

Rates of prescribed medication use by women in prison

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This article discusses a few key findings from a study undertaken by the Correctional Service of Canada (CSC) regarding the use of prescribed medications among incarcerated federal women offenders.⁴ The study was initiated to verify the perception by health professionals that the use of prescribed medications among the women offender population could be as high as 90%.

Prescribing practices have been shown to contain considerable gender bias. Many studies have shown that in general, women receive more prescriptions than men for all types of medications, and specifically for psychotropic medications.⁵ It is also known that medication use in the overall inmate population is high; reflecting the higher prevalence of chronic conditions, as well as possible differences in prescribing practices.⁶ Despite these disparities, however, the reported anecdotal rates of prescribed medication use among women offenders under CSC jurisdiction appeared unusually high.

The objectives of the study were to identify nationally and by region the prevalence and type of medication use among this population as well as any trends in prescribing patterns. This article is limited to summarizing broad findings related to national and regional prescription medication rates, the prescription rates of psychotropic medications in particular, and to comparing these rates to the general population of Canadian women.

Methodology

Medication profiles were collected from either the Health Services Units in the eleven women's institutions under the Service's jurisdiction or the individual pharmacies that provide service to the institutions. These profiles detail every medication that is prescribed (including both prescription and over the counter medications (OTC), to be taken on a regular basis or on an as needed basis) and therefore available to each inmate each day. For the purposes of the present study, profiles were reviewed that reflected all medication orders on one randomly selected day - July 3, 2001, at

which time the incarcerated population numbered 384.

Among the objectives of the study was assessing the magnitude of medication use among incarcerated women in terms of the total number of medications per woman; the category or type of specific medication; identification of medications that are OTC; and identification of prescribing patterns.

Data were collected by hand and the actual medication names were not recorded. Only data on medication orders were collected. The current report is based on the tabulations in the report by institution. Raw data were not analyzed. Data tabulations were graphed using Microsoft Excel. Regional variation was tested for overall significance using a chi square statistic in EpiInfo 2000 (StatCalc). Interviews were also conducted with the CSC nurse who gathered the data to further elucidate and interpret some of the findings.

Results

The referencing of medication use for this study has generally been broken down into: "Total Medications" (including OTC medications), "Prescription Medications" (excluding OTC medications) and "OTC Medications" (excluding prescription medications). Common categorizations of medications are listed in Table 1. Other medications, such as antibiotics, acetaminophen, diabetes medications, etc. were not categorized and so appear only in the Prescription and OTC totals.

Table 2 shows how the data have been analyzed by region, with specific figures regarding the number of women and the number of institutions in each region. Findings will be discussed in terms of the original questions that the survey was designed to answer. A profile of the 370 women offenders incarcerated in November 2001 showed that 1.9% were 18-19 years of age, 49.7% were 20-34, 34.8% between 35 and 45, 9.6% 46-55, and 5% 56 and over.

Table 1

Categorization of medications and rate of prescription orders (nationally)		
	Categorization of Medications	Study Prevalence
Allergy treatment	Oral, injectable, and inhalation drugs used to treat or prevent allergy symptoms. Allergy treatments specifically ordered for sedative effects at bedtime were counted as psychotropics.	18%
Anemia treatment	Oral and injectable drugs used to treat any form of anemia.	9%
Asthma treatment	Oral and inhalation drugs used to treat or prevent asthma symptoms.	21%
Birth Control	Oral and injectable contraceptives.	8%
Hormone Replacement Therapy	All oral and transdermal drugs used to prevent or reduce the symptoms of menopause.	7%
Migraine treatment	Oral and injectable drugs used to prevent or treat the pathophysiology of migraine, not including narcotics acetaminophen, or NSAIDs.	7%
Narcotics	Methadone and opiate analgesics.	8%
NSAID	All non-steroidal anti-inflammatory drugs, including acetylsalicylic acid (ASA).	34%
Peptic Ulcer Therapy	Antacids, cytoprotectives, histamine H2-receptor antagonists, prostaglandins, and proton pump inhibitors.	23%
Psychotropics	All categories of anti-depressants, neuroleptics, anti-psychotics, anxiolytics, anti-manic, anti-histamines prescribed specifically for sedation, benzodiazepines and anti-epileptic medication prescribed for mood stabilization purposes.	42%
Skeletal Muscle Relaxants	Medications classified as skeletal muscle relaxants in the CPS (e.g., Norflex, Flexeril, Robaxacet, Robaxin, etc.)	7%

Figure 1 illustrates the prescription rates for total medications by region. Overall, 87% of the women offenders within CSC institutions have medication orders (regional range 72 - 94%) with an average of 4.4 medications per woman and a median of 3.

Excluding OTC medications, 80% of women (N = 306) had medication orders. Some of these were “prn” (for use as needed, not necessarily on a regular basis). The average number of prescription medications was 3.1 per woman (range = 1.7 - 3.7) with a median of two.⁷

As is evident in Figure 1, even though OTC medications comprise a significant portion of all the medications, they add relatively little to the proportion of women already taking medications, especially in the Atlantic and Quebec regions. The figure shows significant

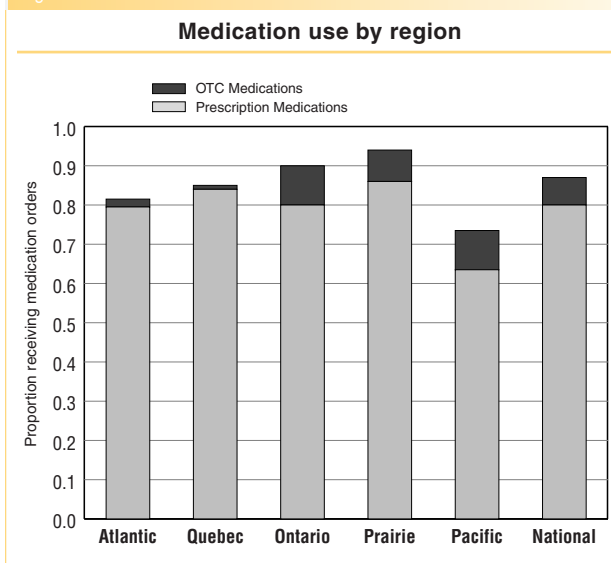
Table 2

Regional population of women in correctional facilities						
Region	Atlantic	Quebec	Ontario	Prairie	Pacific	National
Number of women	43	72	102	124	43	384
Number of institutions	2	2	2	4	1	11

The most common type of prescription medications are psychotropics (42%) and non-steroidal anti-inflammatory drugs (34%), followed by peptic ulcer therapy (23%), asthma treatment (21%), allergy treatment (18%), anemia treatment (9%), birth control (8%), narcotics (8%), hormone replacement therapy (7%), skeletal muscle relaxants (7%) and migraine treatments (7%) (See Table 1).

Since most OTC medications need to be ordered by physicians for women in institutions, these figures include OTC medications. Theoretically, this could significantly inflate the number of medication orders. However, although 29% of the medications in this study can be accessed over the counter in the community, data showed that this had a greater effect on the number of medications that women were taking than it did on the proportion who were taking medications.

Figure 1



differences among regions in both total medication use (chi-square = 17.3, $p = 0.001$) and in prescription medication use (chi-square = 11.7, $p = .02$), with rates in the Pacific Region lower than in the others. The highest rates are in the Prairies, followed by Ontario.

The *cumulative distributions* of medication orders is visually depicted in Figure 2, where the percentage of women on more or on less than any given number of medications can be determined. For example, as per above, it can be seen that 20% of women have zero orders for prescription medications. Fifty-two percent of women have orders for two or fewer prescription medications while 38% of women have orders for two or fewer total medications. Twenty-six percent of women have orders for five or more prescription medications. Only a minority of polypharmacy cases were older women with multi-system health concerns. The majority appeared to be ‘anticipatory prescribing’. Regional data regarding the distribution of medications indicate that in Quebec and Ontario a larger number of women have multiple medication orders.

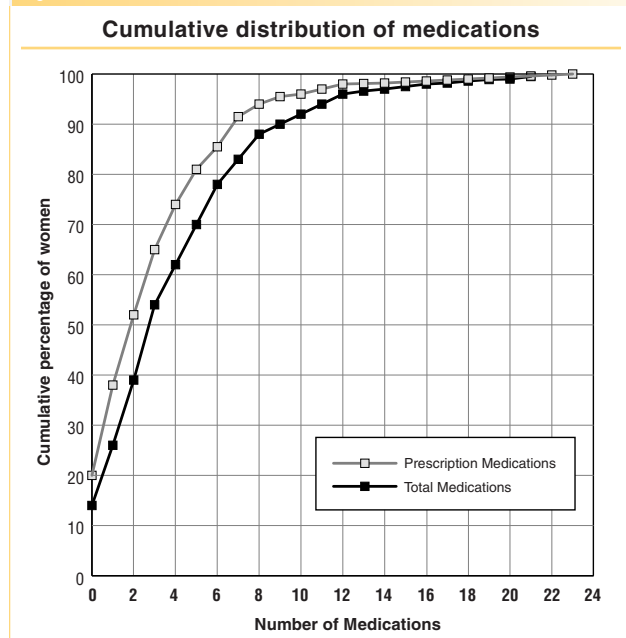
Psychotropics

This study noted a 42% prevalence rate in prescription orders for psychotropics, with significant regional variation ($p = .04$), ranging from 26% (Pacific Region) to 46% (Ontario Region).⁸ Furthermore, 23% (51% of those taking psychotropics) are taking two or more psychotropic medications. Regional variation on multiple psychotropic use is highly significant ($p = .0008$ for being on more than two).

Comparison to medication rates in the general population

The prescription medication rates for women offenders in this study are much higher than for women in the general Canadian population. Comparison data were obtained from the 1999 Report on the Health of Canadians;⁹ data in this report are separated by gender and also broken down by fairly discrete age groups. Given that the offender population is younger than the general Canadian population, the Canadian rates of use were recalculated based on the age structure of the offender population – these are the expected rates in the incarcerated population if the two populations had similar rates.¹⁰ Comparison of the CSC rates to rates in the general Canadian population appear in Figure 3. The differences are striking, even allowing for some underreporting in the survey data.¹¹ Only

Figure 2



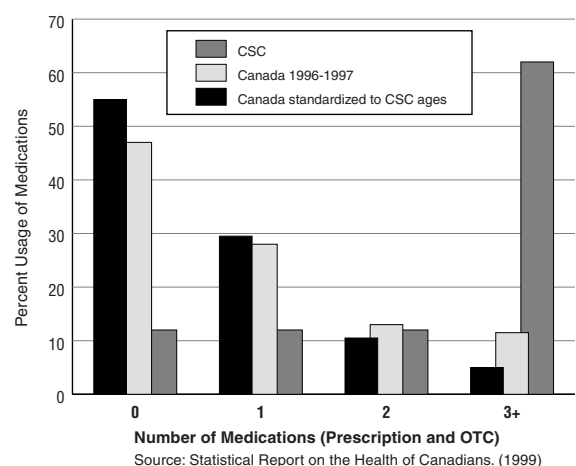
13% of incarcerated women were not on medications, whereas 55% would be expected for women in the Canadian population. Furthermore, 62% were on three or more medications, whereas 6% would be expected.

Discussion and conclusion

This study has shown that prescription rates in CSC’s women’s institutions are high, particularly for the use of psychotropics. Furthermore, there is significant regional variation in medication usage and the rates of usage by federally sentenced women offenders is significantly higher than what would be expected in the general population of Canadian women. There are various reasons contributing

Figure 3

Total medications: CSC women offender population versus Canadian women population



to these findings related to both prescribing patterns and practices endemic to institutional settings as well as health status factors and coping mechanisms associated with an incarcerated population.

Prescribing patterns

Access

One factor contributing to high numbers of medication orders is the nature of medication dispensation in institutions. Whereas people in the community may have access to a wide variety of medications - OTC medications plus old prescriptions not completed - institutional populations obviously do not share the same access. 'Anticipatory prescribing' practices may therefore be adopted by some institutions/practitioners to ensure the availability of medications should they be needed at some point in the future.

A *second access* issue involves the financial accessibility of medication. There is coverage of prescription medications for the CSC population as compared to many other Canadians who are covered to a much less and varying degree. This may have the result of increasing usage as well as altering prescribing patterns within institutions. For example, if NSAIDs are prescribed and therefore covered and acetaminophen needs to be paid for, NSAIDs may be preferred to acetaminophen.

A *third access* issue is that of accessibility to unconventional therapies within CSC institutions. The limited access of the woman offender population to unconventional therapies available in the general Canadian population (i.e. chiropractor, vitamins etc.) may have the effect of increasing reliance on medications as a substitute for any 'natural' alternative.

Context of correctional health practice

Institutional populations pose challenges to physicians not encountered within the community. While medication requests from patients are common to physicians in both settings, it may be easier for community-based physicians to educate their patients on the medications they are requesting and rationalize with patients if the request is deemed to be inappropriate. An institutional population will likely not be as receptive to this type of dialogue. A related factor is the potential lack of support received by the physician from institutional staff if he/she declines to prescribe a medication requested by a woman offender.

Health status and coping mechanisms

Many of the social factors such as poverty, abuse, trauma, and lack of social support that increase risk for crime also have been shown to increase the risk of illness and decrease the ability to cope. Women offenders are more prone to experiencing a greater number of health concerns at a younger age than the general population. The strong relationship between negative emotions and illness is well established.¹² Research indicates that illness rates in the lowest socioeconomic quintile are several times those in the highest,¹³ and it would be expected that many of these women are on higher rates of medication than the general population when they are out in the community.

Psychotropics

The data suggest that overprescribing and multiple prescribing of psychotropics may be problematic in some institutions. Moreover, the variation across regions suggests that there could be room for improvement in prescribing practices. With respect to understanding potential reasons underlying these relatively high rates of prescribing, studies of incarcerated women have shown extremely traumatic life and childhood histories.¹⁴ Women offenders are more likely than women in general to have unresolved past and current substance abuse issues as well as unresolved past physical, mental, and/or sexual abuse issues, which often have the effect of limiting coping responses. These histories, coupled with the fact that the institutions have traditionally been understaffed in terms of psychology resources, may contribute to a higher reliance on these types of medications.

While a discussion of these factors is useful in terms of providing a context within which to interpret the findings of this study, the elevated rate of prescribed medication usage among federally sentenced women in prison should serve to highlight some potential avenues to explore for addressing this concern. One application might be to develop clinical practice guidelines for the management and use of certain prescription drugs within correctional settings to assist physicians and other health professionals. While changes may need to be directed at this level, they need to be adjunctive to changes at a more fundamental level - i.e. the treatment of women's underlying issues - in order to truly effect appropriate and sustainable reductions in medication use. ■

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- ⁴ For the complete report, see N. Langner. (2002). *Review of Prescription Medications to Women Offenders in CSC Institutions*. Ottawa, ON: Correctional Service of Canada.
- ⁵ Simoni-Wastila, L. (2000). The use of abusable prescription drugs: The role of gender, *Journal of Women's Health & Gender-Based Medicine*, 9, 289-297. See also, Sayer, G. P; and Britt, H. (1997). Sex differences in prescribed medications: Another case of discrimination in general practice. *Social Science & Medicine*, 45, 1581-1587; Ettorre, E. (1995). *Gendered Moods: Psychotropics and Society*. Florence, KY: Routledge; Hamilton, J. A; and Jenvold, M. F. (1995). Sex and Gender as Critical Variables in Feminist Psychopharmacology Research and Pharmacotherapy. *Women and Therapy*, 16, 9-30; and Hohmann, A. A. (1999). Gender bias in psychotropic drug prescribing in primary care. *Medical Care*, 27, 478-490.
- ⁶ Moloughney, B. (2002) *Health Needs Assessment*. Unpublished. Ottawa, ON: Correctional Service of Canada.
- ⁷ The average is inflated by small numbers of women on large numbers of medications (see Figure 2).
- ⁸ Significance determined by Chi square analyses, $p < .04$.
- ⁹ Federal, Provincial and Territorial Advisory Committee on Population Health (1999). *Statistical Report on the Health of Canadians*. Ottawa, ON: Health Canada and Statistics Canada; Statistics Canada Catalogue 82-570-X1E. Figures are based on survey data from 1996-1997.
- ¹⁰ A profile of women offenders incarcerated in November 2001 was used for this recalculation.
- ¹¹ Given that these data were based on self-report and in a minority of cases on third party report, some underestimation is likely.
- ¹² Williams, R., Kiecolt-Glaser, J., Legato, M. J., Ornish, D., Powell, L. H., Syme, S. L., and Williams, W. (1999). The impact of emotions on cardiovascular health. *Journal of Gender-Specific Medicine*, 2(5), 52-58. See also Ostir, G. V., Markides, K. S., Black, S. A., and Goodwin, J. S. (2000). Emotional well-being predicts subsequent functional independence and survival. *Journal of the American Geriatrics Society*, 48(5), 473-478.
- ¹³ Syme, S. L., and Berkman, L. F. (1976). Social class, susceptibility and sickness. *American Journal of Epidemiology*, 104(1), 1-8. Adler, N. E., and Newman, K. (2002). Socioeconomic disparities in health: pathways and policies. Inequality in education, income, and occupation exacerbates the gaps between the health "haves" and "have-nots." *Health Affairs*, 21(2), 60-76.
- ¹⁴ Rivera, M. (1996). "Giving Us a Chance" *Needs Assessment: Mental Health Resources for Federally Sentenced Women in the Regional Facilities*. Ottawa, ON: Correctional Service of Canada.

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