Conflict of Interest Disclosure

Cathy M. Puskas, PhD Candidate

Has no real or apparent conflicts of interest to report.

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Socio-structural and Psychosocial Factors Associated with Antiretroviral Therapy Adherence by Gender in British Columbia, Canada

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Background

- Optimal adherence to ART yields:
  - Better health outcomes[1,2]
  - Lower viral load, individually and in the community[3]
- Fewer women are able to attain or maintain optimal adherence relative to men[4,5,6]
- If we are to attain 90-90-90, gender-based disparity in adherence must be addressed

Proportion of Men and Women Attaining Optimal Adherence by IDU Status in BC, Canada
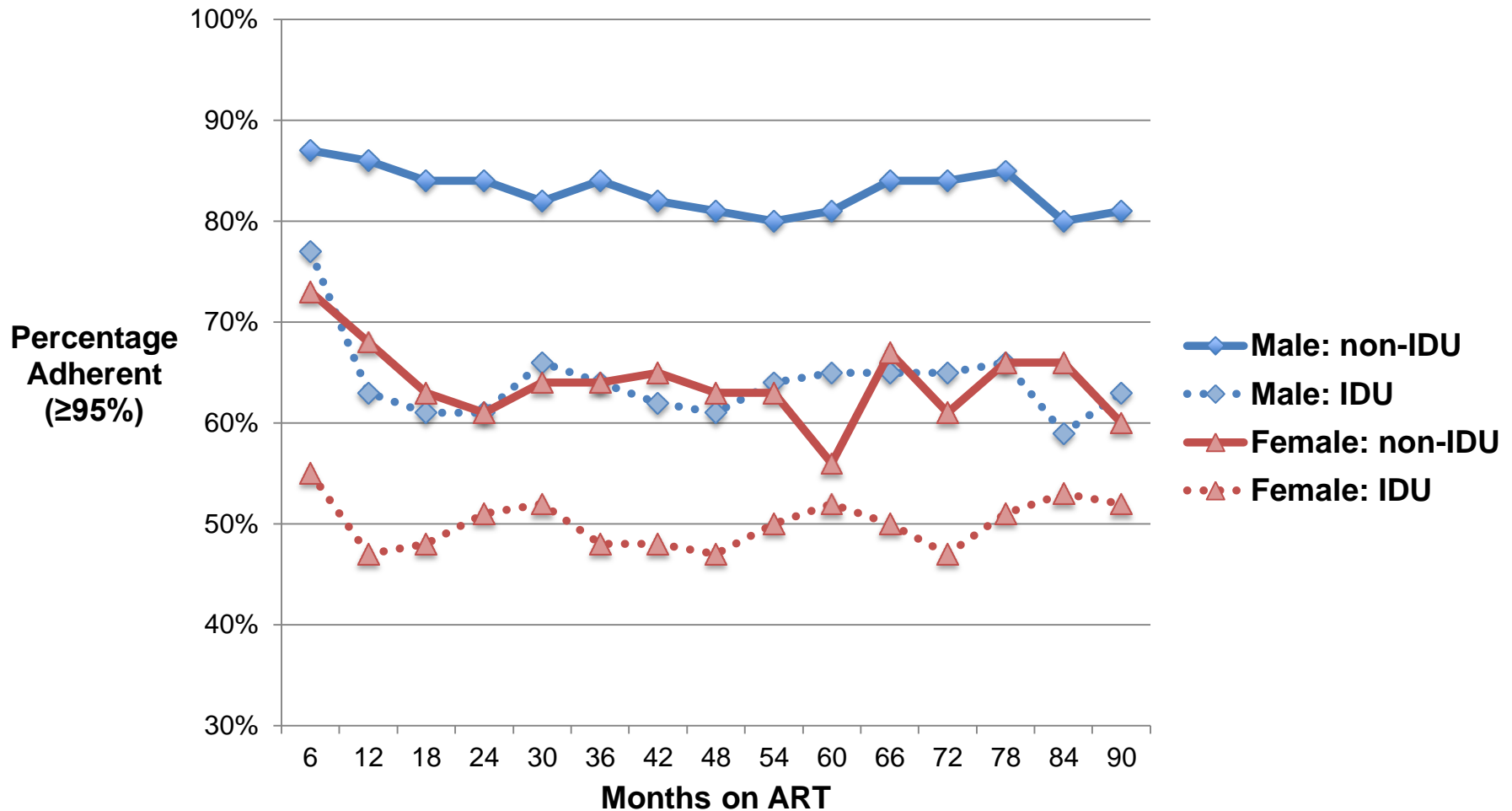
Objectives

- To identify socio-structural and psychosocial variables associated with optimal (≥95%) specific to men and women

  - To examine the role of internalized stigma on ART adherence in relation to other factors known to affect adherence (age, ethnicity, IDU) [7,8]

Study Population

- Longitudinal Investigation into Supportive and Ancillary Services (LISA) cohort[9]
  - Targeted sampling to include harder to reach populations
- Aged 19 years or older
- Data collection: Interviewer-administered questionnaires
  - July 2007 and January 2010
- Clinical Data: linked through provincial Drug Treatment Plan
- Exclusion Criteria:
  - Self-identifying as transgender
  - Pregnancy at the time of interview or having a full term pregnancy 6 months prior to the interview

Primary Outcome

- Optimal ART adherence: ≥95% adherence based on pharmacy refill compliance[10]

- Assessed for 1-year period prior to interview

Psychosocial Measurement Scales

- Modified Berger Stigma Scale:[8,11]
  1) Internalized stigma or negative self image
  2) Disclosure worries
  3) Public attitudes
  4) Personalized or experienced stigma
- Treatment adherence self-efficacy expectation[12]
- Depressive Symptoms: 10-item Centre for Epidemiological Studies Depression Scale (CES-D)[13]

Statistics

- Pearson's Chi-squared tests: differences in the proportion and characteristics of men and women attaining optimal adherence

- Backward stepwise logistic regression (confounding): characteristics independently associated with optimal adherence

Description of Study Population

- 753 individuals; 199 (26%) women, 554 (74%) men

- Relative to men, women were more likely to:
  - Experience greater sociostructural adversity or poverty
  - Experience greater psychosocial adversity, particularly depression and HIV-related stigma

Sociostructural Characteristics

(n=753; women=199, men=554)

	Women: n (%) or median (IQR)	Men: n (%) or median (IQR)	p-value
≥95% ART adherence	78 (39.2%)	352 (63.5%)	<0.001
Age	42 (36 to 46)	47 (42 to 53)	<0.001
Indigenous ethnicity	91 (45.7%)	130 (23.5%)	<0.001
Unstable housing	80 (40.2%)	168 (30.4%)	0.012
Incomplete high school education	111 (55.8%)	195 (35.3%)	<0.001
History of incarceration	109 (55.3%)	283 (51.2%)	0.316
Food insecurity	155 (78.2%)	339 (61.3%)	<0.001
History of IDU	154 (78.2%)	304 (55.0%)	<0.001
Current IDU	50 (25.4%)	121 (21.9%)	0.315
No use of medication support in the past 3 months	96 (48.2%)	309 (55.9%)	0.064

Psychosocial Characteristics

(n=753; women=199, men=554)

	Women: n (%) or median (IQR)	Men: n (%) or median (IQR)	p-value
History of mental health disorder	153 (76.9%)	320 (57.9%)	<0.001
Stigma score (full)	31 (25 to 36)	27 (22 to 33)	<0.001
Stigma score components			
Personalized	10 (6 to 12)	8 (6 to 12)	0.002
Disclosure-related	8 (5 to 8)	6 (4 to 8)	0.006
Negative self-image	7 (6 to 10)	6 (5 to 8)	<0.001
Public attitude-related	7 (5 to 8)	6 (4 to 8)	<0.001
High depressive symptoms (CES-D)	142 (71.4%)	287 (52.0%)	<0.001
Adherence efficacy expectation	92 (79 to 100)	96 (83 to 100)	0.380

Women: Bivariate Analysis of Adherence

(n=199; ≥95% adherence=78, <95% adherence=121)

	≥95% Adherence (n=78): n (%) or median (IQR)	<95% Adherence (n=121): n (%) or median (IQR)	p-value
Age	44 (40 to 50)	40 (34 to 45)	<0.001
Indigenous ethnicity	29 (37.2%)	62 (51.2%)	0.052
Unstable housing	29 (37.2%)	51 (42.1%)	0.485
Incomplete high school education	34 (43.6%)	77 (63.6%)	0.005
Food insecurity	53 (67.9%)	102 (85.0%)	0.004
History of IDU	52 (67.5%)	102 (85.0%)	0.004
History of mental health disorder	57 (73.1%)	96 (79.3%)	0.306
Stigma score (full)	31 (26 to 35)	30 (25 to 36)	0.983
Depressive symptoms	53 (67.9%)	89 (73.6%)	0.393
Adherence efficacy expectation	96 (79 to 100)	92 (79 to 100)	0.124

Women: Multivariate Model of Adherence

(n=199; ≥95% adherence=78, <95% adherence=121)

	Unadjusted Odds Ratio (95% CI)	p-value	Adjusted Odds Ratio (95% CI)	p-value
Age (per 1 year increase)	1.083 (1.04 to 1.128)	<0.001		
Indigenous ethnicity	0.574 (0.32 to 1.031)	0.063		
Incomplete high school education	0.424 (0.236 to 0.763)	0.004		
Food insecurity	0.371 (0.186 to 0.741)	0.005	0.364 (0.181 to 0.734)	0.005
History of IDU	0.371 (0.186 to 0.741)	0.005		
Negative self-image (per unit increase)	0.995 (0.908 to 1.091)	0.921	1.016 (0.924 to 1.117)	0.747

Gender Differences Associated with Optimal ART Adherence

- A significantly lower proportion of women achieved optimal ART adherence
  - 39.2% versus 63.5% (p<0.001)
- Bivariate analyses:
  - Women: few variables were significantly associated with optimal adherence
- Multivariate analyses:
  - Women: Food security was the only variable associated with optimal adherence (AOR: 0.36; 95% CI: 0.18 to 0.73)

Limitations

- High levels of disadvantage among women may affect our ability to identify barriers to adherence

- Psychosocial measurements (medication taking self-efficacy)

- Representativeness of LISA cohort:

  - Oversampling of women, Indigenous peoples, and people who inject drugs

Conclusions

- A significantly lower proportion of women were able to attain optimal ART adherence

- Disproportionate poverty and other forms of vulnerability was observed among women

- To reach the goals of 90-90-90 and to better serve women, emphasis should be placed on:

  - Providing more holistic adherence support programs that would reduce poverty and food insecurity

  - Providing better access to women-centered HIV care and support services

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