Modified standardized Pearson residual for the identification of outliers in logistic regression model

ABSTRACT

Detection of outlier based on standardized Pearson residuals has gained widespread use in logistic regression model in the presence of a single outlier. An innovation attempts in the same direction but dealing for a group of outliers have been made using generalized standardized Pearson residual which requires a graphical or a robust estimator to find suspected outliers to form a group deletion. In this study, an alternative measure namely modified standardized Pearson residual is derived from the robust logistic diagnostic. The weakness of standardized Pearson residuals and the usefulness of generalized standardized Pearson residual and modified standardized Pearson residual are examined through several real examples and Monte Carlo simulation study. The results of this study signify that the generalized standardized Pearson residual and the modified standardized Pearson residual perform equally good in identifying a group of outliers.