Pseudo-Partial Likelihood Estimators for Cox Regression Model With Missing Covariates

Department of Biostatistics,Columbia University

蔡偉彥

Abstract

By embedding the missing covariate data into a left-truncated and right-censored survival model, a new class of weighted estimating functions is

proposed for Cox regression model with missing covariates. The resulting estimators, called the pseudo-partial likelihood estimators (PPLEs), are shown to be consistent and asymptotically normal. Simulation study demonstrates that PPLEs, compared with the popular inverse probability weighted estimators, have better performance when the observation probability is small, and improve efficiency of estimating the missing covariate effects. A real data example is applied to illustrate the use of PPLEs.

Key words: Augmented Estimators, Biased Sampling Data, Embedding Missing Data, Left-Truncated and Right-Censored Model, Martingale structure, U- Statistic.