

Covariate-dependent random effects in survival analysis

The unobserved heterogeneity has been included into survival analysis models introducing a random effect called frailty, which multiplies the individual hazard. Although this model has been widely extended, the frailty distribution is generally assumed to be independent of any other factor than its own parameters. In this work we explain how this assumption could be removed, introducing a proportional hazards frailty model in which the individual frailty distribution is dependent on the individual specific set of covariates. We focus on the formal aspects of the proposed model, on its estimation procedure and test its performances by simulation studies.