

Rate of methadone use among Aboriginal opioid injection drug users

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ABSTRACT

Background: Previous studies have shown elevated rates of health-related harms among Aboriginal people who use injection drugs such as heroin. Methadone maintenance therapy is one of the most effective interventions to address the harms of heroin injection. We assessed the rate of methadone use in a cohort of opioid injection drug users in Vancouver and investigated whether methadone use was associated with Aboriginal ethnic background.

Methods: Using data collected as part of the Vancouver Injection Drug Users Study (May 1996–November 2005), we evaluated whether Aboriginal ethnic background was associated with methadone use using generalized estimating equations and Cox regression analysis. We compared methadone use among Aboriginal and non-Aboriginal injection drug users at the time of enrolment and during the follow-up period, and we evaluated the time to first methadone use among people not using methadone at enrolment.

Results: During the study period, 1603 injection drug users (435 Aboriginal, 1168 non-Aboriginal) were recruited. At enrolment, 54 (12.4%) Aboriginal participants used methadone compared with 247 (21.2%) non-Aboriginal participants (odds ratio [OR] 0.53, 95% confidence interval [CI] 0.38–0.73, $p < 0.001$). Among the 1351 (84.3%) participants who used heroin, Aboriginal people were less likely to use methadone throughout the follow-up period (adjusted OR 0.60, 95% CI 0.45–0.81, $p < 0.001$). Among people using heroin but who were not taking methadone at enrolment, Aboriginal ethnic background was associated with increased time to first methadone use (adjusted relative hazard 0.60, 95% CI 0.49–0.74, $p < 0.001$).

Interpretation: Methadone use was lower among Aboriginal than among non-Aboriginal injection drug users. Culturally appropriate interventions with full participation of the affected community are required to address this disparity.

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During the last decade, Vancouver has experienced a public health crisis related to the use of injection drugs.⁷ Previous studies have demonstrated that health and social harms related to this problem may be overrepresented among Aboriginal people.^{8–10} We conducted the present study to evaluate the rate of methadone use among a cohort of injection drug users in Vancouver and to examine whether Aboriginal ethnic background was associated with reduced methadone use.

Methods

Study participants

The Vancouver Injection Drug Users Study (VIDUS) included people who had injected illicit drugs (heroin, cocaine or methamphetamine) in the month before enrolment.¹¹ At enrolment and semi-annually thereafter, participants provided a venous blood sample and responded to a questionnaire administered by an interviewer. This study received annual ethics approval from the University of British Columbia's Providence Health Care Research Ethics Board.

Statistical analysis

We used several approaches to examine whether Aboriginal ethnic background (defined as a person who self-reported as being Aboriginal, Metis, Inuit or First Nations⁸) was associated with methadone use. All multivariate models were fit by use of a protocol defined a priori to adjust for all variables that were significant ($p < 0.05$) in the univariate analyses. Behaviours refer to the participants' activities in the 6 months before each visit. Definitions of the variables used were identical to those used in earlier reports.⁸ First, we evaluated whether Aboriginal ethnic background was associated with methadone use at the time of enrolment. Second, we used generalized estimating equations to examine whether Aboriginal ethnic background was associated with methadone use during the study period (May 1996–November 2005) using data obtained at enrolment and at semi-annual follow-up visits. For this analysis, we considered the following additional variables as potential determinants of methadone use: age;

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Illicit injection drug use is associated with a wide array of health and social harms.^{1–3} The provision of addiction treatment is one of the most effective interventions to address these harms. Several Cochrane reviews have concluded that methadone treatment is effective in treating addiction to heroin and other opioids.^{4–6}

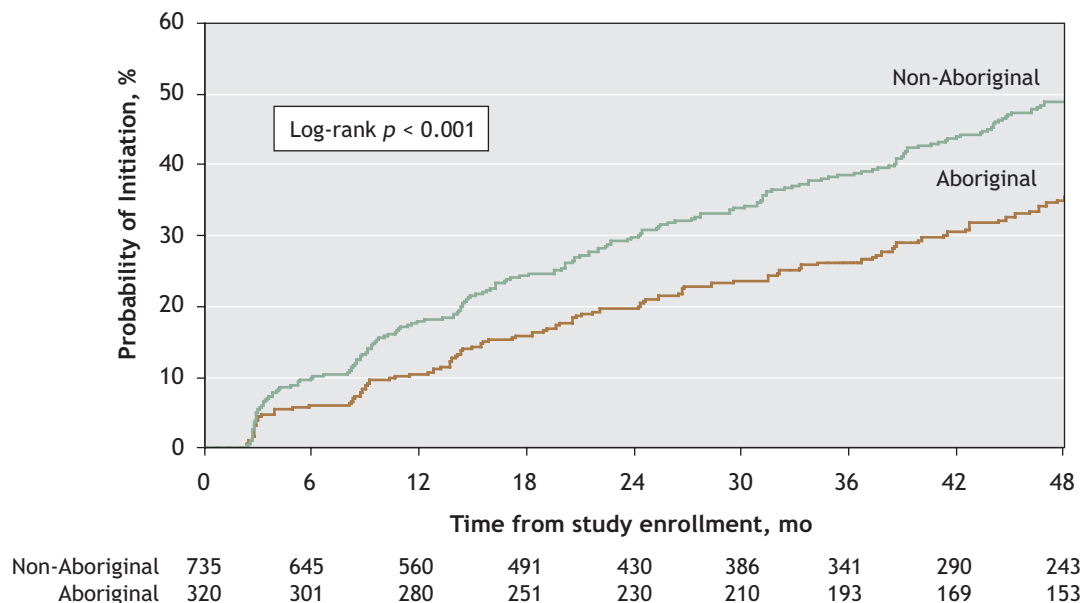


Figure 1: Cumulative rate of initiation of methadone treatment among 1055 opioid injection drug users who did not use methadone at enrolment, stratified by ethnic background.

sex; residence in Vancouver's Downtown Eastside; unstable residence; borrowing and lending syringes; injection of heroin, cocaine or speedball (mixture of heroin and cocaine); involvement in the sex trade; help required to inject; and binge drug use. Finally, in order to determine the factors associated with first time methadone use among people not using methadone at enrolment, we used Kaplan–Meier methods and Cox proportional hazards regression.

Results

Overall, 1603 people were recruited into the Vancouver Injection Drug Users Study during the study period. Of these, 435 were Aboriginal: 189 (43%) First Nations, 188 (43%) Aboriginal, 57 (13%) Metis and 1 (< 1%) Inuit. At enrolment, 12.4% (54/435) of Aboriginal participants used methadone versus 21.2% (247/1168) of non-Aboriginal participants (odds ratio [OR] 0.53, 95% confidence interval [CI] 0.38–0.73, $p < 0.001$). Among all participants, 1351 (84.3%) reported ever using heroin alone or in combination with cocaine (speedball) during the follow-up period. We focused on this population because methadone is only available to those who have used opioids.

Regression analysis (by use of generalized estimating equations) showed that Aboriginal participants were less likely to use methadone compared with non-Aboriginal participants (univariate analysis, OR 0.51, 95% CI 0.41–0.63, $p < 0.001$; multivariate analysis, OR 0.60, 95% CI 0.45–0.81, $p < 0.001$). Figure 1 shows the time to first methadone use among the 1055 injection drug users who used opioids but did not use methadone at enrolment and who had at least 1 follow-up visit. Aboriginal ethnic background was associated with a lower rate of initiation of methadone therapy over the follow-up period compared with non-Aboriginal ethnic back-

ground (log-rank $p < 0.001$). Indeed, Aboriginal ethnic background was associated with a longer time to first methadone use in both the unadjusted (relative hazard [RH] 0.71, 95% CI 0.59–0.86, $p < 0.001$) and the multivariate adjusted (RH 0.60, 95% CI 0.49–0.74, $p < 0.001$) analyses (Table 1). Aboriginal ethnic background remained independently associated with reduced methadone use even if we altered the model-fitting protocol and forced in additional sociodemographic variables, such as education and employment (full details of this analysis are available from the corresponding author).

Interpretation

In the present study, we found that Aboriginal ethnic background was associated with reduced use of methadone at baseline. When we followed heroin users over time and examined the rate of methadone initiation, we found that Aboriginal participants had a slower time to initiation compared with non-Aboriginal participants.

In Canada, the problem of addiction deserves both great attention from policy makers and greater application of evidence-based public health strategies.² Since a number of the health-related harms stemming from illicit drug use may be more common among Aboriginal people,⁸ this population will require dedicated resources and policy initiatives. However, these initiatives must be evidence-based² and developed in full collaboration with the affected community. In addition, further study is required to understand why the rate of methadone use appears to be lower among this population.

Although the Vancouver Injection Drug Users Study is believed to be representative of injection drug users in Vancouver, this type of cohort study is limited by the fact that there are no registries of injection drug users from

Table 1: Univariate and multivariate Cox proportional hazard analyses of time to first methadone use among 1055 opioid injection drug users who did not use methadone at enrolment

Variable	Unadjusted relative hazard (RH)			Adjusted* relative hazard (RH)		
	RH	95% CI	p value	RH	95% CI	p value
Ethnic background						
Aboriginal v. non-Aboriginal	0.71	0.59-0.86	< 0.001	0.60	0.49-0.74	< 0.001
Sex						
Female v. male	1.65	1.40-1.96	< 0.001	1.57	1.27-1.93	< 0.001
Unstable housing†						
Yes v. no	0.79	0.67-0.94	0.007	0.69	0.58-0.83	< 0.001
Downtown Eastside residence†						
Yes v. no	1.60	1.36-1.90	< 0.001	1.45	1.20-1.74	< 0.001
Syringe borrowing†						
Yes v. no	1.93	1.57-2.38	< 0.001	1.25	0.97-1.62	0.084
Heroin injection†						
Daily v. not daily	3.27	2.75-3.89	< 0.001	2.06	1.69-2.51	< 0.001
Speedball injection (mix of cocaine and heroine)†						
Daily v. not daily	2.43	1.96-3.00	< 0.001	1.29	1.02-1.66	0.037

Note: CI = confidence interval.

*Adjusted for age, sex-trade involvement, cocaine use, help required for injection, binge drug use and lending syringes, which were not significant in multivariable analyses.

†In the last 6 months.

which to draw a random sample, and as such our findings may not be generalizable to other settings. In addition, certain behaviours, such as syringe sharing, may be under-reported because they are socially undesirable. It is also possible that methadone use was under- or overreported.¹² However, the end points used in our study (primarily methadone maintenance therapy and ethnic background) have not been shown to be affected by under- or over-reporting or by issues of recall bias. In addition, we have used an inclusive definition for Aboriginal people based on how study participants self-identified upon recruitment to the study; however, it is likely that there are unique groups within this definition.

Previous studies have shown elevated rates of HIV infection and other health-related harms among Aboriginal people who use injection drugs.⁸⁻¹⁰ Our study indicates that, in addition to these concerns, there may be other considerable barriers to evidence-based treatment for heroin addiction and highlights issues related to HIV prevention and access to health care. Interventions that are evidence-based and culturally appropriate and that have the full participation of the affected community (designing, planning, implementation and evaluation) are required to address ongoing health-related harms and disparities in the access to addiction treatment among this population.

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