



Lifepath

HEALTHY AGEING FOR ALL



Discussion on Stringhini & Chadeau-Hyam – mechanisms in LIFEPATH

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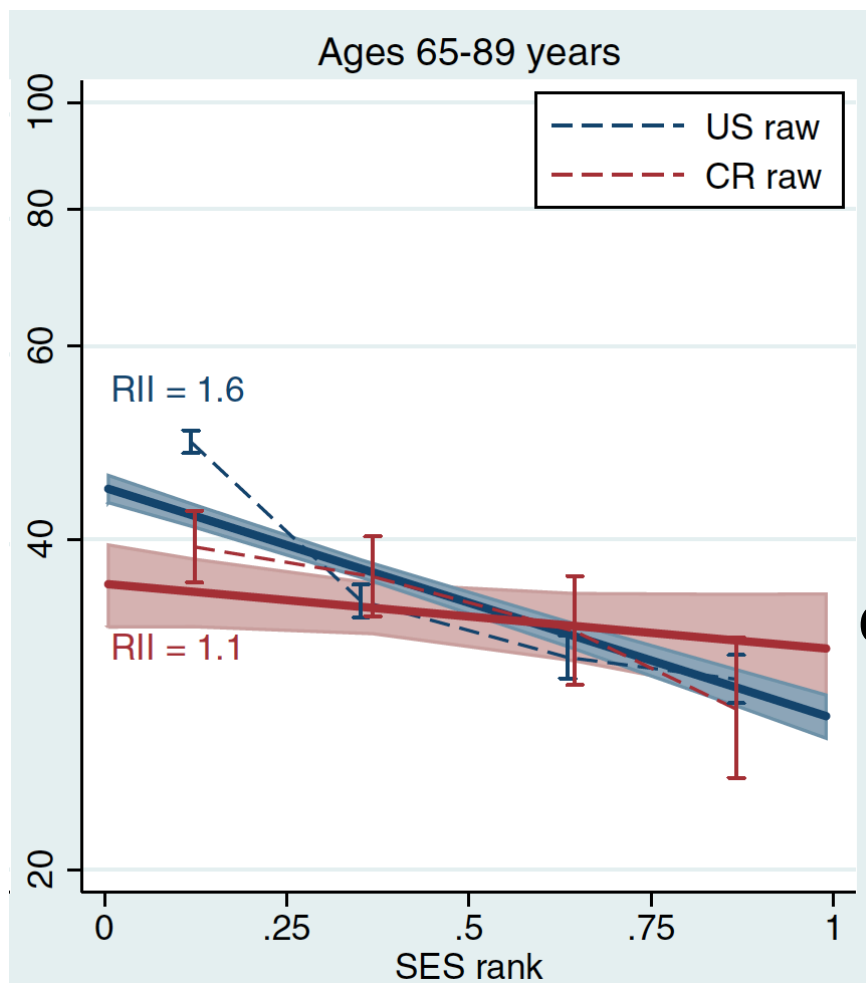
Key lessons (Silvia): Inequalities in mortality and functioning



- **Pooling cohorts** not harmonised ex-ante is possible: socioeconomic inequalities in health everywhere
 - Can we understand better **heterogeneity**, across countries and time? replicability vs understanding ‘stage’ of ‘inequalities transition’
- **Theory model of ‘inequalities transition’**: Explain differences across countries in staging of health inequalities, e.g., [Costa Rica](#)
- SEP affects both biology and function
 - What are the dynamics of these relationships? E.g., early childhood disadvantage, BMI, adult SEP
- SEP has independent association with health
 - Residual confounding, ‘statistical controlling’ enough?

Exploring why Costa Rica outperforms the United States in life expectancy: A tale of two inequality gradients

Luis Rosero-Bixby^{a,1} and William H. Dow^{a,b}

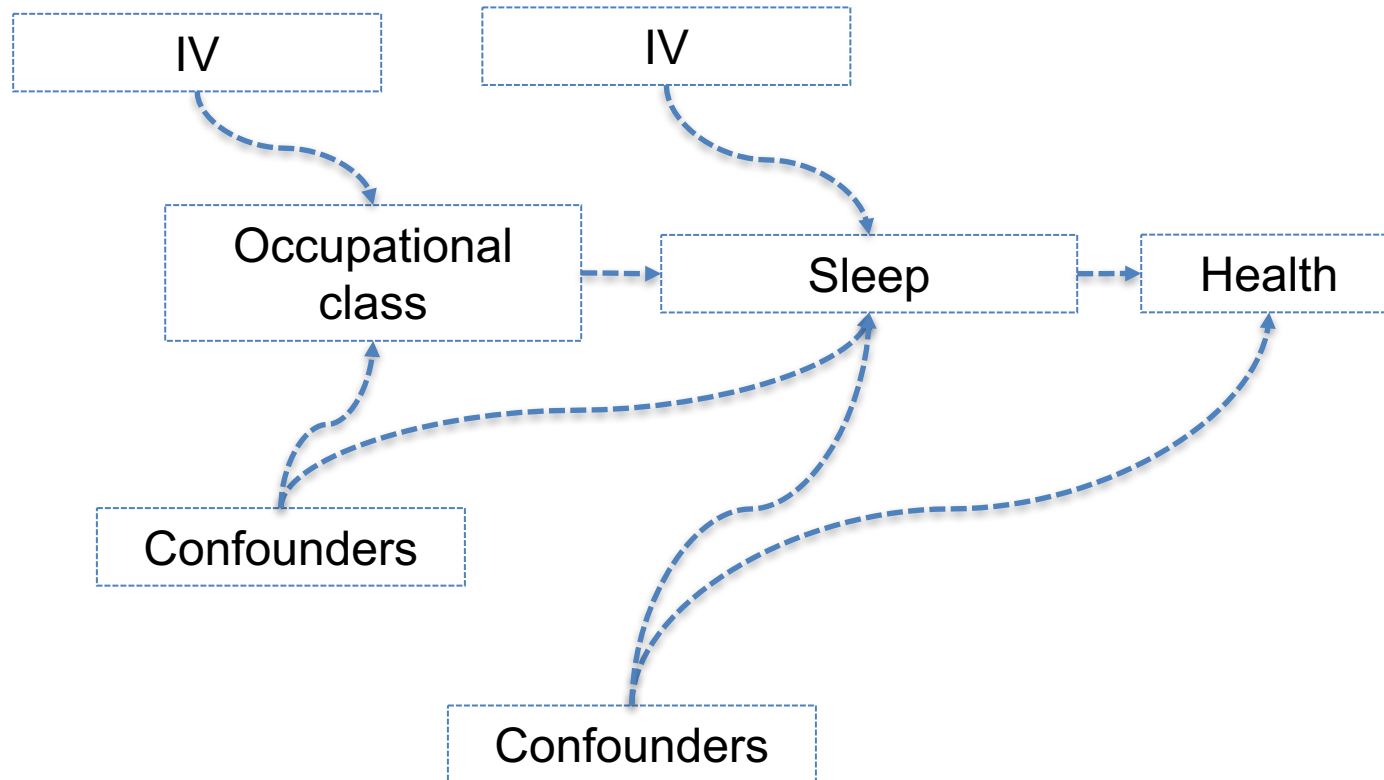


Costa Rica
USA

Key lessons (Silvia): Mediation

- Relationship between SEP and health partly **mediated by behavioural risk factors**, but not fully explained
- Baron & Kenny (1986): **strong assumptions**, counterfactual approach might reveal difference results (e.g., [sleep](#))
- **Relative importance** different risk factors open question
- **Why do lower SEP groups engage into poor behaviours?** Stress? knowledge? preferences? parenting? environment?
- What are the **causal dynamics**? e.g., does income leads to poorer behaviour, or is poorer behaviour the cause of lower income, or do both share common cause
- **Differences between cohorts** (countries) in pathways
- If SEP **independent factor** (Lancet, BMJ), why mechanisms?

Can we assess mediation in a cross-sectional dataset in a population cohort?



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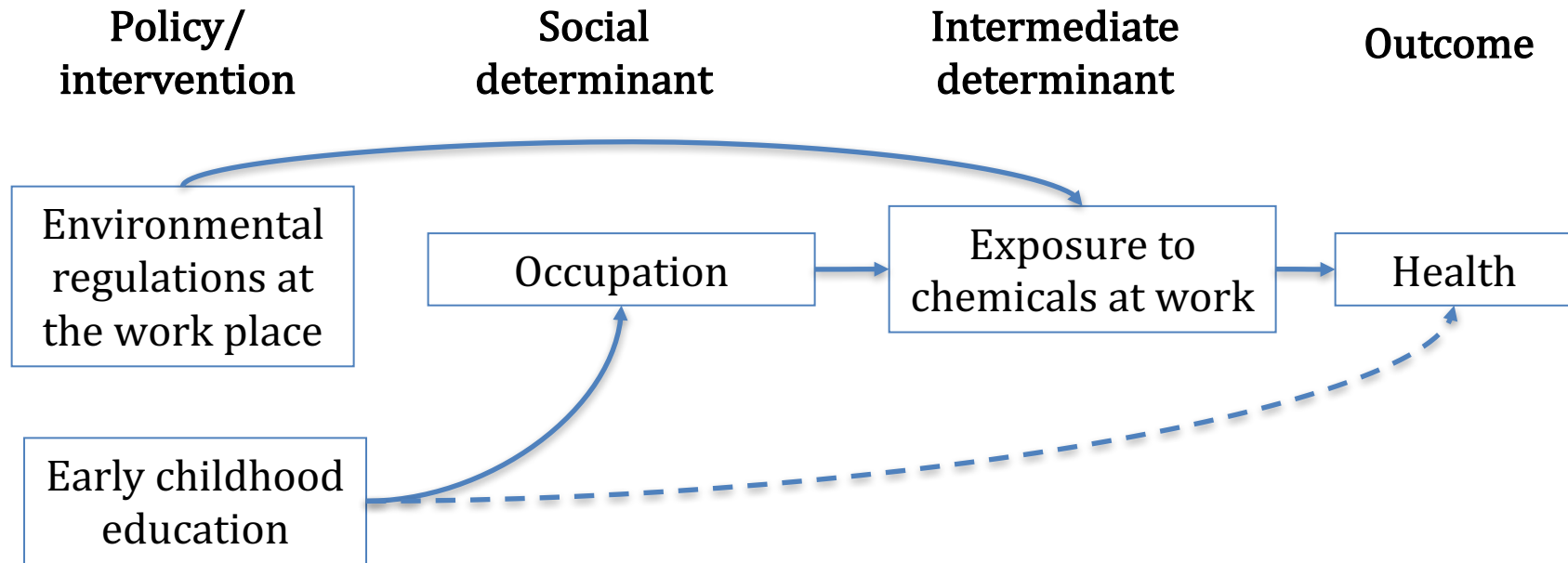
Key lessons (Marc)

- Lower SEP associated with accelerated (epigenetic) ageing as measured by methylation
 - **How important is this targeted finding** in the broader picture of health, functioning and mortality? Independent?
 - Can we **intervene on methylation** to change disease, functioning or survival?
- The fact that we find correlations between early life SEP and late-life health does not mean that early life is the only (or 'best') period on which to intervene
 - Inequalities start early, but are interventions in early life more 'effective' than those in mid or later life?
 - Normative question, e.g., inequalities in early life 'more unfair' than inequalities in later life?

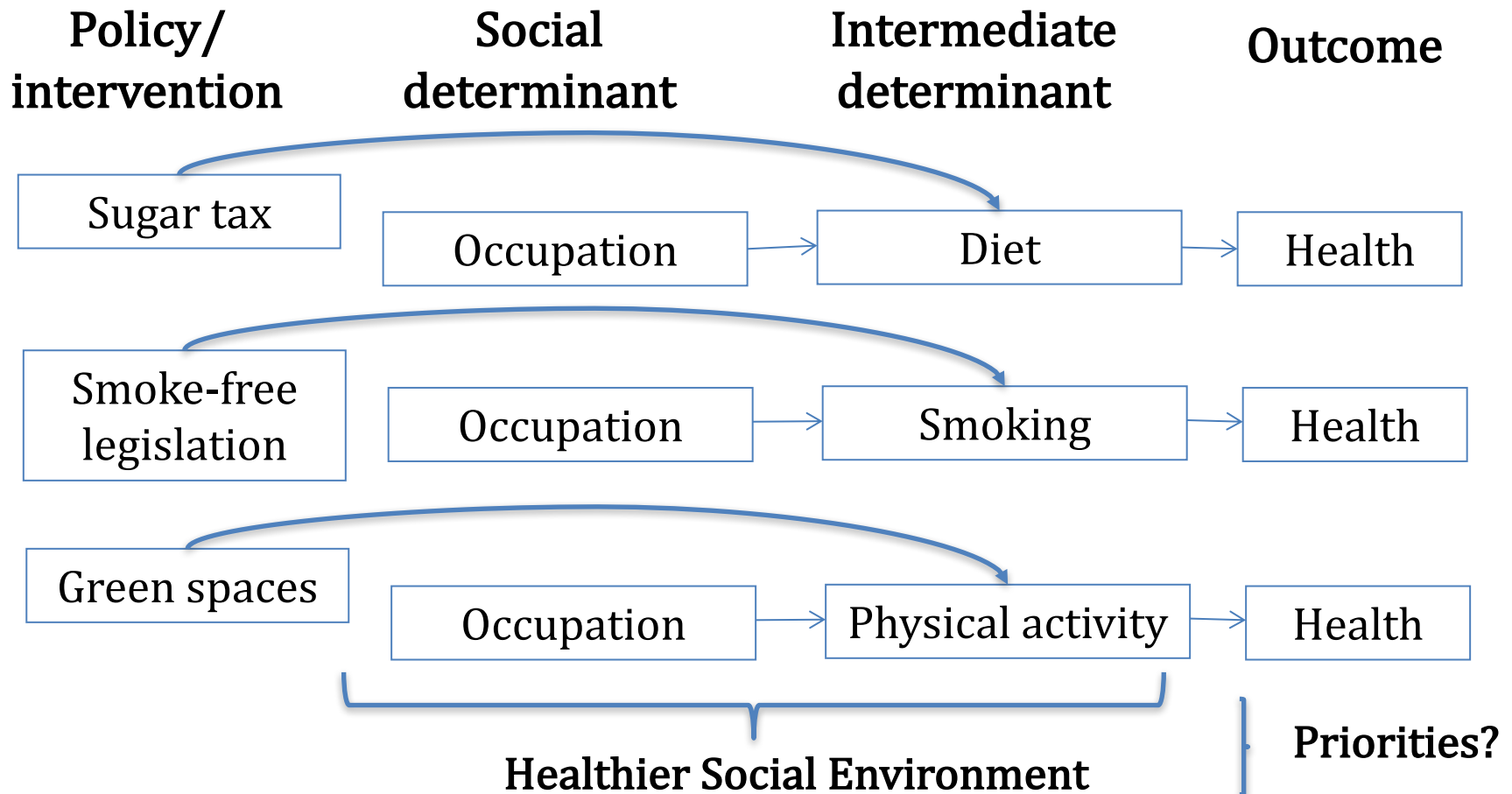
Two policy questions

1. Can we intervene on (some component of) socioeconomic position to influence health?
2. Can we intervene on the pathways that link socioeconomic status and health?
 - ▣ Are there clear biological pathways on which we can intervene
 - ▣ Should we prioritise some pathways over others?
 - ▣ Can we intervene on methylation pathways

Policy and socioeconomic inequalities in health



Policy and socioeconomic inequalities in health



Methylation: Implications for policy



- Helpful to ‘capture’ ageing-related change associated with SEP, but unclear **how independent** from all unobservables
- Evidence of **changes in methylation** come from behaviour changes, e.g., smoking cessation; to what extent a **change in SEP** would change methylation pathways?
 - **Evidence of direct interventions** on methylation processes limited (I think)
- Not necessarily a problem, as we advance science: it might just take time before we can derive policy implications

In conclusion

- Lifepath has revealed important evidence on (a) the **consistency** of health inequalities; (b) the potential role of several **mediating pathways** from behaviour to methylation
- However, gaps remained for drawing policy implications:
 1. **Causal** processes
 2. **Reversibility**: How interventions would alter pathways & outcomes
 3. **Cross-cohort variation**: We need more theory & hypothesis testing
 4. **Implications** for social environment, but priorities unclear
 5. **Importance** of methylation still unclear, and implications for policy likely only in the **distant future**