

Estimation of repeated binary data models
with nonignorable missingness using
Markov chain Monte Carlo methods

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ABSTRACT

A model for the probability distribution of repeated binary response variables with nonignorable missing data mechanism is proposed. Marginal expectations of responses were related to a set of time-independent and time-dependent covariates by a logit link function. Covariates were assumed to be fully observed. A logit model was also used for the missing data mechanism. When ignorability was assumed, the model simply followed a joint distribution of responses that satisfies conditional independence. Parameters were estimated using Bayesian approach. Assuming normal priors, Metropolis-Hastings algorithm was employed to estimate parameters. Missing responses were likewise estimated based on these parameter estimates. Prevalence rate estimates using predicted missing response values were compared with estimates based on complete case analysis.