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Women's Health, Maternity & Paediatrics  
Canadian Conference on HIV/AIDS Research

## **The Association of Precarious Employment with Mental and Physical Health Outcomes among a National Cohort of Women Living with HIV: A Mediation Analysis**

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on behalf of the CHIWOS Team

CHIWO S

Canadian HIV  
Women's Sexual  
and Reproductive  
Health Cohort Study



# Conflicts of Interest Disclosure

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- We have no conflicts of interest to declare

# Acknowledgements

CHIWOS would like to acknowledge the traditional owners of the land on which we meet



# Acknowledgements

*Nous honorons et nous rappelons les 28 participantes CHIWOS de partout au Canada qui sont décédées et qui ne sont plus parmi nous.*

*We honour and remember the 28 CHIWOS participants from across Canada who have passed away and are no longer with us.*



*À la mémoire de  
Marisol Desbiens  
PAR CHIWOS et une  
collègue appréciée*

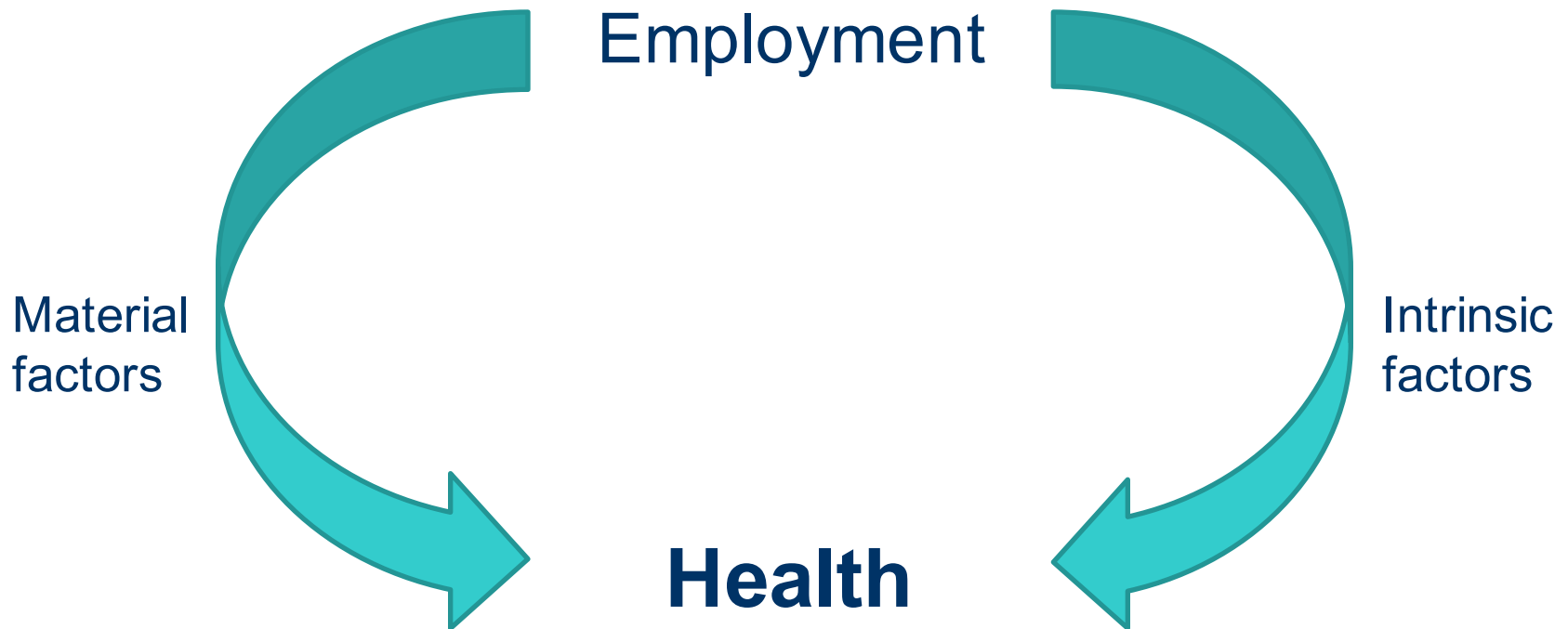
*In memory of  
Marisol Desbiens  
CHIWOS PRA and  
valued colleague*



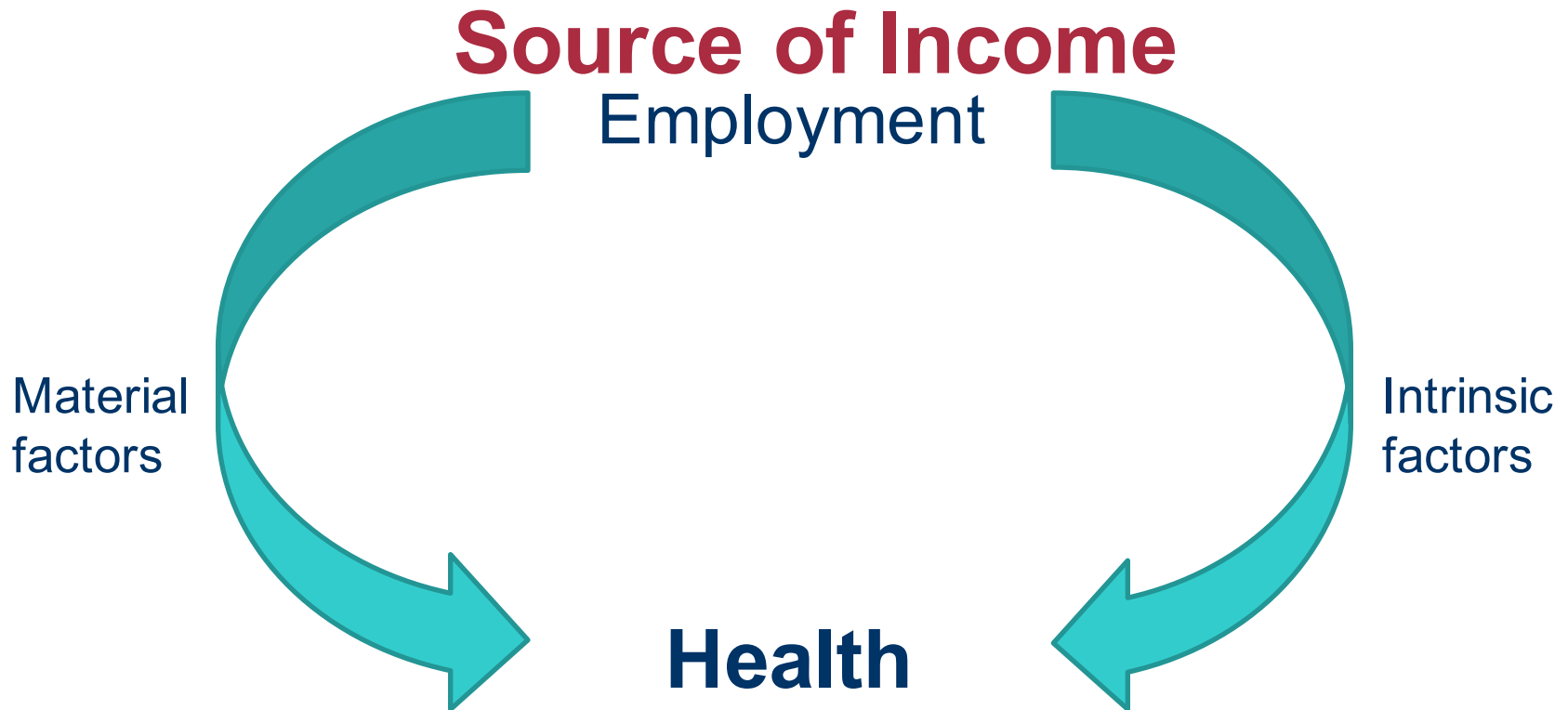
# Women living with HIV (WLWH)

- Women represent a growing proportion of people living with HIV (PLWH), accounting for 23.3% of all new HIV infections in Canada (*Public Health Agency of Canada, 2014*)
- Unique experiences among WLWH –intersection of gender & other inequities
- Employment is critical issue affecting PLWH (*Worthington et al., 2012*)
- Women are overrepresented in underpaid jobs, in precarious employment (*Rueda et al., 2012*)
- Little research on WLWH's source of income and implications on health

# Employment as a social determinant of health...



# ...Source of income as a social determinant of health

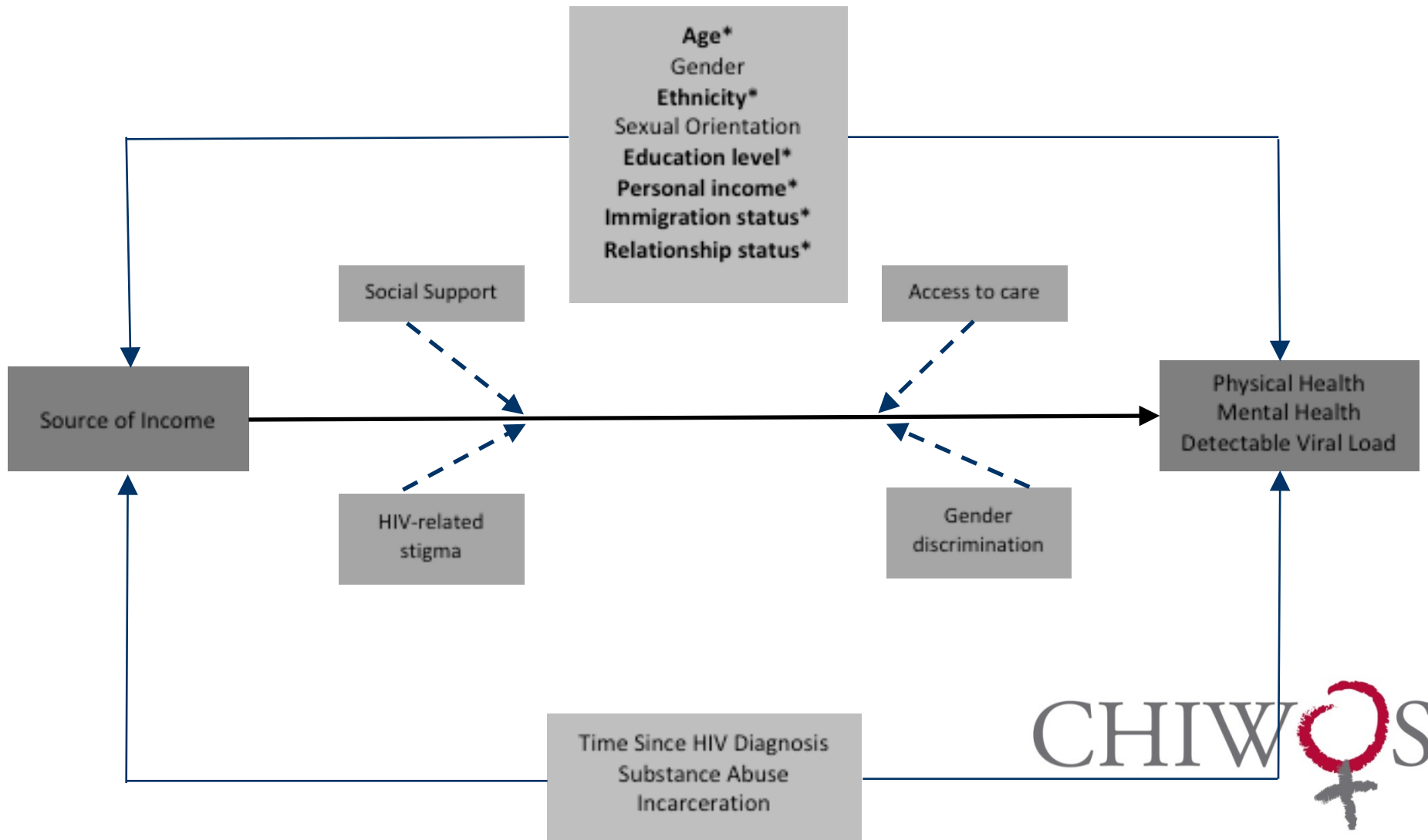


# Study Objectives

1. What are the main sources of income among a national cohort of WLWH in Canada?
2. Are there associations between source of income and WLWH's health (physical, mental & HIV-related)?
3. From a SDOH approach, is there a direct relationship between income source and health outcomes, or are there other factors at play (e.g. HIV-related stigma, gender discrimination, barriers to access-to-care, social support)?



# Conceptual model



# Study Design

- Canadian HIV Women's Sexual and Reproductive Health Cohort Study
- Longitudinal cohort study
- Multi-centred (ON, QB, BC)
- Community-based research
  - Equitable involvement of those affected by the research involved in the research (e.g. Peer Research Associates)
  - Shared decision making processes
  - A focus on action and change

# Sample

- Cross-sectional Wave 1 and 2 data
- Inclusion criteria:
  - Self-identified WLWH, aged 16+
  - Have answered the following question:
    - “People make money in a variety of ways; for instance a regular job, and some under-the-table work. Over the last year, what were the different ways you’ve made money?”
      - Paid job (taxes paid or unpaid)
      - Social assistance (includes worker’s compensation)
      - Pension
      - Illegal work (sex work, selling drugs, panhandling)
      - Savings/loans from family
- N=1377/1425 participants in CHIWOS



# Sample

Included

Excluded

**CHIWOS  
Overall:**

**1425**  
self-identified **WLWH**, aged  
**16+** in **BC, ON** and **QC**  
enrolled between October  
2013 - June 2015

Prospective  
cohort study

Participants who  
answered:  
● "Prefer not to  
answer"  
● "Don't know"

**Current  
secondary  
analysis:**

**1377**  
participants who  
answered  
question on main  
source of income

Cross-sectional  
analysis

# Measures

Category	Measures
<b>Socio-demographic factors</b>	Age, legal relationship status, immigration status, ethnicity, education and income level
<b>Source of Income</b>	Paid job (taxes paid or unpaid) Social assistance (includes worker's compensation) Pension Illegal work (sex work, selling drugs, panhandling) Savings/loans from family
<b>Health-related Quality of Life</b>	12-item Short Form Survey (SF-12) QOL-Mental health QOL-Physical health
<b>Detectable Viral Load</b>	undetectable (<50 copies/mL), or detectable
<b>Mediators:</b>	HIV-related stigma Gender discrimination Social Support (networks) Barriers to access to care

# Analyses

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- Logistic and linear regression on self-reported viral load (HIV-related health), and overall mental and physical health (SF-12), by source of income.
- Path analysis to estimate direct and indirect effects of source of income on each outcome

# Participant Characteristics (N=1377)

Characteristics	N(%)/ Median (IQR)
Age	43 (35-50)
Immigration status	N=1374
Canadian citizen	1120 (81.51%)
Landed immigrant/permanent resident	158 (11.50%)
Refugee/Protected person/other	96 (6.99%)
Ethnicity background	
Caucasian	560 (40.67%)
Aboriginal	312 (22.66%)
Black	406 (29.48%)
Other	99 (7.19%)

# Participant Characteristics Cont'd

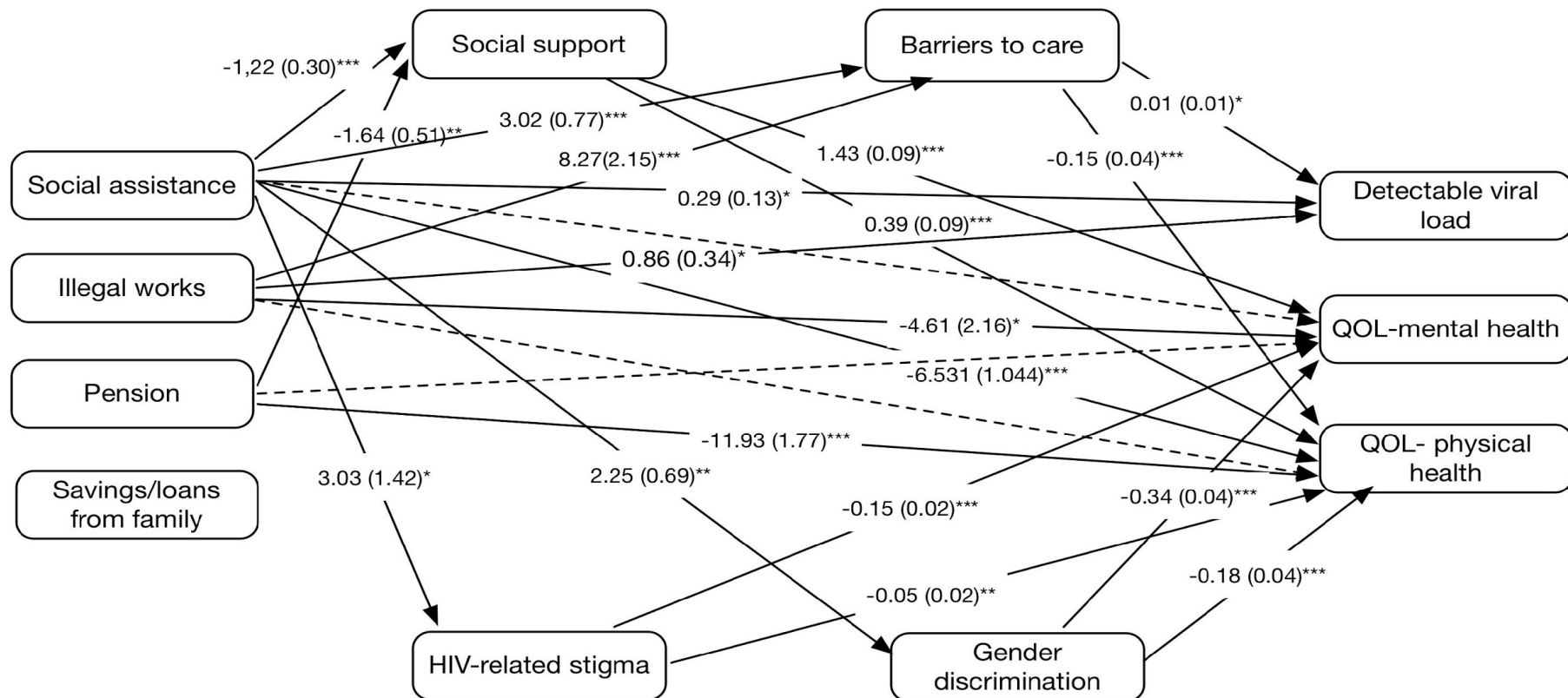
Characteristics	N(%)/ Median (IQR)
Poverty-less than \$ 20,000/year	884 (66.02%)
Marital status (single vs. married)	941 (68.44%)
Education-less than high school	217 (15.84%)
Number of dependents	0 (0-1)
Ever taken ART	1205 (87.70%)
Currently taking ART	1136 (82.92%)
CD4 count	N=1120
<200 cells/mm <sup>3</sup>	74 (6.61%)
200-500 cells/mm <sup>3</sup>	371 (33.12%)
>500 cells/mm <sup>3</sup>	675 (60.27%)
Viral load response: detectable	194 (15.37%)



# n(%) participants by source of income (N=1377)

Source of income	N (%)
Paid employment	314 (22.8%)
Social assistance	887 (64.42%)
Illegal work	28 (2.03%)
Pension	89 (6.46%)
Savings/loan from family	59 (4.28%)

# Path analysis for source of income in relation to detectable viral load and mental and physical health (N=1377)



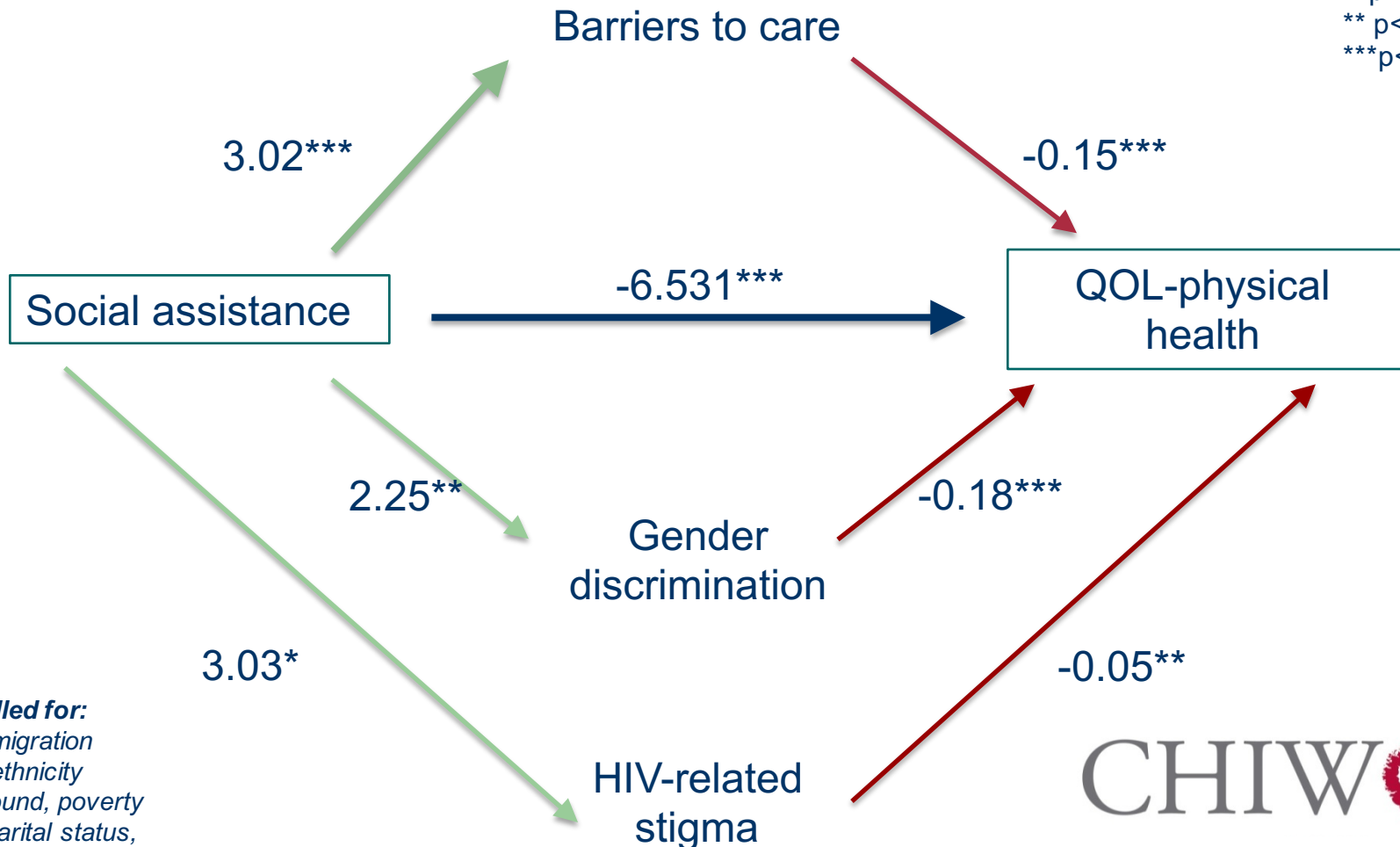
Note: Reference group is paid job

Parameter estimates are reported with standard errors parenthesis.

Statistical significance is noted with the following notations: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

# Social assistance and physical health

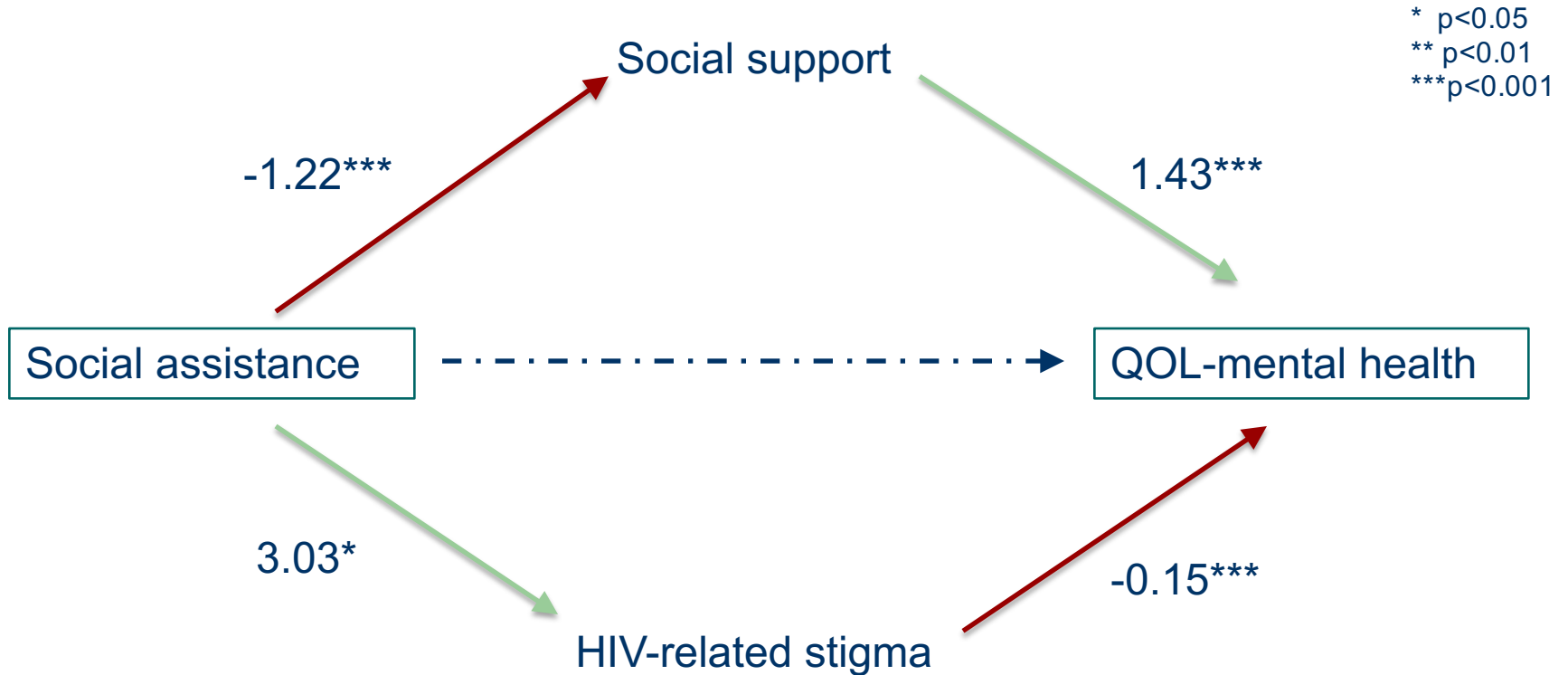
\*  $p < 0.05$   
\*\*  $p < 0.01$   
\*\*\*  $p < 0.001$



**Controlled for:**  
age, immigration  
status, ethnicity  
background, poverty  
level, marital status,  
education level



# Social assistance and mental health



**Controlled for:**  
age, immigration  
status, ethnicity  
background, poverty  
level, marital status,  
education level

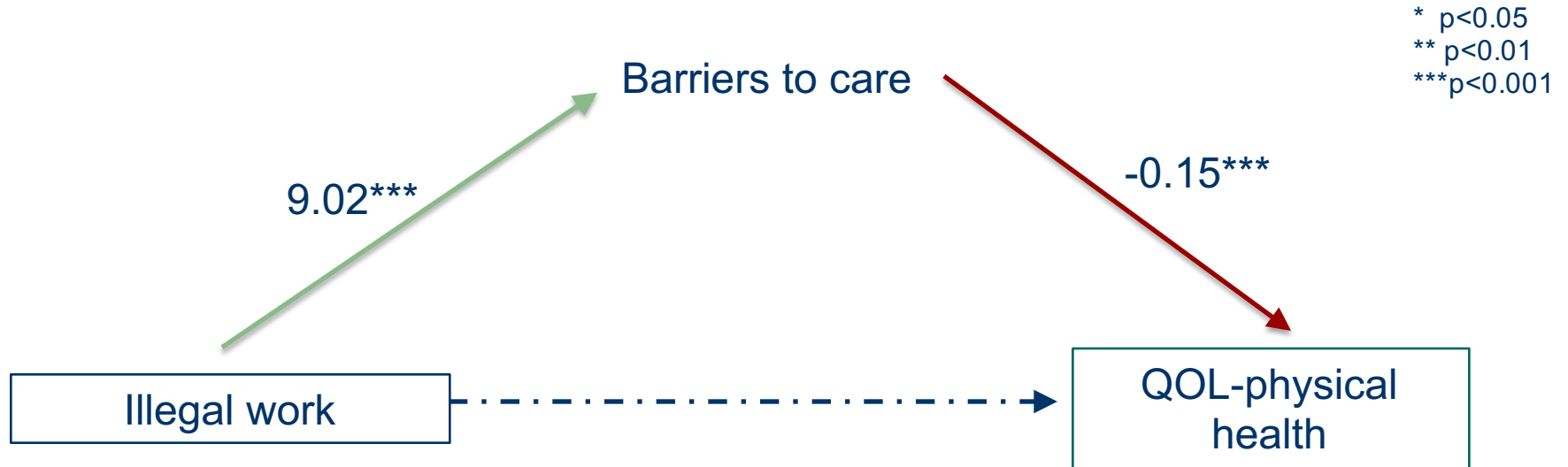
# Social assistance and detectable viral load

\*  $p < 0.05$   
\*\*  $p < 0.01$   
\*\*\*  $p < 0.001$



**Controlled for:**  
*age, immigration  
status, ethnicity  
background, poverty  
level, marital status,  
education level*

# Illegal work and physical health



**Controlled for:**  
age, immigration  
status, ethnicity  
background, poverty  
level, marital status,  
education level

# Illegal work and mental health

\*  $p < 0.05$   
\*\*  $p < 0.01$   
\*\*\*  $p < 0.001$



**Controlled for:**  
*age, immigration  
status, ethnicity  
background, poverty  
level, marital status,  
education level*

# Illegal work and detectable viral load

\*  $p < 0.05$   
\*\*  $p < 0.01$   
\*\*\*  $p < 0.001$



**Controlled for:**  
age, immigration  
status, ethnicity  
background, poverty  
level, marital status,  
education level



# Pension and physical health

\*  $p < 0.05$   
\*\*  $p < 0.01$   
\*\*\*  $p < 0.001$



**Controlled for:**  
age, immigration  
status, ethnicity  
background, poverty  
level, marital status,  
education level

# Major finding #1

- **Two-thirds (64.4%) of our sample's main source of income = social assistance**

## Barriers to employment:

- *At the individual level* –HIV as an episodic disability, med side-effects frequent medical appointments, home responsibilities, education & skill level
- *At the community level* –stigma & discrimination, working conditions
- *At the structural level* –availability of jobs, loss of guaranteed income, loss of drug plan, loss of subsidized housing

# Major finding #2

- **Compared to paid employment, social assistance has a significant negative direct effect on physical health**

## Mediated by:

- Barriers to access-to-care
- HIV-related stigma
- Gender discrimination

## Other possible explanations:

- Intrinsic health benefits of paid employment
- Social assistance not meeting the needs of WLWH in ON, QC & BC?
- Health selection effect

# Major finding #3

- **Illegal work has an indirect effect on physical health**

Mediated by:

- Barriers to access-to-care (BAC)
- **Very strong evidence of a positive association between illegal work and BAC**
  - In Canada, sex workers face high prevalence of institutional BAC (*Socias et al., 2016*)
  - Marginalized sub-populations without health insurance
  - Fear of disclosure (*Logie et al., 2016*)
  - Interrupted care due to nature of work (*Barrington et al., 2016*)

# Limitations

- Cross-sectional data
  - Direction of relationships (e.g. health may have influenced source of income of the participants)
- Health selection effect
- Small sample size for some income categories, such as “illegal work”
- Reporting bias/social desirability bias
  - Source of income
- Recall bias
  - Self-reported detectable viral load

# Policy recommendations & next steps

- To address the needs of WLWH, our approach must be:
  - Multi-sectoral
  - Intersectional
  - From a Social Determinants of Health perspective
- It is not until we look at the...
  - *Community level*:
    - Address stigma and discrimination
    - Support for people returning to work/while at work
    - Community initiatives for social assistance recipients who are ill to find purpose and social connectedness
  - *Structural level* (the upstream causes):
    - Social assistance policy and programs
    - Access to care (UHC, drug plans)

# National Acknowledgements

## And all our community and clinical partners

**BC.:** AIDS Vancouver Island, BC Centre for Excellence in HIV/AIDS, CoolAid Community Health Centre, Downtown Community Health Clinic, Keys Housing and Health Solutions (Positive Haven), Living Positive Resource Centre, Oak Tree Clinic, Positive Living Fraser Valley, Positive Women's Network, Positive Living North, and Vancouver Island Persons with AIDS Society.

**ON:** 2-Spirited People of the 1<sup>st</sup> Nations; 519 Community Centre; ACCKWA; Africans in Partnership Against AIDS (APAA); AIDS Committee of Durham Region; AIDS Committee of Guelph and Wellington County; AIDS Committee of Simcoe County; AIDS Network Hamilton; Alliance for South Asian AIDS Prevention; Black Coalition for AIDS Prevention; Bruce House; Casey House; Centre Francophone; Elevate NOW; Fife House; Hemophilia Ontario; HIV/AIDS Regional Services (HARS); Maggie's: Toronto Sex Worker's Action Project; Peel HIV Network; Positive Living Niagara; Prisoners with AIDS Support Action Network; Réseau Access Network; Toronto PWA Foundation; Women's Health in Women's Hands; Children's Hospital of Eastern Ontario; Kingston Hotel Dieu Hospital; Health Sciences North, Sudbury Regional Hospital, HAVEN Program; Lakeridge Health; Maple Leaf Medical Clinic; McMaster Family Practice; Ottawa General Hospital; Riverside Family Health Team; SIS Clinic, Hamilton Health Sciences; St. Joseph's Healthcare London; St. Michael's Hospital; Sunnybrook Health Sciences Centre; Toronto East General Hospital; Toronto General Hospital; William Osler Health System; Windsor Regional Hospital, HIV Care Program.

**QC:** ACCM; L'ARCHE de l'Estrie; ASTT(e)Q; BLITS; BRAS-Outaouais; CACTUS; CASM; Centre des R.O.S.E.E.S; Centre Sida Amitié; Corporation Félix Hubert d'Hérelle; COCQ-SIDA; GAP-VIES; M.A.I.N.S-Bas St-Laurent; Maison Plein Coeur; Maison Dominic; Maison du Parc; Maison Re-Né; MIELS-Québec; Le MIENS Chicoutimi; Portail VIH/sida du Québec; Sidaction Mauricie; Sida-Vie Laval; Stella, l'amie de Maimie; UHRESS-Notre-Dame du CHUM.



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## Funders



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Special Thanks To Our Community Partners!





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Thank you!

# Major findings

1. Two-thirds (64.4%) of our sample's main source of income = social assistance

*Compared to paid employment...*

2. Social assistance has a significant negative direct effect on physical health
3. Illegal work has an indirect effect on physical health

# Extra Slides

## Logistic and linear regression results:

Variables	QOL-mental health	QOL-physical health	Detectable viral load
	Adjusted Coeff. (95% CI)	Adjusted Coeff. (95% CI)	Adjusted OR (95% CI)
<b>Social assistance</b>	-0.75 (-2.56-1.14)	-6.53 (-8.29-(-4.67))***	1.79 (1.09-2.95)*
<b>Illegal work</b>	-4.61(-11.58-3.19)	-2.37 (-7.77-2.29)	3.53 (1.14-10.92)*
<b>Pension</b>	1.16 (-1.88-4.20)	-11.93 (-15.50- (-8.68))***	0.36 (0.10-1.25)
<b>Saving/loans from family</b>	1.52 (-1.43-4.70)	-1.20 (-3.99-1.66)	1.72 (0.58-5.12)
<b>HIV-related stigma</b>	-0.15 (-0.19-(-0.10))***	-0.05 (-0.09-(-0.01))*	1.00 (0.99-1.02)
<b>Gender discrimination</b>	-0.34 (-0.41-(-0.27))***	-0.18 (-0.24-(-0.11))***	0.99 (0.97-1.01)
<b>Social Support</b>	1.43 (1.26-1.61)***	0.39 (0.19-0.59)***	1.03 (0.98-1.07)
<b>Barriers to access to care</b>	-0.03 (-0.11-0.45)	-0.15 (-0.22-(-0.07))***	1.02 (1.00-1.04)*

# Future directions

- Provincial differences of social assistance programs
  - Disaggregate our data based on province. Is the trend we found the same for ON, BC and QC?
- Understand factors that precede WLWH's recipient of social assistance
  - What was the proportion of people that left paid employment to social assistance?