
Extending excess hazard regression model in the absence of appropriate life tables

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Abstract

Relative survival methods used to estimate the excess mortality of cancer patients rely on the background (or expected) mortality derived from general population life tables. These methods are based on splitting the observed mortality into the excess mortality and the mortality due to other causes (background mortality). They rely on the assumption that mortality due to other causes than cancer is the same as the expected mortality in the general population with same demographic characteristics derived from population life tables. By assuming a regression model for the excess mortality, usually a Cox-type model, one may investigate the effects of certain covariates on the excess mortality. Some covariates are cancer-specific whereas others are variables that may influence the background mortality as well. In order to avoid biases in estimating the effects of covariates on the excess mortality, it is of importance to use life tables (1) stratified on the relevant covariate, and (2) appropriate for the patients selected for the study. We present the seminal model and extensions that allow to correct for these two sources of bias. The main applications concern the analyse of data from cancer registry and from clinical research.

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