A MEASURE FOR THE RELIABILITY OF A RATING SCALE BASED ON LONGITUDINAL CLINICAL TRIAL DATA

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A conventional test-retest reliability study essentially consists of repeating the same measurement twice, thereby assuming a steady-state condition of the subject. Vangeneugden et al. (2004) have shown that the reliability can still be estimated when the steady-state assumption is not fulfilled. They use linear mixed models for repeated continuous measurements, providing the necessary variance components to estimate the intraclass correlation coefficient as an estimate for the reliability.

In the present approach a new measure is introduced, based on the classical definition of reliability, as the ratio of the true score variance and the total variance. Clinical trial data can be employed to estimate the reliability of the scale that is used in the study, as long as repeated measurements are taken. The reliability is estimated from the covariance parameters obtained from the best fitting model. The method provides a single number to express the reliability of the scale, at the same time allowing for the study of the reliability's time evolution. The method is applied on a case study in a meta-analytic framework.