

CANADIAN ALCOHOL POLICY EVALUATION (CAPE) COMMUNITY OF PRACTICE

*Social determinants of substance use and harm:
existing trends and policy options*

Event #21: February 7, 2024



**University
of Victoria**

Canadian Institute
for Substance
Use Research

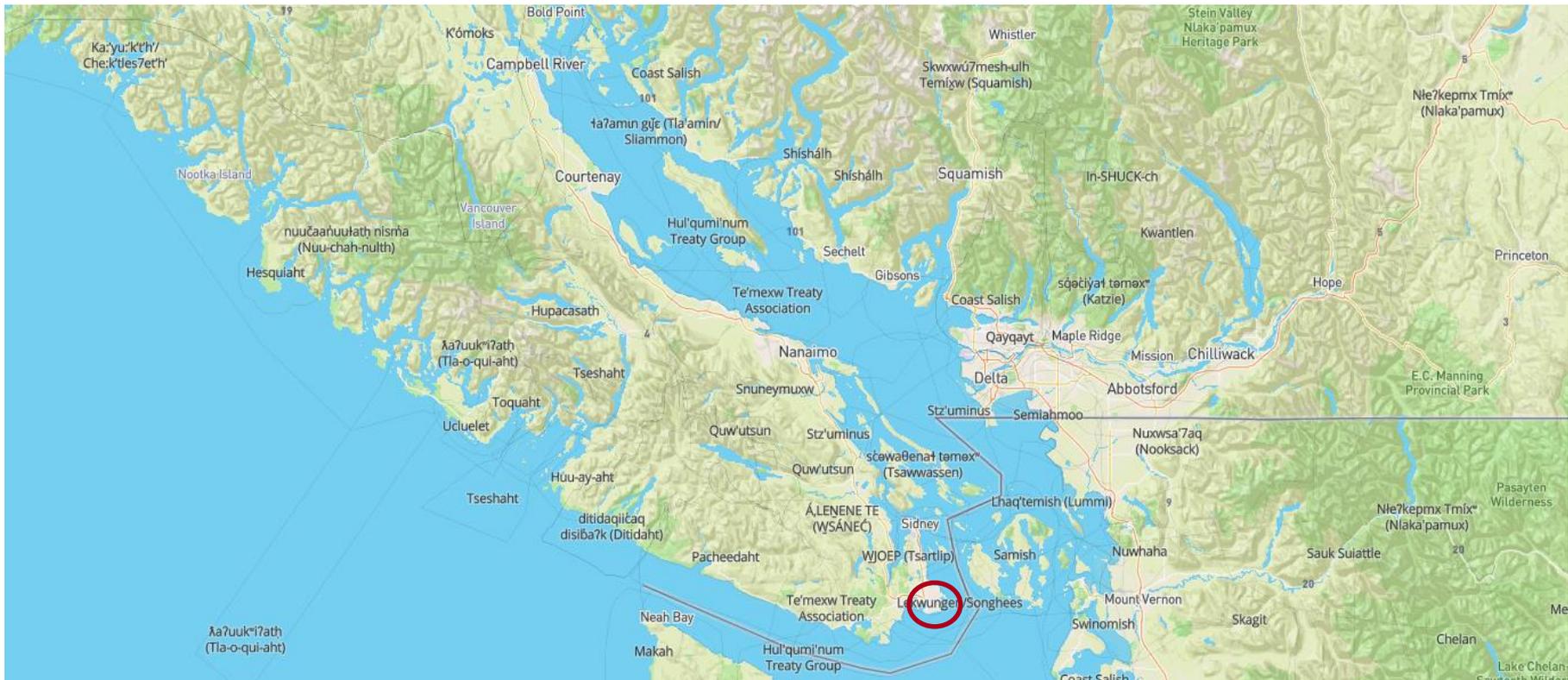
Institut canadien
de recherche sur
l'usage de substances

camh
Centre for Addiction and Mental Health

SIMULTANEOUS FRENCH INTERPRETATION

Simultaneous French interpretation is available **except** for the Q&A portion / interprétation simultanée en français est disponible **sauf** pour la section Q&R (see Chat box for instructions)





We acknowledge and respect the ləkʷəŋən peoples on whose traditional territory the University of Victoria stands and the Songhees, Esquimalt and W̱SÁNEĆ peoples whose historical relationships with the land continue to this day.

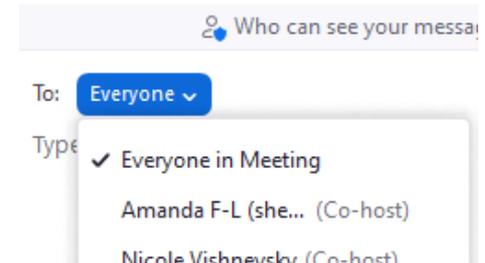
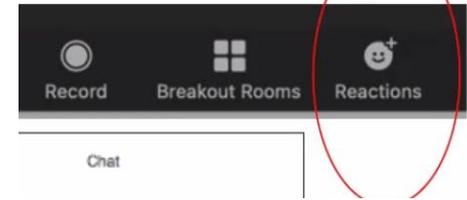
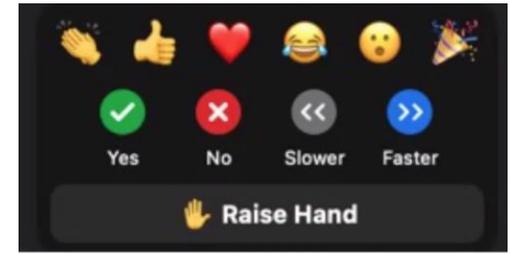
HOUSEKEEPING

- Today's webinar includes a presentation and Q&A = 90mins
- The presentation segment will be recorded (not Q&A).
Links to the recording and webinar slides will be emailed.
- We invite your feedback about today's session.
A survey link will be shared in the Chat box and via email.
- For persons with lived/living experience stipends, email capecopcoord@uvic.ca

The views and opinions expressed as part of this event are those of the presenters alone and do not necessarily represent those of our funders or other organizations acknowledged

Q&A FORMAT

- Use chat box or Q&A tool to submit a question at any time.
- Use 'raise hand' during Q&A segment. The moderator will ask you to unmute to pose your question. Name the presenter to whom you are directing the question.
- The moderator may read aloud questions typed in the chat or Q&A tool.
- Technical difficulties? please message us in the chat.



PRESENTERS



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Social determinants of substance use and harm:

Existing trends and policy options

Brendan Smith, PhD

CAPE CoP Webinar

February 7, 2024

Land Acknowledgment

- We acknowledge the land we are meeting on is the traditional territory of many nations including the Mississauga's of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples and is now home to many diverse First Nations, Inuit and Métis peoples. We also acknowledge that Toronto is covered by Treaty 13 of the Mississaugas of the Credit.



Acknowledgments

Co-Principal Applicant

- Erin Hobin

Co-authors

- Alessandra Andreacchi
- Claire Benny
- Samantha Forbes
- Naomi Schwartz
- Christine Warren

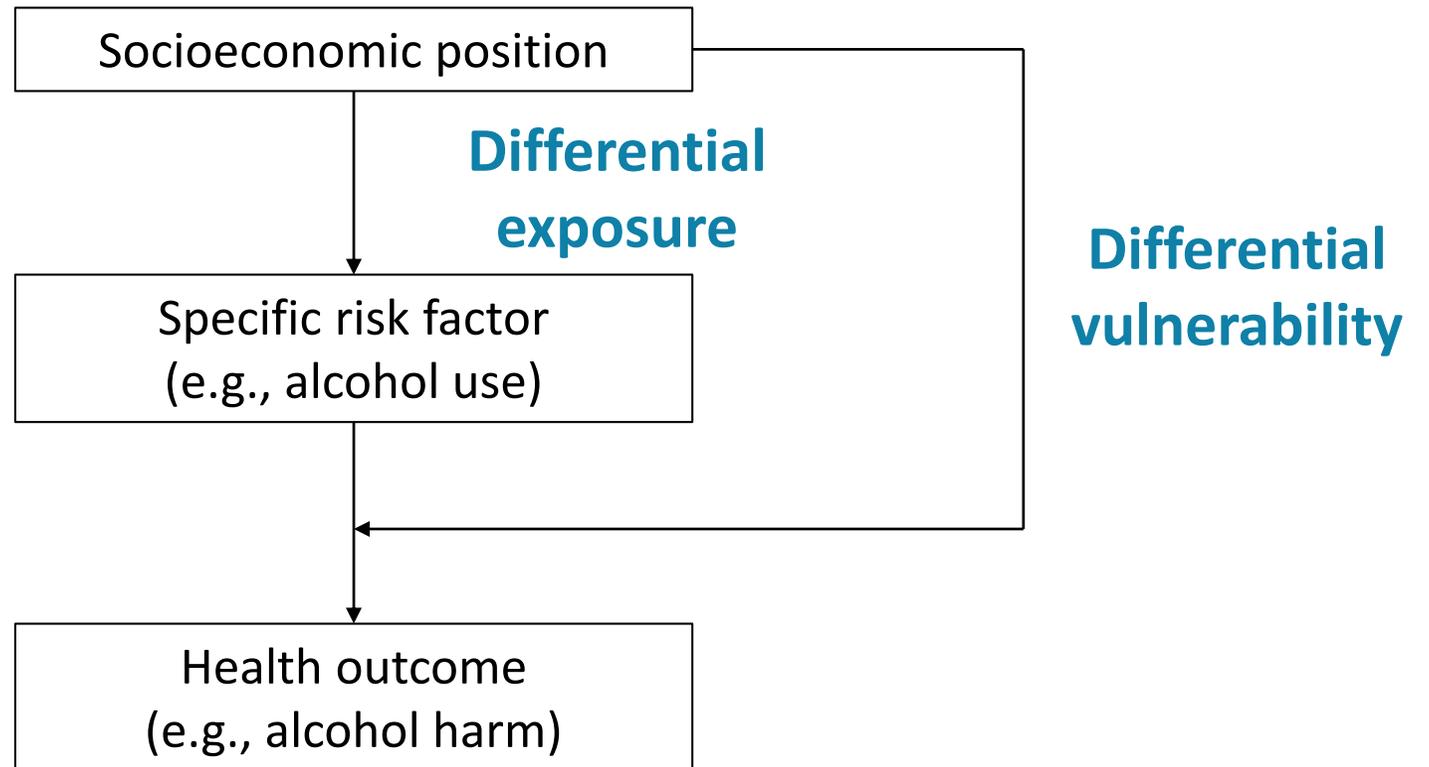
Socioeconomic position and alcohol harm

- Leading cause of death and disability in Canada and internationally
- Causes over 200 negative chronic and acute health harms¹
- Socioeconomic position is inversely associated with alcohol-attributable morbidity and mortality
 - Risk of alcohol-attributable mortality is **3.8- to 5.2-fold higher** in individuals with low compared to high socioeconomic position²

Health impact of social position and social context

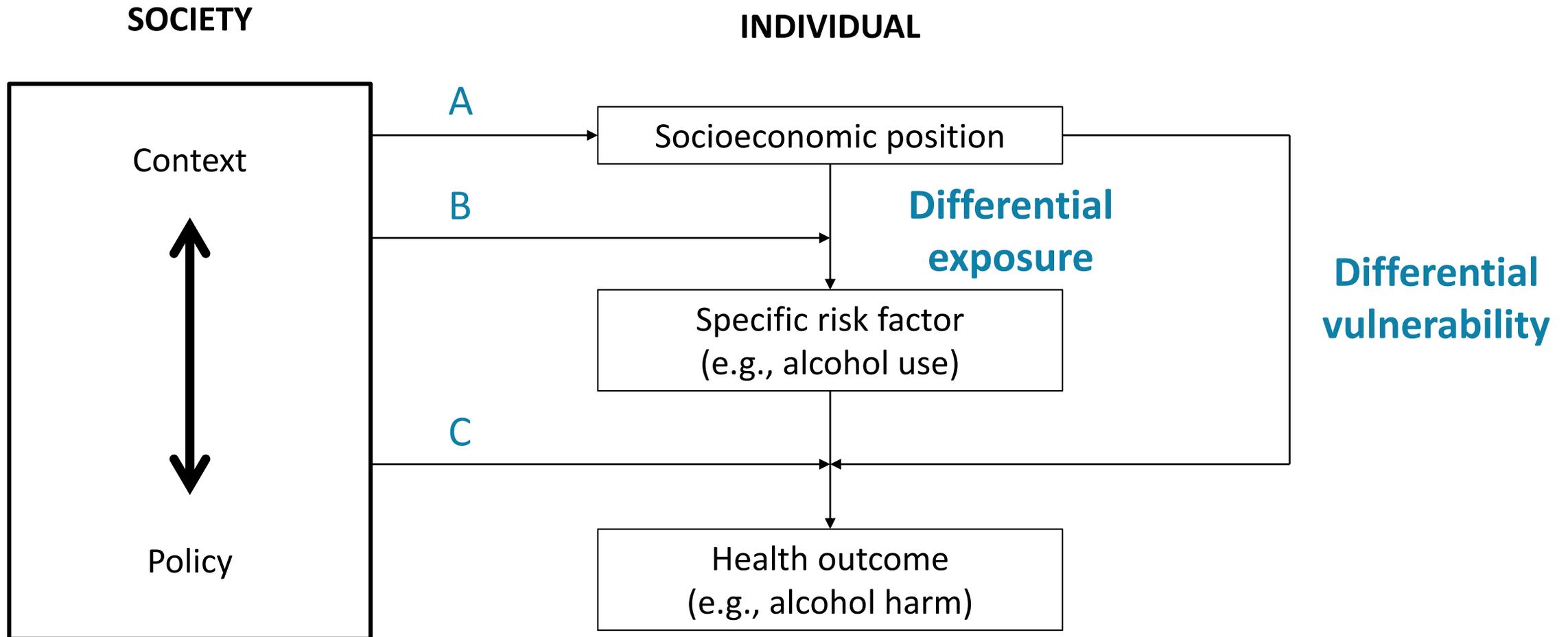
SOCIETY

INDIVIDUAL



Adapted from: Whitehead M, Burström B, Diderichsen F. Social policies and the pathways to inequalities in health: a comparative analysis of lone mothers in Britain and Sweden. *Social Science & Medicine*. 2000 Jan;50(2):255–70. ³

Health impact of social position and social context



Adapted from: Whitehead M, Burström B, Diderichsen F. Social policies and the pathways to inequalities in health: a comparative analysis of lone mothers in Britain and Sweden. *Social Science & Medicine*. 2000 Jan;50(2):255–70. ³

Differential exposure to alcohol

- **Alcohol harm paradox:** Individuals with lower compared to higher socioeconomic position experience disproportionately greater alcohol-attributable harm despite similar or less alcohol use
 - Heavy episodic drinking (**15% to 30%**) and volume of alcohol use (**-5% to 15%**) explained little of observed inequities²

Potential mechanisms⁴:

- Individual or lifestyle risk factors (e.g., smoking, overweight/obesity)
- Contextual (e.g., social support, drinking contexts)
- Disadvantage (e.g., lifecourse exposures, material resources, access to healthcare)
- Upstream (e.g., structural, employment)
- Artifactual (e.g., measurement error, underreporting)

Differential vulnerability to alcohol

- Understudies mechanisms of social inequities in alcohol harm
- Effect of alcohol use differs across subpopulations
 - at the same level of alcohol use, do individuals with lower socioeconomic position experience more harm?
- Emerging evidence indicate a potential joint effect between low socioeconomic position and higher alcohol use

Objectives

- To estimate the sex/gender-specific joint effect of education and alcohol use (both heavy drinking and volume of alcohol use) on 100% alcohol-attributable hospitalization or death

Data sources

Canadian Community Health Survey (CCHS) linked to health administrative data

Canadian Community Health Survey
(CCHS, 2000-2017)



Hospitalization:

- Discharge Abstract Database (DAD, 1999-2017)
- Ontario Mental Health Reporting System (OMHRS, 2006-2017)

Deaths:

- Canadian Vital Statistics–Death Database (CVSD, 2000-2017)

Study population

Alcohol-attributable hospitalizations or deaths

Pooled 440,370 respondents from the 2000-2008 CCHS

Respondents were excluded if they were:

- from Quebec (n=88,900)
- from three territories and health regions where alcohol use module was not included (n=37,400)
- had a 100% alcohol-attributable hospitalization prior to CCHS interview (n=1,700)
- aged <15 or 65+ (n=65,900)
- pregnant or breastfeeding (n=5,600), missing primary exposures or covariates data (n=13,300) or lifetime alcohol abstainers (n=28,200)

n= 95,545 men and 103,580 women

Alcohol harm outcomes

- incident 100% alcohol-attributable hospitalization or death

Definition:

- based on Canadian Institute for Health Information's indicator "Conditions Entirely Caused by Alcohol"
- identified using ICD-10 and DSM-5 diagnostic codes listed as the underlying or contributing cause

Socioeconomic position

- Operationalized using education:
 - less than high school
 - high school diploma/some post-secondary
 - trades or certificate below Bachelor's degree
 - Bachelor's degree or above
- Sensitivity analyses examined household income quintile

Self-report alcohol use

1. Heavy (episodic) drinking (yes/no):

- binge drinking, consuming ≥ 5 standard drinks (13.45 grams of ethanol) on a single occasion, at least monthly in the past year

2. Volume of alcohol use:

- number of standard drinks consumed in the past 7 days
- risk groups: former consumer (no use in past year), low (≤ 2 drinks/week), medium (3-6 drinks/week), high (7-15 drinks/week), and excess risk (> 15 drinks/week)
- consistent with the continuum of risk in Canada's Guidance on Alcohol and Health

Sex and gender

- Sex was measured based on respondent's self-report to the question "is [respondent name] male or female"
 - 'male' and 'female' characterize biological constructs, although they likely capture both biological and sociocultural aspects when asked in this way
- We use the terms sex/gender, women and men to interpret both:
 - sex differences (e.g., females experience greater alcohol harm from similar volumes of alcohol use)
 - gender differences: (e.g., socially constructed roles, attitudes, expectations) are entangled in relation to alcohol use and harm

Covariates

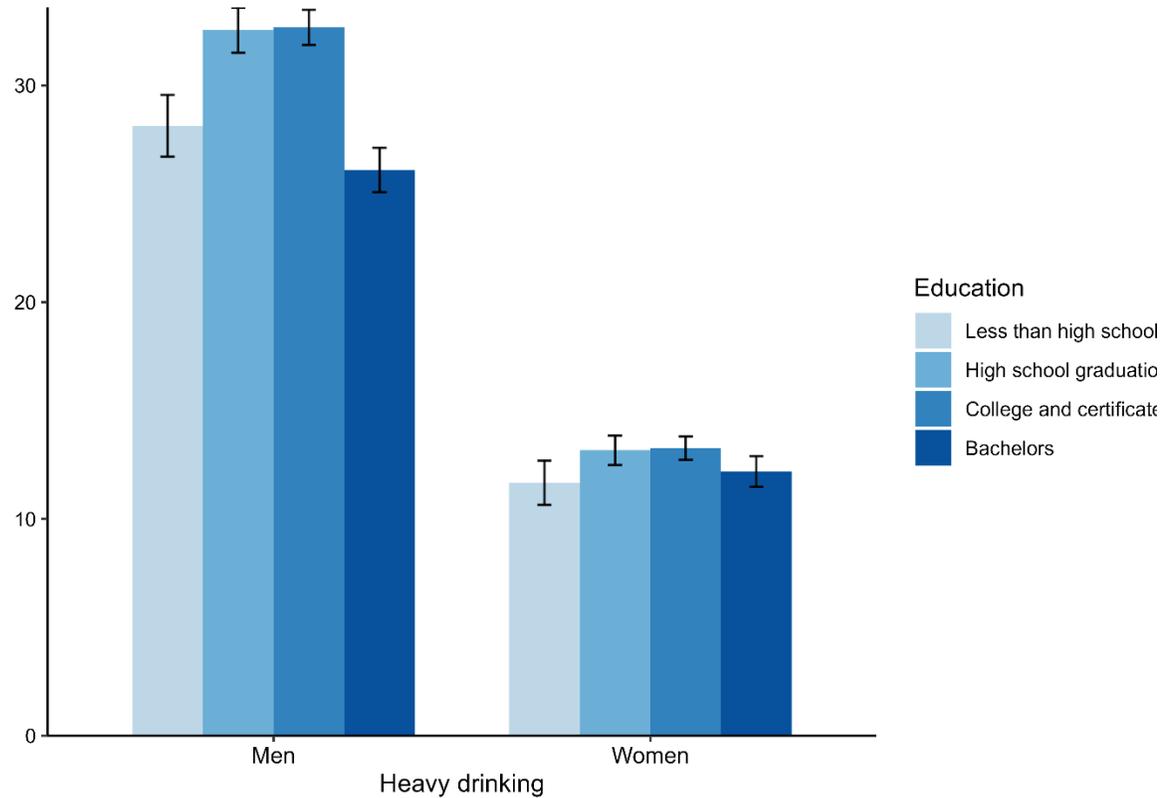
- Potential confounders:
 - age (in years)
 - marital status
 - immigrant status (immigrant/non-immigrant)
 - province (categorical)
 - rurality (urban/rural defined as population concentration $\geq 1,000$ and a population density $\geq 400\text{km}^2$)
 - survey cycle (categorical)

Statistical analysis

- Assessed sex/gender-specific prevalence of heavy drinking and volume of alcohol use by education
- Fine and Gray subdistribution hazard models to estimate the association between education and alcohol-attributable hospitalization or death
 - competing risk (all-cause mortality)
- Joint effect tested by an interaction between education and alcohol use
 - education was dichotomized (low/high) to improve precision
- Additive interaction assessed using the Synergy Index (S)

$$S = \frac{\text{joint relative effect of the two exposures together}}{\text{sum of the relative effects of each exposure independently}}$$

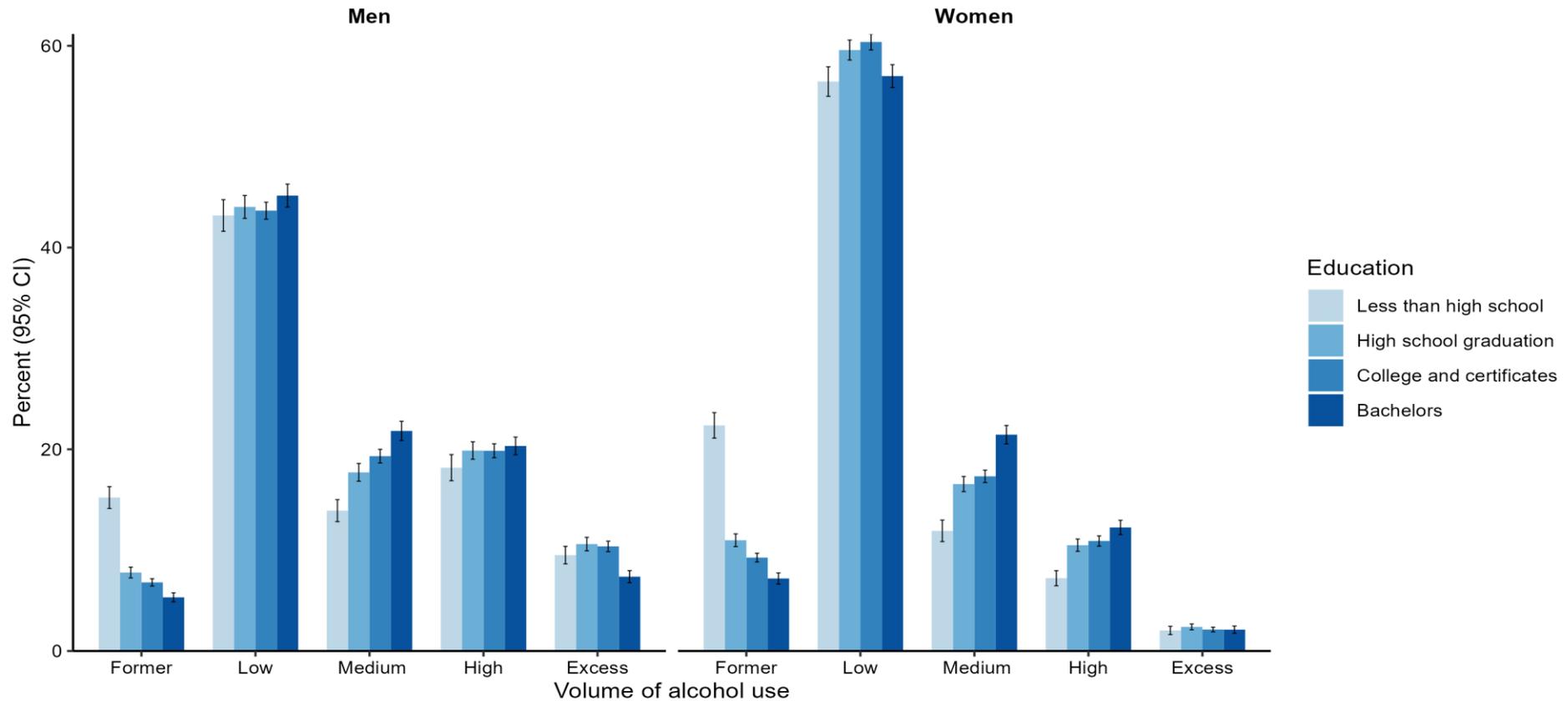
Heavy episodic drinking by education



Test for differential exposure:

- Highest prevalence of heavy drinking in individuals with:
 - a high school diploma
 - some post secondary
- Higher prevalence of heavy drinking in men compared to women

Volume of alcohol use by education



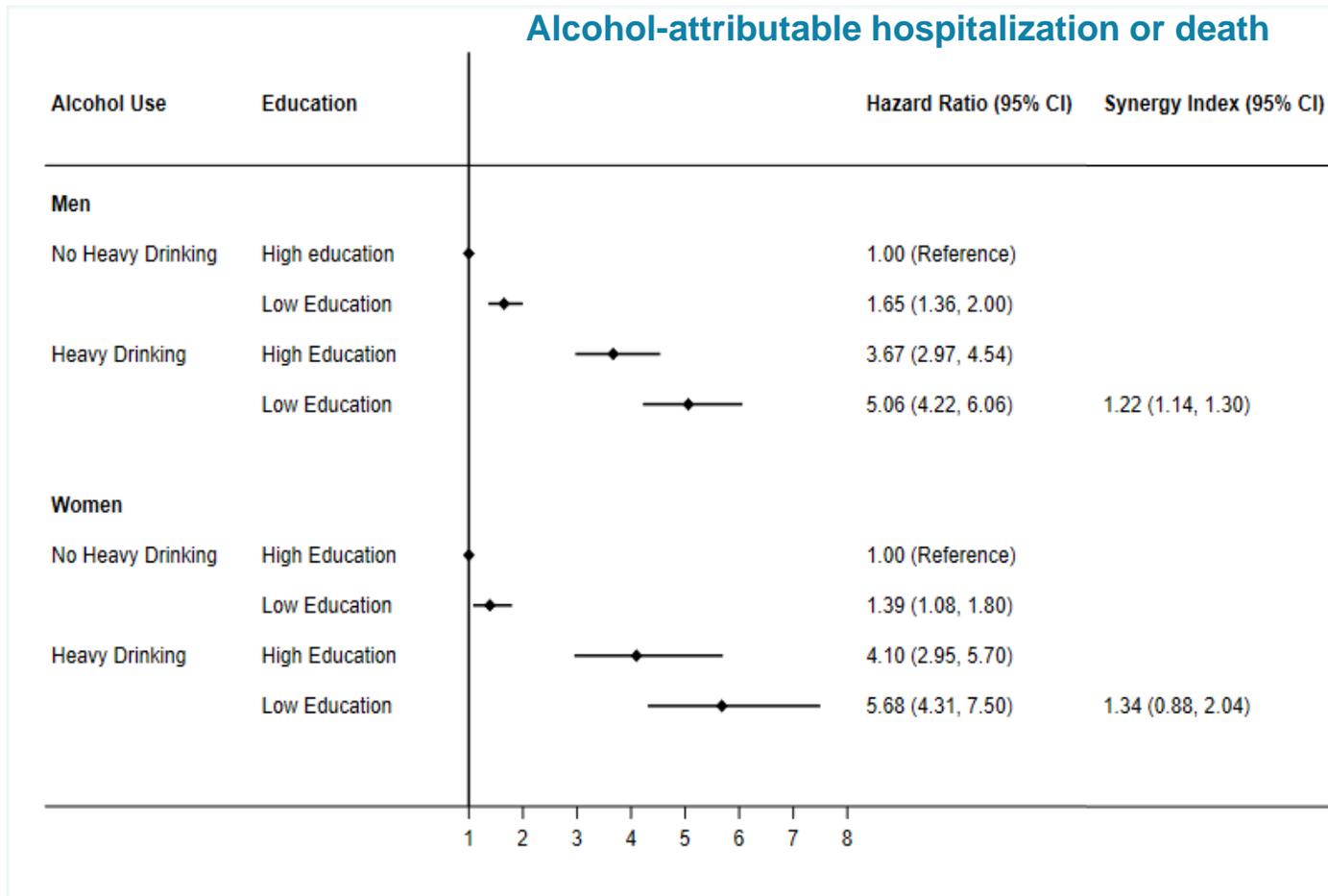
- Prevalence of medium and high-volume alcohol use increased with higher education, up to the excess volume category, where men with Bachelor's degree or above group had the lowest prevalence

Educational inequities in alcohol-attributable harms

	Hospitalizations or deaths	
	Men	Women
	Hazard Ratio (95%CI)	Hazard Ratio (95%CI)
Educational Attainment		
less than high school	2.78 (2.17, 3.56)	2.98 (2.00, 4.44)
high school graduation	2.08 (1.63, 2.66)	1.21 (0.85, 1.71)
trades/certificate below Bachelor's degree	1.79 (1.42, 2.27)	1.17 (0.84, 1.64)
Bachelor's degree or above	Ref	Ref

Models adjusted for cycle, age (continuous), age², marital status, immigrant, province, and rurality

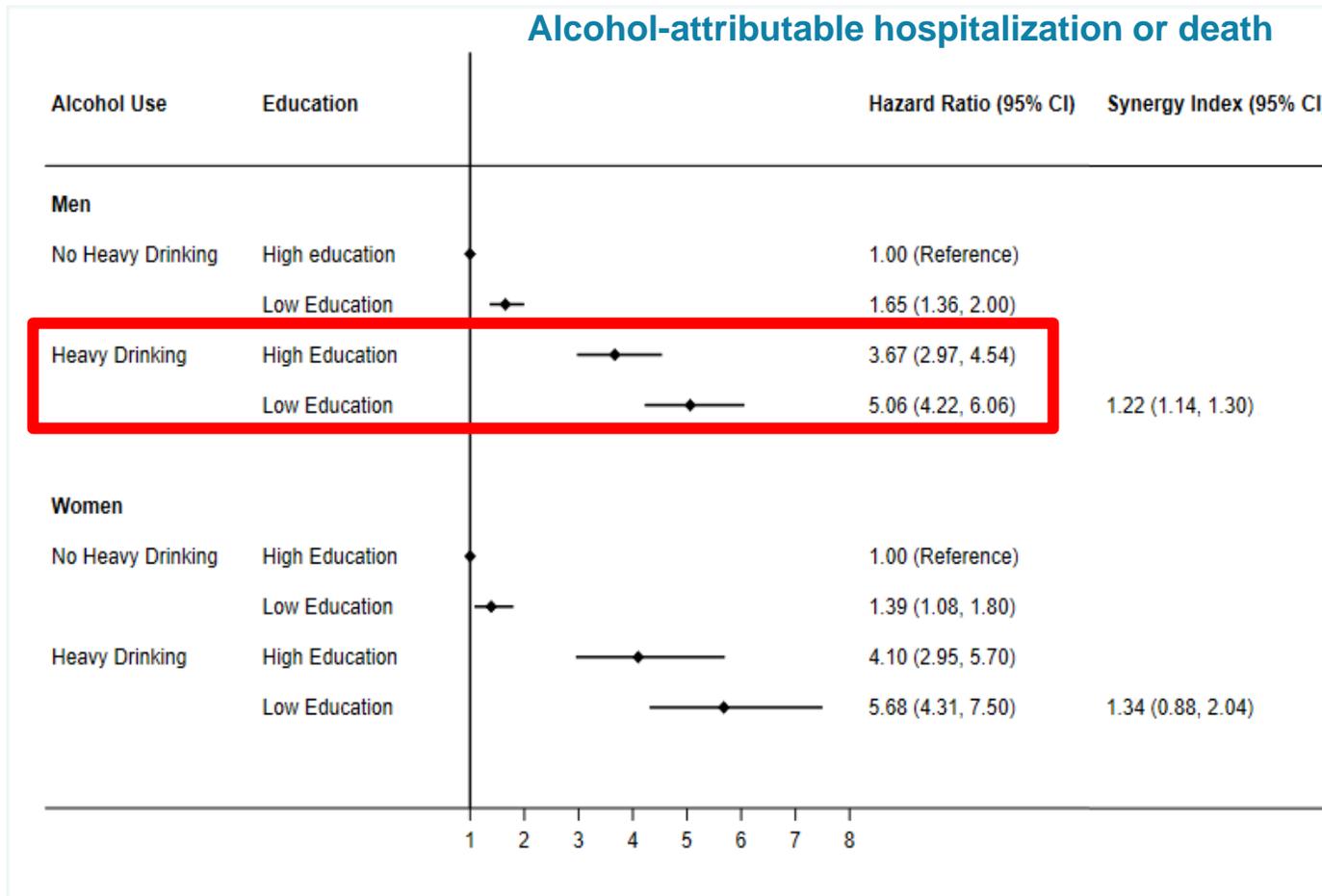
Joint effect of education and heavy drinking



- At each level of heavy drinking:
 - individuals with low education experience greater alcohol-attributable harm
- $S > 1$
- Consistent in men and women

Models adjusted for cycle, age (continuous), age², marital status, immigrant, province, and rurality

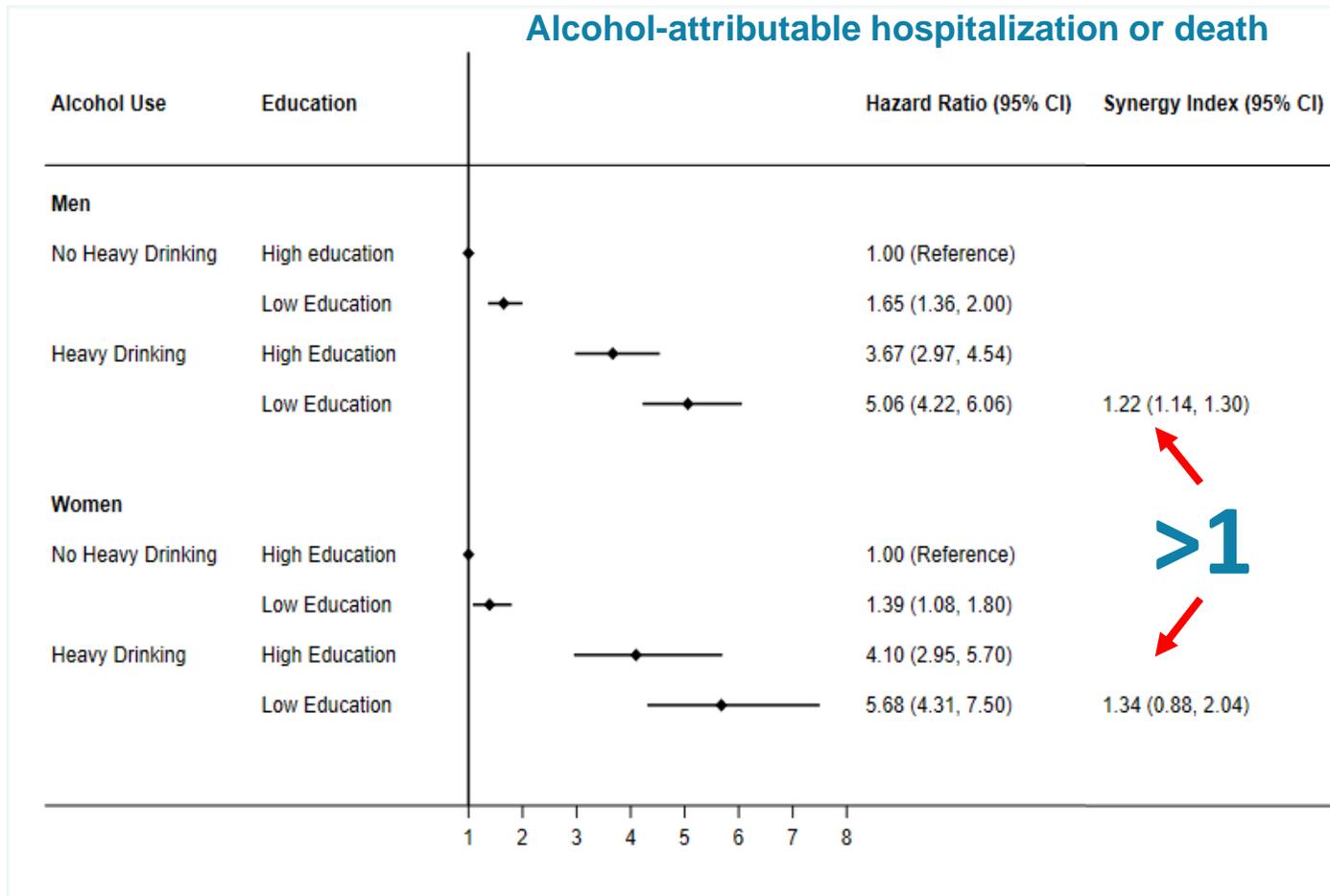
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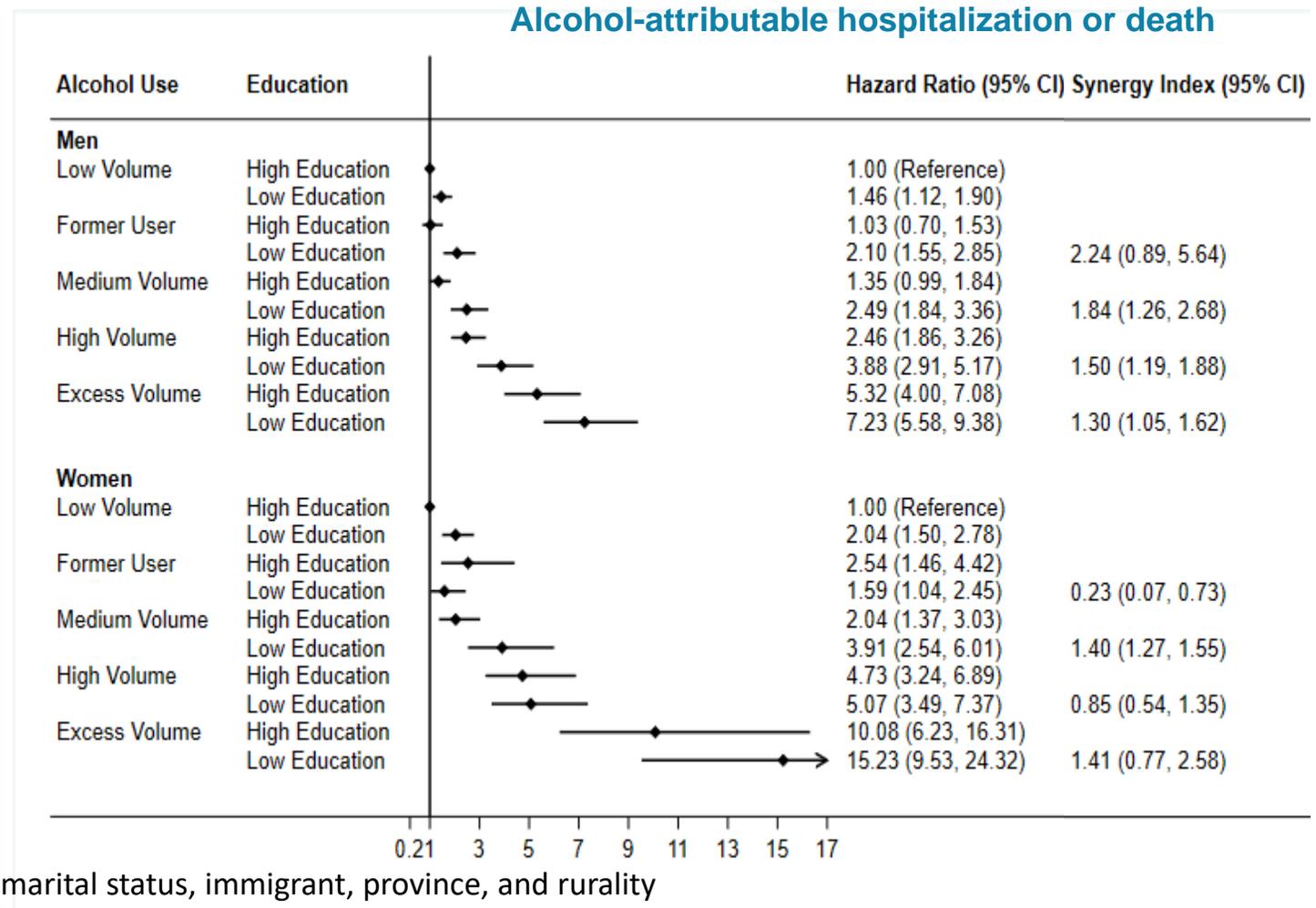
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Models adjusted for cycle, age (continuous), age², marital status, immigrant, province, and rurality

Joint effect of education and volume of alcohol use

Within risk groups:

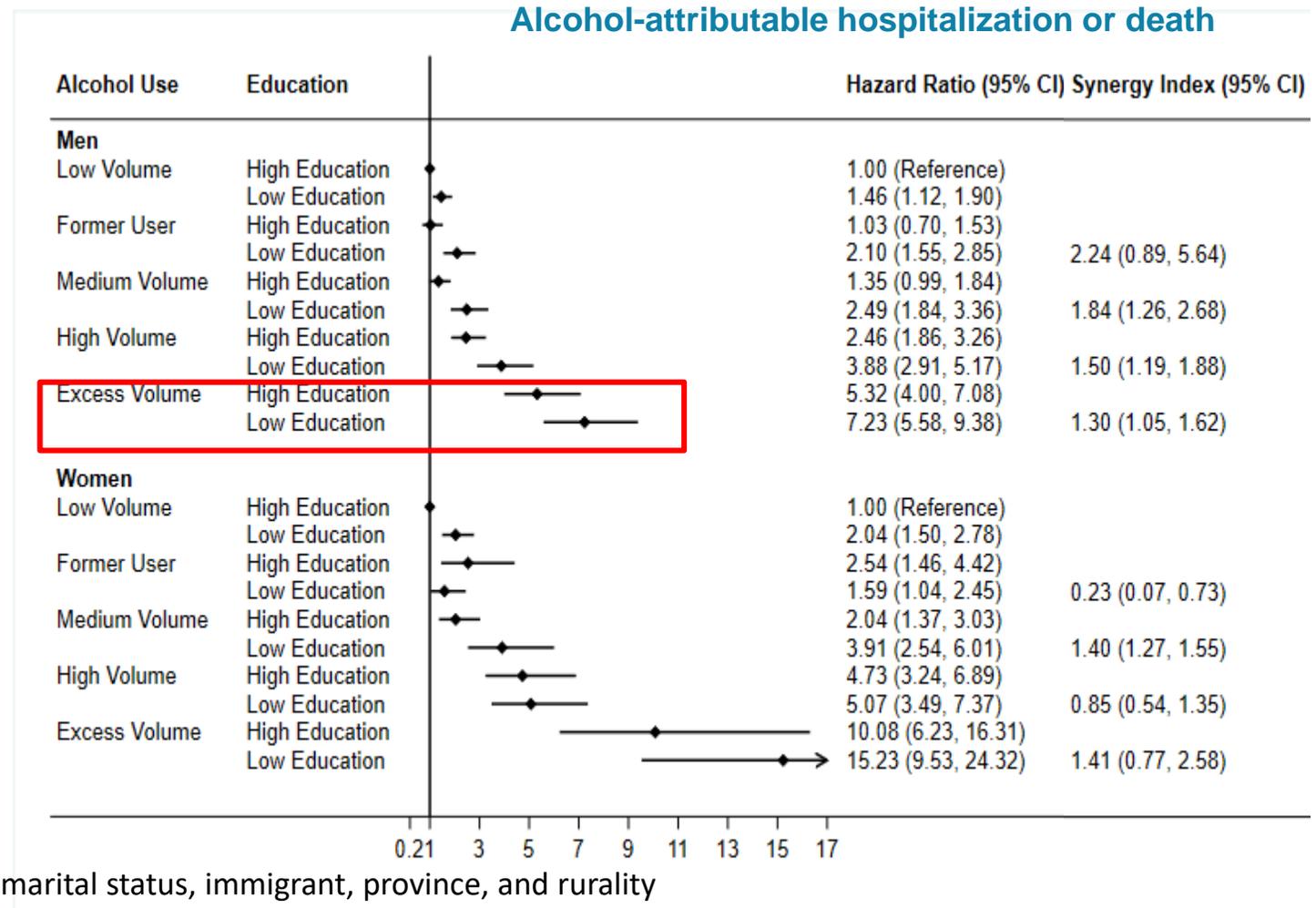
- individuals with low compared to high education experience greater harm
- $S > 1$



Joint effect of education and volume of alcohol use

Within risk groups:

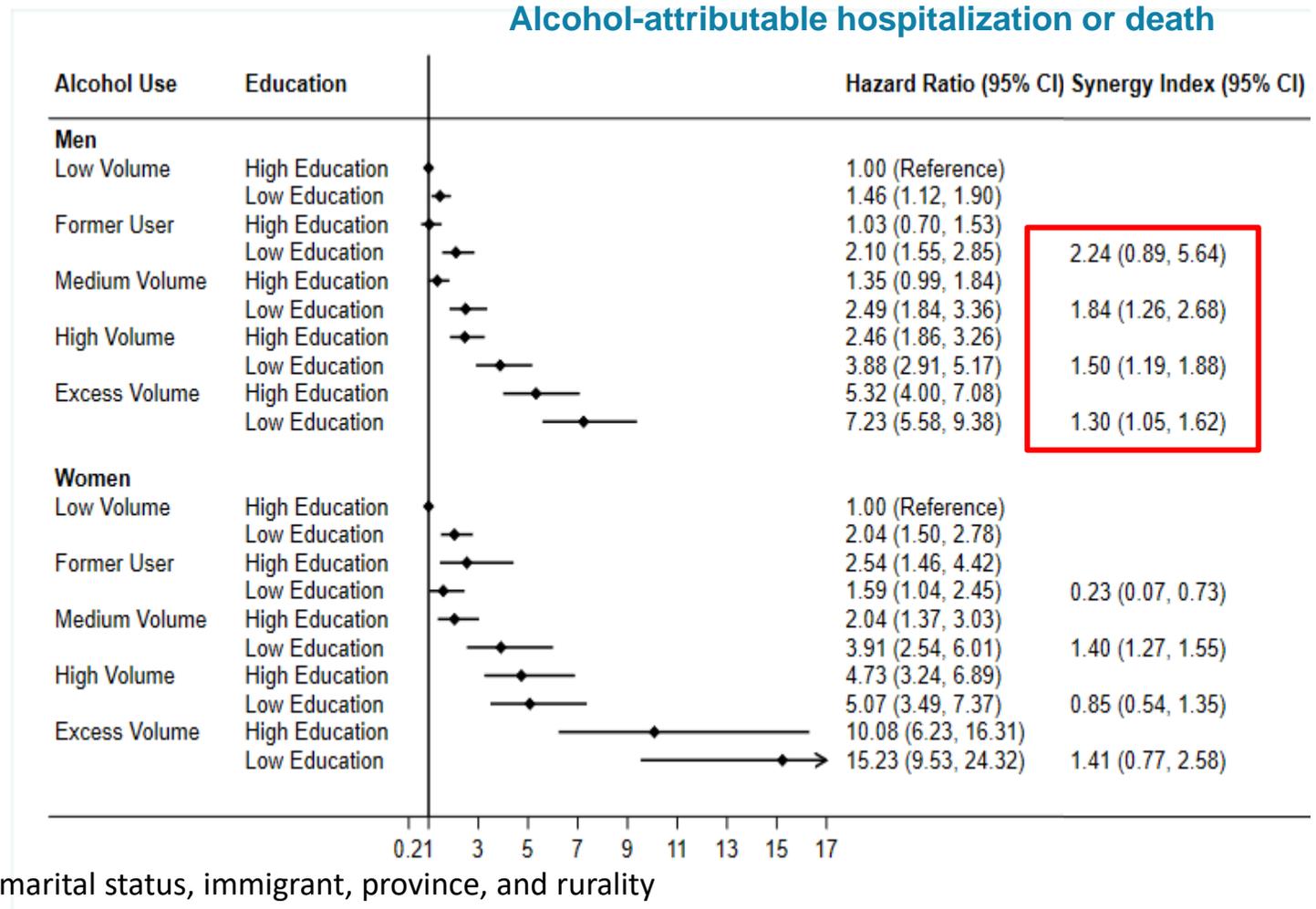
- individuals with low compared to high education experience greater harm
- $S > 1$



Joint effect of education and volume of alcohol use

Within risk groups:

- individuals with low compared to high education experience greater harm
- $S > 1$



Conclusions

In a large population-representative sample:

- ✓ Individuals with low compared with high education experienced increased rates of alcohol-attributable hospitalization or death
 - ✗ **Differential exposure to alcohol:** no evidence of increased heavy drinking or higher volume of alcohol use in individuals with lower education
 - ✓ **Differential vulnerability to alcohol:** joint effect of low education and both heavy drinking and volume of alcohol use on alcohol-attributable hospitalization or death
- Population-level interventions are urgently needed that reduce both the high burden and socioeconomic inequities in alcohol-attributable harm

Limitations

- Nonresponse bias (may be larger among individuals with heavy drinking)
- Selection bias (exclusion of hard-to-reach populations from the CCHS sampling frame who may have higher alcohol use)
- Measurement error
 - self-reported measures that underestimate alcohol use – between 30-60%
 - no evidence this is different by sociodemographic factors
 - alcohol use only measured at one point in time
- True socioeconomic inequities in alcohol harm are likely underestimated
 - partially attributable health harm and non health harm due to alcohol not included

Alcohol policy options for reducing social inequities in alcohol harm

1. **Social determinants of alcohol use and harm**: directly target existing structural inequities whose effects accumulate over the lifecourse to influence risk of alcohol harm

Alcohol policy options for reducing social inequities in alcohol harm

1. Social determinants of alcohol use and harm: directly target existing structural inequities whose effects accumulate over the lifecourse to influence risk of alcohol harm
2. Alcohol policies with differential impact: disproportionately reduce alcohol use in populations experiencing inequities
 - minimum alcohol unit pricing introduced in Scotland in 2018 reduced alcohol sales overall, with greater reductions in lower-income households

Policy options for reducing social inequities in alcohol harm

- 1. Social determinants of alcohol use and harm:** directly target existing structural inequities whose effects accumulate over the lifecourse to influence risk of alcohol harm
- 2. Alcohol policies with differential impact:** disproportionately reduce alcohol use in populations experiencing inequities
 - minimum alcohol unit pricing introduced in Scotland in 2018 reduced alcohol sales overall, with greater reductions in lower-income households
- 3. Population-level alcohol policies:** effective in reducing population per capita alcohol use
 - e.g., controlling alcohol availability, price, and advertising

Thank you!

The Joint Effect of Education and Alcohol Use on 100% Alcohol-attributable Hospitalization or Death in Canada

 Smith, Brendan T.^{a,b}; Warren, Christine M.^a; Andreacchi, Alessandra T.^{a,b}; Schwartz, Naomi^a;  Hobin, Erin^{a,b}

Epidemiology 35(1):p 64-73, January 2024. | DOI: 10.1097/EDE.0000000000001674

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2. Probst C, Kilian C, Sanchez S, Lange S, Rehm J. The role of alcohol use and drinking patterns in socioeconomic inequalities in mortality: a systematic review. *The Lancet Public Health*. 2020 Jun 1;5(6):e324–32. Available from: [https://doi.org/10.1016/S2468-2667\(20\)30052-9](https://doi.org/10.1016/S2468-2667(20)30052-9)
3. Whitehead M, Burström B, Diderichsen F. Social policies and the pathways to inequalities in health: a comparative analysis of lone mothers in Britain and Sweden. *Social Science & Medicine*. 2000 Jan;50(2):255–70. Available from: [https://doi.org/10.1016/S0277-9536\(99\)00280-4](https://doi.org/10.1016/S0277-9536(99)00280-4)
4. Boyd J, Sexton O, Angus C, Meier P, Purshouse RC, Holmes J. Causal mechanisms proposed for the alcohol harm paradox—a systematic review. *Addiction*. 2022 Jan;117(1):33–56. Available from: <https://doi.org/10.1111/add.15567>
5. Smith BT, Warren CM, Andreacchi AT, Schwartz N, Hobin E. The Joint Effect of Education and Alcohol Use on 100% Alcohol-attributable Hospitalization or Death in Canada. *Epidemiology*. 2024 Jan;35(1):64–73. Available from: <https://doi.org/10.1097/EDE.0000000000001674>

Investigating income inequality and deaths of despair

Claire Benny, PhD

Postdoctoral Fellow, Public Health Ontario

February 7, 2024

CAPE CoP

Preface

- The papers described in this work have been published and are available online or via request from claire.benny@oahpp.ca
 - DOI: [10.1136/jech-2022-219630](https://doi.org/10.1136/jech-2022-219630)
 - DOI: [10.1136/jech-2023-220900](https://doi.org/10.1136/jech-2023-220900)
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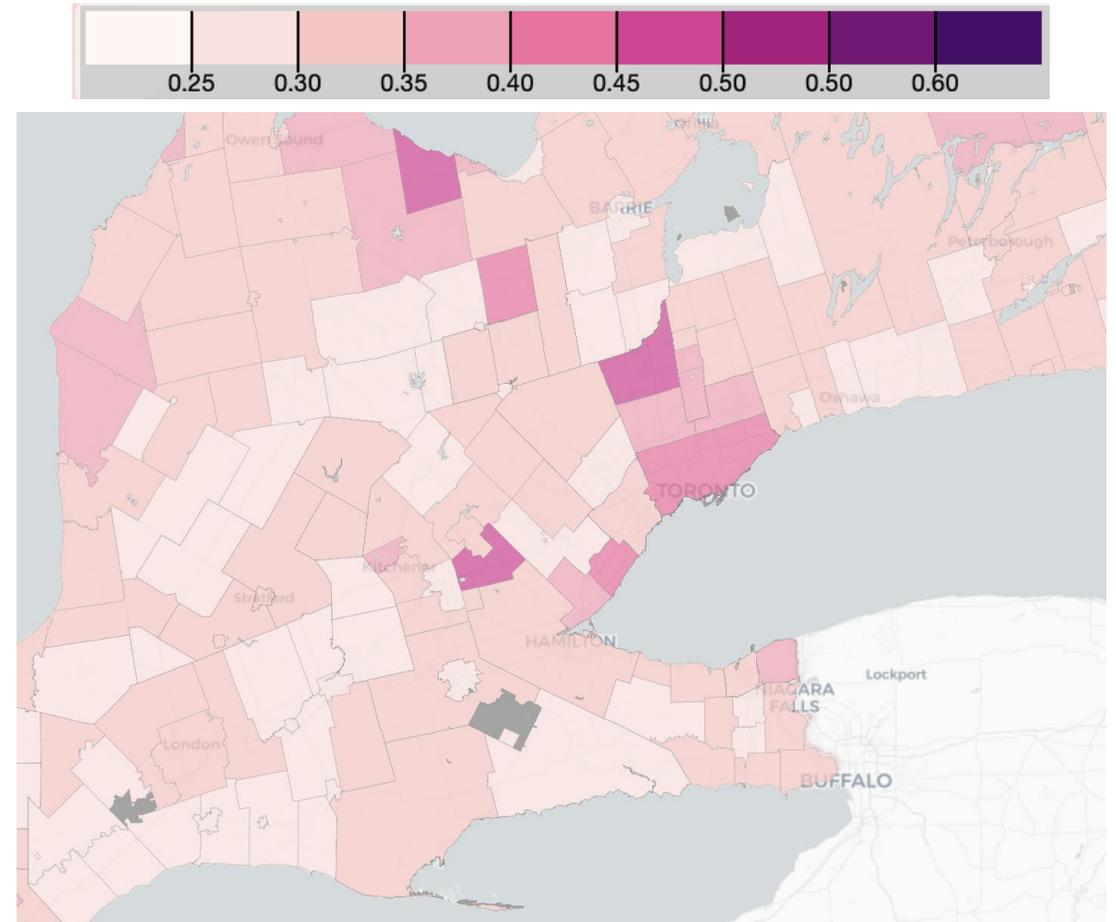
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Income inequality

Gap between highest and lowest earners in an area

Typically measured as Gini coefficient on a scale from 0-1

The greater the difference between higher and lower earners, the greater the Gini coefficient



Available from: <https://censusmapper.ca/maps/> (Accessed on January 19, 2024)



**Would you rather
live in a world
where:**

- 1) Your income is \$50,000 and everyone else earns \$25,000, or
- 2) Your income is \$100,000 and everyone else earns \$250,000

How does income inequality affect our health

3 main mechanisms:

- Social comparisons
- Erosion of social cohesion
- Disinvestment in social capital



Source [PMCID: PMC1088996](#)

Deaths of despair

Refers to deaths attributable to drug overdose, alcohol-related liver disease, suicide

Most research has been concentrated in the United States

- None in Canadian context

Deaths of despair are large drivers of reductions in life expectancy with high economic costs

- Even higher social costs for communities and individuals

Deaths due to substance use increasing by over 150% over the past two decades

- Suicide deaths increased by 40% over the same period

Income inequality and deaths of despair

If we know that income inequality affects mental health, could the same be said for deaths of despair?

- Income inequality is risk factor of
 - Substance use
 - Adverse mental health
 - Other social factors
- Risk factors for deaths of despair:
 - Substance use
 - Adverse mental health
 - Other social factors



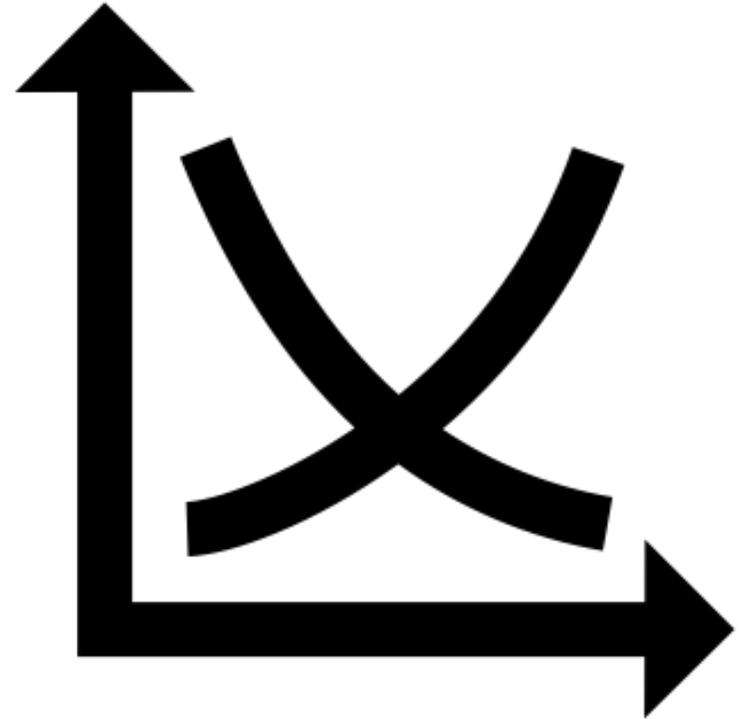
Income inequality and deaths of despair cont'd

Consider those three main mechanisms:

- Social comparisons
- Erosion of social cohesion
- Disinvestment in social capital

Main objective

- To investigate the association between income inequality among youth and time-to deaths of despair in Canada from 2006 to 2019.



Why in youth?

- Mental health conditions are typically onset in adolescence and young adulthood
- Initiation of drug use and drinking
- Suicide is a leading cause of death in youth
- Second most common group for experiencing drug overdose deaths

Methods

- Used Census data and death records from 2006 to 2019
 - Representative of the Canadian population under 20 years of age in 2006
- Income inequality measured using “Gini coefficient” (scores between 0 and 1)
- Outcomes included
 - Overall deaths of despair
 - Drug overdose
 - Suicide
 - *Alcohol-related liver disease
 - All-cause death

Methods cont'd

- Frequencies, proportions, and standard errors for sample characteristics
- Multi-level survival analysis for each outcome
 - Stratified analyses for gender



Results

	Weighted n	%
Individual-level characteristics		
Gender		
Female	3 759 170*	48.67
Male	3 964 135	51.32
Immigrant status		
Non-immigrant	7 105 150	92.00
Immigrant	618 160	8.00
Income quintiles		
Low	1 383 850	17.92
Low-moderate	1 530 355	19.82
Moderate	1 581 850	20.48
Moderate-high	1 606 575	20.80
High	1 620 680	20.98
Visible minority status		
Non-visible minority	5 788 625	74.95
Visible minority	1 934 685	25.05
	Weighted mean	SE
Age	10.05	0.03
CD-level characteristics		
After-tax Gini coefficient	0.38	0.01
% lone-parent households	0.16	0.01
% households with at least high school completed	0.4	0.01
Mean after-tax household income	58 434.19	1575.78



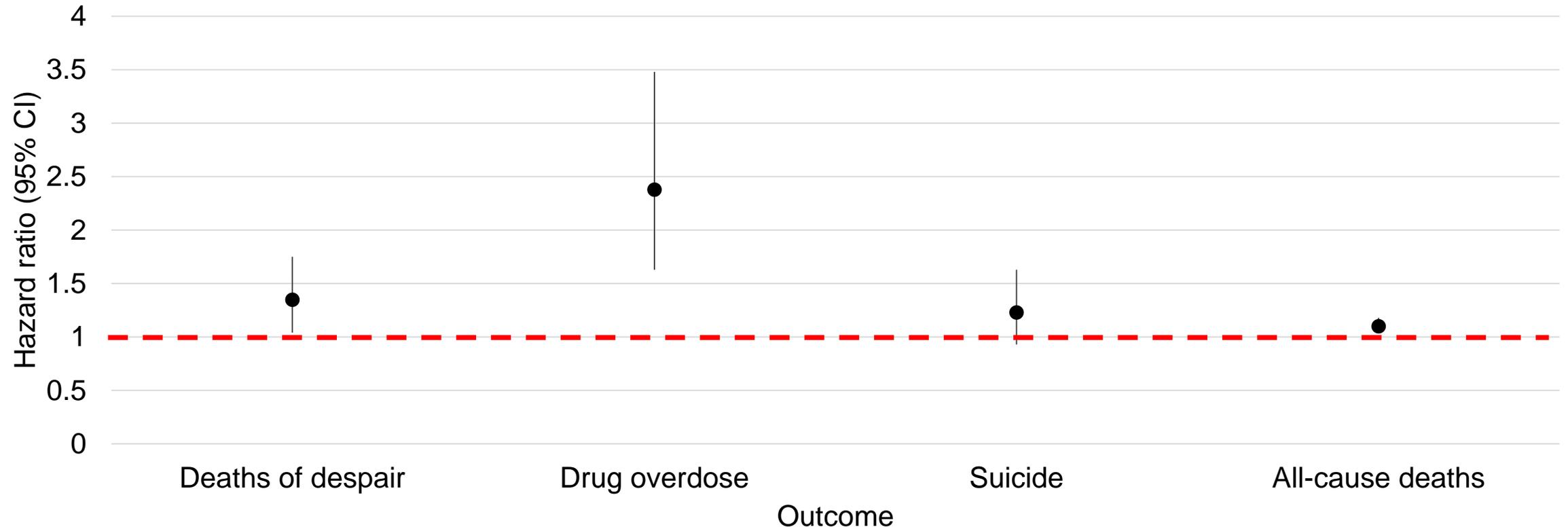
Results

A SD-unit increase in Gini coefficient was associated with an increase in the hazard ratio for:

- deaths of despair (aHR*: 1.35; 95% CI: 1.04 1.75)
- drug overdose (aHR: 2.38; 95% CI: 1.63, 3.48)
- all-cause deaths (aHR: 1.10; 95% CI: 1.04, 1.18)

*Adjusting for age, sex, ethnicity, household income, immigrant status, and area-level factors

Results cont'd

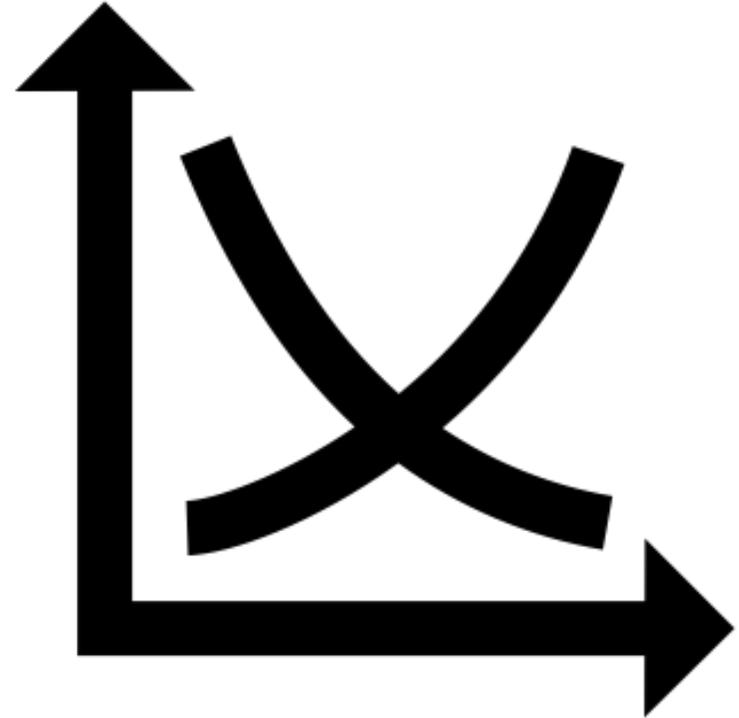


* For every one standard deviation unit increase in Gini coefficient there is an B% increase in x outcome.

- Income inequality and 'hospitalisations of despair' in Canada: a study on longitudinal, population-based data
 - If income inequality is associated with the “worst” possible outcome
 - What about more proximal outcomes?

Second objective

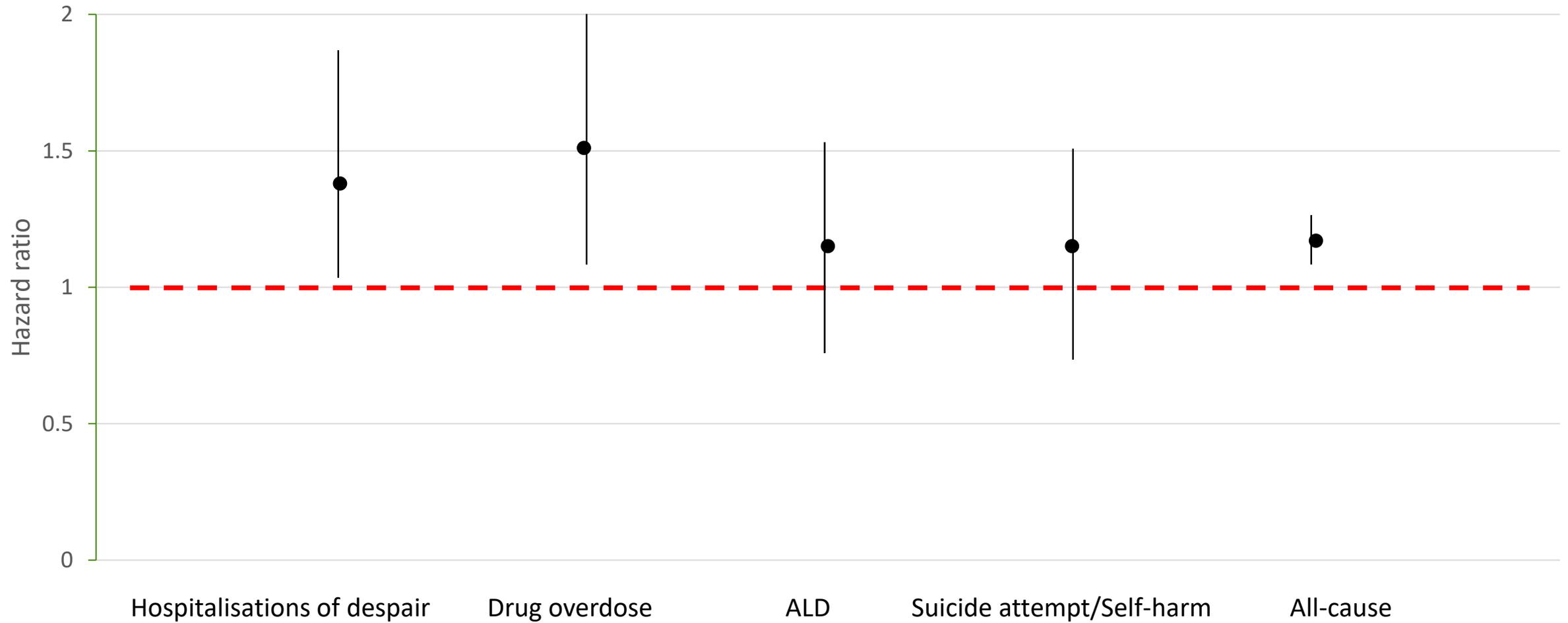
- To investigate the association between income inequality and 'hospitalizations of despair' in Canadians from 2006 to 2019



Individual-level variables		n	%
Sex	Male	13 184 420	47.5
	Female	14 568 800	52.5
Ethnic	White	22 452 180	80.9
	Non-white	5 301 040	19.1
Income	Low	6 624 440	23.9
	Low moderate	7 280 620	26.2
	Moderate high	6 880 690	24.8
	High	6 967 470	25.1
Immigrant status	Immigrant	5 738 620	20.7
	Not an immigrant	21 995 980	79.3
Education	High school not completed	3 631 170	13.1
	High school completed	4 584 840	16.6
	Some postsecondary	2 500 000	9.0
	Postsecondary completed	16 986 340	61.3
		Mean	SD
Age	In years	42.74	13.38
Census division-level variables			
% educated		0.40	0.07
% visible minority households		0.16	0.17
% recent immigrant households		0.16	0.07
Median after-tax household income		\$C47 998.74	\$C8679.68
CD, census division.			



Results cont'd



Discussion

- Overall, what we've seen is that higher income inequality is associated with increased risk of:
 - Deaths of despair overall
 - Drug overdose deaths
 - Hospitalizations of despair overall
 - Hospitalizations owing to drug overdose
 - All-cause mortality and hospitalizations

Discussion cont'd

- Term implies direct etiology between despair and death
 - Counter to more up-to-date evidence
 - drug overdoses more commonly caused by drug contamination with synthetic opioids, loss of tolerance, etc.
- Why just overdose?

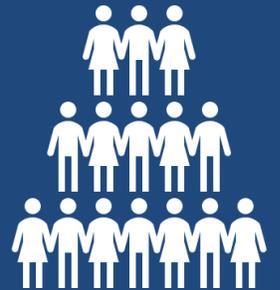
Public Health Implications

Inform discussions regarding:

Income inequality (policies re: minimum wage increase, cash transfers)

Mental health in higher income inequality areas

Drug prevention and harm reduction





Would you rather
live in a world
where:

**1) Your income is
\$50,000 and everyone
else earns \$25,000, or**

2) Your income is
\$100,000 and everyone
else earns \$250,000



Review the international evidence: Does alcohol control policy reduce alcohol use equally across population subgroups?

Dr. Carolin Kilian

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Reducing alcohol use through alcohol control policies in the general population and population subgroups: a systematic review and meta-analysis

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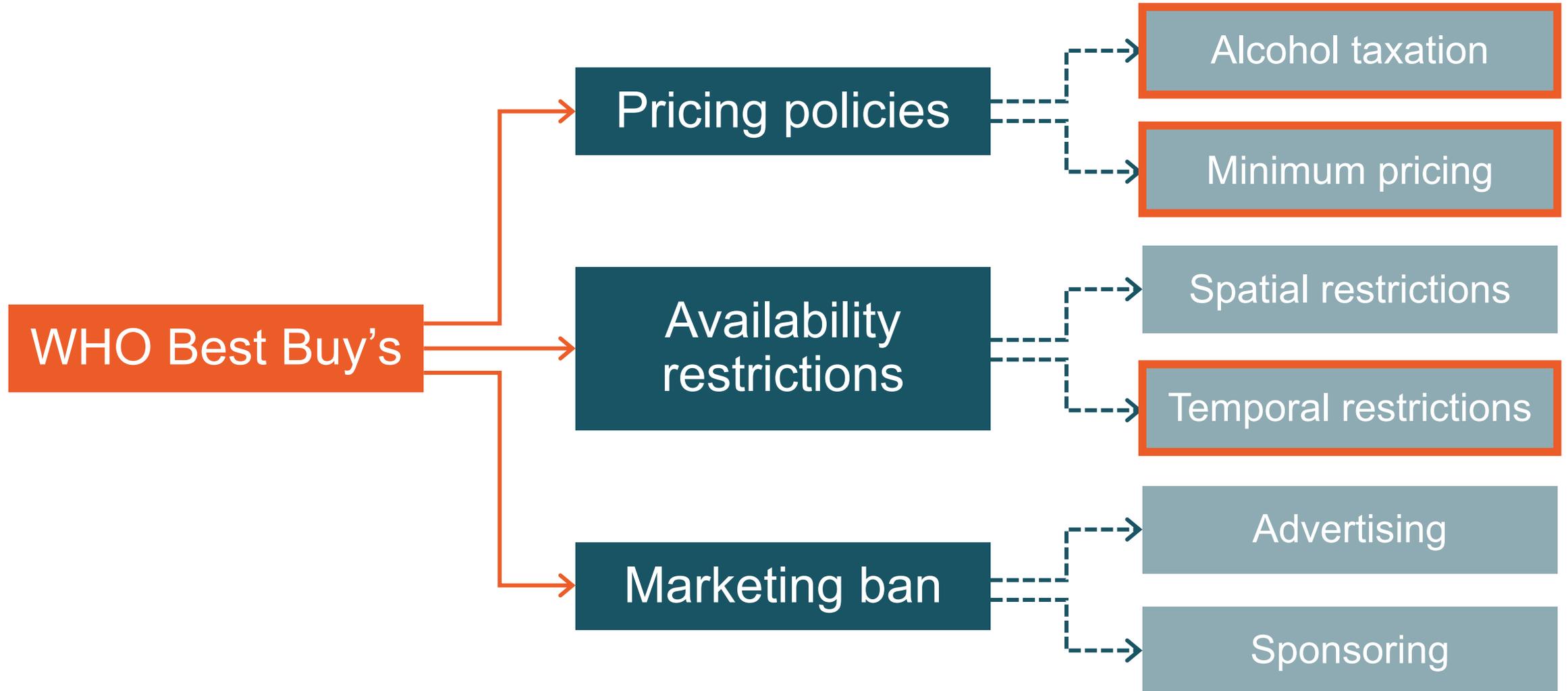


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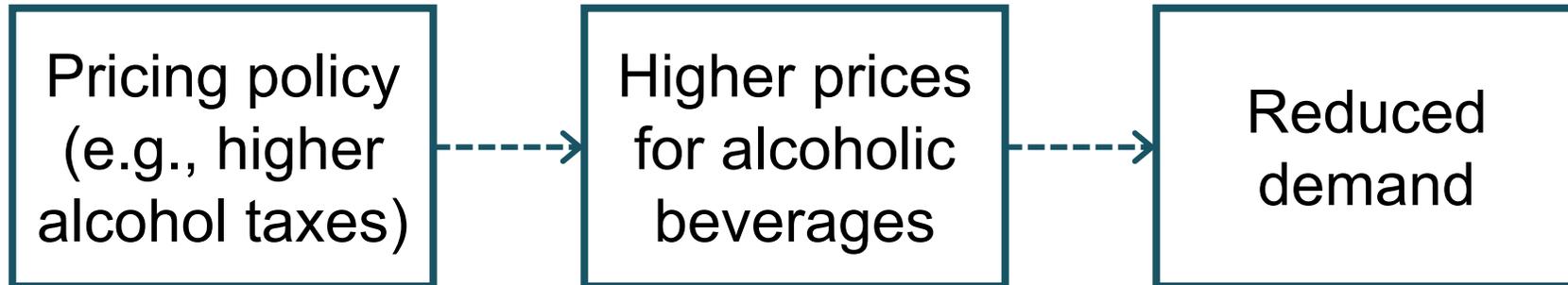
What are alcohol control policies?



① Pricing policies



Pricing policies: mechanism

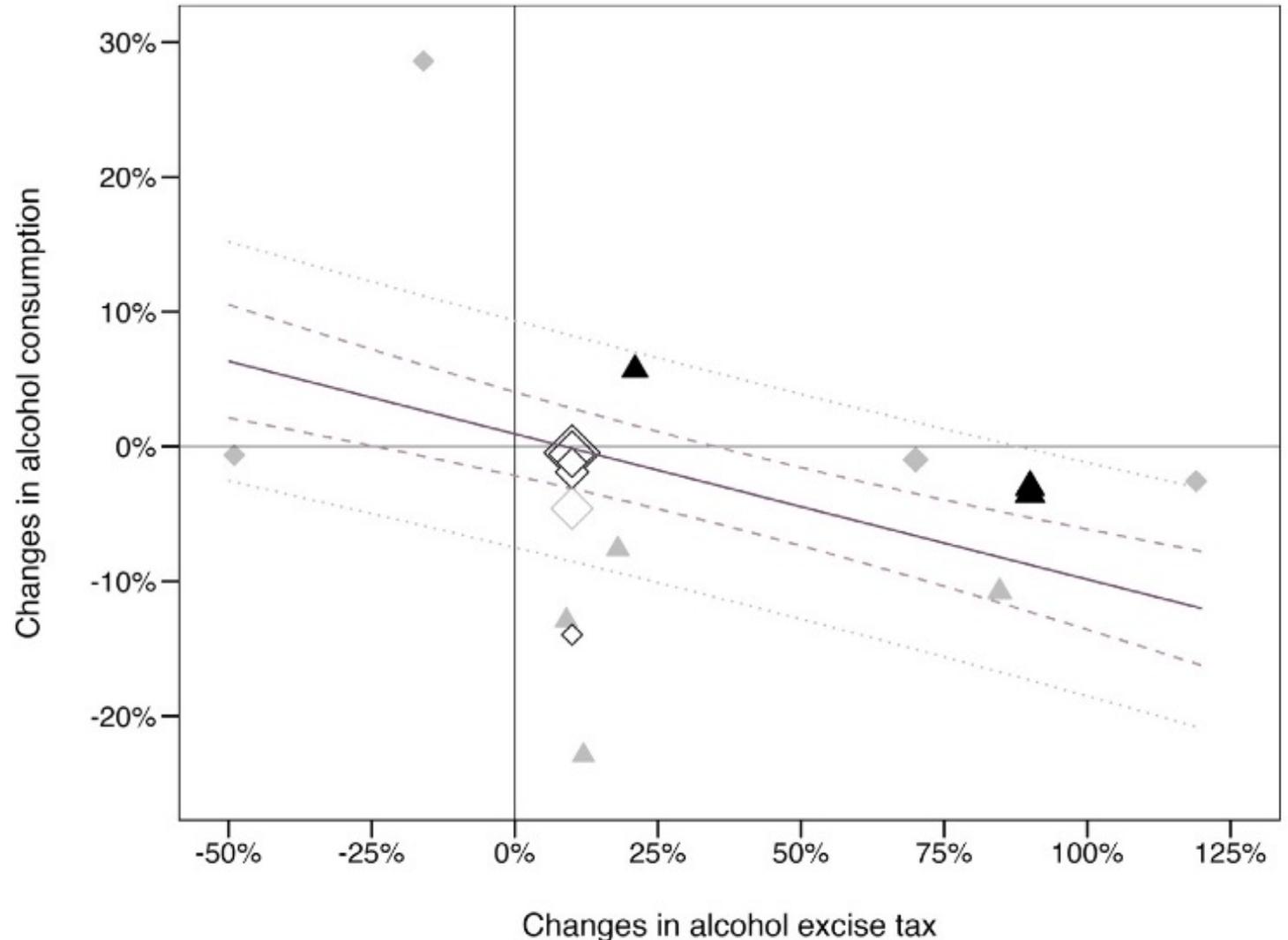




Pricing policies: alcohol taxation

- $n = 10$ studies
- Direct effect of alcohol excise taxes on alcohol consumption
- Study design had to allow for causal interpretation

~10% reduction in alcohol consumption levels with 100% tax increase



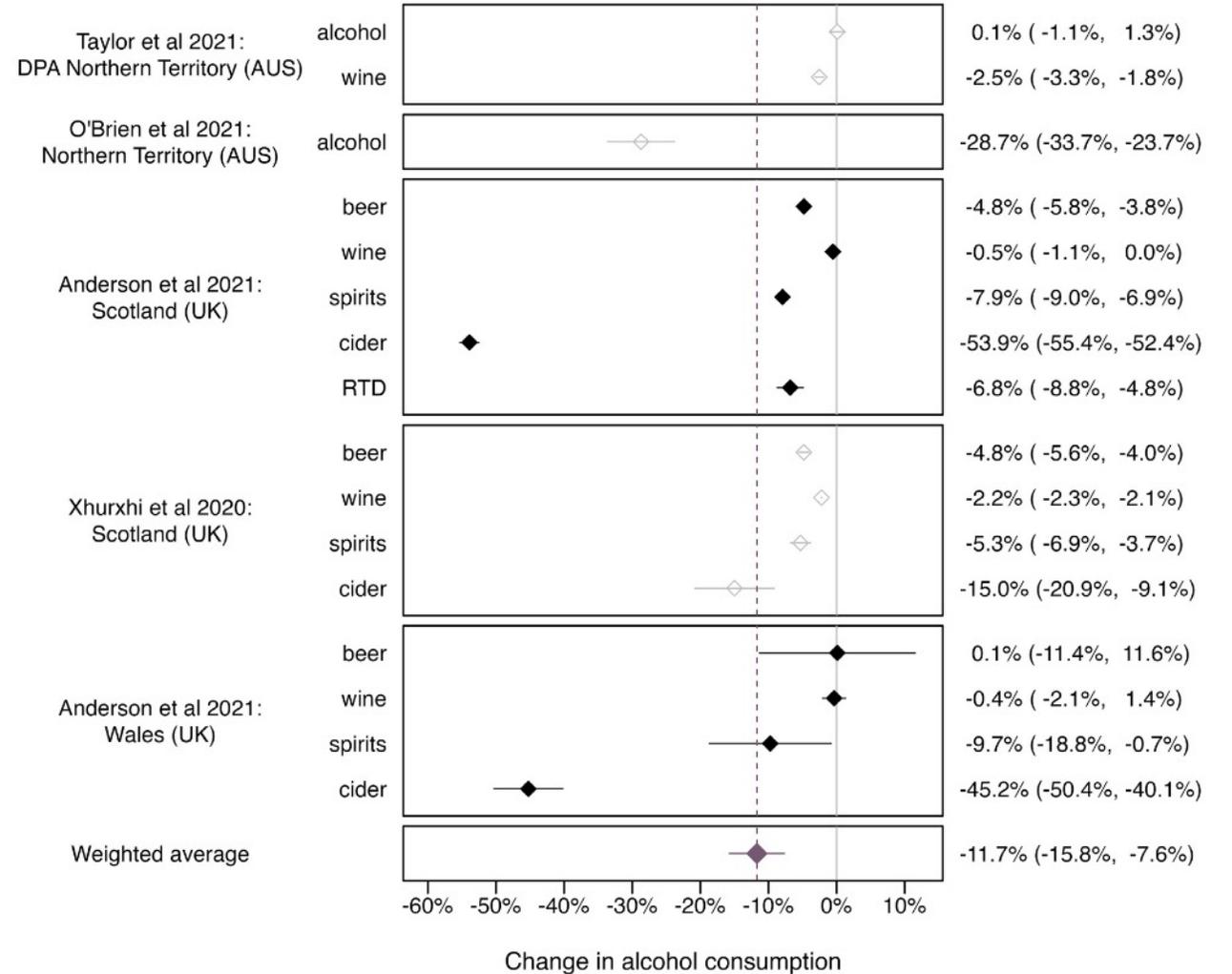


Pricing policies: minimum (unit) pricing

= Introducing a floor price on alcohol (MP) or a unit of alcohol (MUP)

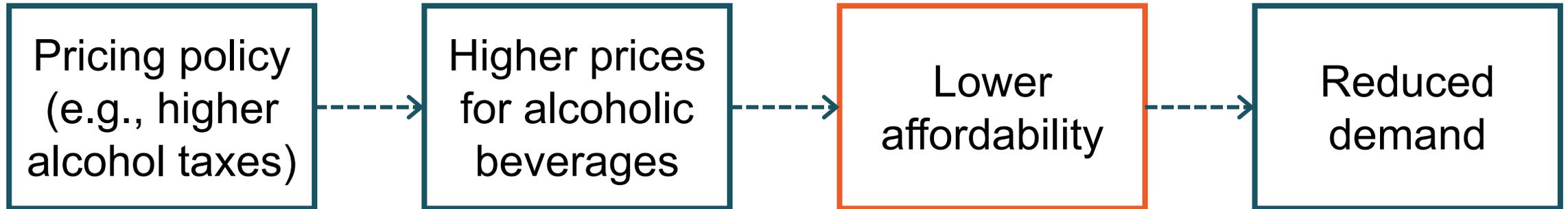
- $n = 4$ studies
- MUPs between Int\$ 0.88 (UK) – 0.91 (AUS) per 10g pure alcohol

~12% reduction in alcohol consumption levels with introduction of MUP





Pricing policies: role of income



$$= \frac{\textit{disposable income}}{\textit{price of alcoholic beverage}}$$



Pricing policies: MUP in Scotland

- MUP introduced on 1 May 2018 (£ 0.50 per 8g pure alcohol)

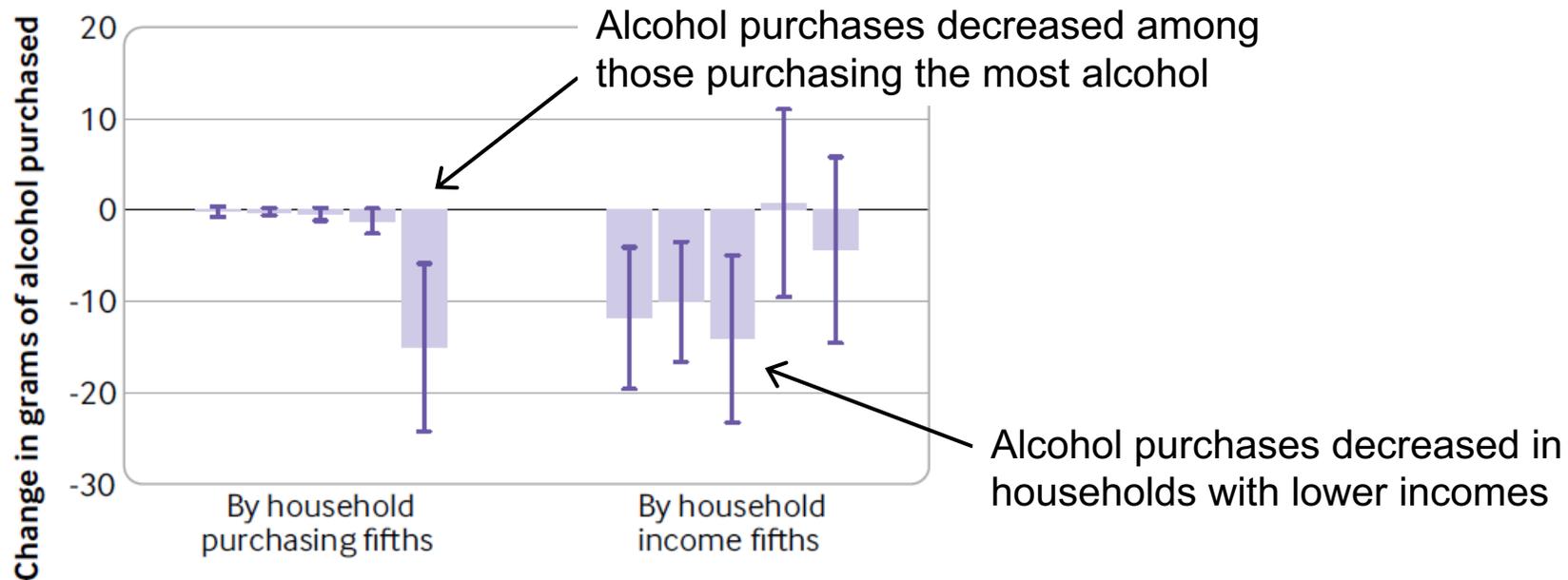


Fig 4 | Coefficients for changes in grams of alcohol purchased per adult per household, aggregated by week (main analysis, Scotland minus England), by purchasing fifths (lowest to highest from left to right) and income fifths (lowest to highest from left to right). Whiskers=95% confidence intervals



Pricing policies: MUP in Scotland

- Deaths and hospitalisations specific to alcohol (e.g., alcohol use disorders, liver cirrhosis) fell in neighbourhoods with highest level of deprivation

	Deaths wholly attributable to alcohol consumption	Hospitalisations wholly attributable to alcohol consumption
Sex		
Males	-14.8% (-18.7 to -10.7)	-6.2% (-10.0 to -2.3)
Females	-12.0% (-20.5 to -2.6)	3.1% (-2.8 to 9.3)
Age group		
16-34 years	Not estimated	3.0% (-6.2 to 13.3)
35-64 years	-10.0% (-14.7 to -5.0)	-4.8% (-9.4 to 0.2)
≥65 years	-26.7% (-35.6 to -16.5)	-2.8% (-9.2 to 3.9)
Deprivation decile		
1 (Most deprived)	-21.6% (-31.8 to -10.0)	-6.8% (-11.9 to -1.3)
2	-17.5% (-27.5 to -5.9)	-4.5% (-10.8 to 2.3)
3	-33.6% (-43.4 to -22.1)	-6.3% (-11.3 to -1.0)
4	-19.3% (-29.4 to -7.7)	-6.9% (-11.4 to -2.3)
5	-9.7% (-27.2 to 12.2)	11.9% (-0.5 to 25.7)
6	-6.3% (-28.7 to 23.1)	-0.7% (-9.8 to 9.2)
7	-2.8% (-23.2 to 23.2)	0.7% (-7.6 to 9.7)
8	-9.2% (-28.3 to 14.8)	-1.2% (-8.1 to 6.4)
9	-2.9% (-23.5 to 23.2)	0.3% (-8.3 to 9.7)
10 (Least deprived)	-8.2% (-22.1 to 8.1)	-2.0% (-16.8 to 15.5)

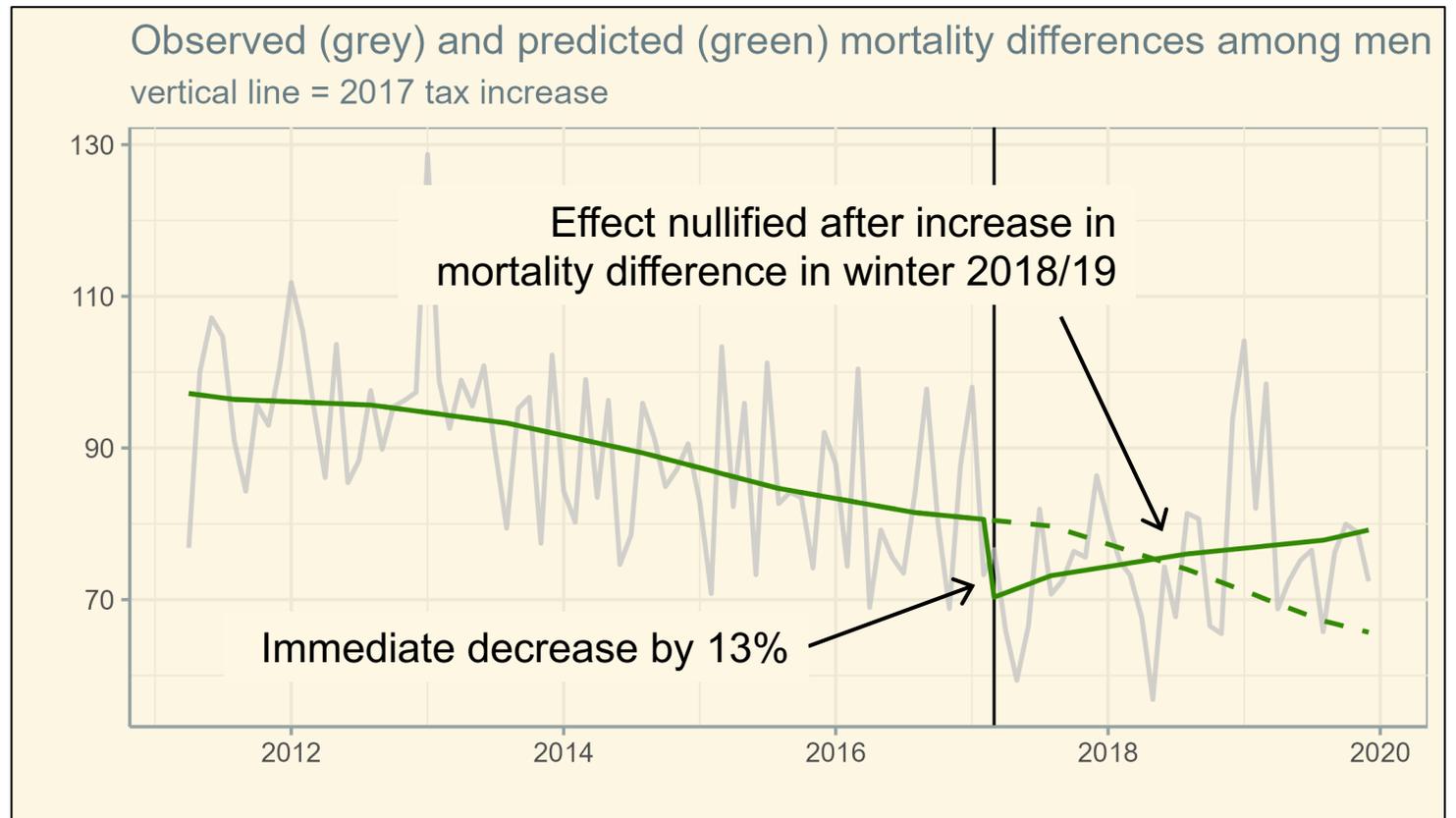
Data are effect estimates, % (95% CI).

Table 2: Change in outcomes from controlled models associated with the implementation of alcohol minimum unit pricing legislation, by subgroup



Pricing policies: tax increase in Lithuania

- Alcohol excise taxes were increased in 2017: 110% for beer and wine and 23% for spirits
- Outcome: absolute difference in all-cause mortality in lower versus higher education groups (i.e., measure of inequality)
- No effect on mortality inequality among women



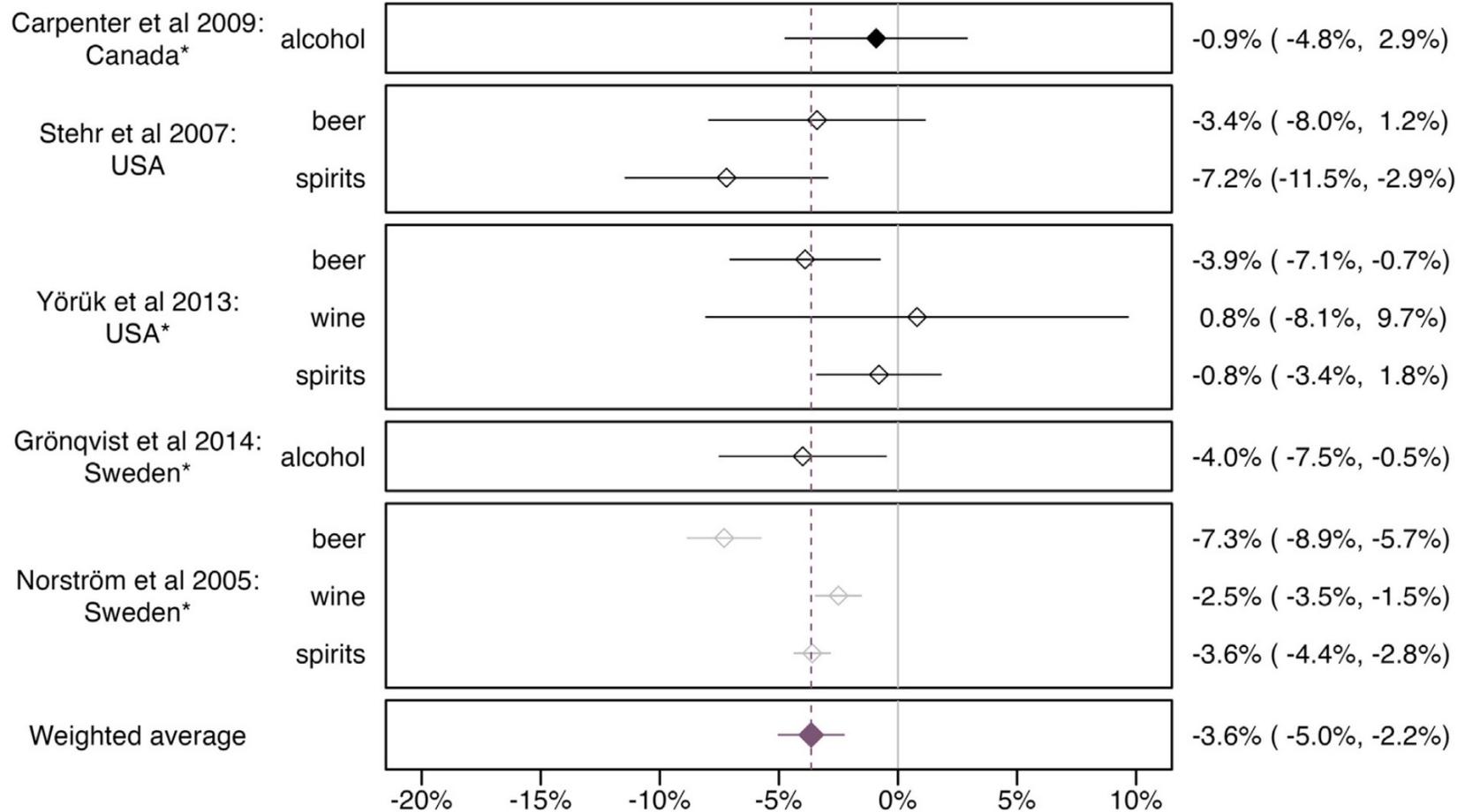
② Availability restrictions



Availability restrictions

- $n = 5$ studies
- Off-premises alcohol sales banned on either Saturday or Sunday
- Asterisk indicates reversed effects

~3.6% reduction in alcohol consumption levels with sales ban on one additional day



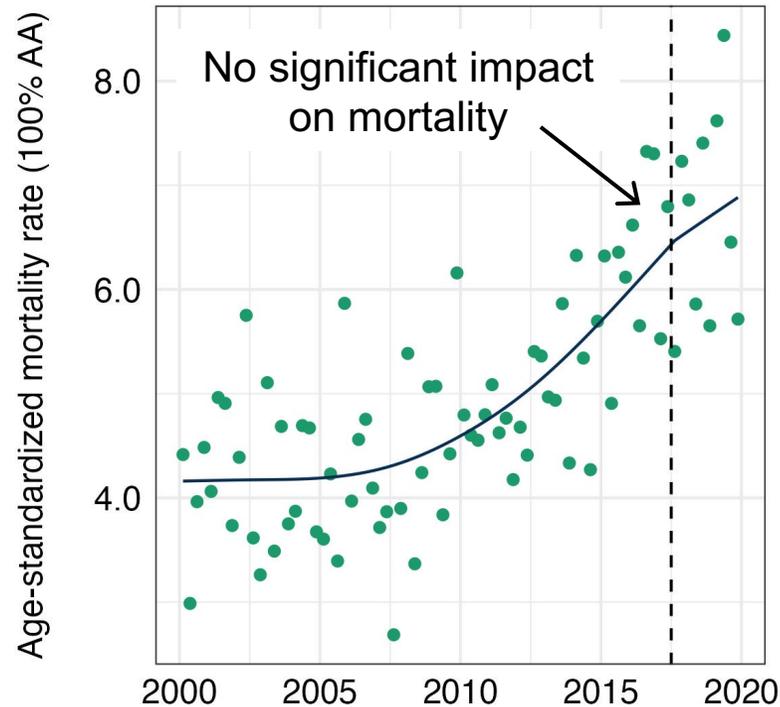
Change in alcohol consumption



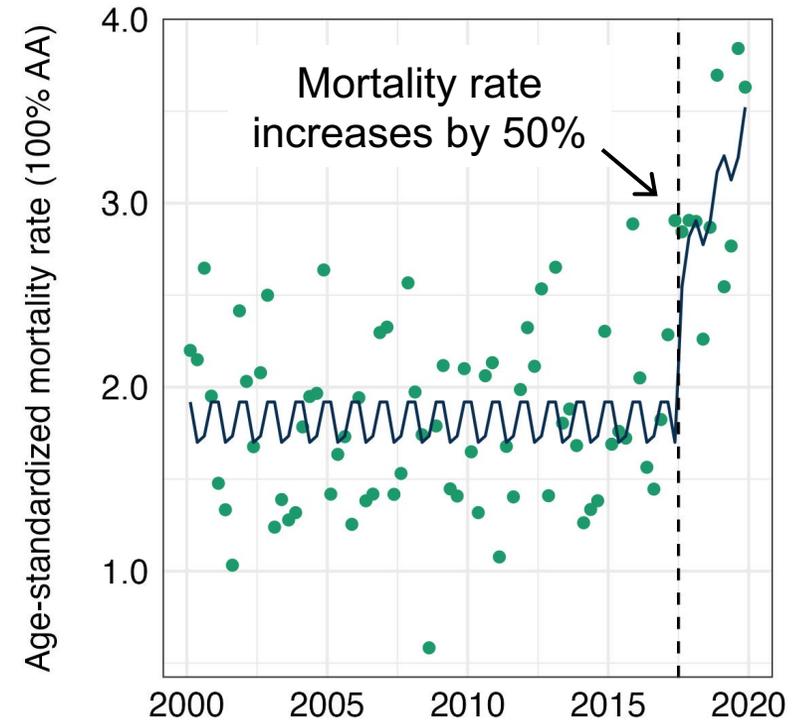
Availability restrictions

- Sunday alcohol sales ban repealed in Minnesota (US) in 2017
- Level of education
- Mortality increases are most prominent for men and women in high education groups
- Less pronounced or insignificant change in low and medium education groups

Men with low education



Men with high education



SUMMARY

- Alcohol control policies can impact alcohol use differently across socioeconomic groups
- This differential effectiveness can contribute to lowering health inequalities associated with alcohol use (or to widening it)

But let's keep in mind

- Alcohol control policies cannot contribute to lower inequalities that arise from poor healthcare access, exposure to other risk factors etc.

The SIMAH project



National Institutes
of Health

SIMulation of **A**lcohol Control Policies for **H**ealth Equity

- 5 years (August 2020 to July 2025)
- Funded by the National Institute on Alcohol Abuse and Alcoholism



The
University
Of
Sheffield.



Probst C, Buckley C, Lasserre AM, Kerr WC, Mulia N, Puka K, Purshouse RC, Ye Y, Rehm J. Simulation of Alcohol Control Policies for Health Equity (SIMAH): Study Design and First Results. *American Journal of Epidemiology*. Online first.

Questions?



CAPE COMMUNITY OF PRACTICE

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Thank you for attending this CAPE Community of Practice Event!

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