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*Estimation in Partially Linear Single-index Additive Hazards Regression with Current Status data*

We propose a partially linear single-index additive hazards regression model for current status data. The linear covariates are time-dependent and the nonlinear covariates are time-independent. The proposed model can model both linear and nonlinear covariate effects on the hazard and it avoids “curse of dimensionality”. We use B-splines to model the nonparametric covariate functions. Asymptotic properties of the estimators are derived using the theory of counting processes. Simulation studies are presented to compare the new method with the standard linear additive hazards regression model.