Univariate Normative Comparisons – Manual

Update: 08-05-2017
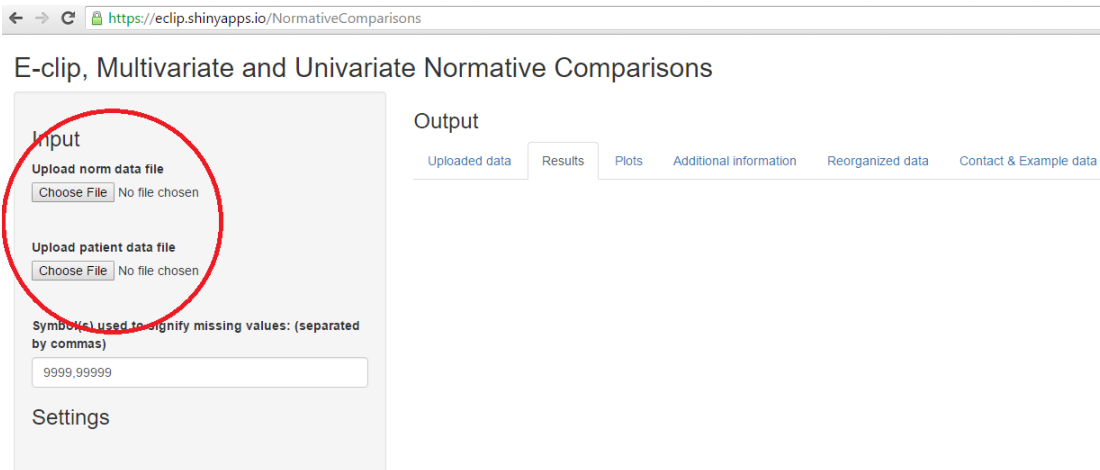
1) Create data files: 1 for patientdata, 1 for norm data.

In making the two data files, attention has to be paid to the following:

1. Above you see an example data file. In the first row, the variable names have to be specified. These variable names have to be the same in the norm and patien data files.
2. In both files, there is a column with the participant/patient numbers (with a name that can be something like "ID" at the top). Every person needs to have a unique number. This column is given the same name in the two files.
3. The other columns contain the scores. Every column has a name at the top (e.g. attention test). Every column needs to have a different name, and these names need to be the same in the two files.
4. The files are saved as .csv files. When saving the data files in Excel, "CSV (Comma delimited)" is given in the list of possible file types.

2) **Uploading data:**

To start the normative comparisons app, the norm and patient data files need to be uploaded. The first file is the norm data file, which you upload by pressing the Choose file button, and selecting the norm data csv file on your hard drive. The second file you upload is the patient data csv file.

If uploading has succeeded, the blue bar indicates "Upload complete"

3) Input options:

Input

Upload norm data file

| Browse... | NormData.csv |

Upload complete

Upload patient data file

| Browse... | PatientData.csv |

Upload complete

Symbol used to separate columns in CSV files:

| , | ▼ |

Symbol(s) used to signify missing values:
(separated by commas)

| 9999,99999 |

ID number column:

| id | ▼ |

Selected patient:

| 1 | ▼ |

Settings

Type of correction for univariate tests:

| Stepwise | ▼ |

Alpha level:

| 0.05 | ▼ |

Sided testing:

| onesided | ▼ |

Expectation for direction of deviation:

| lower | ▼ |

Included variables:
- ☑ long.term.memory.test
- ☑ attention.test
- ☑ intelligence.test
- ☑ short.term.memory.test
- ☑ inhibition.test
- ☑ motor.test
- ☑ perception.test

| Run analysis |

After uploading the data, the data can be verified under the "Uploaded data" tab. When the columns are not well separated, changing the "Symbol used to separate columns in CSV files" option may be of help (German and Dutch versions use semicolons, while other countries use comma's to separate columns).

If some values need to be interpreted as missing data, these can be filled in the "Symbol(s) used to signify missing values" field. If there are multiple such indicators, these may be separated by a comma.

Next, you can define which columns defines the patient IDs.

Then, you can select which patient you wish to analyze.

Under Settings, you can make a number of statistical choices. The first is what type of correction you want to perform (choices are Stepwise, Max, Bonferroni, None). The second is alpha level, i.e. what criterion for significance is used.
Currently, only onesided testing for impairment is available, since this is the goal in diagnostic practice. Therefore, the Sided testing option is fixed at "onesided", and the "Expectation for direction of deviation" option is fixed at "lower", because one is testing for impairment.

Next, the variables that need to be analyzed can be selected or deselected by ticking the variables under "Included variables".

Last, Run Analysis can be pressed, and the Results will be available under the Results tab.

4) Output:

Output

| Uploaded data | Results | Plots | Additional information | Reorganized data | Contact & Example data |

Tested	Significant?	Difference	Statistic	pvalue
Multivariate				
Is participant 1's profile of scores different from the norm?	No	-4.982	1.762	0.129
Univariate				
Is participant 1's score on long.term.memory.test different from the norm?	No	-0.582	-0.575	0.978
Is participant 1's score on attention.test different from the norm?	No	-0.121	-0.119	0.99
Is participant 1's score on intelligence.test different from the norm?	No	-0.861	-0.85	0.92
Is participant 1's score on short.term.memory.test different from the norm?	No	-0.378	-0.373	0.989
Is participant 1's score on inhibition.test different from the norm?	Yes	-3.347	-3.306	0.017
Is participant 1's score on motor.test different from the norm?	No	0.41	0.405	0.989
Is participant 1's score on perception.test different from the norm?	No	-0.103	-0.101	0.99

Multivariate: Hotelling's T-squared, Univariate: Comparisons corrected by using stepdown resampling. Both twosided, with a chosen alpha of 0.05.

At the Results tab the results are presented. For each test, the standardized observed score that the patient has obtained, next to the critical value for that test. If the observed score is lower than the critical value, this test result is significantly lower than the norm, unless when the monotonicity rule in the stepwise procedure is applied. To simplify interpretation, whether the score is significantly lower is also printed in the "Significant?" column

5) Troubleshooting:

a) Whenever results are missing, pressing Run Analysis again may help.

b) Red text means that there is something wrong, for example that one of the data files is not read in properly. This can mean that there are multiple columns with the same name, column names with special characters (like é or í), or that multiple patients or norm participants have the same ID number.

c) If the browser goes dark gray, the analysis and website is no longer running, and needs to be restarted by reloading the page.