A NEW SEMIPARAMETRIC ESTIMATION METHOD FOR THE ACCELERATED FAILURE TIME MIXTURE CURE MODEL

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The proportional hazard mixture cure model and the accelerated failure time mixture cure model are proposed in analyzing survival data with a sizable cure fraction. However, the latter one has attracted less attention than the former one due to the complexity in its estimation method. In this paper, we propose a new semiparametric estimation method for the accelerated failure time mixture cure model. This method employs the EM algorithm and the rank estimation of the accelerated failure time model to estimate the parameters of interest. The M-step in the EM algorithm can be obtained easily from a linear programming method. To evaluate the performance of the proposed method, we conduct a simulation study. The results of the simulation study demonstrate that the proposed method performs better than the existing estimation method. As an illustration, we apply the model and the proposed method to a data set of failure times from bone marrow transplant patients.