

Panel Discussion: Causal Inference and Register- Based Research

Irma T. Elo

Population Studies Center

Population Aging Research Center

University of Pennsylvania

popelo@pop.upenn.edu



Population Studies Center
Penn PSC

October 12-13 2016

National SIMSAM meeting, Norrköping, Sweden

Strengths and Weaknesses of Register-Based Data

Strengths

- Representative of the entire population
- Data quality, e.g., “free” of reporting bias
- Data across the life course, e.g., from an early age to older ages and/or death
- Linkages across multiple registers
- Data across multiple decades
- Linkages across family members from multiple generations

Weaknesses

- Limited information on behaviors, e.g., health behaviors
- Left truncation
- Access due to privacy and confidentiality concerns

Estimating Causal Effects

Ingeborg Waernbaum – Causal inference:

- A very informative and valuable overview of the challenges in estimating causal effects – applicable not only for register-based data but also other data sources
- **Take away points:**
 - How to reduce unobserved confounding
 - How to investigate causal mechanisms and pathways

Family designs

How to reduce unobserved confounding

- Randomized Experiments: The gold standard
- Natural Experiments/Program Interventions: e.g., difference-in-difference estimator
- Exclusion/Inclusion criteria: causal effects conditional on the study population characteristics – common effects of exposure and outcome => bias
- Propensity Score Matching; Inverse Probability Weighting; Doubly Robust Estimator: matching on observed covariates; adjustment for missingness and selection bias; combination of PS and regression of the outcome with covariates

Family Designs – Linkages Across Family Members from Multiple Generations

- Twins, siblings, cousins and their offspring – adjust for shared genetic, behavioral, social characteristics
- Help bridge gaps between biological and social science research
- Increased emphasis on multigenerational associations – need to take account of unobserved multigenerationally correlated endowments

THANK YOU !



Population Studies Center
Penn PSC

October 12-13 2016

National SIMSAM meeting, Norrköping, Sweden