoxication separately tends to produce smaller numbers than those that are obtained if the numbers for intoxication and dependence are added. Our final estimates, which were determined by combining intoxication-economic associative fractions with an intoxication correction factor and an addiction correction factor, lead to the observation that the male sample presents a higher estimate than the female sample for the alcohol only category

(male: 0.19; female: 0.02), while the female sample estimate for the illicit drugs only category is clearly larger than that for males (male: 0.18; female: 0.36). However, we did not note a great margin of variation between these two samples regarding the alcohol and illicit drugs category and the no substance category - estimates for the male sample are 0.15 and 0.48 respectively and 0.18 and 0.44 for the female sample.

When our final estimates are compared to those obtained in Pernanen *et al.* (2002), some interesting results emerge, particularly regarding drug intoxication and drug dependence in the female samples. The estimate for the proportion of crimes attributable to drug intoxication and drug dependence is notably higher for Ontario female provincial inmates as compared to Quebec female provincial inmates. Although it seems that both male samples (Ontario and Quebec) present more or less the same pattern regarding alcohol/drug intoxication and dependence related to crime, the Quebec sample shows a slightly higher estimate for alcohol and drugs combined, while the Ontario sample presents higher estimates for the alcohol alone and the drugs alone categories.

The conclusions resulting from the data presented in this study can be summarized in a few statements. The data regarding male inmates appears relatively consistent throughout all samples (Ontario male provincial inmates, Quebec male provincial inmates, and male federal inmates) and thus allows us to state that between 15% and 20% of the crimes committed by men inmates are attributable to alcohol use only, between 10% and 20% are linked to illicit drug use only, and between 15% and 20% are attributable to alcohol and illicit drug use together. Approximately half of the crimes committed by the Ontario provincial male inmates were committed in a sober state (45% to 50%). However, as estimates vary slightly between the different male samples (provincial and federal inmates), it is recommended that the most conservative figures be used in trying to draw viable conclusions about the proportion of crimes attributable to psychoactive substance use. The data concerning provincial female inmates is less consistent than that which was obtained for male inmates in all samples, making it difficult to generalize to other provinces. Despite this, it appears that approximately 5% (from 0% to 10%) of the crimes committed by women in samples in both studies are linked to alcohol use, while 20% to 40% of their crimes

can be attributed to drug use. Finally, 5% to 20% of their crimes can be attributed to alcohol and drug use together.

1. Introduction

Drug and alcohol abuse represents one of the major problems of public health in our society, as much because of the numerous incidents related use as the costs involved. The consequences of drug and alcohol abuse are many: absenteeism and productivity losses at work, road accidents, domestic issues, propagation of infectious diseases (like AIDS or hepatitis), premature mortality, dropping out of school, withdrawal from social and professional life, delinquency, and criminality. The costs related to psychoactive substances abuse are of great interest to politicians and decision makers who must justify expenses made to counter this problem.

1.1 Contribution of Dr. Eric Single and his colleagues

In 1995 and 1996, Dr. Eric Single and his colleagues wrote two very important reports about the economic and social costs of drug and alcohol abuse in Canada, “International Guidelines for Estimating the Costs of Substance Abuse” (1995) and “Costs of Substance Abuse in Canada” (1996). According to these reports, the overall economic costs of drug and alcohol abuse reached \$18.5 billion in 1992 (Alcohol abuse alone: \$7.5 billion; illicit drugs: \$1.4 billion). Single, Robson, Xie, Rehm, Moore, Choi, Desjardins, and Anderson (1996) differentiate two main categories of costs: tangible costs, including consequences to the health and welfare system, consequences in the workplace, property destruction, and legal consequences; and intangible costs related to pain, suffering, and bereavement. Intangible costs were not considered in their cost estimates because of its complex nature and the difficulty in obtaining data.

Consequences to the health and welfare system include costs of research, prevention and treatment for substance abuse, co-morbidities, and trauma. These costs are generally well documented, as these services are usually delivered under the supervision of public authorities and data are generally available from government budgets. According to Single *et al.* (1996), healthcare provided to alcohol abusers cost \$1.3 billion in 1992, while \$88.0 million was spent for drug abusers. Prevention and research concerning public health added to these expenses, with \$141.4 million spent for alcohol-related problems and \$41.9 million for drug-related abuse.

Consequences to the workplace include lost of employment and productivity as well as premature mortality. The notion of premature mortality refers to the death of a person who is still

considered an active member of the society's workforce. Single *et al.* used reports on work time missed by employees participating in addiction treatment. Another source of data came from estimates of time spent in hospital and in ambulatory health care services for health problems related to substance abuse. Further information was obtained from studies of health and employment. Their results indicate that \$4.1 billion was spent due on alcohol-related productivity losses; an additional amount of \$823.1 million was spent because of drug-related productivity losses (Single *et al.*, 1996).

Property destruction from crime or accidents necessitated two sets of data. First, Single *et al.* used data on the incidence and costs of property destruction events, coupled with a set of estimates about the proportion of the total national events that can be attributed to alcohol and drug use. As mentioned in the study report,

national data on total incidence and costs for these impacts will generally come from, respectively, criminal justice system studies on the incidence and nature of crime, and from a system that tracks events such as motor vehicle crashes and fires. (Single, Collins, Easton, Harwood, Lapsley and Maynard, 1995 p.32)

The report establishes costs at \$518.0 million for alcohol-related events, and \$10.7 million for drug-related events (Single *et al.*, 1996).

Legal consequences include criminal justice expenditures. Single *et al.* (1995) realized three different types of cost estimates to consider the various types of criminal justice services : 1) criminal justice activities completely dedicated to combating the consequences of use of psychoactive substances; 2) activities by general criminal justice entities that address illegal use of psychoactive substances; and 3) activities by general criminal justice entities to address crimes believed to be caused by use of psychoactive substances (Single *et al.*, 1995). Only the first two types of criminal justice services were considered in the cost estimates because valid data concerning the third type were unavailable (Single *et al.*, 1995, p.34). Estimates were developed for law enforcement authorities, courts, and correction facilities, using data obtained from governmental sources. According to these estimates, criminal justice expenditures for 1992 were \$1.4 billion for alcohol-related crimes, and \$400.3 million for drug-related crimes (Single *et al.*,

1996). Since activities of general criminal justice entities devoted to address crimes attributable to substance use (third category) were not taken into account in these estimates, these numbers are obviously underestimations.

Single *et al.*, (1996) did not have any valid estimates of the proportion of activities of general criminal justice entities deployed to address crimes believed to be caused by use of psychoactive substances. Acknowledging that these estimates should be made on strong assumption due to the risk of making false attribution about the role of psychoactive substances in the perpetration of different types of crimes (burglary, assault, prostitution...), they drop this category of crimes in their estimates of costs of psychoactive substance. We, following Pernanen *et al.*, use Goldstein's tripartite model (1985) to help resolve this problem.

1.2 Goldstein's tripartite model

Based on many previous studies, Goldstein (1985) has developed a tripartite model to explain the different aspects of drugs/crimes nexus. This model lays its base on three components: 1) the psychopharmacological / intoxication aspect, 2) the economic-compulsive / dependence aspect and 3) the systemic / illicit drug distribution aspect.

1.2.1 The intoxication model

Substances that act on the central nervous system can play a determining role in the commission of a crime (Pernanen *et al.*, 2002). In fact, we often attribute to certain psychoactive substances (mostly alcohol, stimulants, and hallucinogens) the potential to induce several forms of aggression. In studies considering the effects of alcohol on criminal behaviour, this aspect of the model is referred to as the "disinhibition model" (Pernanen *et al.*, 2002). It directly links consumption of a psychoactive substance to commission of a crime on the grounds that a combination of psychological and pharmacological factors can lead a person to behave in an unusual way. In other words, a person under the influence of psychoactive substances can manifest certain impulse-driven behaviours that would otherwise be well-controlled. The pharmacological hypothesis states that intoxication constitutes a determining factor in the commission of offences which normally would not have been committed in a sober state. In its

original version, intoxication induces crimes which would not have been perpetrated without the influence of a psychoactive substance. As Pernanen *et al.* (2002) indicate, there are practical difficulties in applying the intoxication model to criminal acts. Even in a case where it is possible to state that the person who committed the crime was intoxicated at the moment of the act, how can it be determined with certainty that the act would not have occurred if the person had not been intoxicated? The person could have adopted a lifestyle in which drug use and delinquency are sufficiently well integrated into daily activities that drug use does not necessarily determine criminal behaviour (Brochu, 1995). In this circumstance, intoxication does not have a causal role in the commission of a crime. As we can see, there is a considerable possibility of overestimating the number of crimes linked to drug or alcohol intoxication. The solution proposed by Pernanen *et al.* (2002), and used in this study, is to resort to criminals' self evaluation reports regarding the role of alcohol and drugs in the occurrence of their illegal acts.

1.2.2 The economic-compulsive model

Scientific research (see Brochu, 1995) clearly indicates that an important link between psychoactive substances and crime is the cost of purchasing illegal drugs. Some psychoactive substances, particularly heroin and cocaine, can easily become addictive for some users. An addicted user must use the substance repetitively to avoid psychological and physiological withdrawal symptoms. With time, these substances become terribly expensive. The criminal activity of some drug users who mismanage their consumption is attributable, at least in part, to the need for money generated by their drug addiction. The second aspect of Goldstein's model, known as the economic-compulsive model, focuses on the role of psychoactive drugs and (to a lesser extent) alcohol dependence in the commission of lucrative and violent crimes. To be able to consider drugs as a source of motivation for criminal behaviour, and to support the compulsion hypothesis (proposed by Goldstein, 1985), the offender must commit his/her crime in order to get drugs and the person who commits the crime must be drug/alcohol dependent.

1.2.3 The systemic model

At the same time that the enforcement system attempts to eliminate distribution of certain drugs illicit distribution systems are being organized. Numerous crimes related to this system are committed to allow payment of debts, to protect a territory, or to manifest anger over a bad transaction. In such cases the crime is not directly related to the intrinsic properties of the psychoactive substances but to facilitating the illicit distribution of a product. The criminal acts considered on this part of Goldstein's model are committed during drug deals, drug debt collections, or territorial conflicts related to the drug industry. This is the third aspect of the Goldstein model, which he called "systemic" crime because it is produced within an illegal commercial system. As Pernanen *et al.* (2002) mentioned, the systemic aspect is of great interest from the perspective of studying crime related to illicit drugs. However, for the aims of the present study, it is not directly relevant as it takes into account only an indirect relation between drug use and crime. This kind of relation is frequently observed within the drug world, where those trafficking in drugs strive to control larger areas of influence.

The causal role of drugs on reported crimes differs significantly among the systemic, economic-compulsive, and intoxication' aspect of Goldstein's model. In particular, the systemic aspect does not involve the same type of internal compulsion as the other two other. Many individuals participate in illegal activities to maintain their domination in the extremely lucrative drug market, but they would commit other kinds of lucrative crimes if the drug industry was no longer accessible. This is why Pernanen *et al.* (2002) decided to consider only crimes committed while intoxicated or crimes committed in order to get drugs as attributable to the properties of drugs. The cost of systemic crimes is then attributable to the cost of enforcing drug laws and drug repression activities. In order to be able to compare our present data with Pernanen *et al.* (2002), it is important to keep the same conceptual framework and only consider crimes committed under intoxication and crimes committed in order to get a psychoactive substance in our estimation of the proportion of crimes attributable to substances.

1.3 The Pernanen and colleagues study with Quebec provincial inmates

The Pernanen, Cousineau, Brochu and Sun study was realised thanks to a grant from the Canadian Center on Substance Abuse (CCSA) and the Social Sciences and Humanities Research Council of Canada (SSHRC). It is composed of six sub-studies. One was conducted with arrestees and includes data collected by police agents from 1,890 persons arrested between May and June 2000 in ten Canadian provinces. Another, developed by using the CLAI data bank from the Corrections Service of Canada (CSC²) included 8,598 male federal inmates admitted to prison between 1993 and 1995. Two studies consisted of interviews conducted in 1999-2000 with federal inmates newly admitted to Quebec and Ontario Regional Reception Centres, with a total sample of 469 male inmates. The last two studies were conducted with 194 accused persons (100 women, 94 men) recently admitted to two provincial detention facilities, the Montreal Detention Centre (for men) and the “Tanguay” House (for women).

Based partly on Goldstein’s model, Pernanen *et al.* (2002), have developed an innovative approach to calculating the proportion of crimes attributable to psychoactive substances.

1.3.1 Obtaining data related to the intoxication model

According to the method developed by Pernanen *et al.* (2002), considering the intoxication aspect constitutes the first step in the process of estimating the proportion of crimes attributable to alcohol and illicit drugs. For this purpose, data related to the crime that resulted in the longest sentence leading to the incarceration of the accused are used.

It is important to take in account information associated with the use of both alcohol and illicit drugs when developing estimates of the proportion of crimes attributable to psychoactive substances. Some crimes are committed under alcohol intoxication only, other under illicit drugs intoxication only, and still others under the influence of both alcohol and drugs. If one study examined only data related to the effect of alcohol on crime and another focused only on data related to the effect of illicit drugs on crime, there is a significant risk that the overlap between these sets of information would be overlooked and consequently the effect would be

² Correctional Service of Canada

overestimated. Analysis must take these three types of intoxication into account without counting some crimes two times.

To answer the question “How can someone identify the proportion of crimes really attributable to alcohol or drug intoxication?” Pernanen *et al.* (2002) propose that the respondent be asked: “Do you think you still would have committed this crime if you had not been drinking and/or using drugs?” A positive answer to this question indicates that the crime WAS NOT causally linked to intoxication. Using this kind of data to estimate the proportion of criminal acts linked to intoxication raises many important questions, primarily concerning the validity of the information. For now, however, this method appears to be preferable to others in order to obtain the best estimates possible.

1.3.2 Obtaining data related to the economic-compulsive aspect

According to Pernanen *et al.* (2002), economic-compulsive crimes are all those committed by 1) a dependent offender 2) in order to get alcohol or illicit drugs for personal needs. Again, the method differentiates alcohol dependence from illicit drug dependence and from alcohol/drug dependence. The ADS and the DAST were used to ascertain the dependent state. In order to obtain data regarding the economic-compulsive nature of the crimes committed by dependent offenders, we asked subjects: “Was the crime committed in order to obtain alcohol or any other drug?”

1.3.3 Considering the overlap of the intoxication and economic-compulsive aspects of the Goldstein model

The calculations done by Pernanen *et al.* (2002) are based on the intoxication and the economic-compulsive aspects of alcohol and illicit drug use. However, it appears that these two aspects are not necessarily mutually exclusive and may overlap. Some of the individuals who committed a crime while intoxicated could have done so because they wanted to get illicit drugs to satisfy to their dependence. This scenario is taken into account in the calculation processes in order to avoid counting the same event twice. Doing so prevents the possible over-estimation of the proportion of crimes related to alcohol and/or illicit drugs.

2. Aims and objectives of the present study

The aim of this study is to estimate the proportion of crime attributable to alcohol and illicit drugs among those incarcerated in Ontario provincial prisons and to compare these estimates to the previous study by Pernanen *et al.* (2002). This general aim is broken down into three specific objectives:

- (1) to estimate the proportion of Ontario provincial inmates who are
 - a) alcohol and/or illicit drug users*
 - b) dependent on alcohol and/or illicit drugs*
- (2) to estimate the proportion of crime episodes committed by Ontario provincial inmates
 - a) under the influence of alcohol, illicit drugs, or both*
 - b) in order to get alcohol, illicit drugs or both*
- (3) to estimate the proportion of crimes committed by Ontario provincial inmates related to alcohol, illicit drugs, or both.

3. Methods

To be able to compare our data with those obtained by Pernanen *et al.* (2002), the same methods are used in this research.

3.1 Interview instruments

Four interview instruments made it possible to examine the relationship between the use/abuse of alcohol and illicit drugs and criminal behaviours.

- 1) The abbreviated Computerized Lifestyle Assessment Instrument (CLAI)
- 2) The calendar instrument
- 3) The Alcohol Dependency Scale (ADS)
- 4) The Drug Abuse Screening Test (DAST)

3.1.1 The abbreviated CLAI questionnaire

The CLAI Questionnaire is an investigation instrument that allows the collection of data on drug and alcohol consumption habits (tobacco use, alcohol and psychoactive drug use) to determine an individual's lifetime extent of alcohol and drug use. It also considers the history of criminal acts committed by the person. The CLAI questionnaire is administered in an interview. For comparison purposes (with the Pernanen et al. study), the most central questions from the Correctional Service of Canada CLAI instrument on drug use, alcohol use, and criminal behaviour were abbreviated in a questionnaire which was filled out by the inmate during the interview session.

3.1.2 The three-year calendar instrument

A questionnaire concerning various aspects of the inmate's life during the three-year period preceding his/her detention was used in the study. It included a detailed list, with dates, of criminality, drug and alcohol use, amount of legal and illegal income, as well as other important life events such as marriage, separation, child birth, hospitalization, etc.

The three-year calendar was divided into 36 months in which a monthly record of drug use patterns and criminality was entered. The calendar instrument attempts to get complete information on the inmates' crimes over a three-year period, as the great majority of these crimes have usually gone undetected by authorities.

The calendar questionnaire was filled in by the interviewer while he/she and the respondent consulted the calendar in order to place occurrences in the right time period. Filling in the calendar took between 45 and 90 minutes, depending on the variety of substances used and of criminal activity of the participant.

3.1.3 ADS and DAST dependence scales

The seriousness of alcohol addiction was measured by the Alcohol Dependence Scale (ADS) from Skinner and Allen (1982), while drug addiction was evaluated by the Drug Abuse Screening Test (DAST) from Skinner (1982).

The ADS is a short questionnaire of 25 items represented by only one weighted score. It allows measurement of the alcohol addiction syndrome as described by Edward and Gross (1976). The metrological qualities of the instrument proved to be good (Skinner and Allen, 1982). Constructed under the inspiration of the Michigan Alcoholism Screening Test from Selzer (1971), DAST is a tool composed of 20 “true or false” questions reflected by only one weighted score. This questionnaire is concerned with the person’s use of psychoactive substances in the last twelve months. It evaluates the client’s perceptions of drug abuse, level of addiction, and the consequences of drug addiction. Skinner (1982), as well as Skinner and Goldberg (1986), judged that the psychometric qualities of DAST were satisfactory.

3.2 Sampling procedures

Four institutions participated in the study: the Central East Correctional Centre (1,184 male beds) in Lindsay³, the Central North Correctional Centre⁴ (1,152 male beds, 32 female beds) in Penetanguishene, and the Maplehurst Correctional Complex⁵ (1,550 male beds) and the Vanier Centre for Women⁶ (124 female beds) in Milton. The recruitment procedures varied slightly in each institution but were all based on random samples taken from a list of eligible participants produced by each institution. In each site interviews were conducted in private offices or interview rooms to ensure confidentiality and comfort of the inmates. The interviewer gave the list of participants to the correctional officer who then brought up one inmate at a time to go through the interview process. The interviews were carried out during the April-July 2005 period

³ Short lists of eligible participants were produced each week and were given to the interviewer on arrival.

⁴ Lists of eligible participants were given to the interviewer each week. On one occasion the list was comprised of all inmates newly admitted to the institution but was not limited to those only sentenced within the last month. The interviewer had to go through this large list to find those who fit our eligibility criteria.

⁵ Short lists of eligible participants were produced each week and were given to the interviewer on arrival.

⁶ The interviewer was faxed a list of women at the beginning of each week. Those women had been sentenced and admitted within the past month. From that list a number of women to interview was randomly chosen.

by our team of 5 interviewers. The whole process of data gathering took about 1 hour on average, ranging from 45 minutes to 90 minutes. The length of the interview depended in largely on the extent of the inmate's criminal involvement and the "complexity" of the pattern of his/her alcohol and drug consumption.

3.3 Participation rate

Of the 388 inmates approached for an interview (213 males and 175 females), 62 (33 males and 29 females) were ineligible to participate, 91 (49 males and 42 females) refused to participate, and 235 (131 males and 104 females) were interviewed. This gives a global response rate of 72% (131 out of 180 males (72.8%) and 104 out of 146 females (71.2%).

3.4 Description of samples

The mean age of inmates included in the sample is 34.4 years old (s.d. = 10.7). This mean is similar for both males (34.4 years old) and females (34.3 years old) in the Ontario inmates samples.

Although the majority of male (82.4%) and female (91.3%) inmates in our sample were born in Canada, they come from various ethnic backgrounds. Nearly three quarters (67.7%) of all offenders in our sample were Caucasians, 10.6% were American/Canadian Indian, 9.8% were Black, and 3% were Italian. Others' ethnic backgrounds, 8.9% of the sample, included different groups such as Asian (6), Russian (2), American Latino (4), Metis (3), and others not specified (6).

Regarding the residential conditions of inmates in the last month before the interview, we see some differences between the two genders. Nearly one quarter of male inmates lived alone during this period (22.9%) while 28.8% of female inmates had been incarcerated. More male than female inmates lived with their families (15.3% vs. 7.7%), their sexual partner and children (14.5% vs. 8.7%), or their parents (7.6% vs. 1.9%). A small proportion of combined samples were homeless (3.0% all men), in a controlled environment (1.7%: male = 0.8%; female = 2.9%), or in other residential conditions (0.9% all men).

Briefly, this demographic profile shows that a majority of Ontario inmates in the sample were born in Canada, are Caucasian, and live alone. These results are comparable to those obtained in various studies with similar populations (Robinson, Porporino, Millson, Trevethan and MacKillop, 1998; Trevethan, 1999).

Table 3.1 Sociodemographic profile of Ontario provincial inmates' sample

Categories		Male (%)	Female (%)	N (%)
		N = 131	N = 104	N = 235
Age		$\bar{x} = 34.4$ s.d. = 10.9	$\bar{x} = 34.3$ s.d. = 10.4	$\bar{x} = 34.4$ s.d. = 10.7
Born in	Canada	108 (82.4)	95 (91.3)	203 (86.4)
Ethnic background	White (Caucasian)	92 (70.2)	67 (64.4)	159 (67.7)
	American/Canadian Indian	11 (8.4)	14 (13.5)	25 (10.6)
	Black (African)	12 (9.2)	11 (10.6)	23 (9.8)
	Italian	4 (3.1)	3 (2.9)	7 (3.0)
	Others	12 (9.1)	9 (8.6)	21 (8.9)
Residence: (first month)	Alone	30 (22.9)	13 (12.5)	43 (18.3)
	Incarcerated	10 (7.6)	30 (28.8)	40 (17.0)
	With a sexual partner alone	22 (16.8)	18 (17.3)	40 (17.0)
	With friends	15 (11.5)	16 (15.4)	31 (13.2)
	With family	20 (15.3)	8 (7.7)	28 (11.9)
	With sexual partner and children	19 (14.5)	9 (8.7)	28 (11.9)
	With parents	10 (7.6)	2 (1.9)	12 (5.1)
	Homeless	2 (1.5)	5 (4.8)	7 (3.0)
	Controlled environment	1 (0.8)	3 (2.9)	4 (1.7)
	Others	2 (1.5)	0 (0.0)	2(0.9)

4. Criminality and substance use: examining the situation of Ontario inmates

Before calculating the proportion of crimes attributable to alcohol or drugs, we first examine criminality and substance use of those in our samples separately.

4.1 Criminality of men and women inmates in Ontario prisons

The comparison of the distributions of the most serious crime committed by men and women inmates shows different configuration with regard to four categories of crime (violent crimes, gainful crimes, drug crimes, and other crimes⁷). Table 4.1 brings into evidence that violent crimes and “other crimes” are proportionally more likely to have brought men rather than women to provincial prisons. About a quarter (22.1%) of male inmates reported their most serious crime to be a violent crime and 40.5% to be an “other crime,” compared to 13.6% and 25.2% respectively for female inmates. The results reveal that gainful crimes and drug crimes represent a higher proportion of the most serious crimes reported by female inmates (37.9% and 23.3%) than for their male counterparts (29.0% and 8.4%). The low rates of violent crimes registered among the inmates can, at least partially, be explained by the fact that they all are provincial inmates and thus have been sentenced to two years or less. The authors of violent crimes are more likely to have been condemned to more than two years of incarceration and consequently sent to penitentiaries.

⁷ **Violent crimes include:** Murder, manslaughter, infanticide or criminal negligence, attempted murder, assault or wounding, abduction or kidnapping, and sex offences. **Gainful crimes include:** Robbery, attempted robbery or armed robbery, break and enter (including burglary), theft (including shoplifting, vehicle theft), possession of stolen property, fraud or forgery, extortion, prostitution, gaming and betting. **Drug crimes include:** Drug importation, trafficking, possession, cultivating. **Other crimes include:** Possession of weapon, driving while impaired, other traffic offences, mischief or vandalism, public disorder, escape, being unlawfully at large, parole/probation violation, default of fine payment, other type of offences.

Table 4.1 Numbers and percentages of the four major categories of crime among the male and female inmates' samples for both the most serious crime and the census of crimes in a 3-year period

		Violent crimes	Gainful crimes	Drug crimes	Other	Total
Male provincial inmates	Most serious crime	29 (22.1%)	38 (29.0%)	11 (8.4%)	53 (40.5%)	131 (100%)
	All crimes in 3-year period	173 (0.1%)	22 536 (11.2%)	174 842 (86.8%)	3 920 (1.9%)	201 471 (100%)
Female provincial inmates	Most serious crime	14 (13.6%)	39 (37.9%)	24 (23.3%)	26 (25.2%)	103 (100%)
	All crimes in 3-year period	104 (0.0%)	129 768 (53.2%)	114 068 (46.7%)	180 (0.1%)	244 120 (100%)
	All crimes in 3-year period except prostitution	104 (0.1%)	77 518 (40.4%)	114 068 (59.5%)	180 (0.1%)	191 870 (100%)

Table 4.1 also shows the total proportion of crimes committed by offenders during the last three years before the interview. It is important to note that, because a notable proportion of gainful crimes committed by Ontario women inmates are associated with prostitution (52,250 crimes during the last three years according to the calendar⁸), we decided to exclude prostitution crimes from the calculation in order to make comparison with the male inmates distribution easier. Results obtained from the calendar, taking all crimes committed during the three years before the interview into account, show that Ontario men inmates committed a total of 201,471 crimes. Of these, 86.8%⁹ are linked to illicit drugs (drug trafficking, importation, possession, and culture) while smaller proportions correspond to gainful crimes (11.2%), “other crimes” (1.9%), and

⁸ This proportion of prostitution crimes was much higher in the prior study with female inmates in Quebec

⁹ These results for the drug crimes category show that individuals involved in particular criminal activities committed a {higher number of crimes than others (drug transactions).}Should this be “committed a higher number of some crimes (drug transactions) than others.? It also gives us some indication of how cautious we have to be in dealing with this kind of crime.

violent crimes (0.1%). For Ontario women inmates, we found a total of 244,120 crimes committed during the last 3 years. As with the men, an important proportion of those crimes are drugs crimes (46.7%), but even more important are gainful crimes (53.2%). Even if we eliminate prostitution crimes for women inmates, gainful crimes still represent a high percentage (40.4%).

4.2 Alcohol and illicit drug use and dependence among men and women inmates in Ontario provincial prisons

Due to the different nature of psychoactive substances use and dependence, this section examines these two concepts separately for the 6 month period before the last arrest of inmates included in the samples.

4.2.1 A look at alcohol and illicit drug use by inmates during the six months before their last arrest

The questions related to consumption habits and substance abuse by offenders during the six months prior to their last arrest have been taken into consideration in the analysis. Table 4.2 illustrates that half the inmates, (54.2% of men and 47.1% of women) reported having used both alcohol and illicit drugs during this period. Women inmates report, in a larger proportion (36.5%) than men (11.5%), having used illicit drugs only during this period. In contrast, more men (27.5%) than women (8.7%) report having used alcohol only. Finally, only a small percentage of inmates (men: 6.9%; women: 7.7%) report not having used any substance during the six months before their last arrest.¹⁰

¹⁰ Even if the DAST and the ADS account for alcohol and/or drug dependence in the last 12 months, we will consider only the six months preceding arrest to facilitate comparison with Pernanen et al. (2002).

Table 4.2 Alcohol and illicit drug use among Ontario provincial men and women inmates during the six months before their last arrest

	Male	Female
Alcohol use only	36 (27.5%)	9 (8.7%)
Illicit drug use only	15 (11.5%)	38 (36.5%)
Both alcohol and illicit drug use	71 (54.2%)	49 (47.1%)
No alcohol or illicit drug use	9 (6.9%)	8 (7.7%)
Total	131 (100%)	104 (100%)

4.2.2 Alcohol and illicit drug dependence among Ontario provincial male and female inmates

Alcohol and illicit drug dependence is a complex problem and establishing dependence should be done scientifically. In this study, alcohol and drug dependence are evaluated by two different questionnaires; the ADS (Alcohol Dependence Scale) and the DAST (Drug Abuse Screening Test). The results in Table 4.3 reveal that an important proportion of Ontario inmates are dependent on alcohol and/or drugs (men: 67.2%; women: 59.6%). More specifically over one third of men (41.2%) and women (40.4%) inmates report symptoms of drug dependence while smaller proportions report alcohol dependence (men: 11.5%; women: 13.5%) or both alcohol and drug dependence (men: 14.5%; women: 5.8%).

Table 4.3 Alcohol and illicit drug dependence among Ontario provincial male and female inmates during the six months before their last arrest

Dependence on	Male	Female
Alcohol only	15 (11.5%)	14 (13.5%)
Drugs only	54 (41.2%)	42 (40.4%)
Both alcohol and drugs	19 (14.5%)	6 (5.8%)
Not dependent	43 (32.8%)	42 (40.4%)
Total	131 (100%)	104 (100%)

4.2.3 Proportions of Ontario provincial male and female inmates who were non-users, non-dependent users, and dependent users of alcohol and drugs during the six months prior to their last arrest.

According to results shown in table 4.4, only a minority of inmates (6.9% of males and 7.7% of females) reported not having used any psychoactive substances during the six months preceding their last arrest. The majority of all inmates (61.7%; male = 66.0%, female = 55.8%) showed symptoms of dependence on alcohol and/or drugs according to the ADS or DAST. Nearly one third of all inmates (male: 26.7% and female: 36.5%) reported having used a psychoactive substance during the six months before their last arrest without presenting any symptoms of dependence symptoms.

Table 4.4 Proportions of non-users, non-dependent users, and dependent users of alcohol and/or illicit drugs during the six months before their last arrest

	Male	Female	Total
Non-users	9 (6.9%)	8 (7.7%)	17 (7.2%)
Non-dependent users	35 (26.7%)	38 (36.5%)	73 (31.1%)
Dependent users	87 (66.4%)	58 (55.8%)	145 (61.7%)
Total	131 (100%)	104 (100%)	235 (100%)

4.3 Crimes committed by Ontario provincial male and female inmates: is there a relation with psychoactive substance dependence?

As stated before, many studies have established that dependence on any psychoactive substance is often associated with criminal behaviour. Table 4.5 highlights the nature of the most serious crime committed by inmates who were dependent on alcohol or drugs as compared to all inmates according to four crime categories: violent crimes, gainful crimes, drugs crimes, or other crimes.

Table 4.5 Nature of the most serious crime committed by inmates who were dependent on alcohol or illicit drugs compared to all inmates, by gender

	Male inmates			Female inmates		
	Alcohol dependent	Drug dependent	All inmates	Alcohol dependent	Drug dependent	All inmates
Violent crimes	7 (23.3%)	8 (14.8%)	29 (22.1%)	1 (7.1%)	6 (14.3%)	14 (13.6%)
Gainful crimes	7 (23.3%)	20 (37.0%)	38 (29.0%)	8 (57.1%)	16 (38.1%)	39 (37.9%)
Drug crimes	1 (3.3%)	3 (5.6%)	11 (8.4%)	1 (7.1%)	13 (31.0%)	24 (23.3%)
Other	15 (50.0%)	23 (42.6%)	53 (40.5%)	4 (28.6%)	7 (16.7%)	26 (25.2%)
Total	30 (100%)	54 (100%)	131 (100%)	14 (100%)	42 (100%)	103 (100%)

As noted before in table 4.1, the results establish, for all samples, that male inmates committed more “other crimes” (40.5%) and violent crimes (22.1%) as their most serious offence. Female inmates committed more gainful crimes (37.9%) and drug crimes (23.3%) as their most serious offence.

However, if we look at the data on the most serious crime committed by dependent inmates (dependent on alcohol or drugs), we see some interesting results. The majority of men dependent on alcohol (50.0%) and illicit drugs (42.6%) in Ontario prisons reported their most serious crime part of the “other crimes” category. These crimes were mainly traffic offences and probation violations. Also, alcohol dependence is associated, in the same proportion (23.3%), with violent crimes and gainful crimes while drug dependence is linked in more than one third of cases (37.0%) to gainful crimes and in a lower proportion (14.8%) to violent crimes. Finally, only a small proportion of men who are dependent on alcohol (3.3%) or illicit drugs (5.6%) reported that their most serious crime was a drug crime.

Different findings were observed for crimes committed by women inmates who have an alcohol and/or drug dependence. Indeed, for more than half the women dependent on alcohol (57.1%) and more than one third (38.1%) of those dependent on drugs, their most serious crime was gainful in nature. For one third (31.0%) of drug dependent women, the most serious crime was a drug crime, while for a few of them it fell in the “other crimes” (16.7%) or violent crimes

(14.3%) categories. For the alcohol dependent women, an important proportion of most important crimes fell in the “other crimes” category (28.6%).

In summary, for inmates in Ontario provincial prisons dependence on any substance is most associated with offences in the “other crimes” category for men and with gainful crimes for women. However, due to the very small number of women dependent on alcohol (n=14), these results should be interpreted with caution.

4.4 Commission of crimes while intoxicated

Some questions concerned alcohol and/or drug use at the time of commission of the most serious crime linked to their actual imprisonment. Table 4.6 indicates the proportion of crimes inmates reported having committed while under the influence of alcohol or drugs. More than one third of the male sample (38.9%) reported that they were not under the influence of any substance at the time they committed the most serious crime leading to their current sentence while 26.7% reported being under the influence of alcohol only, 17.6% under the influence of drugs only, and 16.8% under the influence of both alcohol and drugs. A very different picture is presented for female inmates, more than half of whom (51.0%) report having been under the influence of illicit drugs only at the time of their most serious crime, nearly a quarter (23.1%) report having been under the influence of alcohol and drugs simultaneously, and 22.1% mention no substance influence. In contrast with the male sample, only a small proportion of women (3.8%) reported having been under the influence of alcohol only while committing their most serious offence.

Table 4.6 Proportions of Ontario provincial inmates (men and women) who reported being under the influence of alcohol, illicit drugs, and alcohol and illicit drugs at the time of commission of the most serious crime on the current sentence

Crime committed under the influence of	Male	Female
Alcohol only	35 (26.7%)	4 (3.8%)
Illicit drugs only	23 (17.6%)	53 (51.0%)
Both alcohol and illicit drugs	22 (16.8%)	24 (23.1%)
Neither alcohol nor illicit drugs	51 (38.9%)	23 (22.1%)
Total	131 (100%)	104 (100%)

In order to further understand the influence of drugs on the perpetration of the most serious crimes, it is interesting to know more specifically the type of substance responsible for intoxication. Table 4.7 shows the different types of substances responsible for inmate intoxication at the time of commission of the most serious crime on their current sentence.

Table 4.7 Type of substances which inmates reported as the source of intoxication at the time the most serious crime on the current sentence was committed

	Male	Female
- Alcohol only	35 (26.7%)	4 (3.8%)
- Illicit drugs only	23 (17.6%)	53 (51.0%)
- Alcohol with illicit drugs	22 (16.8%)	24 (23.1%)
- Cannabis	7 (5.3%)	12 (11.5%)
- Cannabis with alcohol	13 (9.9%)	10 (9.6%)
- Cocaine	4 (3.1%)	10 (9.6%)
- Cocaine with alcohol	9 (6.9%)	6 (5.8%)
- Heroin	3 (2.3%)	7 (6.7%)
- Heroin with alcohol	3 (2.3%)	2 (1.9%)

As was previously mentioned, a high proportion of male inmates (26.7%) reported having committed their most serious crime under the influence of alcohol only, whereas 51 % of female inmates reported having been under the influence of illicit drugs only at the moment of commission of their most serious crime. A somewhat similar percentage is noted for both genders regarding commission of their most serious crime under the influence of alcohol and illicit drugs simultaneously (male: 16.8% and female: 23.1%).

Regarding crimes committed under the influence of illicit drugs, it is important to acknowledge that the most serious crime is linked, in a higher proportion for both genders, to cannabis use rather than to cocaine or heroin use. However, more women inmates reported being mainly under the influence of cannabis only (11.5%) or cocaine only (9.6%) than male inmates (cannabis: 5.3%, cocaine: 3.1%). On the other side, these last have reported, in a similar proportion than female inmates (male: 9.9%; female: 9.6%), being under the influence of cannabis combined

with alcohol when they committed their most serious crime. Moreover, a similar proportion can be noted for both male and female inmates regarding intoxication from cocaine and alcohol together (6.9% of the male sample and 5.8% of the female sample) at the time of commission of their most serious crime.

We can summarize these results by stating that cannabis seems to be more often associated with commission of the most serious crimes than other substances for both genders. However, alcohol is often associated with most serious crime for males but not for females. Despite the importance of these results, extreme caution should be used when interpreting these results due to the small numbers involved in these analyses on specific types of illicit drugs.

Still on the topic of alcohol or drug influence at the time of commission of the most serious crime by Ontario provincial inmates, table 4.8 takes into account the dependence status of offenders. It seems obvious that dependence on any psychoactive substance will be associated with being under the influence of alcohol or illicit drugs at the time of commission of the most serious crime. Indeed, 68.4% of men and 61.4% of women who reported being under the influence of these substances when committing their crime are dependent on alcohol or illicit drugs.

Table 4.8 Offenders who reported being under the influence of alcohol or illicit drugs at the time of commission of their most serious crime by their dependence status for alcohol and/or drugs according to the ADS or DAST

Crime committed under influence	Male	Female
Non-dependent	31 (31.6%)	32 (38.6%)
Dependent	67 (68.4%)	51 (61.4%)
Total	98 (100%)	83 (100%)

4.5. Crime: a way of getting alcohol or illicit drugs

Table 4.9 indicates that some men (18.3%) and a larger proportion of women (39.4%) report having committed their most severe crime in order to obtain illicit drugs only. A small proportion of inmates, 5.3% of males and 1.9% of females, committed their most serious crime in order to get alcohol only or both alcohol and illicit drugs (male: 3.8% and female: 7.7%). Thus three quarters of the male sample (72.5%) and half of the female sample (51.0%) did not commit their most serious crime in order to get alcohol and/or illicit drugs for personal use.

Table 4.9 Proportions of offenders who reported having committed their most serious crime in order to get alcohol or illicit drugs for personal use

Crime committed in order to get	Male	Female
Alcohol only	7 (5.3%)	2 (1.9%)
Illicit drugs only	24 (18.3%)	41 (39.4%)
Both alcohol and illicit drugs	5 (3.8%)	8 (7.7%)
Neither alcohol nor illicit drugs	95 (72.5%)	53 (51.0%)
Total	131 (100%)	104 (100%)

Despite the fact that table 4.8 shows similar distributions for men and women who were under the influence of alcohol or illicit drugs at the time of commission of their most serious crime with regard to their dependence status on alcohol and/or illicit drugs, these distributions are different when we try to establish if the dependent status is linked to the commission of a crime in order to obtain alcohol or illicit drugs for personal use.

Table 4.10 Proportions of crimes committed in order to get alcohol and/or illicit drugs for personal use by dependence status for alcohol and/or illicit drugs

Crime committed in order to get alcohol or illicit drugs	Male	Female
Non-dependent	8 (25.8%)	21 (50.0%)
Dependent	23 (74.2%)	21 (50.0%)
Total	31 (100%)	42 (100%)

Table 4.10 provides evidence that a higher proportion of men (74.2%) than women (50.0%) who are dependent on alcohol and/or illicit drugs have committed their most serious crime in order to get alcohol or illicit drugs for their personal use.

5. Calculating fractions of crimes attributable to alcohol and illicit drugs

Offenders who committed their crime while under the influence of any substance (intoxication model) might have committed that crime in order to obtain a substance for personal use (economic-compulsive model). We will see that the overlap between the two parts is considerable and should be taken into consideration in the calculation of fractions of crimes attributable to alcohol and illicit drugs. In order to avoid counting the same case twice and thus exaggerating the estimated fractions of crimes attributable to alcohol and illicit drugs, a combined model will be used in the calculation after the two independent models are discussed.

As was the case in Pernanen *et al.* (2002), the present study also obtained information on the link between crime and alcohol or/and illicit drug use. Tables in this section report and compare the results from Pernanen *et al.* (2002) and from this study. We will then be able to estimate attributable fractions using seven separate samples from federal male inmates in Canada, Quebec, and Ontario and provincial inmates, men and women, in Quebec and Ontario.

5.1 The intoxication model

Table 5.1 presents, for both Pernanen *et al.* and our study, the proportion of inmates who were under the influence of alcohol and/or illicit drugs at the time of commission of their most serious crime. With regard to the proportion of crimes committed under the influence of alcohol only, we obtain, for federal inmates, a proportion varying between 0.16 and 0.24. Similar proportions, varying from 0.16 to 0.20, were obtained for crimes attributable to illicit drugs only. Finally, a more heterogeneous distribution of proportions, varying from 0.09 to 0.19, was obtained for crimes attributable to both alcohol and illicit drug consumption.

Table 5.1 **Uncorrected associative fractions from the intoxication model (most serious crime)**

	Ontario provincial inmate study		Quebec provincial inmate study		Federal inmate studies		
	Male	Female	Male	Female	CSC	FII ¹¹ Ontario	FII Quebec
Alcohol only	0.27	0.04	0.23	0.10	0.24	0.21	0.16
Illicit drugs only	0.18	0.51	0.15	0.28	0.16	0.20	0.19
Alcohol and illicit drugs	0.17	0.23	0.21	0.09	0.14	0.09	0.19
No Substance	0.38	0.22	0.41	0.53	0.46	0.50	0.46
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00

If we consider the provincial male samples, we see that a similar proportion of crimes were committed by inmates under the influence of alcohol only for both the Ontario and the Quebec sample (0.27 vs. 0.23), while lower proportions are shown for intoxication from illicit drugs only (0.18 and 0.15 respectively). We also see that the proportions of crimes committed by inmates under the influence of both alcohol and illicit drugs are relatively similar in the Ontario and the Quebec male sample (0.17 vs. 0.21). As for the provincial female samples, a proportion of 0.04 for crimes committed under the influence of alcohol only was found for Ontario offenders, compared to 0.10 for those in Quebec. The Ontario female inmate sample shows a very high proportion of crimes committed under the influence of illicit drugs only (0.51), especially in comparison with the Quebec female inmate sample (0.28). The data also shows that a proportion of 0.23 of the most serious crimes committed by the Ontario female inmates sample were committed under the influence of alcohol and illicit drugs, which is high when compared with the proportion observed for the Quebec female inmate sample (0.09).

Finally, it appears that an important proportion of the most serious crimes committed by all inmates were committed while sober. The corresponding proportions for the male samples are 0.38 for Ontario and 0.41 for Quebec, and 0.22 and 0.53 for the female samples in Ontario and Quebec respectively.

¹¹ Federal Inmates Institutions

On the other hand, it is important to note that using a psychoactive substance before committing a crime does not necessarily constitute a causal link that explains the offence. Table 5.2 shows the proportion of inmates who reported that they would not have committed their most serious crime in a sober state, indicating that in those cases intoxication led to the commission of the crime. Between 0.68 and 0.81 of the federal inmate samples under the influence of a substance at the time they committed their most serious crime attribute responsibility for their offence to alcohol intoxication only, while the proportion varies from 0.65 to 0.79 for drug intoxication only and from 0.57 to 0.85 for alcohol and drug intoxication together.

For provincial male inmates, proportions of 0.63 and 0.55 were found for Ontario and Quebec respectively regarding alcohol intoxication as a causal factor in the commission of their most serious offence. The proportions are higher for illicit drugs intoxication, particularly for Ontario inmates (0.87) compared to Quebec inmates (0.50). When provincial female inmates are considered, it appears that those from Quebec attributed their most serious offence to alcohol intoxication, while an estimate of only 0.50 was found for the Ontario women sample. Inversely, these last ones attributed, in a proportion of 0.61, their most serious crime to the effects of illicit drugs while a smaller proportion of Quebec women (0.36) attributed their most serious crime to illicit drug effects. Finally, 0.71 of Ontario female inmates attributed their crime to intoxication from both alcohol and illicit drugs, while this proportion was 0.78 for Quebec provincial inmates. It is primordial to acknowledge the fact that the categories shown in table 5.2 are not mutually exclusive when interpreting the results.

Table 5.2 Proportions of intoxication crimes attributed to alcohol and drugs by the perpetrators

	Ontario provincial inmates study		Quebec provincial inmates study		Federal inmates study		
	Male	Female	Male	Female	CSC	FII Ontario	FII Quebec
Alcohol	0.63	0.50	0.55	1.00	0.81	0.68	0.73
Illicit drugs	0.87	0.61	0.50	0.36	0.79	0.71	0.65
Alcohol and illicit drugs	0.64	0.71	0.55	0.78	0.85	0.57	0.83

Taking into consideration only those inmates who stated that they would not have committed their most serious crime without the influence of a psychoactive substance makes it possible to be more exact in calculating estimates about the proportion of crimes associated with the intoxication model. This consideration led to the elaboration of what we will call “corrected fractions” for the intoxication model. Those corrected fractions are presented in table 5.3.

The results obtained for all federal inmates (CSC study) indicate a corrected estimate of 0.19 for alcohol only, 0.13 for illicit drugs only, and 0.12 for alcohol and illicit drugs combined. A total estimate of 0.44 can be attributed to the intoxication model. The total estimate is smaller for the federal Ontario (0.33) and Quebec study (0.40). If we apply the corrected estimate to the provincial inmate samples, we find a proportion of 0.43 for men and 0.48 for women in Ontario prisons and 0.33 for men and 0.27 for women in Quebec prisons. Because of the small size of the provincial samples, it seems plausible that the corrected estimations for the intoxication model are less reliable than those obtained from federal samples.

Table 5.3 Corrected attributable fractions from the intoxication model (most serious crime)

	Ontario provincial inmate study		Quebec provincial inmate study		Federal inmate study		
	Male	Female	Male	Female	CSC	FII Ontario	FII Quebec
Alcohol only	0.17	0.02	0.13	0.10	0.19	0.14	0.12
Illicit drugs only	0.15	0.30	0.08	0.10	0.13	0.14	0.12
Alcohol and illicit drugs	0.11	0.16	0.12	0.07	0.12	0.05	0.16
No Substance	0.57	0.52	0.67	0.73	0.56	0.67	0.60
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00

5.2 The economic - compulsive model

The present study is not limited to the fraction of crimes explained by the intoxication model. This section presents the results concerning commission of the most serious crime by inmates in order to obtain a substance for a personal use. Because dependent inmates often commit crimes to obtain money to sustain their addiction, the economic-compulsive model must be considered to further understand the relation between crime and alcohol/illicit drug use.

Table 5.4 Proportion of crimes committed in order to get or while trying to get alcohol and/or illicit drugs for their personal use according to inmates

	Ontario provincial inmate study		Quebec provincial inmate study		Federal inmate study		
	Male	Female	Male	Female	CSC	FII Ontario	FII Quebec
Alcohol only	0.05	0.02	0.02	0.01	0.03	0.03	0.03
Illicit drugs only	0.18	0.39	0.14	0.15	0.14	0.13	0.17
Alcohol and illicit drugs	0.04	0.08	0.05	0.02	0.07	0.04	0.07
No Substance	0.73	0.51	0.79	0.82	0.76	0.80	0.73
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Table 5.4 presents estimations of the proportion of crime committed in order to get alcohol and/or illicit drugs. These estimates vary between 0.13 and 0.18 for all samples except for women in Ontario prisons (0.39). Very few offenders attribute their most important crime to the fact that they were in the process of getting alcohol (between 0.01 and 0.05) or both alcohol and illicit drugs (between 0.02 and 0.08). For all inmates in this category their most serious crime was most likely to have been committed to obtain illicit drugs for personal use. This is particularly true for women incarcerated in Ontario prisons.

The analyses just discussed for the associative model constitute a first step in estimating the fraction of crimes attributable to alcohol and drugs. In order to better understand the economic-compulsive model, we need additional information linked to the person’s motivation for using alcohol or drugs in order to ascertain his dependence status. Table 5.5 takes into account the proportion of offenders who committed their most serious crime in order to get alcohol or illicit drugs (economic component) according to whether they were dependent on alcohol or illicit drugs (compulsion component).

Table 5.5 Proportion of crimes committed in order to get alcohol or illicit drugs according to whether the perpetrators were dependent on alcohol and/or illicit drugs

Crime committed in order to get	Dependent on alcohol only	Dependent on drugs only	Dependent on alcohol and drugs	Non dependent
Alcohol only	17.2	1.0	8.0	1.2
Drugs only	13.8	26.0	20.0	36.5
Alcohol and drugs	17.2	4.2	4.0	3.5
Neither	51.8	68.8	68.0	58.8
Total	100	100	100	100

We have seen before (table 4.10)¹² that a high proportion of dependent men in Ontario provincial prisons attribute their most serious crime to their need to get alcohol or drugs for personal use. The same relationship was less clear for women. Table 5.5, however, indicates that more than half of all crimes are not committed in order to get psychoactive substances. This statement seems to apply to both dependent and non dependent inmates. However, high proportions of crimes are committed in order to get illicit drugs. Indeed, 26.0% of inmates who are dependent on illicit drugs only committed their crime to obtain illicit drugs only, whereas 20.0% of inmates who are dependent on alcohol and illicit drugs and 35.6% of non dependent inmates did so. An identical proportion of crimes committed in order to get either alcohol or alcohol and illicit drugs (17.2%) was noted among inmates who were dependent on alcohol only. Therefore, it appears that dependent inmates are not the only ones who committed their most serious crime in order to get illicit drugs, an important proportion of non dependent alcohol and/or illicit drug users having committed their most serious crime for the same motive.

¹² Table 4.10 takes into account the proportions of offenders who committed their **most serious crime** in order to get alcohol or drugs for personal use by dependence status for alcohol and/or illicit drugs (by male and female inmates) whereas table 5.5 considers the proportions of **all crimes committed** in order to get alcohol or illicit drugs according to whether the perpetrator was dependent or not on alcohol and/or illicit drugs (all inmates).

Table 5.6 Prevalence of all most serious crimes committed in order to get alcohol and/or illicit drugs for personal use, and prevalence of such crimes committed by dependent inmates (out of all crimes)

	Ontario provincial inmate study		Quebec provincial inmate study		Federal inmate study		
	Male	Female	Male	Female	CSC	FII Ontario	FII Quebec
<i>Alcohol</i>							
All crimes committed in order to get alcohol only	0.05	0.02	0.02	0.01	0.03	0.03	0.02
Committed by dependent offender in order to get alcohol only	0.05	0.02	0.02	0.01	0.02	0.02	0.02
<i>Illicit drugs</i>							
All crimes committed in order to get illicit drugs only	0.18	0.39	0.14	0.15	0.14	0.13	0.18
Committed by dependent offender in order to get illicit drugs only	0.12	0.18	0.10	0.13	0.11	0.11	0.15
<i>Alcohol and illicit drugs</i>							
All crimes committed in order to get alcohol and illicit drugs	0.04	0.08	0.05	0.02	0.07	0.04	0.07
Committed by dependent offender in order to get alcohol and illicit drugs	0.04	0.05	0.05	0.02	0.06	0.03	0.06
<i>Neither</i>							
Crimes not committed in order to get a substance	0.73	0.51	0.79	0.82	0.76	0.80	0.73
Not committed by dependent offender or to get a substance	0.80	0.75	0.83	0.84	0.81	0.84	0.77

Table 5.6, which is more specific than the previous tables, shows the association between most serious crimes committed in order to get alcohol and/or illicit drugs and those committed for the same reason by dependent offenders for each sample (federal and provincial). As was previously observed with Ontario provincial inmates, a majority of inmates from other samples (provincial and federal) appear to have committed their most serious crime for purposes other than obtaining a psychoactive substance (proportion varies between 0.51 and 0.84 for all inmates). Furthermore, a majority of most serious crimes were not committed by dependent inmates attempting to obtain a specific substance (proportion varies between 0.75 and 0.84).

For all inmates, a small proportion of crimes were committed in order to get alcohol only (the proportion varies between 0.01 and 0.05) or either alcohol and illicit drugs (0.02 to 0.08). More important is the proportion of inmates who report that they committed their most serious crime in order to get illicit drugs only, particularly among female inmates in Ontario prisons, where a proportion of 0.39 was observed for all crimes committed in order to get illicit drugs (for all other inmates the proportion varies from 0.13 to 0.18). Moreover, we observed a higher proportion (0.18) of crimes committed by Ontario dependent female offenders in order to get illicit drugs as compared to all other inmates (proportion varies between 0.10 and 0.15).

After having taken into consideration the estimates of fractions of crimes attributable to alcohol and/or illicit drugs according to intoxication and economic-compulsive models, and having applied a corrective factor in both cases, we will now consider the estimates associated with these two models combined. By merging the estimates of each model presented previously in a model that allows us to take into account the overlap between the two previous models (instead of simply adding one to the other), we obtain final estimates for the proportion of crimes attributable to alcohol or illicit drugs, according to the most serious crime committed for the seven samples considered in this report. Doing so allows us to verify the consistency of the estimates over the different samples. The next section further illustrates these associations.

5.3 The intoxication-economic model

The estimated fractions described in table 5.7 take into account the combination of the intoxication and economic-compulsive models, according to their respective correction factors.

Table 5.7 Final estimates: Combined intoxication-economic associative fractions with intoxication and addiction corrections

	Ontario provincial inmate study		Quebec provincial inmate study		Federal inmate study		
	Male	Female	Male	Female	CSC	FII Ontario	FII Quebec
Alcohol only	0.19	0.02	0.16	0.08	0.17	0.15	0.19
Illicit drugs only	0.18	0.36	0.14	0.24	0.13	0.15	0.11
Alcohol and illicit drugs	0.15	0.18	0.20	0.08	0.16	0.08	0.18
No Substance	0.48	0.44	0.50	0.60	0.54	0.62	0.52
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00

The estimations based on federal inmate samples indicate variations between 0.15 and 0.19 for alcohol only, 0.11 and 0.15 for illicit drugs only, and 0.08 to 0.16 for both alcohol and illicit drugs. It is important to point out that, because of the larger size of the federal samples, these estimates are more definitive and valid than those obtained for provincial samples, which have a more limited size. Nevertheless, the estimated fractions obtained for these last groups (provincial inmates) give us an idea of the interval where the correct proportion can be located. According to the estimates obtained for Ontario provincial inmates, there is a higher estimate for alcohol only among male offenders (0.19) than for their female counterparts (0.02). On the other hand, an estimate of 0.36 is noted for Ontario female inmates for illicit drugs only. This estimate appears particularly high when compared to those observed for other samples (provincial and federal), which vary between 0.11 and 0.24. We noted similar estimates for both Ontario samples concerning alcohol and drugs combined (male: 0.15; female: 0.18), while we observed that the estimate for the Quebec male sample (0.20) is somewhat higher than the one calculated for the Ontario male sample (0.15). However, the estimate for the Quebec female sample (0.08) seems much lower than its Ontario equivalent (0.18) for the alcohol with illicit drugs category. For the no substance category, we found that both Ontario samples present a similar estimate (male: 0.48; female: 0.44), these estimates being lower than those calculated for Quebec samples (male: 0.50; female: 0.60).

Retrospectively, we can notice that alcohol only seems to have a more dominant role in the commission of crimes among male offenders as compared to their female counterparts. Inversely, it appears that female provincial inmates, in Quebec as well as in Ontario, present more important estimates than male provincial inmates in the drugs only category. Ontario samples show higher estimates in the drugs only category as compared to Quebec samples, while those obtained for the alcohol only category are relatively similar among both male samples and slightly higher for the Quebec female sample compared to the Ontario female sample. The estimates concerning the alcohol associated to drugs category, ranging from 0.08 to 0.20 for all provincial inmate samples, show the highest proportions for the male inmate sample in Quebec and the female inmate sample in Ontario. The smallest proportion can be found within the Quebec female inmate sample. Finally, both Quebec samples present higher proportions than Ontario samples regarding the no substance category.

When all the data are considered, particularly those presented in table 5.7, we can conclude that the proportion of crimes attributable to alcohol and/or drugs, in relation to crimes committed in Canada by provincial and federal inmates, falls inside these intervals:

	Male provincial inmates	Female provincial inmates	Federal inmates (male)
For alcohol only	0.15 to 0.20	0.0 to 0.10	0.15 to 0.20
For illicit drugs only	0.10 to 0.20	0.20 to 0.40	0.10 to 0.15
For alcohol and illicit drugs combined	0.15 to 0.20	0.05 to 0.20	0.05 to 0.20
Neither substance	0.45 to 0.50	0.40 to 0.60	0.50 to 0.65

It seems natural that similar intervals are noted for male provincial inmates and federal inmates. However, the two female provincial inmate samples (Quebec and Ontario) differ from the other samples. More particularly, the interval for the proportion of crimes attributable to alcohol only are higher for male inmates (varies between 0.15 and 0.20) as compared to female inmates (0.0 to 0.10). Inversely, the intervals appear more important for females than males when considering the proportion of crimes attributable to illicit drugs only (0.20 to 0.40 for female inmates compared to 0.10 to 0.20 for male inmates). The intervals corresponding to the proportion of crimes attributable to alcohol and illicit drugs combined show that there is less variation for the

male provincial inmate sample than for the other samples. The intervals illustrating the proportion of crimes attributable to neither substance tend to present a similar picture. There is more variation within the female provincial inmate sample and the federal inmate sample than within the male provincial inmate sample.

The results presented before were associated to the most serious crime committed by an inmate. This way of proceeding implies that all types of crimes were taken into consideration. However, it seems important to consider the fraction of crimes attributable to dependence or alcohol/drug intoxication, excluding drug crimes (drug possession, trafficking, importation, and cultivating) because by definition 100% of drug crimes are related to drugs. Thus, table 5.8 shows the final estimates for all non-drug crimes committed by federal and provincial inmates according to the intoxication and economic-compulsive models combined.

Table 5.8 Final estimates for all non-drugs crimes: combined intoxication and economic-compulsive attributable fractions

	Ontario provincial inmate study		Quebec provincial inmate study		Federal inmate study		
	Male	Female	Male	Female	CSC	FII Ontario	FII Quebec
N	120	79	88	96	7171	205	172
Alcohol	0.21	0.03	0.13	0.10	0.18	0.18	0.13
Illicit drugs	0.18	0.41	0.10	0.15	0.13	0.12	0.14
Alcohol with illicit drugs	0.13	0.20	0.16	0.09	0.16	0.13	0.17
No Substance	0.48	0.36	0.61	0.66	0.53	0.57	0.56
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00

There are small variations between the estimate fractions presented in table 5.7 (all crimes) and those presented in table 5.8 (all non-drug crimes). Although there are some variations within both the Ontario and Quebec federal inmate samples, they are modest. Considering the important number of illicit drug crimes observed within the Ontario provincial women inmate sample, it appears that the relatively small amount of drug crimes committed by men inmates included in the Ontario and Quebec samples have not created important changes in the proportion of crimes attributable to alcohol and illicit drugs in all samples. Nevertheless, considerable variations have

been observed between the two provincial female samples regarding the fraction of crimes attributable to illicit drugs (Ontario: 0.36 to 0.41; Quebec: 0.24 to 0.15). This observation can be detailed by considering the fact that within the Ontario women inmate sample the fraction of crimes attributed to illicit drugs is more highly associated with non-drugs crimes than it is in the Quebec female inmate sample.

6. Discussion

The method developed by Pernanen *et al.* (2002) using self-reported information as a primary source of data is probably the method best suited for estimating the proportion of crimes attributable to alcohol and drugs. It gives better access to information than urine or hair tests, which cannot inform us of the level of intoxication at the time the crime was committed. Moreover, it gives us access the perpetrator's view of the causal effects of the intoxicating substance. However, this information can only be obtained through access to offenders who are already part of the judicial system. This method must then take into account (and become somewhat distorted by) criminal policies and their application (level of law enforcement, police efficacy, resort to detention...).

Pernanen *et al.* (2002) showed that using this method with inmates sentenced to imprisonment for two years or more allows to obtain very consistent proportions through time and over different locations (e.g. Canada, Quebec, Ontario). However, one can expect the proportions to be less consistent when the same method is applied to inmates condemned to imprisonment of less than two years, because their type of criminal action is minor (non-payment of fines, for example) and therefore more subject to penal measures other than imprisonment. In these cases, penal enforcement is likely to vary a great deal. Furthermore, studies done on the criminality of drug addicts show that recourse to criminality varies according to the nature of social and sanitary programs available (see Brochu, 2005b). For example, a province that promotes access to methadone programs will be able to reduce economic-compulsive criminality among some heroin addicts. Because access to these services is under provincial jurisdiction, one can hypothesize that economic-compulsive criminality will fluctuate a great deal from one province to another.

An additional element which suggests that there will be a disparity between the proportion of crimes attributable to psychoactive substances in Quebec and in Ontario as compared in the present research is the time factor. The Pernanen *et al.* study (2002) was conducted five years before the one that took place in Ontario. Even if the Pernanen *et al.* (2002) study was stable over time for federal inmates, it is possible that there would be differences because of the always changing context of the drug market.

Even if the variations observed between the provincial male inmate samples for Ontario and Quebec are generally small, some of them appear important enough to be mentioned; concerning the most serious offence, a higher proportion of Ontario male inmates report having committing a violent crime; regarding substance use for the six months prior to their last arrest, Ontario male inmates reported illicit drug use alone as their main pattern of consumption; they also appear to be more dependent on alcohol alone and on illicit drugs alone than Quebec male inmates. More of those latter did not show any dependence on a psychoactive substance. There are more dependent male inmates in Ontario who committed an “other crime” as their most serious offence, while Quebec dependent male inmates’ major offence was more often a lucrative crime.

Major differences were noted within female inmate samples (Ontario and Quebec). These differences appear to jeopardize the possibility of generalizing our results to all female inmates incarcerated at the provincial level in Canada. They were observed first for the drug crimes and “other crimes” categories with many more Ontario female inmates reporting that their most serious crime was included in these categories as compared to Quebec female inmates. If we extract prostitution crimes from all crimes committed by female inmates during the last three years prior to the interview, Quebec female inmates reported more lucrative crimes and Ontario female inmates reported more drug crimes. Moreover, a greater proportion of Quebec female inmates reported having used alcohol only during the last six months prior to the interview, while their Ontario counterparts more often reported having used illicit drugs only. Regarding substance dependence for the twelve months preceding the last arrest, more Ontario female inmates reported alcohol dependence only or illicit drug dependence only as compared to Quebec female inmates. In this last category, Ontario female inmates report more frequent cannabis use than their Quebec counterparts, who report mainly cocaine use. A higher proportion of Quebec female inmates reported no substance use in the six months preceding their last arrest. For the Ontario female inmate sample, many of those dependent on alcohol alone or on illicit drugs alone reported lucrative crimes or drug crimes as their most serious crime while many of the Quebec female inmates who were found to be dependent reported “other crime” as their most serious offence. We also found that a greater proportion of women included in the Ontario female inmate sample reported having used illicit drugs only or alcohol and illicit drugs

combined before committing a crime under the influence of a psychoactive substance, while the Quebec sample showed that female inmates mainly used alcohol when committing a crime while intoxicated. A higher proportion of Ontario female inmates who are dependent on illicit drugs only or on alcohol and illicit drugs combined reported having committed their most serious crime in order to obtain a psychoactive substance for personal use.

A possible explanation of these differences may be that the social situation of woman in Ontario and in Quebec is not the same and these social disparities influenced the occurrence of criminal behaviour and substance use. Another way of understanding those differences would be to consider the sampling methods used to assemble this study's samples. Very few women are incarcerated as compared to men. In order to obtain our sample, we had to ask every eligible woman to participate in the study. Considering the small sample size, the inclusion of some "unrepresentative" inmates would cause distortions in our data.

Despite these elements, estimates for males show relatively high consistency from one sample to the other, permitting us to believe that these estimates could be generalized across the country. We recommend using the lowest estimates in order to obtain a more conservative report. However, important variations in our estimates for female offenders means that we cannot generalize the data obtained from Quebec and Ontario samples to the whole country. The only way to obtain this data appears to be to conduct a similar study within each province of Canada.

An Australian study, conducted by Paul William, was included in appendix C of and Australian report on the social costs of drug abuse (Collins and Lapsley, 2002). This study draws on the work of Pernanen *et al.* (2002) and obtains attributable fractions generally lower than the ones found in this present study or in the original Pernanen study. Comparing our result with the Australian ones shows that the Canadian attribution fractions (between .39 and .52 for males) are generally higher than the Australian one (.35). These higher fraction are partly due to crimes related to alcohol intoxication and/or dependence (Canada: between .13 and .21 for males; Australia: .9).

Williams' study reports attributable fractions that vary considerably according to the types of crime committed. As an example, 37% of property crimes were attributable to a psychoactive substance (mainly illicit drugs), while only 25% of disorders appeared to be attributable to psychoactive substances (mainly alcohol). This indicates that depending on the distribution of crime found in a detention centre, the attributable fraction will vary. Knowing that this distribution is associated with the way the law is applied and to alternative measures for punishment in the milieu being considered, we can better understand the variation in the general attributable fractions found in different studies that look at diverse penal populations. Keeping this in mind, we would suggest that the next studies collect data on larger sample (including, for instance, individuals sentenced to probation or to community work) in order to be able to estimate attributable fraction specific to type of crime. These specific attributable fractions will probably be more useful for cost estimates as they may well be more consistent from one population to another.

Another Australian study adapted the methodology used by Pernanen *et al.* (2002) to their particular context. This study, by Makkai and McGregor of the Australian Institute of Criminology, is also reported in Collins and Lapsey (2002) in Appendix D. Their results are quite similar to the Canadian estimates, with an attribution fraction ranging from .37 to .52.

Together, these studies indicated that at least one third of crimes could be attributable to psychoactive substance use/abuse.

None of these studies consider the systemic aspect of the Goldstein's tripartite model because this aspect, by focusing on events related to criminal gangs and drug dealing, considers only an indirect relation between drugs and crime. We believe that the attributable fractions would be slightly higher if we would consider these types of violent crimes. However, we have to keep in mind that many of the crimes committed within the system of drug distribution are committed by people who are intoxicated or dependant (Brochu, 1995). Analysis of crimes committed while intoxicated and crimes committed in order to get drugs reveals clearly that we cannot simply add these two types of crimes in order to get an attributable fraction because some of these crimes are committed by addict offenders while intoxicated. The only way to obtain a valid answer to this

question would be to do a study comparing attributable fractions with and without the inclusion of systemic crimes. If these fractions diverge, we will have to take a position, as Pernanen *et al.* did in their 2002 report.

Finally, in agreement with the report by Pernanen *et al.* (2002), this study indicates that it is important to consider alcohol and illicit drug users/abusers in the same study because a study of alcohol users alone or of illicit drug users alone would artificially inflate the estimates. Many drug users are also alcohol users and doing two separate studies, one on alcohol and another on illicit drugs, would count the same crime twice for those consuming alcohol and drugs altogether. We must, however, take into account that different realities are hidden by the expression “illicit drugs”. Cannabis and cocaine are very different substances with opposite properties and very different prices. Estimating an attributable fraction for illicit drug use could give the impression that cannabis users are as much involved in crimes as cocaine or heroin users. Future studies should try to distinguish between these realities.

Conclusion

This study indicates that for male Ontario provincial inmates, 21% of the most important crimes are attributed to alcohol, 18% to illicit drugs, and 13% to both alcohol and illicit drugs. In sum, half of these crimes are linked to a psychoactive substance. These estimates are comparable but higher than those obtained for Quebec provincial inmates in the Pernanen *et al.* (2002) study, where 39% of the most important crimes were attributable to a psychoactive substance.

A very different picture appears when we consider female Ontario provincial inmates, where only 3% of the most important crimes are attributed to alcohol, as much as 41% to illicit drugs, and 20% to both alcohol and illicit drugs. Overall, two third (64%) of these crimes are linked to a psychoactive substance. This estimate is one third (34%) for the Quebec provincial inmate sample.

The data provided by this study and that conducted by Pernanen *et al.* (2002) presents very consistent estimates for federal inmates samples, relatively consistent estimates for provincial male inmate samples and very inconsistent estimates for female provincial inmate samples.

This study now provides more specific estimates for Ontario provincial inmates. Our data, added to that obtained from Pernanen *et al.* (2002), gives us an estimate for federal inmates as well as for provincial inmates in the two most important Canadian provinces in term of population. Since male estimates are relatively consistent for Quebec and Ontario, it is possible to generalize these estimates to all Canadian provincial inmates, using either the average estimates obtained from Quebec and Ontario or, for a more conservative approach, the Quebec estimates.

Unfortunately, very different estimates were obtained for Quebec and Ontario female provincial inmates. We believe those estimates are valid for Quebec and Ontario but these findings do not allow us to generalize the estimates obtained to the whole Canadian female provincial inmate population.

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