Shahab Jolani
Postdoctoral Fellow, Utrecht University, The Netherlands
&
S. van Buuren
Utrecht University, The Netherlands

Imputation of Missing Outcomes under Missing Not at Random

Models for dealing with missing outcomes are necessarily based on assumptions, especially when the missing data are not missing at random. In order to avoid the often unrealistic normality assumption for the complete outcomes, and to avoid choosing arbitrary sensitivity parameters, we adopt a novel Bayesian methodology for estimating regression parameters using multiple imputation, based on fully conditional specification that imputes the missing outcomes and models the missingness mechanism governed by an unknown parameter that is estimated from the data. Our simulation shows that the method can be insensitive to failure of the usual normality assumption for the regression, and can be superior to the standard approaches. The method is applied to the well-known Mastitis data, and it was found to be robust against outliers. The proposed method is conceptually simple, and easy to implement in current software.