CSDC

Consortium for Statistical Development and Consultation in Social Intervention Research

UNC

SCHOOL OF SOCIAL WORK

Institute on Quantitative Methods for Social and Health Interventions

May 11-15, 2020

University of North Carolina at Chapel Hill

Consortium for Statistical Development and Consultation in Social Intervention Research

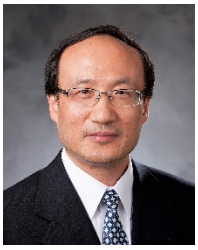
UNC School of Social Work

Institute Courses

Monday, May 11, 2020

Propensity Score Methods for Comparative Effectiveness Research in Social and Health Interventions

Randomization is not always feasible or ethical in comparative effectiveness research in social and health interventions. Such research studies pose threats to the validity of evaluation of intervention effects due to selection bias. Propensity score methods have been increasingly used in comparative effectiveness research as a means of reducing selection bias. This course will introduce concepts and issues of propensity score methods (such as matching, stratification, and weighting) and discuss when and how to use propensity score methods, demonstrated with real-world examples in social and health interventions. Through lectures on theory as well as hands-on activities with R packages, this course will benefit faculty members, graduate students, and applied researchers improving the quality of research on social and health interventions. Example data and related R packages will be made available to participants through a course website. No prior knowledge of propensity score methods is required; a basic understanding of research design and statistics (such as t-tests and multiple regression) is preferable. Participants should bring their own laptop computers for hands-on activities.



About the Instructor: Dr. Wei Pan is an Associate Professor of Health Measurement, Statistics, and Dada Science at the Duke University School of Nursing. His research work focuses on causal inference, advanced modeling, data analytics, meta-analysis, psychometrics, and their applications in the social, behavioral, and health sciences. He has published numerous refereed journal articles on both methodological and applied research studies. In particular, his edited book "Propensity Score Analysis: Fundamentals and Developments" tackles both methodological and practical issues in propensity score methods, a set of statistical techniques for reducing selection bias so as to increase the validity of causal inference from non-randomized controlled trials and observational studies.

Tuesday, May 12, 2020

Integrative Data Harmonization with Meta-Analysis and Multi-Level Modeling

Data from social and health interventions are collected from different sources and analyzed separately. Typically, published summary statistics are collected from systematic reviews that are analyzed with meta-analysis techniques, and individual-level data are collected from investigators' intervention studies that are analyzed by statistical regression and multi-level modeling. To harmonize the power of multiple data sources, this tutorial offers a step-by-step illustration using R/SAS to review the meta-analysis for summary statistics and multi-level modeling for individual-level data with extension to analyze these two sources of data simultaneously with high potential to increase statistical power. The example and programming code in R/SAS are presented in a stepwise approach to enable students to follow the logic and gain an understanding of the analysis methods so that they may use the existing R/SAS code to analyze their own intervention data. Students are welcome to bring their own data to the class.

About the Instructor: Dr. Din Chen is the Wallace H. Kuralt Distinguished Professor at UNC School of Social Work and Director of the Consortium for Statististical Development and Consultation in Social Intervention Research. He has also served as a biostatistics professor at University of Rochester and the Karl E. Peace Endowed Eminent Scholar Chair in biostatistics at Georgia Southern University. He has more than 200 professional publications and has co-authored/co-edited 28 books on statistical meta-analysis, public health statistical methods, causal inferences and statistical Monte-Carlo simulation. Dr. Chen has more than 30 years teaching and research experience in quantitative methods and has been invited to give short courses and tutorials at national and international conferences.

Wednesday, May 13, 2020

Latent Class Analysis and Latent Growth Modeling: Methods for Discovering and Understanding Patterns and Trends in Our Data

Program evaluators and data analysts across disciplines often seek to unearth important patterns and trends in their data. For instance, one might seek to uncover what is called "unobserved population heterogeneity," or the presence of latent subgroups marked by unique patterns of characteristics. Program evaluators may want to assess whether such patterns influence how participants respond to an intervention. In addition, one might seek to understand trends in individual-level change over time, perhaps with respect to outcomes being targeted by an intervention. This workshop will provide an overview of two latent variable modeling methods that can support efforts to achieve these, and other, analytic aims — specifically, Latent Class Analysis (LCA) and

Latent Growth Modeling (LGM), with attention given to the rationale, strengths, and limitations of each method. The workshop will serve as a step-by-step guide to applying LCA and LGM using Mplus, a commonly used statistical software package. Participants will also receive a compilation of source materials and references to support future application of LCA and LGM.

About the Instructor: Dr. Todd Jensen is a Research Associate in the Jordan Institute for Families and a Research Assistant Professor in the School of Social Work at the University of North Carolina at Chapel Hill. As a researcher and educator, Dr. Jensen is committed to promoting family resilience and youth well-being and transforming the systems that best support them. Dr. Jensen has extensive experience applying quantitative methods in his work, including finite mixture modeling, structural equation modeling, and longitudinal data analysis.

Thursday, May 14, 2020

Complex and Systems Science Perspectives on Social & Health Interventions: Evaluation Methods and Tools

Participants will learn about the application of complexity and complex systems concepts in the development and evaluation of social interventions. The workshop will be structured around four foci:
1) an overview of complexity science and complex systems perspectives on social intervention; 2) policy, research, and funding frameworks related to complex systems evaluation; 3) families of methods for complex evaluations: Developmental Evaluation, Systemic Evaluation, Realist Evaluation, and Continuous Quality Improvement; and 4) participatory modeling and visualization techniques. Participants will actively explore complexity concepts and engage with relevant methods during the workshop. By the end of the workshop, participants will achieve a working knowledge of complexity principles pertinent to social intervention research and familiarity with relevant publications and resources for complex evaluation design.

About the Instructor: Dr. Kainz is a methodologist and education policy researcher with 15 years of experience designing, conducting, and analyzing data from federally and locally funded interventions.

Friday, May 15, 2020

Geo-Spatial Analysis and Modeling for Intervention Research

Researchers and non-geospatial professionals sometimes find themselves needing to utilize location-based data to reveal patterns and trends in environments ranging from neighborhoods to multi-state regions. This workshop will introduce participants to the application of spatial analytic tools for analyzing spatial patterns and geographically varying relationships and strategies for displaying them on great-looking maps. The first half of the workshop will focus on Hot Spot analysis and other tools for highlighting statistically significant spatial clusters. The second half of the workshop will provide participants with a relatively quick and simple way to initially learn and refresh their knowledge of how to examine, quantify, predict, and map spatially varying relationships. All demonstrations and hands-on exercises will use two open-source software suits (QGIS and GWR4). At the end of the workshop, participants will have the capability to analyze spatial patterns and relationships, and a general ability to use QGIS and GWR4. Participants will also receive resources to continue learning on their own, using data and tutorials.

About the Instructor: Dr. David Ansong is an Associate Professor at UNC School of Social Work. He has applied GIS analytic tools in his work for more than a decade to uncover hidden geospatial inequalities in financial inclusion, educational outcomes, and other social development outcomes.

Registration, Fees, and Other Information

There is a $500 registration fee for each full-day course (9 a.m.-4 p.m., including a one-hour lunch break with box lunch provided).

Discounts are available:
10% discount for early registration (by March 1, 2020)
30% discount for UNC School of Social Work faculty and research staff
50% discount for graduate students (requires letter of support from research supervisor)
Choose any 4 days for $1,500
Choose all 5 days for $2,000

If a registration is canceled after April 1, 2020, a $50 cancellation fee will apply.

All courses are presented at UNC School of Social Work, Tate-Turner-Kuralt Building (Room 101), 325 Pittsboro Street, Chapel Hill, N.C. 27516.

There are several hotels in the area. A group rate ($139/night, plus tax) is available at the AC Hotel by Marriott (Chapel Hill Downtown), 214 West Rosemary Street, Chapel Hill, N.C 27516. This hotel is five blocks from UNC School of Social Work.

For more information and registration, visit http://csdc.web.unc.edu/training or contact Dr. Din Chen, CSDC Director, at dinchen@email.unc.edu

The Consortium for Statistical Development and Consultation (CSDC) in Social Intervention Research promotes evidence-supported policy making and practice through the application of rigorous research and advanced statistical methods focused on designing and testing innovative solutions in social welfare. The CSDC is founded by faculty in the School of Social Work at the University of North Carolina at Chapel Hill. Founding faculty are unified in their conviction that rigorous research methods are necessary in the pursuit of knowledge to improve the life experiences and well-being of people in North Carolina, the nation, and around the world.

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