

Description of Validscale

Validscale aims at assessing the validity and the reliability of a multidimensional measurement scale. It computes elements to provide structural validity, convergent and divergent validity, reproducibility, known-groups validity, internal consistency, scalability and sensitivity.

Options

Repartition of items:

Enter a list of numbers corresponding to the number of items in each dimension. For example, 4 3 4 means that the first 4 items are in dimension 1, the 3 following items are in dimension 2 and the last 4 items are in dimension 3.

Computation of scores:

You can choose between computing the scores automatically or selecting scores from the dataset. If you choose the first option, you can give names to the dimensions (otherwise dimensions will be named Dim1, Dim2, ...).

Modalities of responses:

Enter the minimum and maximum possible values for items responses. Default values are the observed minimum and maximum.

Imputation of missing data:

Impute missing items responses with Person Mean Substitution (PMS) method applied in each dimension. Missing data are imputed only if the number of missing values in the dimension is less than half the number of items in the dimension. By default, imputed values are rounded to the nearest whole number. If you checked "do not round", imputed values are not rounded.

Description of items:

Display a descriptive analysis of the items. The first option computes missing data rate per item and gives the distribution of items responses. It also computes for each item the Cronbach's alpha obtained by omitting each item in each dimension. Moreover, the option computes Loevinger's Hj coefficients and the number of non-significant Hjk. [Click here](#) for more information about Loevinger's coefficients. The second option provides histograms of scores, a graph showing the correlations between the scores and a graph showing the correlations between the items.

Convergent and divergent validities:

Display the matrix of correlations between items and rest-scores. If you are using scores from the dataset, then the correlations coefficients are computed between items and these scores. You can also display boxplots for assessing convergent and divergent validities. The boxes represent the correlation coefficients between the items of a given dimension and all scores. Thus the box of correlation coefficients between items of a given dimension and the corresponding score must be higher than other boxes. There are as many boxes as dimensions.

Confirmatory Factor Analysis:

Perform a confirmatory factor analysis (CFA) and display goodness-of-fit indices. You can choose the method to estimate the parameters and whether factor loadings have to be standardized. Moreover, you can add covariances between measurement errors. For example, if you want to specify a covariance between *item1* and *item2*, enter *item1*item2*. If you choose "automatically", then the program adds the covariances between measurement errors within a dimension that improve the fit of the model.

Reproducibility:

Assess reproducibility of scores between 2 times of measurement. You must enter only the items measured at time 2 in the same order than for time 1. Scores at time 2 are computed according the content of "Repartition of items" at the beginning of the form. The second solution is to select scores computed at time 2 directly from the dataset if they exist. Reproducibility is assessed with Intraclass Correlation Coefficients (ICC) and their 95% confidence interval. You also have the possibility to look at the reproducibility of the items with Kappa's coefficients. If you want confidence intervals for Kappa's coefficients, you must precise the number of bootstrap replications to estimate the confidence intervals. [Click here for more information.](#)

Known-groups validity:

Assess known-groups validity by selecting grouping variable(s). An ANOVA is performed to compare the scores between groups of individuals constructed according selected variable(s). You can also ask for boxplots showing the differences between groups and aggregate all these graphs in a unique image.

Concurrent validity :

Assess concurrent validity with selected variables. The variables chosen must be scores from one or several other scales.