LOVE WITH HIV:

A latent class analysis of intimate relationships among women living with HIV enrolled in Canada's largest multi-site community-based research study

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BACKGROUND

Quantitative studies traditionally reduce relationships to single-item variables and investigate sexual risk-taking.

Objective: To broaden understanding of relationships and sexuality, we characterized types of intimate relationships among women with HIV using multiple measures and examined differences in love and associated psychosocial characteristics.

METHODS

The **Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS)** is Canada's largest longitudinal community-based research study that has enrolled 1,425 women with HIV (≥16 years) in British Columbia, Ontario, & Québec (Figure 1).

Peer Research Associates (women with HIV) administer an online questionnaire (median: 120 minutes, IQR: 90-150) to participants at baseline and every 18-months, collecting demographic, health, and behavioural data including info related to relationships and sexuality.

Figure 1. Baseline recruitment of women with HIV across Canada
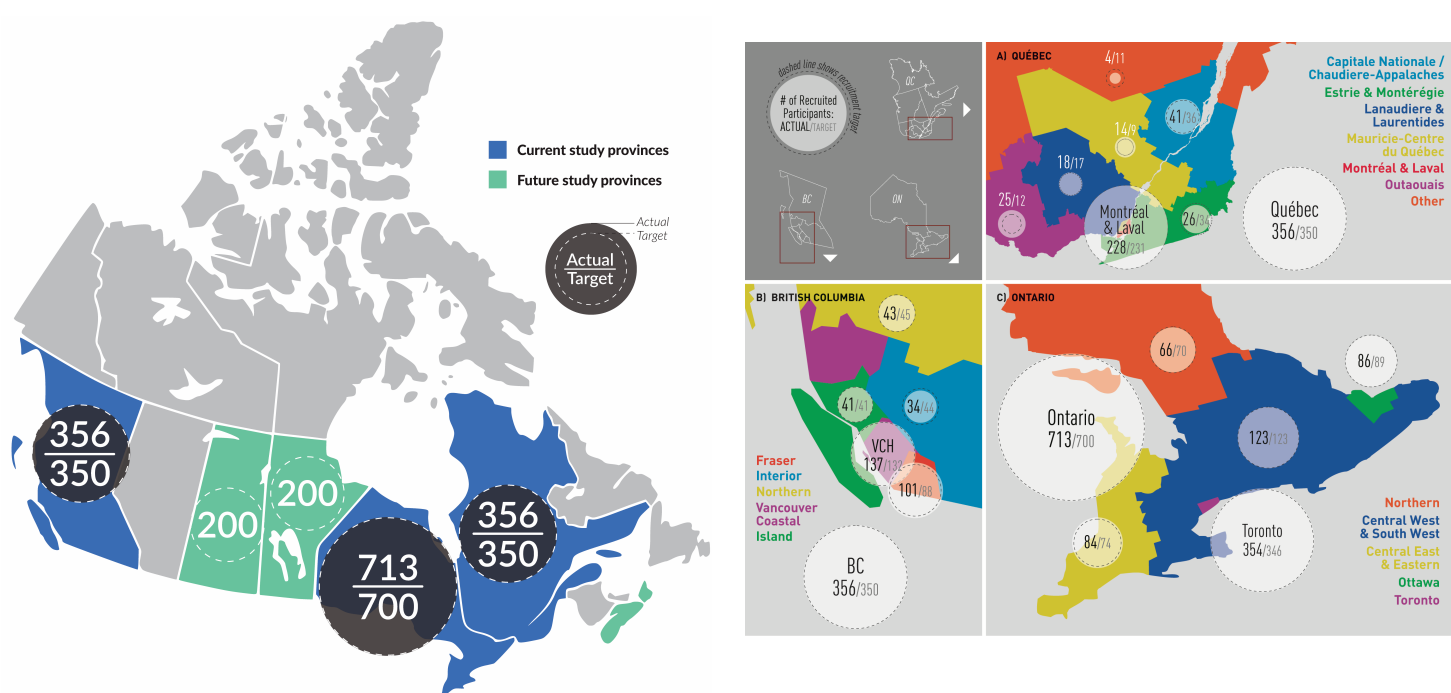

Using a critical feminist framework, the present study sought to:
➤ Conduct latent class analysis, incorporating eight indicators of relationship structure and quality (Figure 2)
➤ Assess construct validity by examining prevalence of love/affection ('*Someone to love and make you feel wanted*')
➤ Identify covariates using multinomial logistic regression

Figure 2. Latent Class Analysis (LCA)

A statistical method for uncovering meaningful subgroups of individuals characterized by the intersection of multiple observed variables.
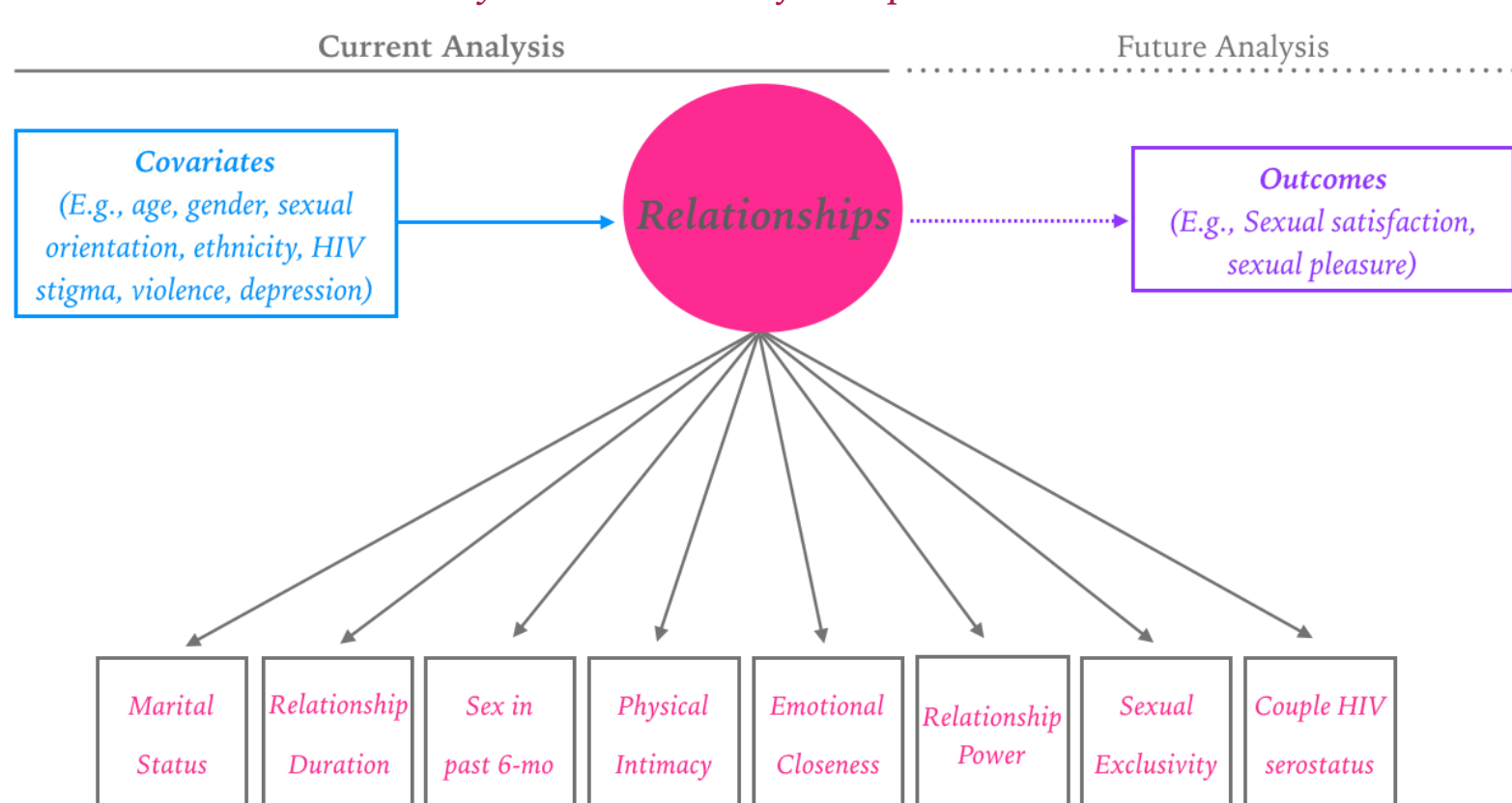
RESULTS

Model selection (Table 1)

➤ Solutions with 2 to 7 classes were examined.
➤ Entropy (quality of class separation) was high across all models.
➤ Model identification was adequate until 6-class (seen by % seeds).
➤ BIC indicated the 4-class model was optimal, while AIC pointed to the 5-class; fit worsened as the no. of classes went <4 or >5.
➤ We selected the 5-class solution as it showed two conceptually distinct classes of long-term relationships (whereas in the 4-class solution, these groups were combined within one latent class).

Table 1. Comparison of fit statistics for latent class models N=1,335

Number of classes	Likelihood ratio	G-squared	AIC	BIC	CAIC	Adjusted BIC	Entropy	Degrees of Freedom	% of seeds associated with best model
2	-4882.96	1927.05	1993.05	2164.54	2197.54	2059.71	1.00	3854	93.4
3	-4262.45	686.02	786.02	1045.85	1095.85	887.02	0.9	3837	61.8
4	-4121.00	403.12	537.12	885.29	952.29	672.46	0.92	2820	72.4
5	-4086.51	333.51	501.51	938.03	1022.03	671.2	0.9	3803	50.4
6	-4071.15	303.43	505.43	1030.29	1131.29	709.46	0.89	3786	19.7
7	-4058.68	278.49	514.49	1127.7	1245.7	752.86	0.85	3769	5.6

The five relationship types (Table 2)

➤ No relationship (47%, n=621), relationship without sex (9%, n=118), and three types of sexual relationships–short-term/casual (16%, n=209), long-term/unhappy (7%, n=95), and long-term/happy (22%, n=292).
➤ Women in the latter two classes had high probabilities of reporting an exclusive married/common-law/living-apart relationship of ≥3-years duration relative to women in short-term/casual relationships, yet they diverged on contentment with physical intimacy (44%–unhappy *vs.* 97%–happy), emotional closeness (24% *vs.* 86%), power (43% *vs.* 82%), and couple HIV-serodiscordance (59% *vs.* 71%).

RESULTS (CONTINUED)

Table 2. Class membership and item-response probabilities for the five-class solution N=1,335

Latent classes	No relationship	Relationship without sex	Short-term casual	Long-term 'unhappy'	Long-term 'happy'
Class membership probabilities (row %'s)	0.47	0.09	0.16	0.07	0.22
Item-response probabilities (column %'s)					
Sexual relationship status (cross between marital status and consensual sex with regular partner in past 6 months)					
No relationship	1.00	0.00	0.00	0.00	0.00
Relationship without sex	0.00	1.00	0.00	0.00	0.00
Sexual relationship -Single/Separated/Divorced/Widowed	0.00	0.00	0.85	0.00	0.28
Sexual relationship -Married/Common-law/Relationship	0.00	0.00	0.15	1.00	0.72
Content with physical intimacy (kissing, intercourse, etc.) in life					
Agree (SA/A)	0.00	0.43	0.46	0.44	0.97
Disagree (SD/D/N)	0.00	0.57	0.54	0.56	0.03
No relationship	1.00	0.00	0.00	0.00	0.00
Not enough emotional closeness in sex life					
Agree (SA/A/N)	0.00	0.73	0.84	0.76	0.14
Disagree (SD/D)	0.00	0.27	0.16	0.24	0.86
No relationship	1.00	0.00	0.00	0.00	0.00
Duration of sexual relationship					
<1 year	0.00	0.00	0.41	0.00	0.16
1 year to <3 years	0.00	0.00	0.25	0.11	0.22
3 years or more	0.00	0.00	0.34	0.89	0.62
Not asked (no regular sex partner in past 6 months)	1.00	1.00	0.00	0.00	0.00
Couple HIV serostatus					
Concordant	0.00	0.00	0.19	0.41	0.29
Discordant	0.00	0.00	0.81	0.59	0.71
Not asked (no regular sex partner in past 6 months)	1.00	1.00	0.00	0.00	0.00
Sexual exclusivity (number of sexual partners)					
Multiple	0.00	0.00	0.40	0.10	0.12
Monogamous	0.00	0.00	0.60	0.90	0.88
Not asked (no regular sex partner in past 6 months)	1.00	1.00	0.00	0.00	0.00
Sexual relationship power					
High/Medium	0.00	0.00	0.30	0.44	0.82
Low	0.00	0.00	0.29	0.40	0.06
Not asked (no regular sex partner in P6M or sex in P1M)	1.00	1.00	0.41	0.16	0.12

Construct validity

➤ Love/affection was most prevalent in long-term/ happy relationships (64%) and relationships without sex (48%), compared to long-term/ unhappy (39%), short-term/casual (37%), and no relationship (23%) (p<0.0001).
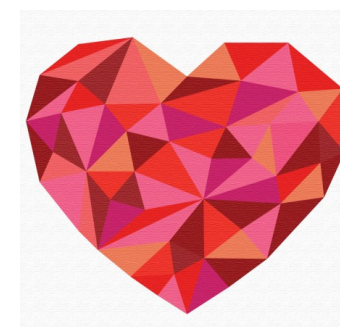
Psychosocial characteristics of women included in LCA (Table 3)

➤ Most were cis-gendered (96%) and heterosexual (88%), though a sizeable number identified as trans-gendered (n=58) and LGBTQ (n=166). 41% identified as White, 29% as African, Caribbean, or Black, and 22% as Indigenous. 82% had an undetectable viral load. Almost half had depression. Violence was highly prevalent.
➤ Significant differences in characteristics were seen by latent class.

Table 3. Sample characteristics and bivariable associations N=1,335

Variables	Total n (%)	No relationship 621 (47%) n (%)	Relationship without sex 118 (9%) n (%)	Short-term casual 209 (16%) n (%)	Long-term unhappy 95 (7%) n (%)	Long-term happy 292 (22%) n (%)
Age at interview (years)						
16-29	136 (10.2)	42 (6.8)	10 (8.4)	24 (11.6)	9 (9.8)	50 (17.3)
30-39	403 (30.2)	153 (24.6)	41 (34.7)	70 (33.3)	36 (37.4)	104 (35.6)
40-49	428 (32.1)	182 (29.3)	36 (30.9)	83 (39.5)	35 (37.2)	91 (31.4)
50+	368 (27.6)	244 (39.3)	31 (26.0)	33 (15.6)	15 (15.7)	46 (15.7)
Gender						
Cis	1277 (95.7)	594 (95.7)	114 (97.3)	196 (93.6)	91 (95.8)	286 (96.4)
Trans/gender diverse	58 (4.3)	27 (4.3)	3 (2.7)	13 (6.4)	4 (4.2)	10 (3.6)
Sexual orientation						
Heterosexual	1164 (87.5)	548 (88.7)	102 (87.1)	173 (82.8)	84 (87.8)	257 (88.5)
LGBTQ	166 (12.5)	70 (11.3)	15 (12.9)	35 (17.2)	12 (12.3)	33 (11.5)
Ethnicity						
Indigenous	298 (22.3)	130 (20.9)	35 (29.8)	47 (22.3)	15 (15.7)	71 (24.5)
African, Caribbean, Black	386 (28.9)	186 (29.9)	31 (26.3)	62 (29.5)	32 (33.6)	75 (25.8)
White	550 (41.2)	254 (40.9)	43 (36.8)	88 (42.2)	42 (43.6)	123 (42.1)
Other	101 (7.5)	51 (8.2)	8 (7.1)	13 (6.01)	123 (42.1)	22 (7.6)
Time living with HIV (years)						
<6	327 (25.3)	136 (22.5)	39 (35.4)	51 (25.7)	23 (24.3)	78 (27.4)
6 to 14	519 (40.1)	242 (40.0)	32 (28.6)	83 (41.7)	43 (46.5)	119 (41.8)
>14	447 (34.6)	227 (37.5)	40 (36.1)	65 (32.6)	27 (29.2)	87 (30.8)
Any violence as an adult						
Never	251 (19.6)	144 (24.2)	22 (18.7)	15 (7.7)	12 (12.7)	58 (20.8)
Previously	755 (58.8)	354 (59.4)	68 (58.5)	109 (55.0)	49 (52.8)	176 (62.4)
Currently (past 3 months)	278 (21.7)	98 (16.4)	26 (22.9)	74 (37.4)	32 (34.6)	47 (16.8)
Current sex work						
No	1228 (93.8)	590 (95.3)	111 (96.9)	168 (83.2)	89 (96.7)	270 (95.9)
Yes	81 (6.2)	29. (4.7)	4 (3.1)	34 (16.8)	3 (3.3)	12 (4.1)
Illicit drug use history						
Never	708 (53.9)	363 (59.4)	65 (67.7)	82 (39.7)	47 (49.7)	151 (52.4)
Previously	367 (27.9)	153 (25.0)	30 (26.6)	62 (30.1)	30 (31.9)	92 (31.9)
Currently (past 3 months)	238 (18.1)	95 (15.6)	18 (15.8)	63 (30.2)	17 (18.4)	45 (15.7)
HIV Stigma Scale						
High >=median	636 (47.6)	302 (48.6)	62 (52.3)	111 (53.1)	42 (43.6)	120 (41.1)
Low <median	699 (52.4)	319 (51.4)	56 (47.7)	98 (46.9)	54 (56.4)	172 (58.9)
Depression (CES-D)						
Score >=10 (probable dep.)	628 (47.0)	310 (49.9)	63 (53.6)	123 (59.0)	53 (55.2)	79 (27.0)
Score < 10	707 (53.0)	311 (50.1)	55 (46.4)	85 (41.0)	43 (44.8)	213 (73.0)
Most recent viral load						
Undetectable	1032 (81.5)	483 (82.6)	84 (77.1)	163 (81.4)	77 (82.1)	225 (80.7)
Detectable	193 (15.2)	85 (14.5)	21 (19.1)	30 (15.1)	16 (17.4)	41 (14.5)
Never accessed care	42 (3.3)	17 (2.9)	4 (3.8)	7 (3.5)	1 (0.54)	13 (4.7)

Multinomial logistic regression results (N=1,139)

➤ Relative to no relationship: women >50-years were less likely to be in any relationship; women reporting sex work [AOR:3.03(95% CI:1.64,5.61)] and violence [6.64(3.33,13.26)] were more likely to be in short-term/casual relationships; women without depression [2.90(2.04,4.12)] were more likely to be in long-term/happy relationships. No differences by gender, sexual orientation, ethnicity, or other covariates were observed.

CONCLUSIONS

Nearly half of women with HIV were not in relationships. Women's relationships were heterogeneous, though HIV sero-discordance was common and one-fifth reported long-term/happy and loving sexually active relationships. Sex, however, did not equate with affection, and relationships without sex had higher levels of love than some sexual relationships. A nuanced focus on promoting healthy relationships may offer a more comprehensive approach to supporting women's sexual well-being, particularly among older women and those with experiences of sex work, violence, and depression.

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