**Flexible accelerated failure time frailty models for multivariate interval-censored data with an application in caries research**

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Abstract

In this presentation we consider the relationship of covariates to the time to caries of permanent first molars. This involves an analysis of multivariate doubly interval-censored data. To describe this relationship, we suggest an accelerated failure time model with random effects, taking into account that the observations are clustered. Indeed, up to four permanent molars per child enter into the analysis, implying up to four caries times for each child. Each distributional part of the model is specified in a flexible way as a penalized Gaussian mixture with an overspecified number of mixture components. A Bayesian approach with the Markov chain Monte Carlo methodology is used to estimate the model parameters, and a software package in the R language has been written that implements it.

**References**

A. Komárek and E. Lesaffre, Bayesian accelerated failure time model with multivariately doubly-interval-censored data and flexible distributional assumptions. JASA - Applications and Case Studies, 2008, 103, 523-533