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ESTIMATING HEALTH EXPECTANCY
IN PRESENCE OF MISSING DATA:
AN APPLICATION USING HID SURVEY

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ABSTRACT

In this article we estimate health transition probabilities using longitudinal data collected in France for the survey on handicaps, disabilities and dependencies (HID) from 1999 to 2001. We examine the sample attrition of the survey, and reduce it through a model based imputation method. Life expectancies with and without activities of daily living (ADL) disabilities are calculated using a Markov-based multistate life table approach with two non-absorbing states: able to perform all ADLs and unable or in need of help to perform one or more ADLs, and the absorbing state of death. The loss of follow-up between the two waves induce biases in the probabilities estimates: mortality estimates are biased upwards; also the incidence of recovery and the onset of disability seems to be biased. Since individuals were not missing completely at random, we decided to correct this bias by estimating health status for drop-outs using a nonparametric model. After imputation, we found that at the age of 70 disability-free life expectancy decreases by 0.4 of a year, whereas the total life expectancy increases by 1 year. The slope of the stable prevalence increases, but it remains lower than the slope of the cross sectional prevalence. Globally there is no evidence of a general reduction in ADL, as defined in our study. The gender and relational differences on life expectancy did not change significantly after the imputation, but expected life free of disability decreases. The added value of the study is the reduction of the bias induced by sample attrition.

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