

New Developments in Relative Survival

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Relative survival techniques are used to compare survival experience in a study cohort with that expected should population rates apply. The techniques are especially useful when cause-specific death information is not accurate or not available as they provide a measure of excess mortality in a group of patients with a certain disease.

When we want to model the dependence of the observed hazard on measured covariates while correcting for population differences, we need to assume some form of relation between the observed and population hazard. This assumption influences the fit of the model and this influence is difficult, or even impossible, to distinguish from the influence of assumptions about the effects of covariates. We have recently introduced a method that solves this problem, and in this talk I will briefly review our approach.

Another, related, problem is that there are presently no methods to check the fit of the additive model, which is the model most commonly used in relative survival analysis. To this purpose we have introduced residuals, akin to Schoenfeld residuals for the Cox model, and developed methods for checking the goodness of fit based on these residuals. The methods enable the analyst to check the assumptions about the coefficients graphically, and test the null hypothesis of a good fit. An important side effect of the methods is that they can be used, with proper adjustments, for very different models in survival analysis, and are thus not limited to relative survival models.

References:

J Stare, R Henderson, M Pohar (2005): An individual measure of relative survival. *JRSS C* 54:115-126.

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