Joint analysis of multidimensional latent quality of life and survival: Models and Strategies

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Abstract:

A major problem that frequently arises in longitudinal clinical trials where Quality of Life (QoL) questionnaires are repeatedly assessed by each individual under study, is that of dropout. In some settings, dropout may depend on missing components of the longitudinal process.Dropout is then termed nonignorable. Recently, several approaches havebeen proposed that accommodate nonignorable dropout in the modeling of a longitudinal process. However, these approaches rest upon the assumption that dropout can only occur at one of the pre-specified measurement times of quality of life.
In this paper, we first present a recent joint model for the longitudinal latent QoL variable with nonignorable dropout and time to dropout. This model allows dropout to occur at any point in time. Consistency, identifiability and asymptotic normality of its parameter estimators is achieved.
We investigate how extend this model, when the longitudinal QoL covariate is assessed by a questionnaire giving multivariate dichotomous or polychotomous responses. Different strategies, using either latent QoL trait estimates or simpleQoL score, are presented and compared. All these strategies will use the software presented in (1). A real data set on QoL Cancer clinical trial is analyzed.