

The Effects of Nonlinearity, Measurement Error, and Omitted Variables in Statistical Mediation Analysis

Presented by Matthew Fritz

Quantitative, Qualitative, and Psychometric Methods Program, Department of Educational Psychology, University of Nebraska

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Mediation models are widely used by behavioral researchers to explore mechanisms of change. Despite the simplicity of the single-mediator model, there are assumptions required if the mediated effect is to be unbiased: linear relations between variables, no omitted confounders of the mediated effect, and no measurement error. While the assumptions can be tested, methods for addressing violations can introduce additional problems. Using higher-order polynomial models can introduce unnecessary model complexity, offer reduced interpretability of parameters, and provide less generalizability than using nonlinear functions such as exponential decay. Modeling measurement error in the mediator with a latent variable can produce more biased results than the standard model when a confounder of the mediator is omitted. This talk will discuss these assumptions and potential problems with common fixes. Alternative fixes will be illustrated using empirical examples.

READING: [Fritz, Matthew S., \(2014\), An Exponential Decay Model for Mediation, Prevention Science. Vol. 15, Issue 5, pp 611-622](#)

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