

A Bayesian test for the intraclass correlation coefficient

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Abstract

To decide if it is worth taking measures in triplicate (or more generally in m -plicate) to reduce the length of confidence intervals for the mean, we must have information on whether the intraclass correlation coefficient is smaller than a certain constant.

In experimental settings, usually only small pilot studies are available for such purposes. Although exact confidence intervals are available for the intraclass correlation coefficient, p-values for the corresponding hypothesis are not easy to obtain.

We bypass this problem by considering a Bayesian test that is convenient for interpretation purposes. We develop computational routines to implement the proposed method and present an example based on data from the food industry.

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