BIOSTATISTICS SEMINAR

Improving estimation efficiency for left-truncated competing risks regression under the case-cohort study design

Soyoung Kim, PhD
Associate Professor
Division of Biostatistics
Medical College of Wisconsin

The case-cohort study design provides a cost-effective study design for a large cohort study with competing risks outcomes. The proportional subdistribution hazards model is widely used to estimate direct covariate effects on the cumulative incidence function for competing risks data. In biomedical studies, left truncation often occurs and brings extra challenges to the analysis. Existing inverse probability weighting methods for case-cohort studies with competing risks data not only have not addressed left truncation, but also are inefficient in regression parameter estimation for fully observed covariates. We propose an augmented inverse probability weighted estimating equation for left-truncated competing risks data to address these limitations of the current literature. We further propose a more efficient estimator when extra information from the other causes is available. The proposed estimators are consistent and asymptotically normally distributed. Simulation studies show that the proposed estimator is unbiased and leads to estimation efficiency gain in the regression parameter estimation. We analyze the Atherosclerosis Risk in Communities study data using the proposed methods.

Thursday, April, 27, 2023, 3:30-4:30 PM Eastern

133 Rosenau Hall

Virtual using link and info below.

https://unc.zoom.us/j/91249030964?pwd=UXloTWlHajdQbkRqd1d5TnRaMitYdz09

Meeting ID: 912 4903 0964

Passcode: 884852