



# Patterns of hospitalization among people living with HIV who have experienced violence in British Columbia

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# BACKGROUND

Violence is increasingly recognised as a global health threat with over 1.6 million people dying of violence-related causes annually<sup>1</sup>

In Canada, there were **399,846 victims** of police-reported violence in 2019<sup>2</sup>

Violence can have **negative consequences on one's health** such as physical injuries, poor mental health outcomes, sexual & reproductive health problems, substance use disorders<sup>3</sup>

People living with HIV (PLWH) experience **disproportionately high levels of violence** compared to people not living with HIV<sup>4</sup>

Violence among PLWH can lead to **poorer HIV therapeutic outcomes** (such as lower CD4+ counts, poorer adherence to HIV medication, higher incidence of AIDS defining illnesses)<sup>5</sup>

**HIV and violence are syndemic.** They don't only occur simultaneously, but interact synergistically as interdependent threats to health and well-being and disproportionately affect people marginalised by socio-structural inequities<sup>6</sup>

1. Krug, E. G., & Weltgesundheitsorganisation (Eds.). (2002). World report on violence and health.

2. Conroy, S. (2019). Family violence in Canada: A statistical profile, 2019. Statistics Canada, 85, 55.

3. Butchart, A. (2014). Global Status Report on Violence Prevention 2014. World Health Organization. <https://www.abebooks.com/9789241564793/Global-Status-Report-Violence-Prevention-9241564792/plp>

4. Brezing, C., Ferrara, M., & Freudenreich, O. (2015). The Syndemic Illness of HIV and Trauma: Implications for a Trauma-Informed Model of Care. *Psychosomatics*, 56(2), 107–118. <https://doi.org/10.1016/j.psych.2014.10.006>

5. Hatcher, A. M., Smout, E. M., Turan, J. M., Christofides, N., & Stöckl, H. (2015). Intimate partner violence and engagement in HIV care and treatment among women: A systematic review and meta-analysis. *AIDS*, 29(16), 2183–2194. <https://doi.org/10.1097/QAD.0000000000000842>

6. Singer, M. (1996). A dose of drugs, a touch of violence, a case of AIDS: Conceptualizing the SAVA syndemic. *Free Inquiry in Creative Sociology*, 24, 99–110.



# METHODS

- **Data Sources:** Survey data of PLWH in British Columbia (BC) from the Longitudinal Investigation into Supportive and Ancillary Health Services (LISA) study and linked administrative data from the Comparative Outcomes and Service Utilization (COAST) study through participants' unique personal health numbers
- **Sample:** PLWH  $\geq 19$  years who had ever accessed Antiretroviral Therapy in BC between July 2007 and January 2010. Some subpopulations such as women, people who use injection drugs, Indigenous people and other populations experiencing socio-structural inequities were oversampled to provide sufficient power for sub-analyses
- **Exposure Variable: Assessed using the LISA survey data (collected from 2007-2010 with PLWH across BC)**
  - Violence:* A three-level categorical variable determined through participant's responses to the question: "Have you ever been attacked, assaulted (including sexual assault) or experienced any kind of violence"
    1. Experienced violence in the last 6 months (recent)
    2. Experienced violence more than 6 months ago (past)
    3. Never experienced violence
- **Outcome Variable: Assessed using the Discharge Abstract Database (DAD) data in COAST. The DAD captures administrative, clinical and demographic information on hospital discharges**
  - *Hospitalization episodes* during the 6-month period prior to participants' interview dates (p6m)
  - Most responsible cause for hospitalization using primary ICD-10CA codes
- **Statistical Analyses:**
  - Fischer's Exact/Chi-squared tests for categorical variables and Kruskal-Wallis test for continuous variables
  - Unadjusted and adjusted Poisson regression models
  - A backward stepwise confounder selection for the adjusted Poisson regression

# RESULTS

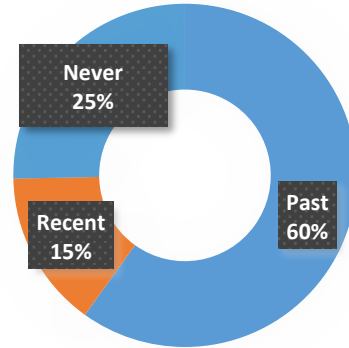


985 PLWH, median age 45 (Q1-Q3: 40-51)

## Baseline Characteristics

- ❖ 74.7% identified as men (trans-inclusive)
- ❖ 29.6% identified as Indigenous
- ❖ 74.8% had ever used substances
- ❖ 75.8% were unemployed
- ❖ 59.6% had an annual income of <\$15,000/year

## Violence Status



## Hospitalization episodes

- ❖ 21.0% of all participants were hospitalized in the p6m
- ❖ 22.4% of participants reporting past violence were hospitalized in the p6m (vs 18.1% and 20.6% of those who never and recently experienced violence, respectively)
- ❖ 27.4% of all hospitalization episodes among people who had experienced recent violence were for mental, behavioural, and neurodevelopmental disorders (vs 14.7% and 4.9% among past violence and no violence respectively)

MULTIVARIABLE CONFOUNDER MODEL: (N=980)			
	Rate ratio	95% CI	
<b>Main exposure: violence status</b>			
Never [ref]	1.00		
Recent	1.08	0.73	1.59
Past	<b>1.40</b>	<b>1.05</b>	<b>1.87</b>

\*Selected confounders in the backward regression: gender, stable housing, street drug use history and lifetime mental health disorder diagnosis  
\*Values in bold were significant at p ≤ 0.05

MULTIVARIABLE CONFOUNDER MODEL STRATIFIED BY GENDER				
	Women		Men	
	Rate Ratio	95 % CI	Rate Ratio	95% CI
<b>Main exposure: violence status</b>				
No [ref]	1.00		1.00	
Recent	1.07	0.53 2.18	1.02	0.64 1.63
Past	1.05	0.58 1.91	<b>1.50</b>	<b>1.08 2.10</b>

Values in bold were significant at p ≤ 0.05



# DISCUSSION AND CONCLUSIONS

- The prevalence of lifetime violence among our sample of PLWH was high and those who experienced violence in the past had significantly higher risk of hospitalization than those who never experienced violence or experienced recent violence
- In the gender disaggregated model, only men who experienced past violence had a greater risk of hospitalization than those who had never experienced violence
- ~25% of hospitalization episodes among people who experienced recent violence were for mental, behavioral and developmental disorders
- Especially in the case of intimate partner violence, those who have experienced recent/current abuse may have less control over their healthcare and have perceived lack of agency over their own health<sup>1</sup>
- Violence may also have more long-term impacts on health due to cumulative damage or experiencing traumatic events during sensitive developmental stages, delaying manifestation of disease<sup>2</sup>
- Analysing the types of violence and perpetrators of violence among the participants may have explained our findings further. However, there is ultimately a serious need for violence-aware care at every stage of the HIV cascade of care to ensure those who are experiencing violence can get appropriate support including mental health support

1. Schafer, K. R., Brant, J., Gupta, S., Thorpe, J., Winstead-Derlega, C., Pinkerton, R., Laughon, K., Ingersoll, K., & Dillingham, R. (2012). Intimate Partner Violence: A Predictor of Worse HIV Outcomes and Engagement in Care. *AIDS Patient Care and STDs*, 26(6), 356–365. <https://doi.org/10.1089/apc.2011.0409>

2. Shonkoff, J. P., Boyce, W. T., & McEwen, B. S. (2009). Neuroscience, Molecular Biology, and the Childhood Roots of Health Disparities: Building a New Framework for Health Promotion and Disease Prevention. *JAMA*, 301(21), 2252–2259. <https://doi.org/10.1001/jama.2009.754>