

Towards a Clearer Understanding of Causal Estimands: The Importance of Joint Effects in Longitudinal Designs with Time-Varying Treatments

Thursday 24 July 2025 08:30 (15 minutes)

Oral presentation

The Importance of Joint Effects in Longitudinal Causal Inference

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Abstract

Longitudinal study designs present unique challenges for causal reasoning. In longitudinal designs, the potential outcomes framework leads to joint effects, which extend average treatment effects to effects of repeated treatments and thus provide a practical measure of cumulative intervention effects over time. Besides explaining the concept of joint effects and how they relate to mediation, we discuss their applicability to psychological research. We focus on their interpretation and whether they can realistically be identified in longitudinal observational studies in psychology. In this context, addressing unmeasured confounding is a crucial aspect of causal inference and mediation analyses, yet it is insufficiently discussed in the psychological literature. To bridge this gap, we propose a class of research designs for psychological studies where treatment assignment is driven by observable covariates so that joint effects can be identified under more reasonable assumptions.

Keywords

Causal Inference Longitudinal Designs Mediation

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Session Classification: Session 14 : "Dynamic and temporal models in psychology"

Track Classification: Design/Research methods: Design/Research methods