

## **NYSPI Biostatistics Seminar Series**

# **Effect of the 2010 Chilean Earthquake on Posttraumatic Stress: Illustrating New Matching Methods for Clinical, Epidemiological and Health Outcomes Research**

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3:30-4:30pm, Pardes Building (New PI)  
6<sup>th</sup> Floor Board Room (6601)

### **Abstract**

In 2010, a magnitude 8.8 earthquake hit Chile, devastating parts of the country. Having just completed its national socioeconomic survey (CASEN), Chile interviewed a subsample of respondents, creating unusual longitudinal data about the same individuals before and after a major disaster. The follow-up evaluated posttraumatic stress symptoms (PTSS) using Davidson's Trauma Scale. We use these data with two goals in mind. Most studies of PTSS following disasters rely on recall to characterize the state of affairs prior to the disaster. In contrast, we use the CASEN to study effects of the earthquake on PTSS with prospective data on pre-exposure conditions, free of recall bias. Second, we illustrate recent developments in statistical methodology for matching in observational studies. In particular, we use new and recent methods for multivariate matching to control 46 covariates that describe demographics, housing quality, wealth, health and health insurance prior to the earthquake. Unlike standard matching methods, these new matching methods permit to target covariate balance directly. A new R package called mipmatch implements these methods with a wide range of applications in clinical, epidemiological and health outcomes research.

### **Biographical Note**

José Zubizarreta is a soon to be graduating PhD student in statistics at The Wharton School of the University of Pennsylvania. His work focuses on causal inference with applications to clinical, epidemiological and health outcomes research. More information about his work can be found at <http://www-stat.wharton.upenn.edu/~josezubi/>.