

SPR 12th Annual Meeting
“Crossing Borders: Linking Prevention Science, Policy and Practice”
Pre-conference Workshops
May 25, 2004
Workshop #2

Title Design and Analysis of Group-Randomized Trials: Moving the State of the Practice Toward the State of the Science

Leader David M. Murray, Ph.D.
Lillian and Morrie Moss Chair of Excellence in Psychology
University of Memphis
3693 Norriswood, Suite 202
Memphis, TN 38152
d.murray@mail.psyc.memphis.edu

Dr. Murray is the first holder of the Lillian and Morrie Moss Chair of Excellence in Psychology at the University of Memphis. He moved to Memphis in 1998 after 20 years in the Division of Epidemiology, School of Public Health, at the University of Minnesota.

Dr. Murray has spent 25 years evaluating intervention programs designed to improve the public health. He has worked with all age groups, in a variety of settings and with a variety of health behaviors. He has conducted research on measurement methods, etiology, and on the evaluation of primary prevention programs. Since 1989, he has focused on the design and analysis of group-randomized trials. Dr. Murray published the first textbook treatment of this material in 1998. He is actively involved in several group-randomized trials, collaborating with colleagues around the country on their design, implementation and evaluation. He also conducts research to develop and test methods for the analysis of data from group-randomized trials. Dr. Murray has published nearly 170 articles in peer-reviewed journals and helped bring more than \$100M in NIH research grants to the Universities of Minnesota and Memphis. He teaches courses on the design and analysis of group-randomized trials, on applied categorical data analysis, and on writing NIH grant applications. He chairs the Community Level Health Promotion study section at NIH (formerly SNEM-1).

Co-Leader Jonathan L. Blitstein, M.S.
Department of Psychology
University of Memphis

Mr. Blitstein is finishing his Ph.D. in Experimental Psychology with a concentration on research design and statistics. He is a coauthor with Dr. Murray on several of the papers which will form the basis for the workshop. Mr. Blitstein has focused most recently on methods to increase degrees of freedom in GRTs by drawing on information available from external sources. He will help lead that part of the workshop.

Description	This workshop will review the state of the practice in terms of design and analysis of group-randomized trials (GRTs) and will provide instruction in methods that reflect the state of the science.
Objectives	At the end of the workshop, participants will be able to: 1) identify the major gaps that now exist between the state of the practice and the state of the science in terms of the design and analysis of GRTs; 2) distinguish between valid and invalid designs for GRTs; 3) distinguish between appropriate and inappropriate analysis methods given information on the design of a trial; 4) discuss recent developments in the state of the science that are not well-reflected in current practice; 5) discuss the two major problems that routinely plague GRTs – extra variation and limited degrees of freedom; 6) discuss analytic approaches that are available to reduce extra variation – modeling time, regression adjustment for covariates; 7) discuss design approaches that are available to reduce extra variation – timing of data collection, spacing of data collection; 8) apply current methods for a priori sample size calculation in a variety of designs currently employed in group-randomized trials; 9) apply a new method to improve degrees of freedom by incorporating information from prior related studies.
Outcomes	Participants will be better informed about the state of the practice and the state of the science in terms of the design and analysis of GRTs. This will allow them to do a better job when they review grant applications for proposed studies, when they review articles submitted for publication, and when they plan new GRTs.
Career Level & Prerequisites	This workshop will be accessible to all investigators and methodologists interested in the design and analysis of group-randomized trials. A working knowledge of multiple regression and ANOVA/ANCOVA is assumed. Prior experience with mixed-model regression methods will be helpful, but is not required. The focus will be on concepts, rather than on formulae, and on applications, rather than theory. Numerous worked examples will help the participants better understand the formulae that are used and their application.
Methods	Material will be presented in lecture format, with numerous worked examples based on analyses conducted in SAS PROC MIXED. Participants will be encouraged to interrupt with questions at any time. Persons planning to attend are encouraged to submit questions or issues by March 1, 2004 to Dr. Murray at d.murray@mail.psy.memphis.edu . Part of the workshop will be reserved for a discussion of those questions and issues.
Materials	Participants will receive a complete set of the slides, along with several recent publications upon which portions of the presentation will be based. They will also receive several Excel spreadsheets which support calculation of sample size, detectable difference and power for a variety of design and analytic plans widely used in GRTs.