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On Discrimination in Multivariate Non-Normal Repeated Measures Data

Multivariate repeated measures data arise in studies in which two or more groups of individuals are repeatedly measured on several outcome variables. Repeated measures discriminant analysis models, which assume structured means and/or covariances, have been developed for predicting group membership in repeated measures data. However, these procedures may be sensitive to departures from the multivariate normality assumption. We propose repeated measures discriminant analysis procedures, which assume parsimonious covariance structures, based on maximum trimmed likelihood estimation methods for predicting group membership in multivariate non-normal repeated measures data. Data from a longitudinal health-related quality of life study are used to demonstrate the implementation of our methods. Repeated measured discriminant analysis models can be used to classify new observations into population groups.