

Flexible Modeling of Random Effects in Nonlinear Mixed-Effects Models

Rolando De la Cruz

Departamento de Salud Pública, Escuela de Medicina; Departamento de Estadística, Facultad de Matemáticas, Pontificia Universidad Católica de Chile,
Marcoleta 434, Casilla 114D, Santiago, Chile
E-mail: rolando@med.puc.cl

Summary

Nonlinear mixed-effects (NLME) models have been widely used to analyze repeated measures data and are used in a variety of disciplines such as biology, medicine, agriculture, pharmacokinetic. They can modeling intraindividual and interindividual variations in the measurements taken on the individuals. Typically, the fundamental assumption in NLME models is the normality of the random effects, but such assumption is very restrictive in many situations. It is of practical interest, therefore, consider a more flexible class of distributions in place of the normality. This talk provides a tutorial on the use of more flexible alternatives for this assumption using Bayesian parametric and semiparametrics approaches. Additionally, we discuss Bayesian statistical methods for the classification of observations into two or more groups based on NLME models.

KEY WORDS: Dependet Dirichlet process; Discriminant analysis; Longitudinal data; Scales mixtures of skew-normal distributions; Random effects.