Validation of the smooth test of goodness-of-fit for proportional hazards in Cancer survival studies

Collins Odhiambo, John Odhiambo and Bernard Omolo

Strathmore University, University of South Carolina-Upstate

Abstract

In this study, we validate the smooth test of goodness-of-fit for the proportionality of the hazard function in the two-sample problem in cancer survival studies. The smooth test considered here is an extension of Neyman's smooth test for proportional hazard functions. Simulations are conducted to compare the performance of the smooth test, the data-driven smooth test, the Kolmogorov-Smirnov proportional hazards test and the global test, in terms of power. Eight real cancer datasets from different settings are assessed for the proportional hazard assumption in the Cox proportional hazard models, for validation. The smooth test performed best and is independent of the number of covariates in the Cox proportional hazard models.