MODELLING THE ASSOCIATION BETWEEN A BINARY AND A CONTINUOUS LONGITUDINAL PROCESS

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A joint model for the association of longitudinal binary and continuous processes is proposed. The model is used for the analysis of a smoking cessation clinical trial in which moderate-intensity exercise was compared to a behavioral intervention. Smoking status and weight gain were measured weekly for eight weeks. The main question of interest was the effect of the (exercise) treatment on the relationship between smoking cessation and weight gain. We parameterize the model such that the dependence between smoking and weight gain is characterized by unconstrained regression coefficients. Bayesian variable selection techniques are used to parsimoniously model these coefficients for each treatment. An MCMC algorithm is developed for sampling from the posterior distribution, using data augmentation steps to handle missing data.