

**Society for Prevention Research
24th Annual Meeting
San Francisco, CA**

Pre-Conference Workshop I

Date: Tuesday, May 31, 2016

Time: 8:30 am – 5:00 pm

Meta-analytic methods for examining the effects of prevention programs

Organizers and Presenters:

Emily E. Tanner-Smith, PhD, Vanderbilt University, and Joshua R. Polanin, PhD, Development Services Group

Description:

The purpose of this workshop is to provide attendees with the skills and knowledge needed to conduct a meta-analysis to examine the effects of prevention and intervention programs. The goals of the workshop are to provide attendees with training on the technical issues and statistical analyses distinctive to meta-analysis, providing hands-on experience using meta-analytic statistical techniques with R/Stata. By the end of the workshop, attendees should have the tools and skills needed to (a) be informed consumers of meta-analyses, (b) extract effect sizes from primary studies and create meta-analytic databases, (c) quantitatively synthesize effect sizes across studies, and (d) explore variability in effect sizes across studies.

Target Audience: The target workshop audience will be academic researchers with graduate level training in experimental design and multivariate statistics.

Materials: Attendees will be provided with (a) a training manual that provides an overview of meta-analysis methods, key definitions and formulas, references, and useful resources; (b) training slides used in the workshop; (c) example meta-analytic databases; (d) handouts to exercises for applying meta-analytic methods to the example databases; (e) R code and Stata code used to apply the meta-analytic methods to the example databases.

Presenters:

Dr. Tanner-Smith is a research methodologist with expertise in systematic reviewing and meta-analysis methods. She is an elected member of the highly selective Society for Research Synthesis Methodology, a methods editor for *Campbell Systematic Reviews*, and a statistical editor for *Systematic Reviews*. She has conducted numerous multi-day training workshops on systematic reviewing and meta-analysis (e.g., for the Vanderbilt University Institute for Medicine and Public Health, University of Limerick, University of KwaZulu-Natal, University of the Witwatersrand, Stellenbosch University, and Development Services Group) and has also presented brief training workshops on advanced meta-analytic topics for both the Cochrane Collaboration and the Campbell Collaboration (e.g., on robust variance estimation, publication bias, meta-analytic graphical techniques). She also annually teaches a doctoral level course on meta-analysis at Vanderbilt University. She has co-authored 16 peer-reviewed articles that used meta-analysis methods to examine the effects of intervention programs, three of which are published in *Prevention Science*. She also recently completed an R01 study funded by the National Institute on Alcohol Abuse and Alcoholism, which used meta-analytic techniques to synthesize

findings from 185 trials on brief alcohol interventions for adolescents and young adults. Given her experience conducting meta-analyses in the field of prevention science and teaching workshops on meta-analytic methods, Dr. Tanner-Smith is well-qualified to conduct this workshop.

Dr. Joshua R. Polanin is a Senior Research Scientist at Development Services Group, a research firm specializing in education and social policy analysis. Dr. Polanin is a trained methodologist and applied statistician, recently completing an Institute of Education Sciences Postdoctoral Fellowship at Vanderbilt University. He is the former managing editor for the Campbell Collaboration Methods Group and Systematic Review Specialist at the International Initiative for Impact Evaluation (3ie). He has conducted a number of multi-day training institutes on systematic reviews and meta-analysis (e.g., University of Limerick, Loyola University Chicago) and has presented training workshops on meta-analytic topics for the Campbell Collaboration. In addition, Dr. Polanin co-founded the American Education Research Association Special Interest Group on Systematic Review and Meta-Analysis and has lead full-day training seminars on meta-analysis for this conference the previous three years. Josh has published seven meta-analyses on education and social science topics. As a result of these experiences in social science and meta-analysis, Dr. Polanin is well-qualified to conduct this workshop.

Workshop Outline:

- Introduction to meta-analysis, formulating research questions for a meta-analysis
- Extracting effect sizes from primary studies
 - Effect size extraction example using R/Stata
- Synthesizing effect sizes across studies
 - Synthesis exercise using R/Stata
- Quantifying and explaining heterogeneity in effect sizes
 - Heterogeneity exercise using R/Stata
- Publication bias and sensitivity analysis
 - Publication bias exercise using R/Stata
- Meta-analysis reporting and interpretation

The workshop will involve a combination of lectures and hands-on exercises where attendees learn how to apply meta-analytic methods using example databases (in Stata or R; attendees will be provided with code for both statistical environments and permitted to work in the program to which they have access).

a. The presenters will alternate between lectures—each presenter will be the lead presenter for 3 of the 6 lecture sections. Both presenters will be available to answer questions, provide assistance, and provide additional clarification during all lecture sections (even if they are not the lead for that lecture section).

b. The workshop will include four hands-on exercises (one on effect sizes, one on synthesis, one on heterogeneity, and one on publication bias). Each of these exercises will involve attendees implementing meta-analytic methods using standard statistical software (either Stata or R). During the lecture preceding each exercise, attendees will be provided with example syntax used for a given type of analyses; during the exercises they will create their own syntax to analyze data from example meta-analytic databases that will be provided.