

Inference for the interclass correlation in familial data using small sample asymptotics

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Abstract

Inference on the parent-offspring correlation coefficient is an important problem in the analysis of familial data, and point estimates and likelihood based inference are available in the literature. In this work, corrections for the signed log-likelihood ratio test statistics are proposed, based on small sample asymptotics, in order to achieve accurate small sample performance. The corrected statistic can be used for hypothesis testing as well as for interval estimation. Numerical results are reported to show that the resulting tests and confidence intervals exhibit satisfactory performance regardless of the sample sizes. The results are illustrated using an example.

Keywords

Correlation coefficient, High order asymptotics, Likelihood ratio.