

REGRESSION ANALYSIS OF COMPETING RISKS DATA WITH GENERAL MISSING
PATTERN IN FAILURE TYPES

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In competing risks data, missing failure types (causes) is a very common phenomenon. In a general missing pattern, if a failure type is not observed, one observes a set of possible types containing the true type along with the failure time. Dewanji and Sengupta (2003) considered nonparametric estimation of the cause-specific hazard rates and suggested a Nelson-Aalen type estimator under such general missing pattern. In this work, we deal with the regression problem, in which the cause-specific hazard rates may depend on some covariates, and consider estimation of the regression coefficients and the cause-specific baseline hazards under the general missing pattern using some semi parametric models. We consider two different proportional hazards type semi-parametric models for our analysis. We also consider an example from an animal experiment to illustrate our methodology.

Key Words: Competing risks data, Missing causes, Semi parametric regression model, cause specific hazard rates