Diagnostics for residual outliers using deviance component in binary logistic regression.

ABSTRACT

Detection of outliers based on residuals has received great interest in logistic regression. These methods like Pearson residuals and deviance residuals are only reliable for identifying a single outlier but fails for multiple outlier due to the masking and swamping problems. Therefore it is necessary to detect these outliers and take appropriate measures to obtain a good fit. In this study, we developed a new diagnostic method on the identification of residual outliers in logistic regression based on deviance component. The performance of the proposed diagnostic method is investigated through numerical examples and Monte Carlo simulation study. The result indicates that the proposed method manages to correctly identify all the outliers.

Keyword: Deviance residuals; Outliers; Pearson residuals; Deviance residuals; Simulation.