Associations Between Legal and Illegal Distribution of Prescription Medications in Canada

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Introduction

- The misuse of prescription drugs is problematic in Canada, and may lead to serious health effects such as substance use disorder (addiction), overdose, or death.

- Many individuals who misuse medications obtain products diverted from legal channels.

- The frequency of diversion provides a measure of demand and distribution in illegal markets.

- We examined rates of prescription drug diversion and the association with legitimate dispensing in communities within British Columbia, Quebec, Ontario, and Manitoba.

Sex and Gender

- Over the past three years, hospitalization rates have increased for both men (24%) and women (10%). While opioid poisonings tend to be higher among men, women are at greater risk for developing opioid addiction after receiving a prescription.

- Though we do not collect information on the gender of the diversion case, data in Canada suggests that approximately 46% of women dependent on opioids obtained prescription opioids through an illegal source.

Methods

- Diversion cases reported by 22 regional/municipal law enforcement agencies participating in the Canadian Consumer Product and Pharmaceutical Safety (CCPPS) Drug Diversion Program between 1st quarter 2017 and 2nd quarter 2018 were analyzed (Table 1).

- Rates of oxycodone, morphine, hydromorphone, and gabapentin cases per 100,000 person-years were calculated and presented at the census division level.

- Person-years represented the number of individuals residing within an agency's jurisdiction multiplied by number of years the agency provided data.

- The association between diversion and prescriptions dispensed (IQVIA® Solutions Canada Inc. Geographic Prescription Monitor (GPM)) per person-years was measured using Spearman rank correlation.
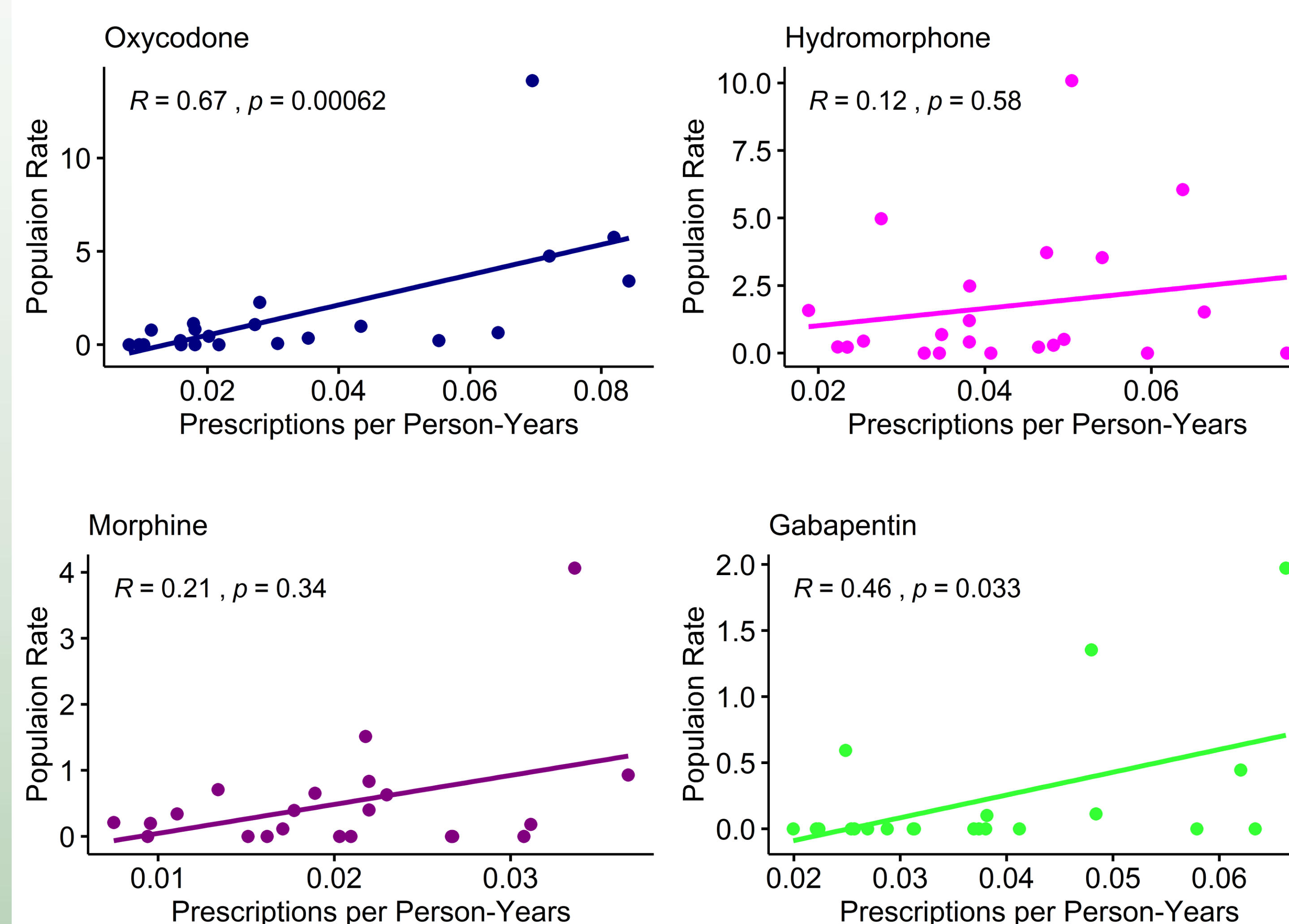
Figure 1: Spearman Rank Correlation

Table 1: Agency Information

Province	Agencies	Average Number of People Within Jurisdiction
Ontario	8	539,953
Manitoba	2	2,257,014
Quebec	11	701,912
British Columbia	1	877,433

Disclosure

Results

- Across provinces there was a statistically significant positive correlation between prescribing and diversion rates for:
  - Oxycodone (R=0.67, p<0.001)
  - Gabapentin (R=0.46, p=0.033)

- Associations between prescribing and diversion were not statistically significant for:
  - Morphine (r=0.21, p=0.343)
  - Hydromorphone (r=0.12, p=0.585)

- The Algoma, Ontario census division had the highest oxycodone (23.0 cases/100,000 person-years) and gabapentin (5.4 cases/100,000 person-years) diversion rates.

- The Leeds and Grenville, Ontario census division had the highest hydromorphone (24.2 cases/100,000 person-years) and morphine (6.1 cases/100,000 person-years) diversion rates.

Conclusions

- Prescription drug diversion differs across communities in Canada.

- These differences are only partially explained by differences in prescriptions dispensed per person.

- Diversion is a valuable measure in assessing illegal distribution of prescription opioids.

Strengths and Limitations

- Diversion data provide insight into hard-to-reach, illegal drug distribution network in a diverse set of communities.

- Differences in case counts may be due to variations in targeted local law enforcement strategies.

- Data are collected at the local law enforcement level and are not be generalizable to the general population.

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