Analysis of Repeated Multiple Events in a Follow-up Study

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Suppose that an individual with p covariates gets one of K different events and that those events are measured at several uncertain visits in a follow-up period. Assuming Markov process for individual's events and establishing a linear model for transformed transition probabilities, we develop a method for assessing the relationship of covariates and events. The method is applied to the data taken from a unit of welfare facilities, where events are degrees of severity of care-need people; the relationship of covariates (sex, age, disease) and the severity will be demonstrated. It is shown that the method may be widely applicable to such follow-up data that satisfy ①time-to-event, ② the event takes several categorical values, and also ③ the events are observed at several unfixed visits.