Society for Prevention Research
33rd Annual Meeting

Post-Conference Workshop I: Introduction to multilevel modeling

Date: Tuesday, September 30, 2025

Time: 12:00 pm – 4:00 pm Eastern

Organizer and Presenter: Meghan K. Cain, PhD, StataCorp LLC

Purpose of the workshop

Participants will understand the theory behind the multilevel modeling framework, including concepts of random effects and disaggregation into within- and between-cluster components.

Participants will become familiar with the four-step modeling procedure as originally presented in Bryk and Raudenbush (1992).

Participants will learn how to use Stata to fit and interpret multilevel models.

Target workshop audience

Anyone interested in modeling nested data (i.e., clients nested in programs) who have a background in linear regression.

Materials to be provided to attendees. Course notes, datasets, and Stata code.

Brief CV

Dr. Cain has a PhD in Quantitative Psychology from the University of Notre Dame, which provided a strong theoretical foundation in multilevel modeling; she is currently the Assistant Director, Educational Services at StataCorp LLC, which provides her with expertise using Stata.

Description

This workshop will demonstrate how to use the analytical approach of multilevel modeling in prevention science research, including how to assess whether interventions at the individual level or group level are expected to be more effective. By being able to test interventions in a multilevel model, participants will be more equipped to support health equity practices.

Outline of workshop

The course will begin with a conceptual overview of multilevel modeling and why we use it for nested data.

We will work through many examples using Stata, offering hands-on experience for the participants, that cover the four steps of multilevel modeling:

1. Fit an intercept-only random intercept model and calculate intraclass correlation.
2. Add level-1 predictors. Have they significantly improved the fit of the model? How have the random-effect variances changed?
3. Add level-2 predictors. Have they significantly improved the fit of the model? How have the random-effect variances changed?
4. Add random coefficients. Do they significantly improve the fit of the model?

We will also have exercises that participants can work through independently and ask questions.

Bryk, Anthony S, and Stephen W Raudenbush. 1992. *Hierarchical Linear Models: Applications and Data Analysis Methods.* Sage Publications, Inc.