



Pathways Between Intersectional Stigma, Depression and HIV
Care Cascade Outcomes Among Women Living with HIV in
Canada

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Acknowledgments

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- **Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS)**
- **Participants & peer researchers**



Background

- One-fifth of people living with HIV in Canada are women¹
- Women living with HIV (WLWH) have higher depression rates than men living with HIV^{2,3}
- Depression is associated with poorer health outcomes among people living with HIV^{2,4,5}



Background

- Social & structural factors experienced by WLWH—such as stigma, violence, reduced social support—contribute to these depression rates⁶⁻¹⁰
- Biological factors such as ARV side effects & neurobiological changes also contribute to depression among people living with HIV¹¹⁻¹²



Background

- Associations between depression & lower ARV adherence reported in systematic reviews¹³ & longitudinal studies⁵
 - Depression symptoms (e.g. hopelessness) may directly lower adherence, and other indirect factors that impact adherence include low social support & substance use^{6,11}



Knowledge gaps

- Knowledge gaps remain regarding pathways to depression, and from depression to ARV adherence^{4,11}
 - intersectional stigma & depression is understudied
 - protective factors also understudied, including the role of structural factors such as women centered HIV care



Theoretical approach

- Psychosocial model of racism¹⁴: racism leads to psychosocial sequelae that predicts lower adherence
 - may impact health whether or not it is perceived as a stressor
 - Stress (socioenvironmental, such as racism) → lower social support → depression → coping (adaptive/maladaptive) → adherence & associated health outcomes



Objectives

- 1) Examine the relationship between *intersectional stigma* (racial and gender discrimination, HIV related stigma) and *depressive symptoms*, and the mediating role of social support and women-centered HIV care
- 2) Assess the relationship between *depression* and *HIV outcomes* (ARV adherence, CD4 count), and the mediating roles of resilience and injection drug use history



Methods

- National cohort with WLWH in the Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS) in 3 Canadian provinces
 - Trained peer research assistants
 - Baseline data from cohort study

Measures

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- *HIV outcomes*: a) estimated adherence to ART in past month (dichotomized to $\geq 90\%$, $< 90\%$); b) CD4 count (estimate most recent) (dichotomized < 200 cells/mm³ & ≥ 200 cells/mm³)
- *Depression*: CESD¹⁵ 10-item scale; depression symptoms: score ≥ 10 , score ≥ 15 severe depression
- *Stigma*: Wright's shortened HIV stigma scale¹⁶, Everyday Discrimination Scale for Sexism and for Racism⁶⁷
- *Social Support* (MOS-SSS)¹⁸, *Resilience* (Resiliency Scale RS-10)¹⁹, *Injection drug use history* (yes/no)
- *Women-centred HIV Care (WCHC)*²⁰: 6-item, evidence-based definition (e.g. care I receive from HIV doctor is women-centred)

Methods

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- *Multinomial logistic regression*: intersectional stigma on depression & severe depression (ref: no depressive symptoms)
- *Multivariate logistic regression*: depression on HIV outcomes
- *Structural equation modeling* (weighted least squares estimation methods) to test:
 - (1) direct effects of intersectional stigma on depressive symptoms and severe depression, and indirect effects via social support and WCHC;
 - (2) direct effects of depressive symptoms and severe depression on HIV outcomes (ART adherence, CD4 count), and indirect effects via resilience and injection drug use history



Results

- Half (48.6%) of participants (n=1367; mean age=42.77, IQR=35-50; 41.6% white, 22.46% Indigenous, 28.8% Black, 7.1% other ethnicities) reported depressive symptoms and 26.9% severe depression
- Most were currently on ART (82.87%, n=1127), of these, (82.68%) reported 90% adherence.
- ~One-third (31.55%) have injection drug use history



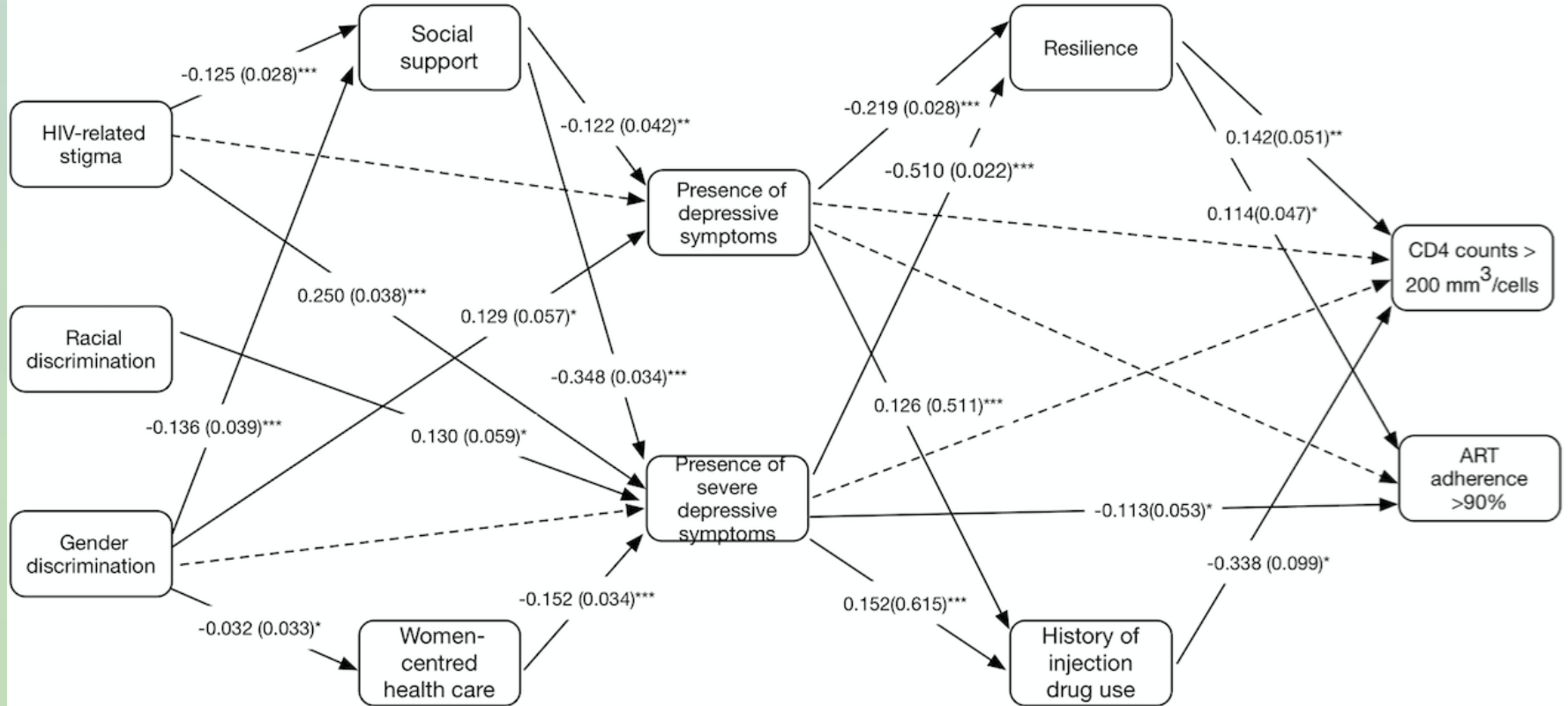
Unadjusted and adjusted multinomial logistic regression of depressive symptoms and severe depression on intersectional stigma (N=1367)

Variables	Depressive symptoms (10= \leq CSED $<$ 15)		Severe depressive symptoms (CESD \geq 15)	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
HIV-related stigma	1.01 (1.01-1.02)***	1.00 (0.99-1.01)	1.03 (1.03-1.04)***	1.03 (1.02-1.04)***
Racial discrimination	1.03 (1.02-1.05)***	1.02 (0.99-1.04)	1.04 (1.03-1.06)***	1.03 (1.01-1.06)*
Gender discrimination	1.05 (1.03-1.06)***	1.04 (1.01-1.06)**	1.06 (1.05-1.08)***	1.03 (1.00-1.05)*
Social support	0.88 (0.85-0.90)***	0.88 (0.84-0.92)***	0.81 (0.88-0.83)***	0.81 (0.78-0.85)***
Women-centred health care	0.97 (0.94-1.01)	0.98 (0.94-1.02)	0.95 (0.92-0.98)**	0.94 (0.90-0.98)**



Unadjusted and adjusted logistic regression of >90% ART adherence and CD4>200 mm³/cells on depressive symptoms & severe depression (N=1367)

Variables	>90% ART adherence		CD4>200 mm ³ /cells	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI)*	Unadjusted OR (95% CI)	Adjusted OR (95% CI)*
Depressive symptoms				
CESD<10	1	1	1	1
10=<CESD<15	0.83 (0.55-1.26)	1.03 (0.66-1.61)	0.68 (0.36-1.29)	0.95 (0.48-1.89)
CESD>=15	0.47 (0.33-0.67)***	0.55 (0.36-0.85)**	0.42 (0.24-0.73)**	0.69 (0.36-1.35)
Resilience	1.04 (1.02-1.06)***	1.02 (1.00-1.05)*	1.05 (1.02-1.07)***	1.04 (1.01-1.07)*
Ever used injection drugs	0.65 (0.47-0.89)**	0.73 (0.48-1.12)	0.39 (0.24-0.62)***	0.47 (0.25-0.90)*





Findings: Structural equation model of intersectional stigma, depression and HIV outcomes

- HIV stigma:
 - direct path to depression not significant, indirect path via social support
 - direct path to severe depression, social support a mediator
- Gender discrimination:
 - direct path to depression, indirect via social support
 - indirect path to severe depression via social support & WCHC
- Racial discrimination:
 - Direct path to severe depression



Findings: Structural equation model of intersectional stigma, depression and HIV outcomes

- Direct path from depression to ART adherence & CD4 count not significant
 - Indirect path from depression to ART adherence via resilience
 - Indirect path from depression to CD4 count via resilience & IDU history
- Direct path from severe depression to ART adherence significant, also indirect effect via resilience
- Indirect path from severe depression to CD4 count via resilience and IDU history



Discussion

- Nearly half of participants reported depression and one-quarter severe depression
- Intersectional stigma was associated with lower levels of support & women centered HIV care, this in turn was associated with depressive symptoms
- Depression was associated with lower resilience & IDU history, this in turn was associated with lower ARV adherence and lower CD4 count; for severe depression, there was a direct pathway to lower adherence



Discussion

- Psychosocial model useful to examine psychosocial sequelae of intersectional stigma, and associations with *structural* (health care approach), *interpersonal* (social support) and *intrapersonal* (depression, resilience, IDU history) factors and HIV outcomes (adherence, CD4)
- Need to focus on protective factors at multiple levels (WCHC, social support, resilience)
- Harm reduction approach, depression screening & treatment, and intersectional stigma reduction



Contact

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References

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1. Public Health Agency of Canada: Summary: Estimates of HIV incidence, prevalence, and proportion undiagnosed in Canada, 2014, 2015.
2. Ickovics JR, Hamburger ME, Vlahov D, et al.: Mortality, CD4 cell count decline, and depressive symptoms among HIV-seropositive women: longitudinal analysis from the HIV Epidemiology Research Study. *Jama*. 2001, 285:1466-1474.
3. Malow R, Dévieux JG, Stein JA, et al.: Depression, Substance Abuse and Other Contextual Predictors of Adherence to Antiretroviral Therapy (ART) Among Haitians. *AIDS and Behavior*. 2013, 17:1221-1230.
4. Gonzalez JS, Batchelder AW, Psaros C, Safren SA: Depression and HIV/AIDS treatment nonadherence: a review and meta-analysis. *Journal of acquired immune deficiency syndromes (1999)*. 2011, 58.
5. Wagner GJ, Goggin K, Remien RH, et al.: A Closer Look at Depression and Its Relationship to HIV Antiretroviral Adherence. *Annals of behavioral medicine : a publication of the Society of Behavioral Medicine*. 2011, 42:352-360.
6. Nanni MG, Caruso R, Mitchell AJ, Meggiolaro E, Grassi L: Depression in HIV infected patients: a review. *Curr Psychiatry Rep*. 2015, 17:530.
7. Siemieniuk RA, Krentz HB, Miller P, et al.: The clinical implications of high rates of intimate partner violence against HIV-positive women. *JAIDS Journal of Acquired Immune Deficiency Syndromes*. 2013, 64:32-38.
8. Logie CH, Ahmed U, Tharao W, Loutfy MR: A Structural Equation Model of Factors Contributing to Quality of Life Among African and Caribbean Women Living with HIV in Ontario, Canada. *AIDS Research and Human Retroviruses*. 2017, 33:290-297.
9. Logie CMSWP, James LMES, Tharao WMSW, Loutfy MMDM: Associations Between HIV-Related Stigma, Racial Discrimination, Gender Discrimination, and Depression Among HIV-Positive African, Caribbean, and Black Women in Ontario, Canada. *AIDS Patient Care and STDS*. 2013, 27:114.

References

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10. Logie CH, Jenkinson JI, Earnshaw V, Tharao W, Loutfy MR: A Structural Equation Model of HIV-Related Stigma, Racial Discrimination, Housing Insecurity and Wellbeing among African and Caribbean Black Women Living with HIV in Ontario, Canada. *PloS one*. 2016, 11:e0162826.
11. Schuster R, Bornoalova M, Hunt E: The influence of depression on the progression of HIV: direct and indirect effects. *Behavior Modification*. 2012, 36:123-145.
12. Phillips KD, Sowell RL, Rojas M, et al.: Physiological and psychological correlates of fatigue in HIV disease. *Biological Research for Nursing*. 2004, 6:59-74.
13. Munro S, Lewin S, Swart T, Volmink J: A review of health behaviour theories: how useful are these for developing interventions to promote long-term medication adherence for TB and HIV/AIDS? *BMC Public Health*. 2007, 7:104.
14. Kennedy BR: Psychosocial model: racism as a predictor of adherence and compliance to treatment and health outcomes among African Americans. *Journal of Theory Construction & Testing*. 2009, 13:20-26.
15. Andresen E, Malmgren J, Carter W, Patrick D: Screening for depression in well older adults: evaluation of a short form of the CES-D (Center for Epidemiologic Studies Depression Scale) *Am J Prev Med*. 1994; 10 (2): 77–84. No doi available.[PubMed].
16. Wright K, Naar-King S, Lam P, Templin T, Frey M: Stigma scale revised: reliability and validity of a brief measure of stigma for HIV+ youth. *Journal of Adolescent Health*. 2007, 40:96-98.
17. Williams DR, Yu Y, Jackson JS, Anderson NB: Racial differences in physical and mental health socio-economic status, stress and discrimination. *Journal of health psychology*. 1997, 2:335-351.
18. Stewart AL: *Measuring functioning and well-being: the medical outcomes study approach*: Duke University Press, 1992.
19. Gjesfjeld CD, Greeno CG, Kim KH: A confirmatory factor analysis of an abbreviated social support instrument: The MOS-SSS. *Res Soc Work Pract*. 2008, 18:231-237.
20. Carter, A., Loutfy, M., de Pokomandy, A., Colley, G., Zhang, W., Sereda, P., ... Kaida, A. (2017). Health-related quality-of-life and receipt of women-centered HIV care among women living with HIV in Canada. *Women & Health*, 1-21.