

## **Cutpoint determination methods in competing risks subdistribution model**

### **ABSTRACT**

In the analysis involving clinical and psychological data, by transforming a continuous predictor variable into a categorical variable, usually binary, a more interpretable model can be established. Thus, we consider the problem of obtaining a threshold value of a continuous covariate given a competing risk survival time response using a binary partitioning algorithm as a way to optimally partition data into two disjoint sets. Five cutpoint determination methods are developed based on regression of competing risks subdistribution. Simulation results show that the deviance method has the desired properties. Permutation test is used to assess the level of significance and bootstrap confidence interval is obtained for the optimal cutpoint. The deviance method is applied to determine cutpoint of age for a real dataset.

**Keyword:** Cutpoint; Competing risks; Binary partitioning; Regression analysis; 2-sample statistic; Subdistribution function