

0.0.1 Inappropriate assessment of Agreement

Paired T tests

This method can be applied to test for statistically significant deviations in bias. This method can be potentially misused for method comparison studies.

It is a poor measure of agreement when the rater's measurements are perpendicular to the line of equality[Hutson et al]. In this context, an average difference of zero between the two raters, yet the scatter plot displays strong negative correlation.

Inappropriate Methodologies

Use of the Pearson Correlation Coefficient , although seemingly intuitive, is not appropriate approach to assessing agreement of two methods. Arguments against its usage have been made repeatedly in the relevant literature. It is possible for two analytical methods to be highly correlated, yet have a poor level of agreement.

Pearson's Correlation Coefficient

It is well known that Pearson's correlation coefficient is a measure of the linear association between two variables, not the agreement between two variables (e.g., see Bland and Altman 1986)..This is a well known as a measure of linear association between two variables.Nonetheless this is not necessarily the same as Agreement. This method is considered wholly inadequate to assess agreement because it only evaluates only the association of two sets of observations.

0.0.2 Inappropriate use of the Correlation Coefficient

It is intuitive when dealing with two sets of related data, i.e the results of the two raters, to calculate the correlation coefficient (r). Bland and Altman attend to this in

their 1999 paper.

They present a data set from two sets of meters, and an accompanying scatterplot. An hypothesis test on the data set leads us to conclude that there is a relationship between both sets of meter measurements. The correlation coefficient is determined to be $r = 0.94$. However, this high correlation does not mean that the two methods agree. It is possible to determine from the scatterplot that the intercept is not zero, a requirement for stating both methods have high agreement. Essentially, should two methods have highly correlated results, it does not follow that they have high agreement.

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Components in assessing agreement

1. The degree of linear relationship between the two sets
2. The amount of bias as represented by the difference in the means
3. The Differences in the two variances.

Bibliography