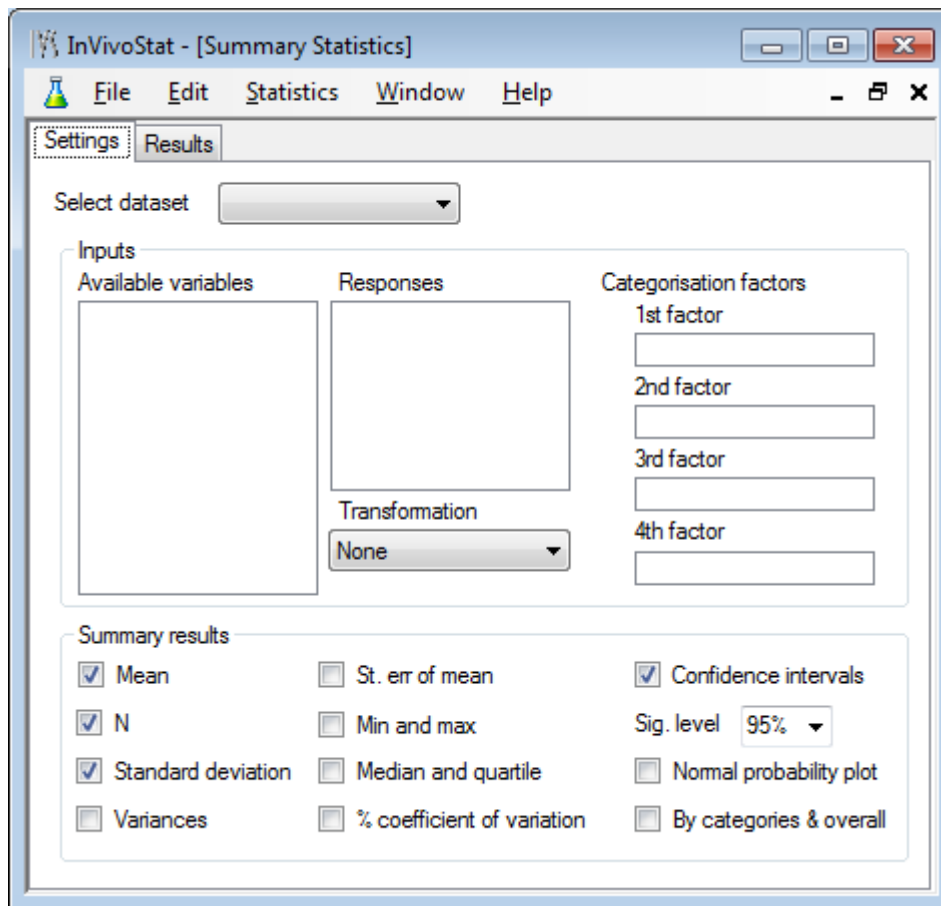


The Summary Statistics module in Silver is available from the Statistics drop-down menu entitled “Summary Statistics”. The user interface is:



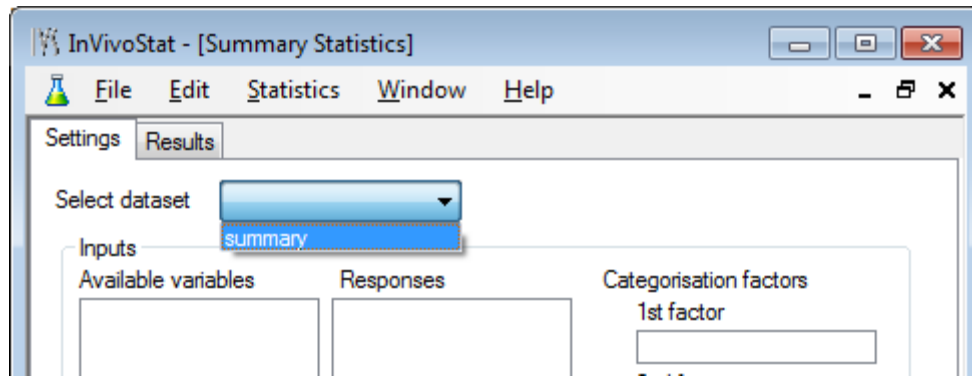
The Summary Statistics module allows the user to compute various summary measures. Multiple responses can be selected and the summary statistics can be broken down by up to four different categorisation factors.

## 1 Analysis procedure

The module works using a simple five stage process:

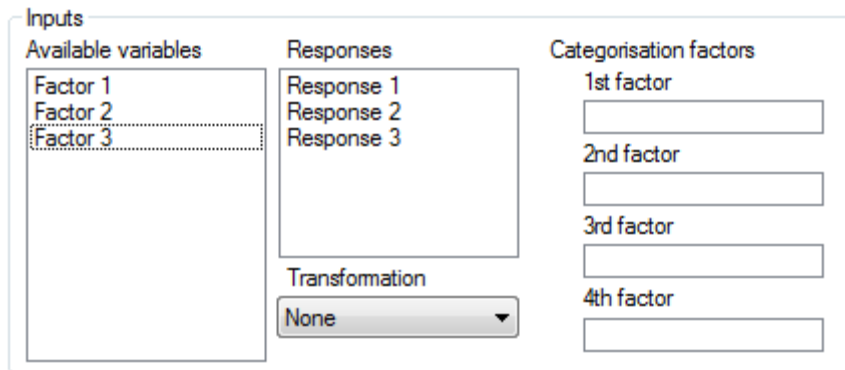
### 1.1 *Select the dataset to be summarised*

The analysis begins by selecting a dataset from the drop-down list of available datasets.



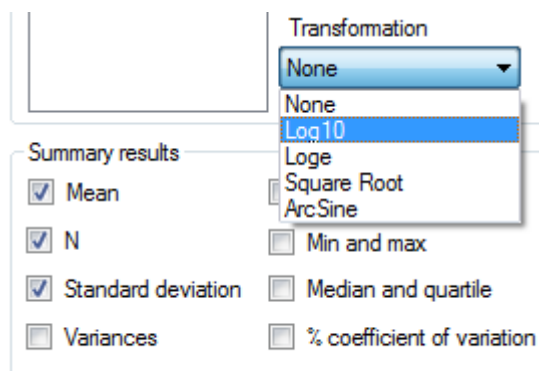
### 1.2 Select the responses to analyse

Multiple responses can be selected by drag and dropping from the list of available variables into the Responses box.



### 1.3 Select a transformations for the response(s)

The user has the option of  $\log_{10}$ ,  $\log_e$ , square root or arcsine transforming the response variable(s) using the options on the transformation drop-down list.



### 1.4 Select any factors to categorise the results by

Up to four factors (with either numeric or categorical factor levels) can be selected to categorise the results by. Simply drag and drop the factors from the list of available variables into the Categorisation factor boxes.

The screenshot shows a dialog box with two main sections: 'Responses' and 'Categorisation factors'. Under 'Responses', there is a list box containing 'Response 1', 'Response 2', and 'Response 3'. Below this is a 'Transformation' dropdown menu currently set to 'None'. Under 'Categorisation factors', there are four input fields labeled '1st factor', '2nd factor', '3rd factor', and '4th factor', each with a text box for input.

**1.5 Select the summary statistics to be computed**

Finally the user should select the output options by highlighting the required summary statistics. The user also has the option to change the default confidence interval around the mean from 95% or another value of their choice.

The screenshot shows the 'Summary results' dialog box. It contains several checkboxes for selecting statistics: Mean (checked), N (checked), Standard deviation (checked), Variances (unchecked), St. err of mean (unchecked), Min and max (unchecked), Median and quartile (unchecked), % coefficient of variation (unchecked), Confidence intervals (checked), Sig. level (dropdown menu showing 95% selected, with options for 90%, 95%, and 99%), Normal plot (unchecked), and By category overall (unchecked).

**2 Sample output**

**SilveR Summary Statistics**

Summary statistics for Response 1 categorised by Factor 1 and Factor 2

|                              | Mean   | N | StDev  | Lower 95% CI | Upper 95% CI |
|------------------------------|--------|---|--------|--------------|--------------|
| Categorisation Factor levels |        |   |        |              |              |
| A 1                          | 0.3307 | 4 | 0.1851 | 0.0361       | 0.6253       |
| A 2                          | 0.7591 | 4 | 0.1725 | 0.4845       | 1.0336       |
| B 1                          | 0.4049 | 4 | 0.2184 | 0.0574       | 0.7524       |
| B 2                          | 0.4970 | 4 | 0.2417 | 0.1124       | 0.8817       |
| C 1                          | 0.7300 | 4 | 0.2140 | 0.3896       | 1.0705       |
| C 2                          | 0.8614 | 4 | 0.0926 | 0.7140       | 1.0088       |
| D 1                          | 0.6532 | 4 | 0.1506 | 0.4136       | 0.8928       |
| D 2                          | 0.6371 | 4 | 0.2107 | 0.3018       | 0.9724       |

Summary statistics for Response 2 categorised by Factor 1 and Factor 2

|                                     | <b>Mean</b> | <b>N</b> | <b>StDev</b> | <b>Lower 95% CI</b> | <b>Upper 95% CI</b> |
|-------------------------------------|-------------|----------|--------------|---------------------|---------------------|
| <b>Categorisation Factor levels</b> |             |          |              |                     |                     |
| A 1                                 | 0.3658      | 4        | 0.4226       | -0.3066             | 1.0383              |
| A 2                                 | 0.4217      | 4        | 0.3866       | -0.1935             | 1.0368              |
| B 1                                 | 0.4524      | 4        | 0.3835       | -0.1578             | 1.0627              |
| B 2                                 | 0.5336      | 4        | 0.4801       | -0.2303             | 1.2976              |
| C 1                                 | 0.5268      | 4        | 0.3622       | -0.0496             | 1.1031              |
| C 2                                 | 0.5391      | 4        | 0.3427       | -0.0063             | 1.0844              |
| D 1                                 | 0.5302      | 4        | 0.2835       | 0.0792              | 0.9813              |
| D 2                                 | 0.4159      | 4        | 0.3501       | -0.1411             | 0.9729              |

Summary statistics for Response 3 categorised by Factor 1 and Factor 2

|                                     | <b>Mean</b> | <b>N</b> | <b>StDev</b> | <b>Lower 95% CI</b> | <b>Upper 95% CI</b> |
|-------------------------------------|-------------|----------|--------------|---------------------|---------------------|
| <b>Categorisation Factor levels</b> |             |          |              |                     |                     |
| A 1                                 | 0.4401      | 4        | 0.1335       | 0.2276              | 0.6525              |
| A 2                                 | 0.3134      | 4        | 0.3327       | -0.2161             | 0.8428              |
| B 1                                 | 0.3653      | 4        | 0.2405       | -0.0173             | 0.7480              |
| B 2                                 | 0.8284      | 4        | 0.1292       | 0.6229              | 1.0339              |
| C 1                                 | 0.3804      | 4        | 0.2448       | -0.0092             | 0.7699              |
| C 2                                 | 0.3349      | 4        | 0.2299       | -0.0309             | 0.7007              |
| D 1                                 | 0.5013      | 4        | 0.3514       | -0.0579             | 1.0605              |
| D 2                                 | 0.4217      | 4        | 0.2617       | 0.0054              | 0.8381              |

### **R references**

R Development Core Team (2008). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL <http://www.R-project.org>.

Lecoutre, Eric (2003). The R2HTML Package. R News, Vol 3. N. 3, Vienna, Austria.