

A Kolmogorov-Smirnov Type Goodness-Of-Fit Test of Multinomial Logistic Regression Model in Case-Control Studies

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Abstract : The multinomial logistic regression model is used popularly for inferring the relationship of risk factors and disease with multiple categories. This study based on the discrepancy between the nonparametric maximum likelihood estimator and semiparametric maximum likelihood estimator of the cumulative distribution function to propose a Kolmogorov-Smirnov type test statistic to assess adequacy of the multinomial logistic regression model for case-control data. A bootstrap procedure is presented to calculate the critical value of the proposed test statistic. Empirical type I error rates and powers of the test are performed by simulation studies. Some examples will be illustrated the implementation of the test.

Keywords : case-control studies, goodness-of-fit test, Kolmogorov-Smirnov test, multinomial logistic regression

Conference Title : ICMSCS 2016 : International Conference on Mathematics, Statistics and Computational Sciences

Conference Location : Tokyo, Japan

Conference Dates : May 26-27, 2016