

Investigating non-prescribed hydromorphone and unregulated street opioid use before and after the COVID-19 pandemic and introduction of prescribed safer supply in Vancouver, Canada

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Background

- British Columbia, Canada is the site of a public health crisis caused by unprecedented morbidity and mortality arising from exposure to the unregulated street drug supply.
- After the beginning of the COVID-19 pandemic, unregulated street drugs increased in toxicity.
- Innovative harm reduction programs were implemented in BC to address overdose following the start of the pandemic.
- Prescribed “safer supply” (PSS) involved providing regulated opioids (primarily hydromorphone) as alternatives to substances from the unregulated street supply.
- This study sought to explore if rates of unregulated opioid use and non-prescribed hydromorphone use changed following the introduction of PSS and the COVID-19 pandemic.

Methods

- We used data from the At-Risk Youth Study, a community-recruited prospective cohort study of street-involved youth and young adults who use drugs in Vancouver, BC, Canada.
- We performed Interrupted time series (ITS) analyses to assess trends in unregulated opioid and non-prescribed hydromorphone use rates before/after COVID-19/PSS (March 31, 2020).
- We used multivariable generalized estimating equations (GEE) models to adjust for individual and social/structural factors known to shape substance use (e.g., unregulated opioid availability).

Results

- Among 644 participants, the median age at baseline was 23 years and approximately one-third self-identified as a woman, transgender, Two-Spirit, or another self-described gender.
- Between December 2015 to May 2024, 436 (68%) individuals reported unregulated opioid use and 124 (19%) reported non-prescribed hydromorphone use at least once.
- Results of ITS analyses are displayed in **Table 1**.
 - Figure 1** results for unregulated opioid use.
 - Figure 2** results for non-prescribed hydromorphone.
- Results of GEE analyses are displayed in **Table 2**.

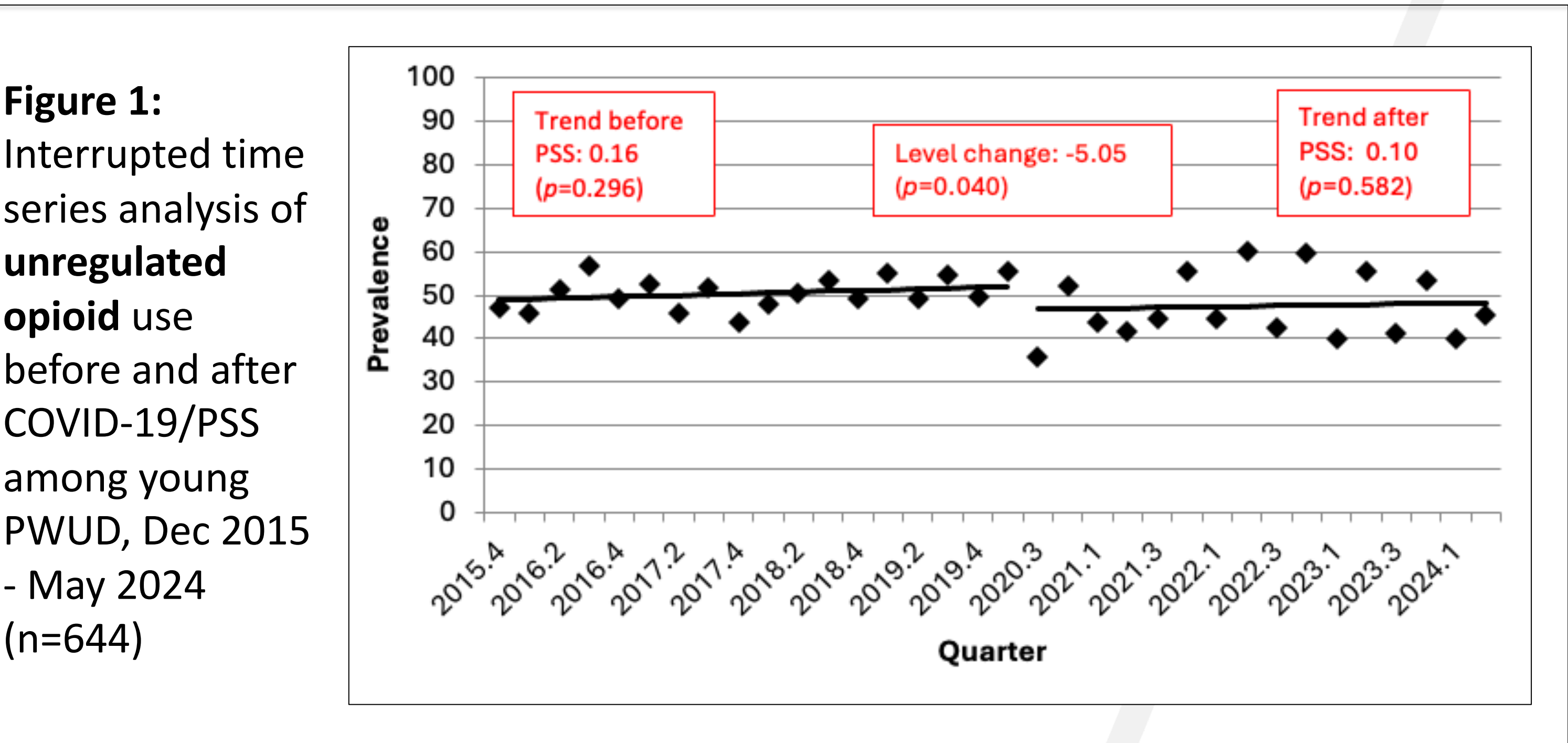
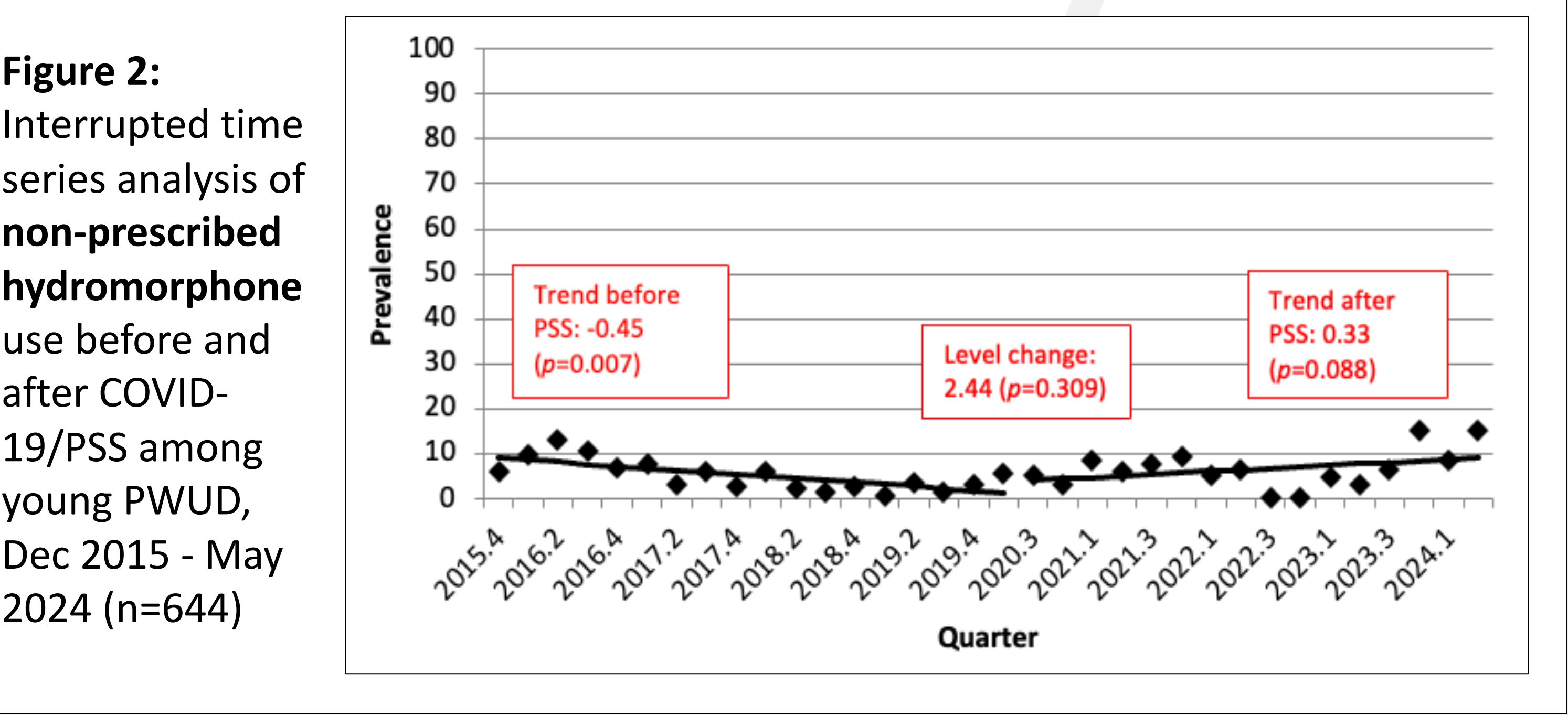


Table 1. Interrupted time series (ITS) estimates of levels and trends before, upon, and after the COVID-19 pandemic and introduction of prescribed safer supply (PSS) (March 31, 2020), in unregulated opioid use and non-prescribed hydromorphone use, per-quarter coefficient (95% CI); <i>p</i> -value		
Parameter	Unregulated Opioids*	Non-prescribed Hydromorphone
Trend before PSS	0.16 (-0.15, 0.47); 0.296	-0.45 (-0.77,-0.14); 0.007
Level change upon PSS	-5.05 (-9.84, -0.26); 0.040	2.44 (-2.38, 7.26); 0.309
Trend change upon PSS	-0.06 (-0.53, 0.41); 0.798	0.78 (0.29, 1.27); 0.003
Trend after PSS [†]	0.10 (-0.27, 0.47); 0.582	0.33 (-0.05, 0.70); 0.088
* Unregulated opioids includes fentanyl, unspecified street opioids, heroin, or other opioids from the unregulated supply. [†] Computed by reparametrizing the model		

Table 2. Adjusted multivariable generalized estimating equations (GEE) models comparing levels and trends before, upon, and after the COVID-19 pandemic and introduction of prescribed alternatives (PSS) (March 31, 2020), in unregulated opioids and non-prescribed hydromorphone use, December 2015-May 2024, adjusted odds ratio (95% CI); <i>p</i> -value (n=644)		
Parameter	Unregulated Opioids*	Non-prescribed Hydromorphone
Trend before PSS	1.06 (1.04,1.09); <0.001	0.91 (0.86,0.96); 0.001
Level change upon PSS	0.65 (0.47,0.88); 0.006	3.39 (1.39,8.30); 0.007
Trend change upon PSS	0.94 (0.91,0.98); 0.004	1.14 (1.05,1.23); 0.002
Trend after PSS [†]	1.00 (0.97,1.03); 0.804	1.03 (0.97,1.09); 0.284
Multivariable models adjusted for: age; homelessness; DTES residence; sex work; drug dealing; non-fatal overdose; any injection drug use; > weekly crystal methamphetamine use; and ability to obtain unregulated opioids in <90 minutes . * Unregulated opioids includes fentanyl, unspecified street opioids, heroin, or other opioids from the unregulated supply. [†] Computed by reparametrizing the model.		

Conclusions

- Among street-involved young people who use drugs in Vancouver, rates of unregulated opioid use dropped significantly at the commencement of COVID-19/PSS and remained lower than pre-COVID-19/PSS levels.
- In contrast, for non-prescribed hydromorphone, the pre-COVID-19/PSS declining trend in use was halted and, in GEE analysis, the odds of use increased upon COVID-19/PSS.
- The level decline of unregulated opioid use upon COVID-19/PSS remained statistically significant after adjusting for the reported availability of unregulated street opioids.
- Findings are consistent with the interpretation that prescribed safer supply programs may have contributed to modest increases in non-prescribed hydromorphone use and reduced use of unregulated opioids among this study population.



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