

Government-Mandated Residential Schooling and Response to Stressors in Adulthood

*A Test of the Stress Sensitization Hypothesis among the
Indigenous Peoples in Canada*

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Outline

- ▶ Residential school and health
- ▶ Stress-sensitization hypothesis
- ▶ Research question
- ▶ Data
- ▶ Methods
- ▶ Results
- ▶ Implications
- ▶ Strengths and limitations of research and data
- ▶ Next steps

Colonization and Residential Schooling

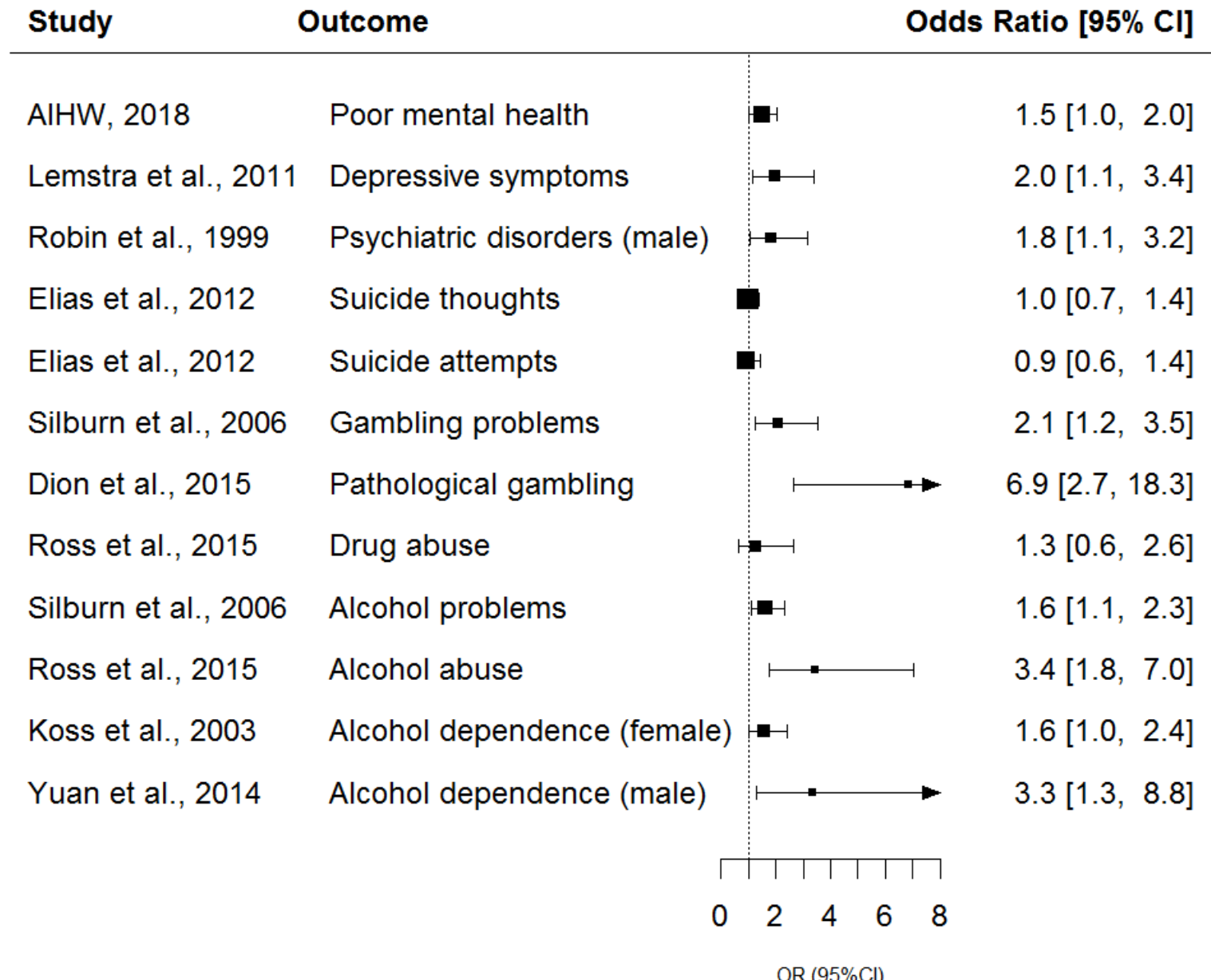


<http://www.cbc.ca/news/indigenous/residential-schools-history-indefensible-1.4020519>



<https://trauma-informed.ca/trauma-and-first-nations-people/residential-schools/>

Long-Term Impacts on Mental Health

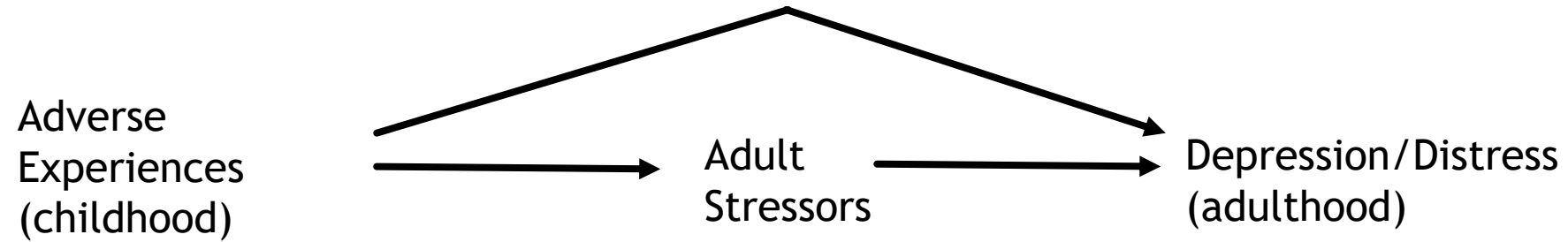


Childhood Adversity and Adult Mental Health

- ▶ Association between childhood adversity and a variety of mental health outcomes in adulthood
 - ▶ Depression
 - ▶ Persistence of depression
 - ▶ Alcoholism
 - ▶ Substance abuse
 - ▶ Post-traumatic stress disorder
 - ▶ Suicide
 - ▶ Attempted suicide and anxiety

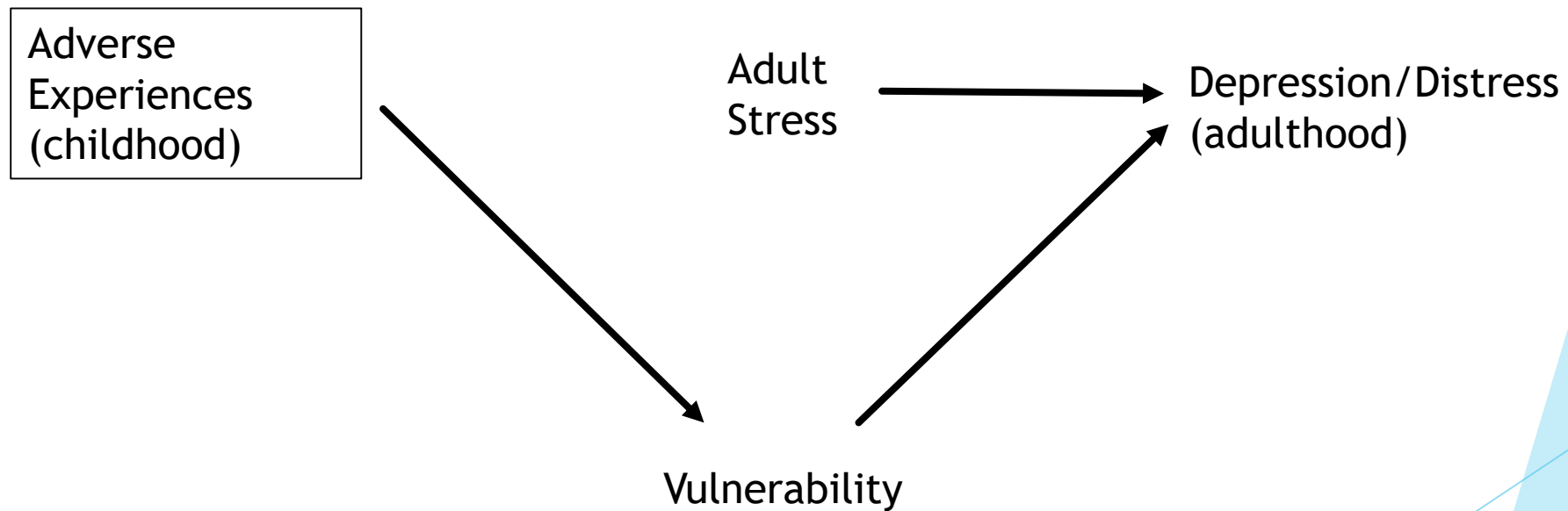
Potential mechanisms

1) Increased exposure to stressors



Potential mechanisms

2) Increased vulnerability/reactivity to stressors (stress-sensitization)



Stress Sensitization

- ▶ Risk for adult depression following stressful life events is higher among individuals with a history of childhood adversity
 - ▶ Clinical or community samples of primarily females
 - ▶ Some recent evidence from national samples in USA and Canada
 - ▶ Primarily for major depression
 - ▶ Alignment with allostatic load studies
 - ▶ Use of Adverse Child Experiences (ACEs) to measure adversity, no literature on impacts of government policy
- ▶ Hypothesis not assessed within Indigenous populations

Research Question

- ▶ Does residential schooling constitute an instance of early life adversity increasing the stress response and associated mental health to adult life events among the Indigenous Population in Canada?
 - ▶ Hypothesis: interaction between residential school exposure and adult stressors will be present with a *stronger* effect of adult stressors observed among individuals exposed to residential schools

Data: 2012 Aboriginal People's Survey (APS)

- ▶ Voluntary nationwide survey conducted by Statistics Canada
- ▶ Focus on the social and economic circumstances of First Nations people living off reserve, Métis and Inuit aged 6 years and older
- ▶ 2012 APS was the fourth cycle of this survey program
- ▶ Target population included persons living in private residences and excluded persons living on Indian reserves and settlements and in certain First Nations communities in Yukon and the Northwest Territories (NWT)
- ▶ Response rate: 76% (n=28,410)

Population

- ▶ Age 20 years and older
- ▶ First Nations people living off reserve, Métis and Inuit
- ▶ Responded to survey (did not have a proxy responder)
- ▶ Answered question about personal residential school history

Variables of Interest

Outcome: Poor/fair vs. good/very good/excellent self-reported mental health

Exposure: Binary overall adult stress exposure (any/none):

- ▶ Unemployed when in labour force
- ▶ Moved to within previous 12 months
- ▶ Live in housing in need of major repairs
- ▶ Food insecure in past year

Effect Modifier: Personal history of residential school attendance (yes/no)

Covariates: Age, sex, marital status, education, Indigenous identity, community support, rural residence, province, traditional activities in past year, family residential school history

Analysis

- ▶ Generalized linear regression model with a log link and binomial error distribution with a product term for the interaction between residential school and adult stress.

$$\log\{P(D=1 | E=e, M=m)\} = \alpha_0 + \alpha_1 \mathit{adultstress} + \alpha_2 \mathit{residential\ school} + \alpha_3 \mathit{adultstress} * \mathit{residential\ school} + \alpha'_4 c$$

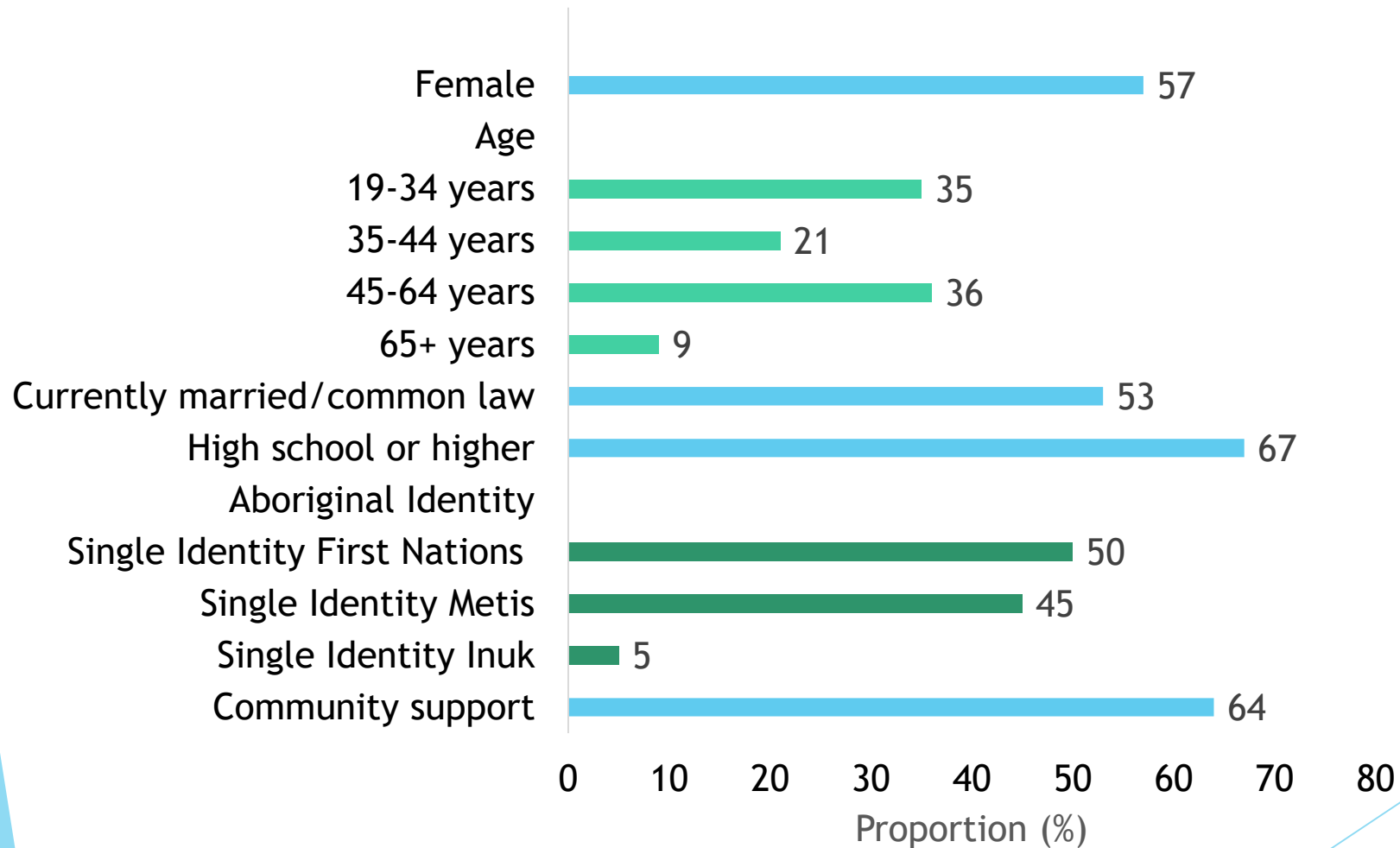
D= Poor/fair self-reported mental health

C= Age, sex, marital status, education, Indigenous identity, community support, rural residence, province, traditional activities in past year, family residential school history

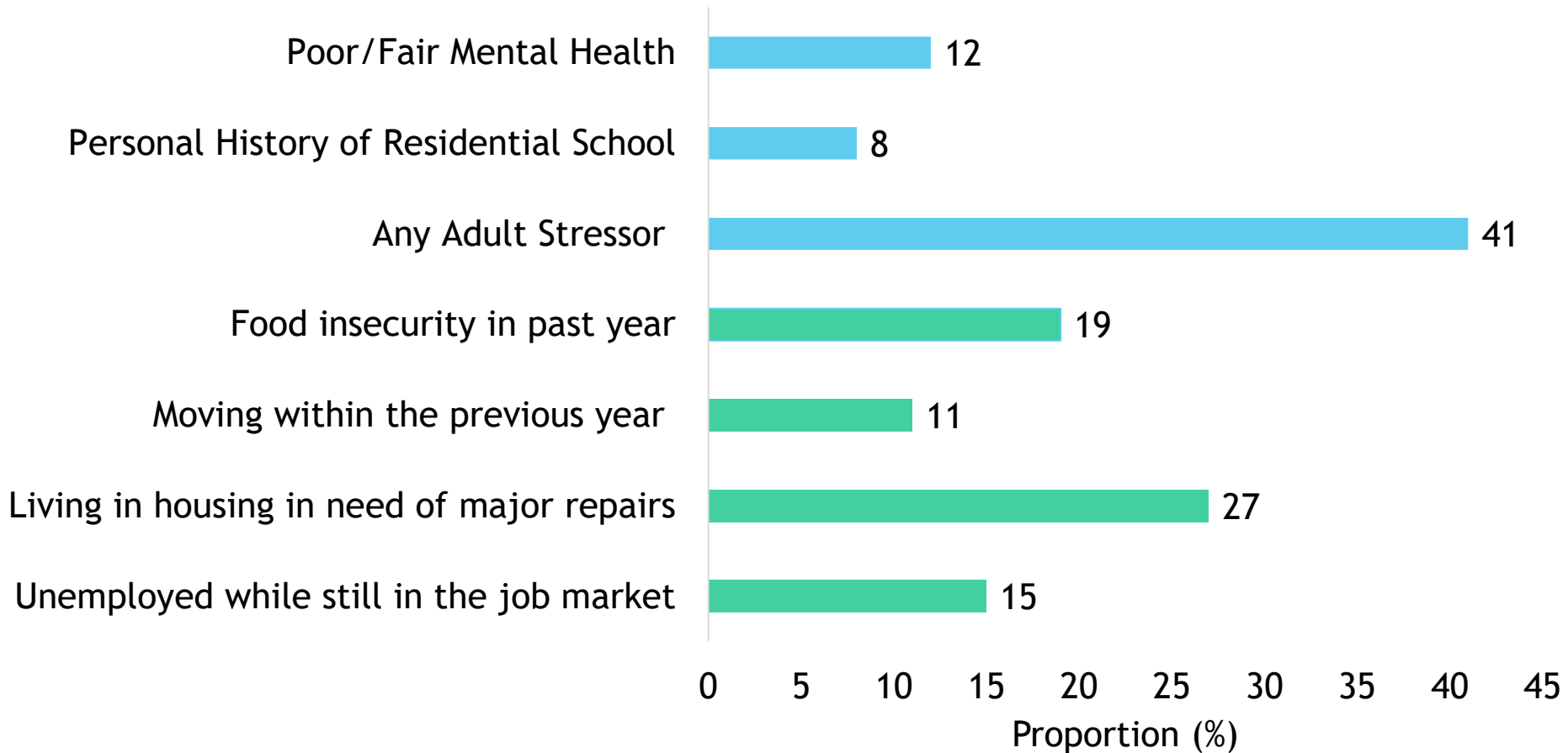
- ▶ Effect modification: α_3 (multiplicative interaction)

Population Characteristics

- ▶ ~ 15,000 individuals 19 years and older
- ▶ ~11,000 individuals with complete data



Population Characteristics



Model Results

	Model 1	Model 2	Model 3	Model 4	Model 5**
	RR (95%CI)	RR (95%CI)	RR (95%CI)	RR (95%CI)	RR (95%CI)
Residential school (Ref: No history)					
Personal history	1.57 (1.32-1.85)*		1.48 (1.26-1.75)*	1.35 (0.99-1.83)	1.26 (0.92-1.73)
Adult Stressors (Ref: None)					
At least one		2.09 (1.86-2.25)*	2.07 (1.84-2.32)*	2.03 (1.79-2.30)*	1.9 (1.67-2.16)*
Residential school*Adult Stress				1.15 (0.80-1.66)	1.17 (0.81-1.68)

** Model 5 is adjusted for: Age, sex, marital status, education, Indigenous identity, community support, rural residence, province, traditional activities in past year, family residential school history

Implications

- ▶ Residential school attendance may constitute an adverse childhood experience that moderates the effect of the adult stress and mental health relationship
- ▶ Contributes to the small but growing literature examining how colonizing policies contribute to the distribution of health outcomes and disparities
- ▶ Alignment with Truth and Reconciliation Commission's calls to action (health)
 - ▶ Recognition that current state of Aboriginal Health in Canada is a result of colonizing policies, such as residential schooling
 - ▶ Lasting impacts of federal policy of Indigenous populations both on and off reserve, resolve jurisdictional disputes regarding responsibility for off-reserve Aboriginals

Limitations

- ▶ Survivor Bias
- ▶ No information on other childhood adverse experiences
- ▶ Power to detect interactive effects
- ▶ Incomplete confounding control

APS Data

Strengths

- ▶ Residential school history
- ▶ Large representative sample
- ▶ Canada-wide
- ▶ Variety of health outcomes

Limitations

- ▶ Cross-sectional
- ▶ Missing important confounders
- ▶ Heterogeneous exposure not captured
- ▶ Small sample for assessing residential school
- ▶ CANARIE problems

Next Steps

- ▶ Improve power by adding previous waves of survey
 - ▶ Allow for investigation of specific adult stressors
 - ▶ Impact of count of stressors - measure dose response
- ▶ Exploration of impact on distress outcome
- ▶ Gender differences
- ▶ Sensitivity analyses for survivor bias and impact of residual confounding

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Thank you!

