

Editorial



Reliability and validity analysis in the field of medical and paramedical research; Common mistakes

Reliability (precision) and validity (accuracy) are two important methodological issues in all fields of researches. Although scientifically correct test to assess the reliability has been introduced more than 22 years ago, the reliability (repeatability or reproducibility) is being assessed by different statistical tests such as Pearson r, least square and paired t.test which all of them is among common mistakes in reliability analysis and is being published by high impact journals.

Briefly, for quantitative variable Intra Class Correlation Coefficient (ICC) and for qualitative variables weighted kappa should be used with caution because kappa has its own limitation too. It is crucial to know that there is no value of kappa that can be regarded universally as indication good agreement. Two important weaknesses of *k* value to assess agreement of a qualitative variable are as follow: It depends upon the prevalence in each category and also depends upon the number of categories.

Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), likelihood ratio positive and likelihood ratio negative as well as odds ratio (true results/false results – preferably more than 50) are among the tests to evaluate the validity of a single test compared to a gold standard. As a take home message, for reliability and validity analysis, appropriate tests should be applied by researchers. Otherwise, misdiagnosis and mismanagement of the patients cannot be avoided.

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