

Misspecification of a dependent variable in the logistic model controlling for the repeated longitudinal measures

Yi-Ting Hwang

National Taipei University
E-mail: hwangyt@gm.ntpu.edu.tw

Abstract: Many medical applications are interested to know the disease status which is often related to multiple serial measurements. Precise measurements for the binary outcome are required when using the maximum likelihood estimation. To incorporate all the data information in the estimation, Hwang et al. (2015) derived the joint likelihood of the observed data. Nevertheless, the binary data might be often mismeasured owing to various reasons. When binary outcomes are subject to misclassification, the estimators of the coefficients of the logistic regression are biased. To reduce the bias, this paper incorporates the misspecification in the joint likelihood function. The joint likelihood approach along with the EM algorithm is used to find the estimates. Monte Carlo simulations are conducted to compare the impact of misspecification on the estimates. A retrospective data for the recurrence of AF is used to illustrate the usage of the proposed model.