A call to action: Substance use, psychosocial factors, & impacts of health interventions on overdose risk in a Vancouver-based fentanyl cohort study

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Background & Objective

Despite over $1.1 billion invested since 2017, BC's opioid crisis persists with high overdose mortality rates. This Fentanyl Cohort Study (FCS) investigates socioeconomic characteristics, fentanyl use and harm reduction patterns, & treatment experiences of people who use opioids (PWUO) in Vancouver, BC. This analysis provides an overview of overdose risk factors and evaluates the impact of public health and clinical interventions in addressing the opioid crisis.

Methods

- This cross-sectional acute care cohort study surveyed 255 adults admitted to Vancouver General Hospital (VGH) in 2022–2023 who currently or previously used fentanyl as their primary drug.
- Participants were recruited via convenience sampling at the Complex Pain & Addiction Service, and interviewed by volunteers.
- Data on substance use, demographics, perspectives, and treatment experiences were collected using Qualtrics on devices.
- The study was funded by Vancouver Coastal Health Research Institute (F22-01012).
- Bivariate ordinal logistic regression analyzed overdose risk across lifetime overdose clusters (0, 1–3, 4–11, 12–27, 30–50, >50), and recent 6-month overdose history where temporally relevant.

Results

- Most participants **smoked fentanyl** over injecting, and smoking was associated with decreased odds of recent overdose in the past 6 months but not over lifetime (OR 0.43, p = 0.016).
- **Polysubstance use** with fentanyl was high and significantly associated with increased overdose risk (OR 17.54, p = 0.001).
- Use of **supervised consumption sites (SCS)** was not significantly correlated with reduced lifetime overdose risk (p > 0.05).
- Withdrawal management **("detox") participation** was high, & significantly associated with overdose risk (OR 24.89, p < 0.001).
- Despite high uptake, **Opioid Agonist Therapy (OAT)** was not significantly associated with reduced lifetime overdose risk. Recent use of **safer supply** was significantly associated with higher lifetime overdose risk (OR = 6.03, p = 0.016), though not with overdose in the past 6 months.
- Majority of participants reported wanting to **reduce fentanyl use** (66%), yet fentanyl was often the only available option.
- **Adverse childhood events (ACE)** aggregate scores were associated with increased overdose risk (OR = 3.70 , p = 0.01).
- **Concurrent psychiatric disorders** were high across all overdose clusters (68.5%), and highest among higher overdose numbers.

Results

Overdose Clusters

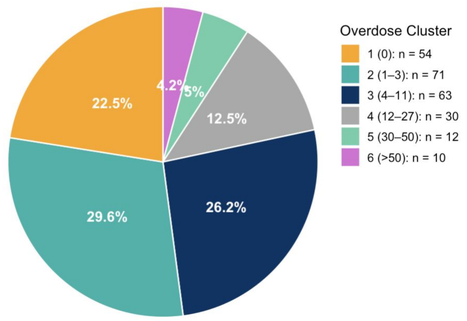

Fig 1. Lifetime overdose numbers grouped into 6 clusters to assess relationships with cluster membership ("overdose risk"). Women experienced higher overdose risk.

Psychosocial Factors

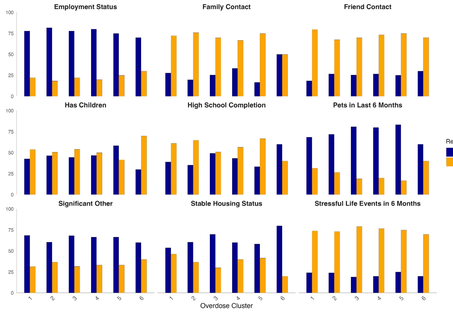

Fig 2. Psychosocial and socioeconomic factors were not significantly associated with overdose risk, but descriptively, unemployment, recent stress, and unstable housing were high across clusters.

Substance Use Interventions

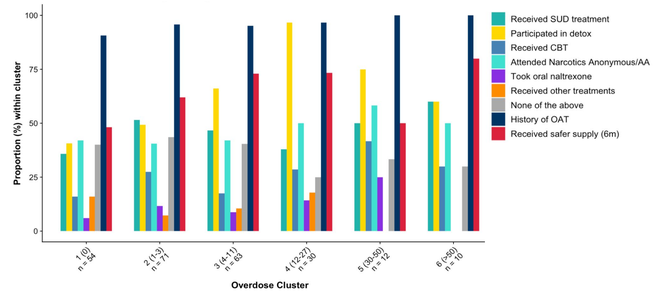

Fig 3. Most participants participated in detox, but those who did had increased odds of overdose. CBT and Narcotics Anonymous participation were similar across clusters, though 77% weren't receiving CBT. OAT and safer supply drug use is common across clusters, but not associated with reducing overdose risk, suggesting unmet needs despite increased access.

Harm Reduction Practices

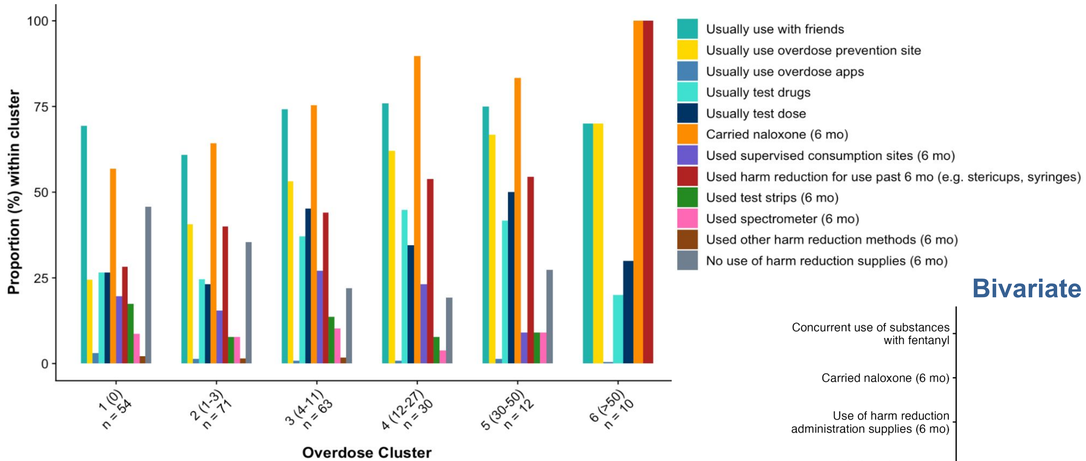

Fig 4. Harm reduction practices like not using alone & drug testing are consistent across clusters. No practices, carrying naloxone, and recent use of harm reduction administration supplies were associated with lifetime overdose risk (p < 0.05), but not with overdose in the last 6 months. The two latter results may indicate higher self-awareness of lifetime overdose risk.

Mental/Physical Health & Childhood Trauma

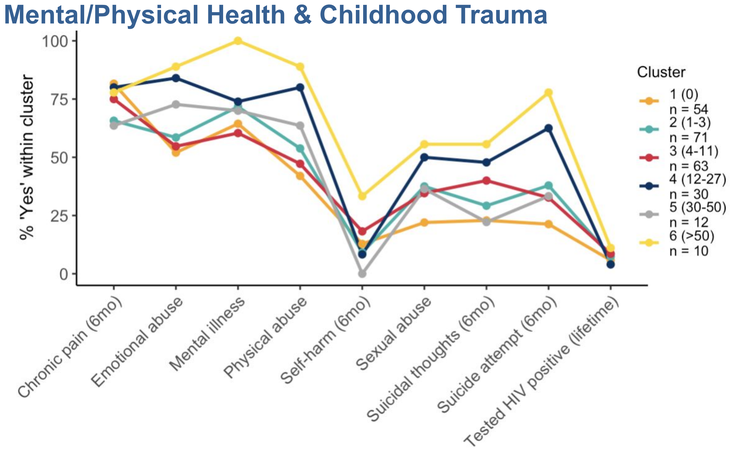

Fig 5. The highest overdose group had the most adverse conditions. Suicidal thoughts were associated with overdose risk (p < 0.05). While chronic pain & mental illness were not directly linked to overdose risk, both—along with childhood abuse—were high across all groups.

Attitudes: "Do you like/dislike fentanyl? Why?"

"[It] ruined life. lost all connection to family.", ***"The withdrawal, the high, takes your entire life away from you"****, "Everything about it", "It's like a monkey in your back, even if you don't want to have it, you have to have it, takes years of your life away.", "Kills everyone who tries it the first time", "Takes people away from people", "The fact that it has killed so many people",* ***"Go to a doctor and ask for real pain medicine."***

Bivariate Ordinal Regression

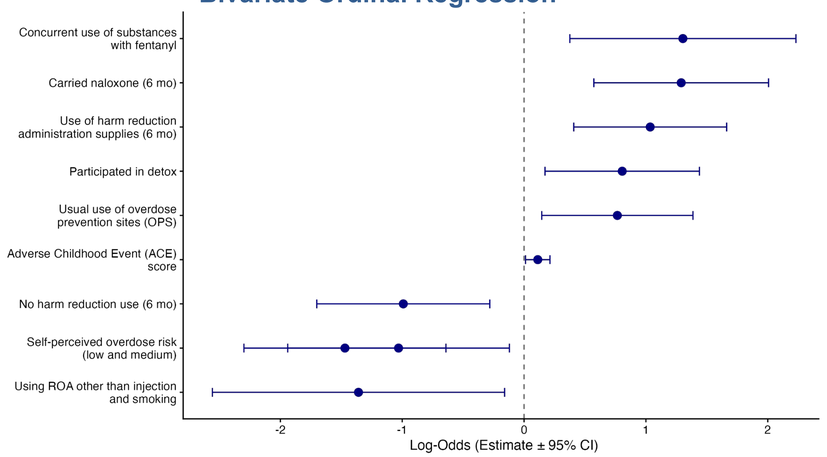

Fig 6. Significant predictors of overdose cluster membership from bivariate ordinal regression (p < 0.05).

Discussion & Conclusion

Harm reduction, SCS, OAT, and safer supply have expanded but have not significantly lowered lifetime overdose risk in this cohort. Rising polysubstance use & increased fentanyl inhalation highlight critical gaps in care. Strengthening and integrating psychosocial, SUD, & tertiary care services with a person-centred model of care is essential to address the evolving risks faced by PWUO.