

# Goodness of Fit of Relative Survival Models

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Relative survival methods are used in studies that aim to estimate cause-specific mortality, but do not have good information on the cause of death. The observed survival experience in a cohort of patients is compared to the expected or the population survival obtained from life tables. The commonly used regression models for relative survival are based on different basic assumptions and can give very different results. When evaluating the results of a model, we therefore need some goodness of fit information. In this presentation, we will focus on the additive and multiplicative regression model. While there is an abundance of methods to check the goodness of fit of the latter, no general methods exist for the additive model. We present a variety of procedures for testing goodness of fit that can be applied on either of the models. The methods are based on partial residuals defined analogously as the Schoenfeld residuals for the Cox model. With these residuals we can construct a process that converges to the Brownian motion and use its asymptotic distribution to check the goodness of fit.