

A 4-Year Longitudinal Event-Level Analysis of HIV Risk and Substance Use Among HIV-Negative and HIV-Positive Gay, Bisexual and other Men who have Sex with Men (MSM)

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Background

- We examined event-level trends in sexual HIV risk and substance use among Vancouver MSM during Treatment as Prevention scale-up.

Methods

- The Momentum Health Study is a prospective longitudinal bi-behavioural study MSM aged 16+ in Metro Vancouver recruited using respondent-driven sampling beginning February 2012. Study visits to August 2015 were included.
- Participants completed in-person study visits every 6 months, which included a computer-assisted self-interview (CASI) on participants' last sexual episode with their 5 most recent partners

Outcome & Explanatory Variables:

- Sexual HIV risk was defined as any condomless anal sex with an HIV discordant or unknown status partner.
- Participant self-reported their own substance use in the 2 hours prior to or during each sexual event. Individual substances asked about include: alcohol, marijuana, erectile dysfunction drugs (EDD), poppers, ecstasy/MDMA, gamma-hydroxyl butyrate (GHB), and crystal methamphetamine.
- Time was divided into 6-month periods starting January 2012.

Statistical Analysis – stratified by HIV status:

- Generalized estimating equations were used to construct hierarchical logistic regression models (within participant, within visit).
- We tested event-level temporal trends and interactions for the effect of substance-use over time on sexual HIV risk.

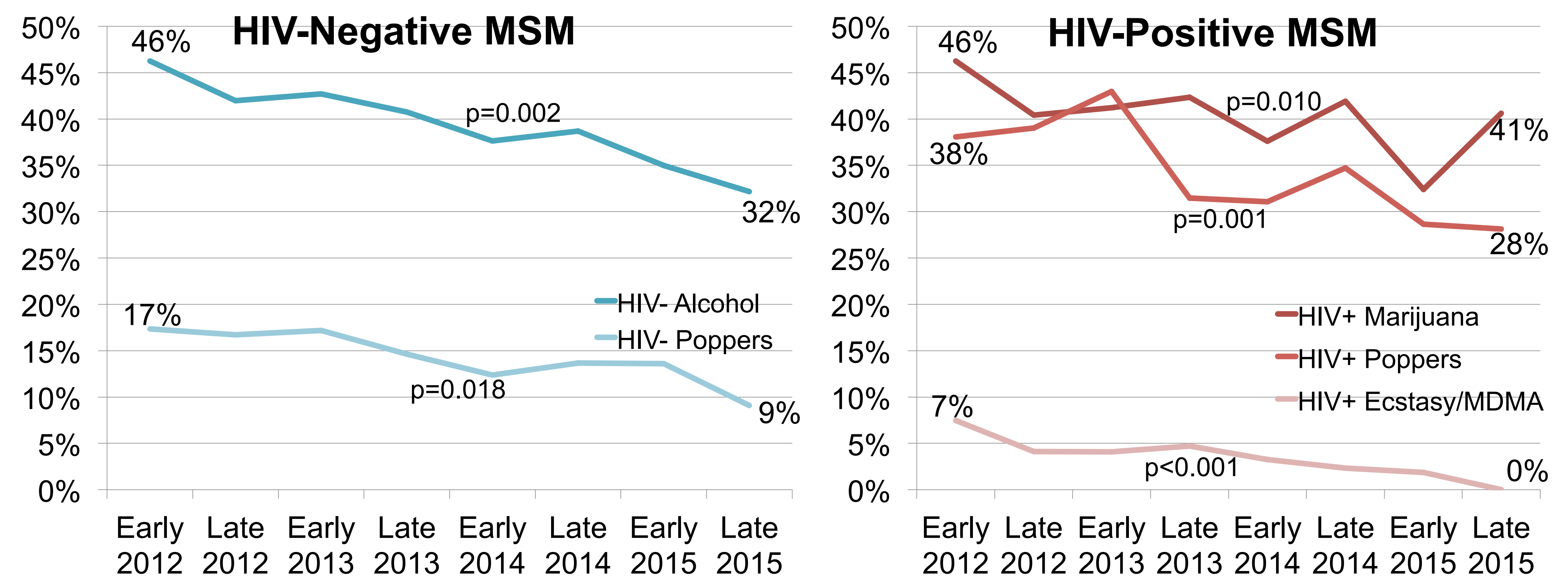


Figure 1. Temporal changes in sexual event-level substance use, 2012-2015

Results

Event-Level Sexual Risk

- With a **median follow-up of 1.50 years**, 550 HIV-negative MSM reported 5935 events (17.1% considered risky) and 218 HIV-positive MSM reported 2196 events (25.3% considered risky).
- There were **no significant temporal trends in sexual risk** for HIV-negative ($p=0.888$) or HIV-positive ($p=0.470$) MSM.

Event-Level Substance Use

- Figure 1 (above)** shows the significant temporal trends in substances used by HIV status
- For *HIV-negative* MSM, no other substance use changed over time: marijuana (22.2%), EDD (6.9%), crystal methamphetamine (4.3%), Ecstasy/MDMA (3.5%), and GHB (2.8%)
- For *HIV-positive* MSM, no other substance use changed over time: alcohol (31.3%), crystal methamphetamine (27.5%), EDD (24.6%), and GHB (12.6%).
- Figure 2 (below)** shows significant temporal changes in associations between substance-use and risky sex for HIV-negative MSM. There were no significant changes for HIV-positive MSM.

Table 1. Sample demographics by HIV status

	HIV-negative (n=543)		HIV-positive (n=206)	
	n	%	n	%
Age				
16-29	275	50.6	11	5.3
30-39	178	32.8	71	34.5
40+	90	16.6	124	60.2
Sexual orientation				
Gay	460	84.7	176	85.4
Bisexual	49	9.0	19	9.2
Other	34	6.3	11	5.3
Race/Ethnicity				
White	406	74.8	163	79.1
Asian	62	11.4	12	5.8
Aboriginal	25	4.6	17	8.3
Latino	27	5.0	7	3.4
Other	23	4.2	7	3.4
Annual Income				
<\$30,000	320	58.9	147	71.4
≥\$30,000	223	41.1	59	28.6
Post-secondary education				
None	107	19.7	58	28.2
At least some	436	80.3	148	71.8

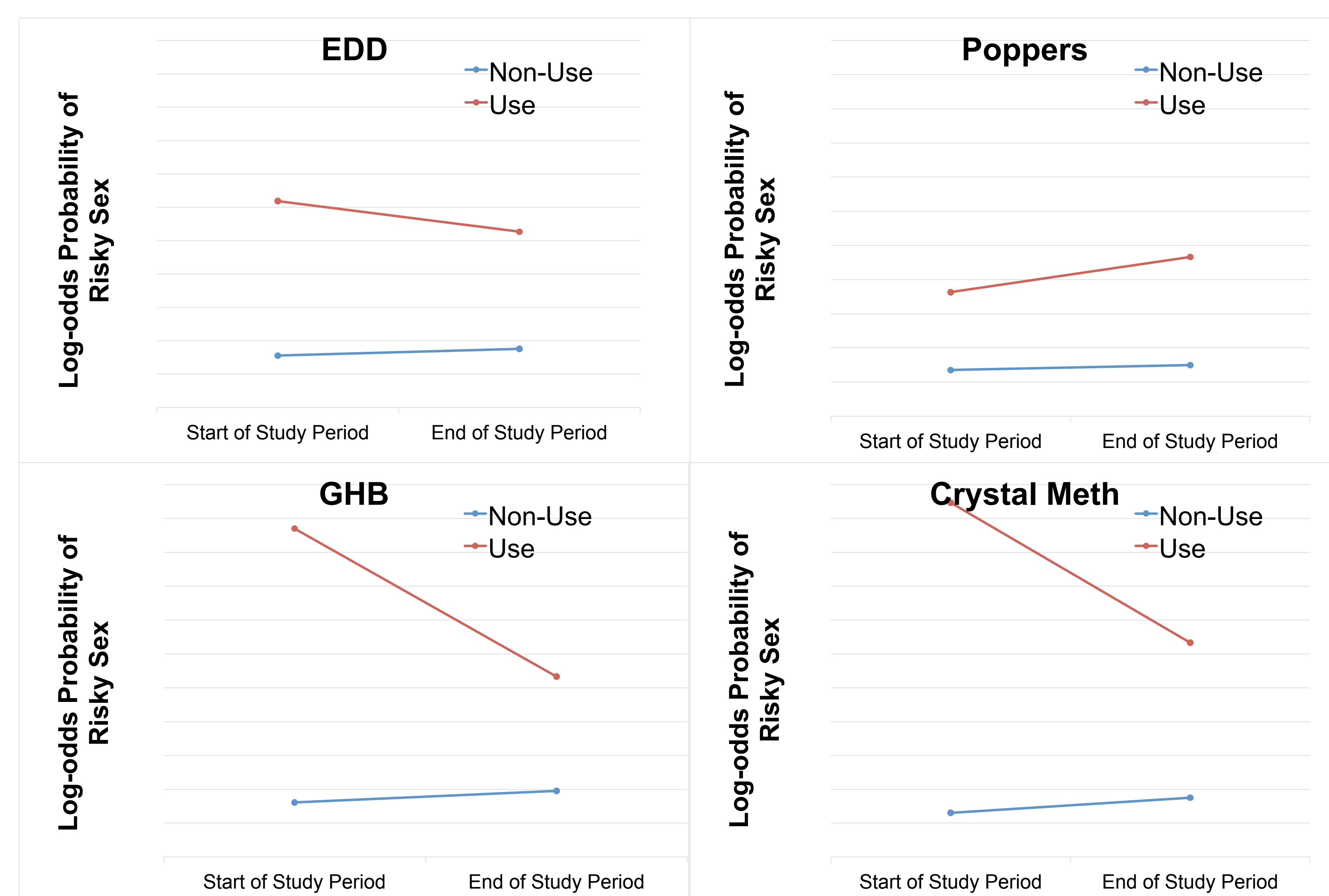


Figure 2. Temporal changes in associations between risky sex and substance use for HIV-negative MSM, 2012-2015

Conclusions

- There were no significant temporal shifts in sexual risk or most substances used over time
- All significant substance use trends were decreases, which may indicate differential loss to follow-up of cohort participants with greater risk behaviours
- Relationships between sexual risk and certain substances shifted for HIV-negative MSM, which highlights the importance of reactive health promotion and education programming

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Conflict of Interest Disclosure:
"I have no conflicts of interest"