

# SOURCEBOOK

jamovi

## DATA ANALYSIS

**Abstract:** This chapter provides step-by-step written instructions and screenshots for obtaining basic statistical output using jamovi. Simple examples for most undergraduate-level between-subjects and within-subjects research designs are provided.

**Keywords:** jamovi, screenshots, directions for use

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**Updated:** May 2025

This document is part of an online statistics sourcebook.

A browser-friendly viewing platform for the sourcebook is available:

<https://cwendorf.github.io/Sourcebook>

All data, syntax, and output files are available:

<https://github.com/cwendorf/Sourcebook>

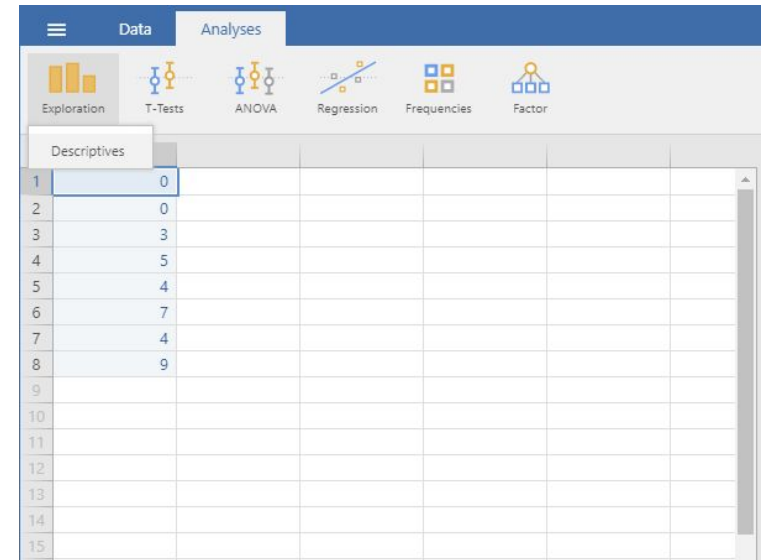
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# Frequencies and Descriptives

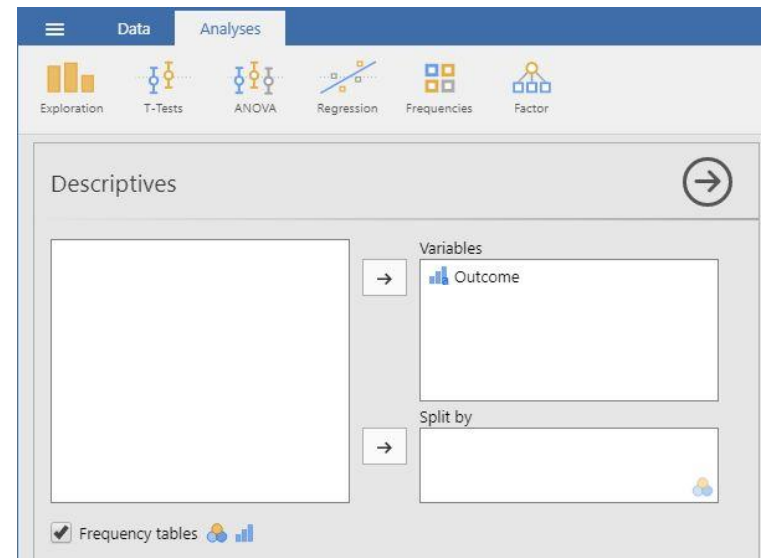
## Selecting the Analysis

1. First, enter the data (described elsewhere).
2. On the “Analyses” tab, select the “Exploration → Descriptives” option.



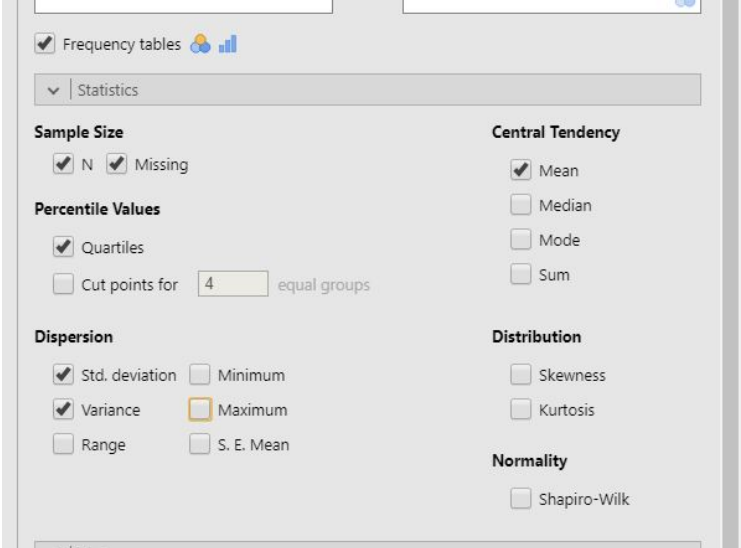
## Obtaining Frequencies

3. A set of options will then appear for you to choose the variables and statistics of interest.
4. Select the variables you wish to analyze by clicking on them in the left-hand box and then the arrow to move them into the right-hand box.
5. Be sure that “Frequency tables” is checked. Without this checked, you will not get a frequency distribution.
6. Output will automatically appear on the right side of the window.



## Obtaining Descriptive Statistics

7. Though some basic summary statistics are displayed by default, you can make changes by expanding the “Statistics” drop-down menu.
8. As you select the desired statistics, the output on the right side of the window will be automatically updated.



The screenshot shows the 'Statistics' dialog box in SPSS. At the top, there is a checked box for 'Frequency tables' and a small icon. Below this is a 'Statistics' drop-down menu. The dialog is organized into several sections with checkboxes:

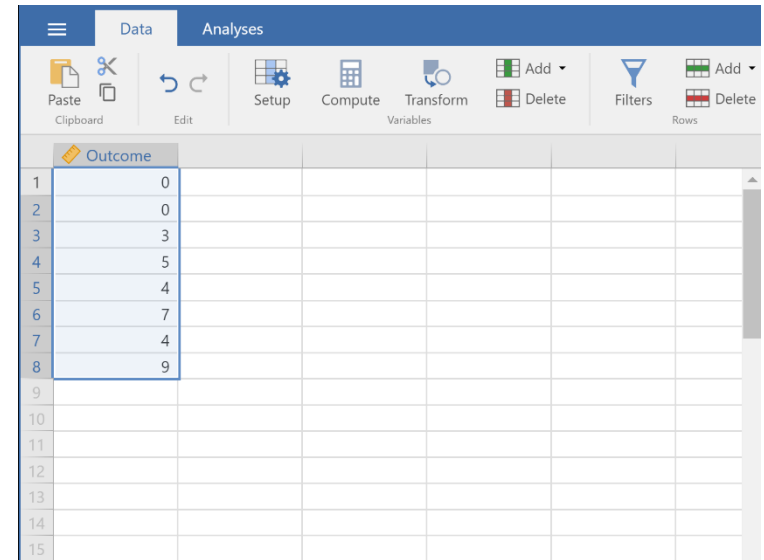
- Sample Size:** ☒ N, ☒ Missing
- Percentile Values:** ☒ Quartiles, ☐ Cut points for  equal groups
- Dispersion:** ☒ Std. deviation, ☐ Minimum, ☒ Variance, ☐ Range, ☐ S. E. Mean, ☐ Maximum
- Central Tendency:** ☒ Mean, ☐ Median, ☐ Mode, ☐ Sum
- Distribution:** ☐ Skewness, ☐ Kurtosis
- Normality:** ☐ Shapiro-Wilk

At the bottom, there is a 'Select...' button.

# Transformations and Standardized Scores

## Selecting the Analysis

1. First, enter the data (described elsewhere).
2. After the data are entered, click on the column representing the data you wish to transform.
3. Select the “Compute” option from the menu. This will bring up a new set of options.

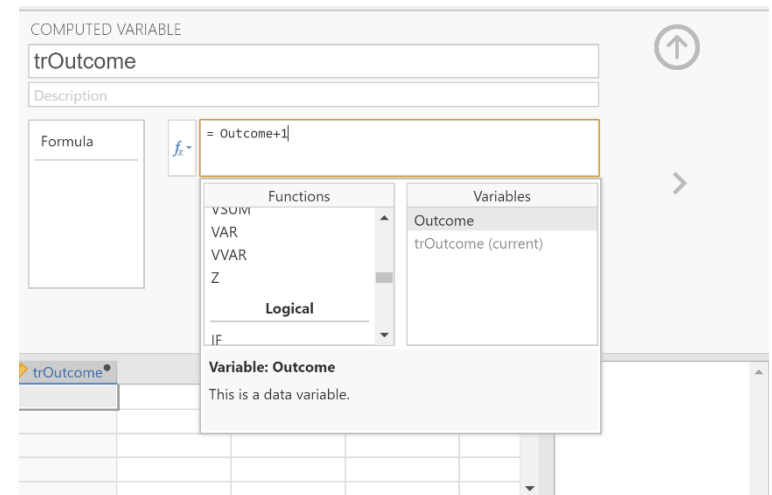


The screenshot shows a software interface with a menu bar containing 'Data' and 'Analyses'. Below the menu bar is a toolbar with icons for 'Paste', 'Edit', 'Setup', 'Compute', 'Transform', 'Add', 'Delete', 'Filters', and 'Delete'. The main area displays a table with a column named 'Outcome'. The data in the 'Outcome' column is as follows:

	Outcome
1	0
2	0
3	3
4	5
5	4
6	7
7	4
8	9
9	
10	
11	
12	
13	
14	
15	

## Computing Transformations

4. Type in the new you wish to give the new variable (here it is “trOutcome”).
5. Click on the “fx” button to obtain the dropdown menu.
6. Click on the variable you wish to transform (“Outcome”). This will place it in the formula editor. Then add, subtract, multiply, or divide as needed to get the transformation you want.
7. Hit “Enter” on your keyboard to perform the data transformation.
8. To hide the setup menu, click on the large UP arrow button to the right of the variable name.



The screenshot shows the 'COMPUTED VARIABLE' dialog box. The 'Name' field is set to 'trOutcome'. The 'Description' field is empty. The 'Formula' field contains the expression '= Outcome+1'. The 'fx' button is visible next to the formula field. Below the formula field, there are two panels: 'Functions' and 'Variables'. The 'Functions' panel shows a list of functions including 'VSUM', 'VAR', 'VVAR', 'Z', 'Logical', and 'IF'. The 'Variables' panel shows a list of variables including 'Outcome' and 'trOutcome (current)'. A 'Variable: Outcome' tooltip is visible, stating 'This is a data variable.'.

### Viewing Transformed Scores

9. Note that transformed variables are not included in the output. Rather, they are saved as new variables in the data view window.
10. These variables can be used in subsequent analyses. You can follow the previous tutorials to get descriptive statistics for these variables.

	Outcome	trOutcome
1	0	1
2	0	1
3	3	4
4	5	6
5	4	5
6	7	8
7	4	5
8	9	10
9		
10		
11		
12		
13		
14		
15		

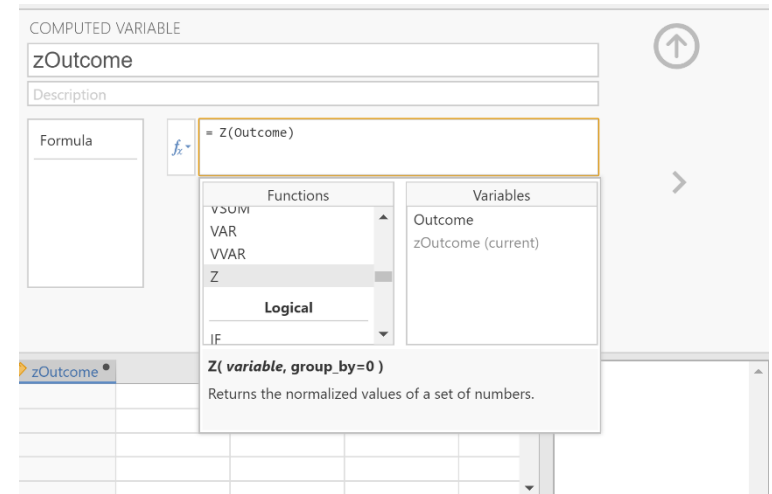
### Obtaining Standardized Scores

11. In addition, you can obtain standardized scores. First, enter the data (described elsewhere).
12. After the data are entered, click on the column representing the data you wish to transform.
13. Select the “Compute” option from the menu. This will bring up a new set of options.

	Outcome
1	0
2	0
3	3
4	5
5	4
6	7
7	4
8	9
9	
10	
11	
12	
13	
14	
15	

### Computing Standardized Scores

14. Type in the new you wish to give the new variable (here it is "zOutcome").
15. Click on the "fx" button to obtain the dropdown menu. On the left side under functions, click on "z" to place it in the formula editor.
16. Click on the variable you wish to transform ("Outcome"). This will place it in the formula editor.
17. Hit "Enter" on your keyboard to perform the data transformation.
18. To hide the setup menu, click on the large UP arrow button to the right of the variable name.



### Viewing Standardized Scores

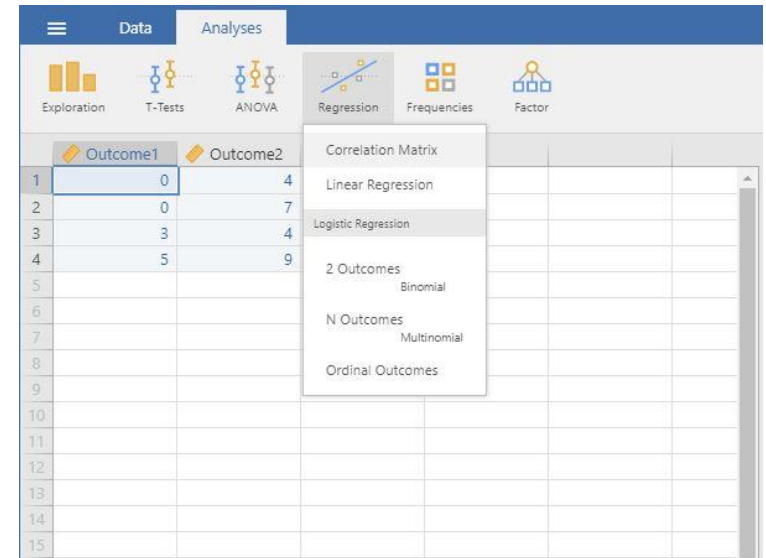
19. Note that standardized variables are not included in the output. Rather, they are saved as new variables in the data view window.
20. These variables can be used in subsequent analyses. You can follow the previous tutorials to get descriptive statistics for these variables.

	Outcome	zOutcome
1	0	-1.283
2	0	-1.283
3	3	-0.321
4	5	0.321
5	4	0.000
6	7	0.963
7	4	0.000
8	9	1.604
9		
10		
11		
12		
13		
14		
15		

# Correlations

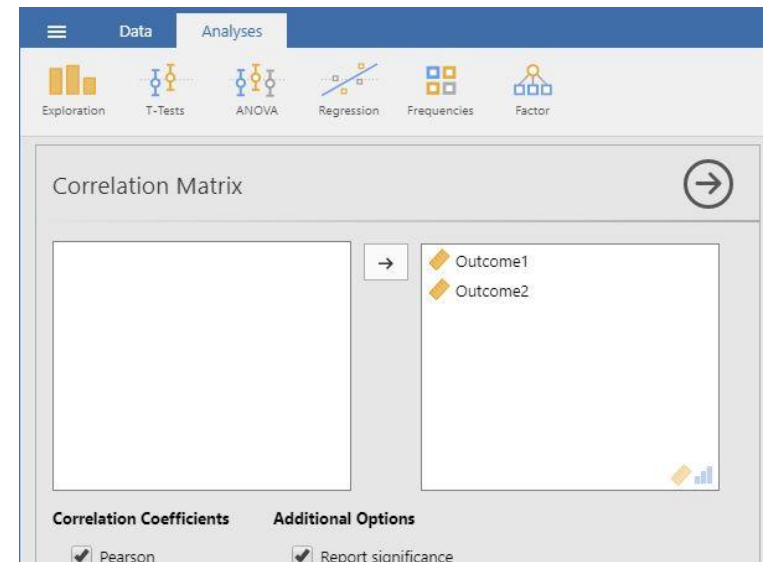
## Selecting the Analysis

1. First, enter data involving multiple variables (described elsewhere).
2. On the “Analyses” tab, select the “Regression → Correlation Matrix” option.



## Obtaining Inferential Statistics

3. A set of options will then appear for you to choose the variables and statistics of interest.
4. Select the variables you wish to analyze by clicking on them in the left-hand box and then the arrow to move them into the right-hand box.
5. Output (with no descriptive statistics) will automatically appear on the right side of the window.
6. If you wish descriptive statistics associated with each variable, follow the “Descriptives” procedures described earlier in this manual.

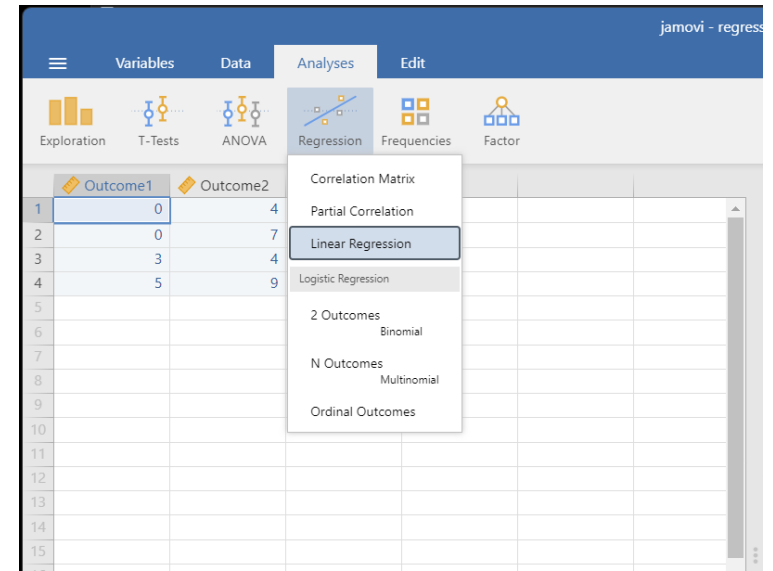




# Regression

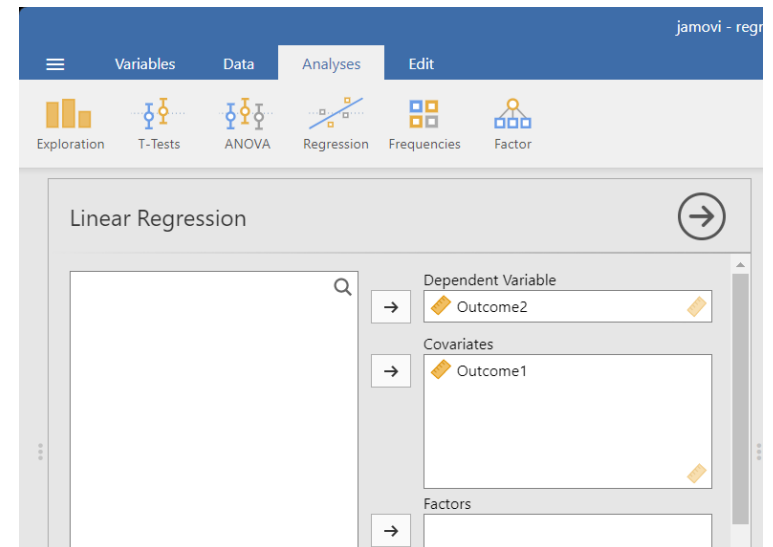
## Selecting the Analysis

1. First, enter data involving multiple variables (described elsewhere).
2. On the “Analyses” tab, select the “Regression → Linear Regression” option.



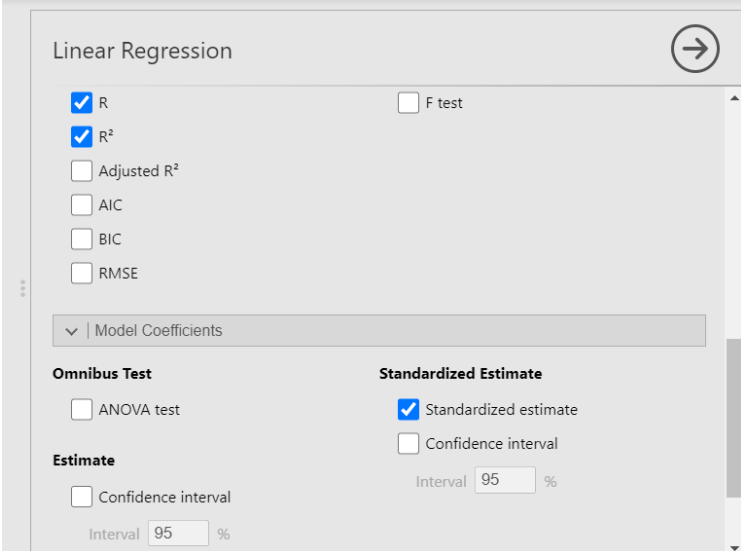
## Obtaining Inferential Statistics

3. A set of options will then appear for you to choose the variables and statistics of interest.
4. Select the variables you wish to analyze by clicking on them in the left-hand box and then the arrow to move them into the right-hand boxes. Your Predictor (here “Outcome1”) should go under “Covariates” and your Outcome (here “Outcome2”) should go in as the “Dependent Variable”.
5. Output (with no descriptive statistics) will automatically appear on the right side of the window.



### Obtaining Additional Statistics

6. Scroll down to the section on “Model Fit” and check both “R” and “R<sup>2</sup>”.
7. In the section on “Model Coefficients”, check “Standardized Estimate”.
8. Updated output will automatically appear on the right side of the window.
9. If you wish descriptive statistics associated with each variable, follow the “Descriptives” procedures described earlier in this manual.



The image shows the "Linear Regression" dialog box in SPSS. The "Model Fit" section is expanded, showing checkboxes for "R" (checked), "R<sup>2</sup>" (checked), "Adjusted R<sup>2</sup>", "AIC", "BIC", "RMSE", and "F test". The "Model Coefficients" section is also expanded, showing checkboxes for "ANOVA test", "Standardized estimate" (checked), and "Confidence interval". Below these, there are input fields for "Interval" (95 %) for both the "Estimate" and "Standardized Estimate" sections.

Linear Regression

☒ R ☐ F test

☒ R<sup>2</sup>

☐ Adjusted R<sup>2</sup>

☐ AIC

☐ BIC

☐ RMSE

Model Coefficients

**Omnibus Test**

☐ ANOVA test

**Standardized Estimate**

☒ Standardized estimate

☐ Confidence interval

Interval 95 %

**Estimate**

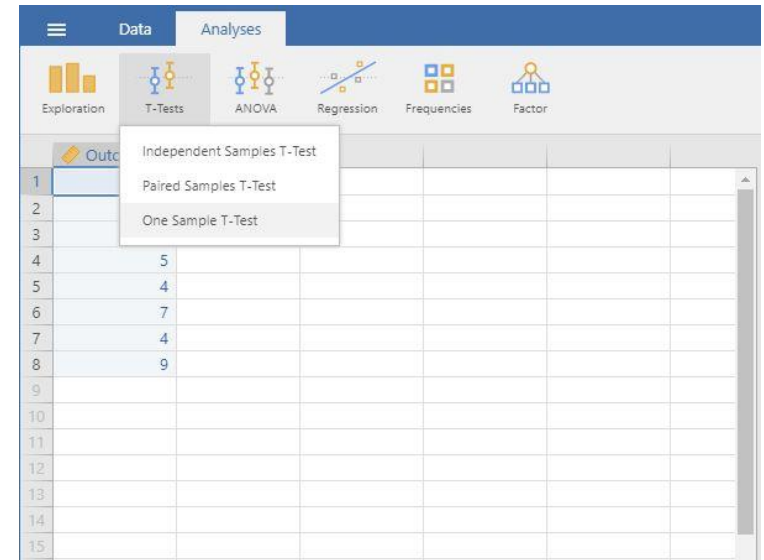
☐ Confidence interval

Interval 95 %

# Confidence Interval for a Mean

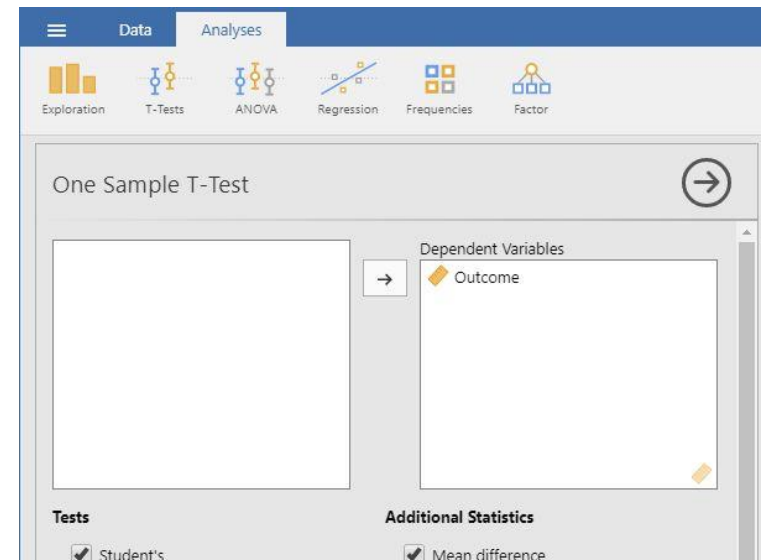
## Selecting the Analysis

1. First, enter the data (described elsewhere).
2. On the “Analysis” tab, select the “T-Tests → One Sample T-Test” option.



## Choosing Variables

3. A set of options will then appear for you to choose the variables and statistics of interest.
4. Select the variable you wish to analyze by clicking on it in the left-hand box and then the arrow to move it into the right-hand box.
5. Output will automatically appear on the right side of the window.



## Obtaining Inferential Statistics

6. To get the confidence interval for the mean, make sure the “Test Value” is set to zero.
7. Check the “Confidence Interval” box (and alter the width of the interval if desired).
8. Similarly, select other options that are important for you: “Descriptives” will offer a mean and standard deviation for the variable; and “Descriptives plots” will provide a graph of the confidence interval.
9. Updated output will automatically appear on the right side of the window.

**Tests**

☒ Student's  
☐ Bayes factor  
Prior 0.707  
☐ Wilcoxon rank

**Hypothesis**

Test value 0

☒ ≠ Test value  
☐ > Test value  
☐ < Test value

**Missing values**

☒ Exclude cases analysis by analysis  
☐ Exclude cases listwise

**Additional Statistics**

☐ Mean difference  
☐ Effect size  
☒ Confidence interval  
Interval 95 %  
☒ Descriptives  
☒ Descriptives plots

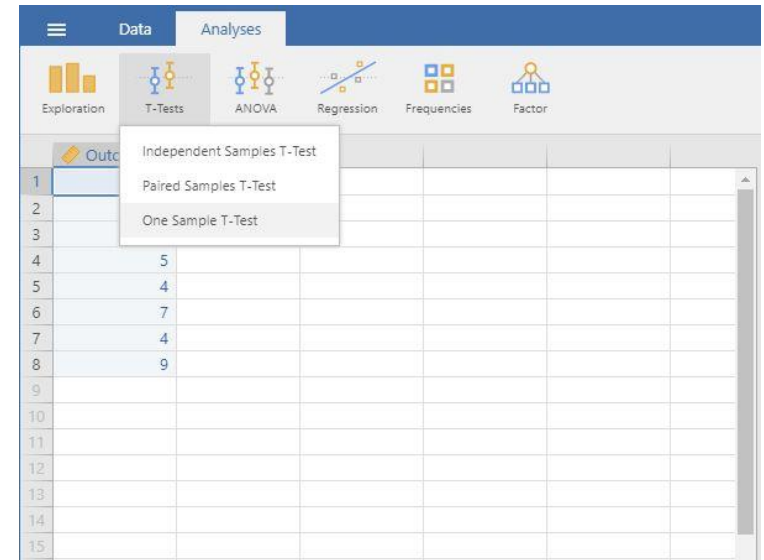
**Assumption Checks**

☐ Normality (Shapiro-Wilk)  
☐ Normality (Q-Q plot)

# One Sample t Test

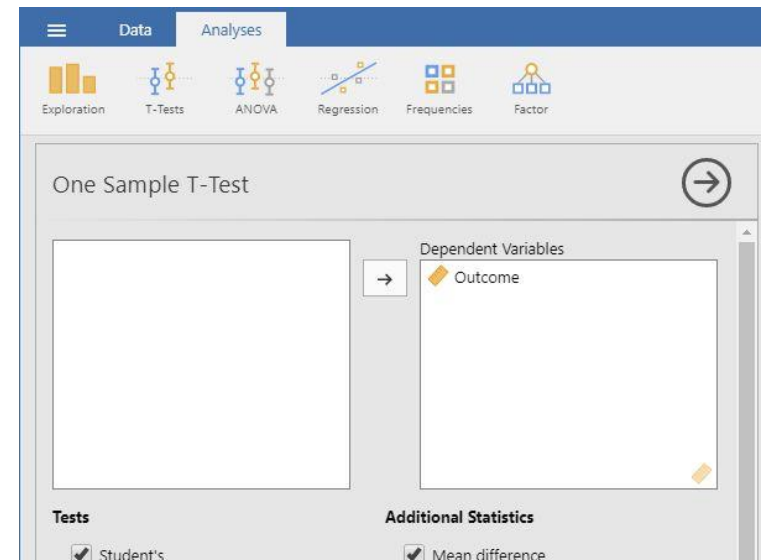
## Selecting the Analysis

1. First, enter the data (described elsewhere).
2. On the “Analysis” tab, select the “T-Tests → One Sample T-Test” option.



## Obtaining Inferential Statistics

3. A set of options will then appear for you to choose the variables and statistics of interest.
4. Select the variable you wish to analyze by clicking on it in the left-hand box and then the arrow to move it into the right-hand box.
5. Output will automatically appear on the right side of the window.



### **Obtaining Additional Statistics**

6. Be sure to enter a known or hypothesized mean into the “Test Value” field. If you do not enter a value here, jamovi will automatically use zero as the comparison mean.
7. If you wish to view (and alter) the width of the confidence interval, check the “Confidence Interval” box.
8. Similarly, select other options that are important for you: “Mean Difference” will display the size of the difference between the two means; “Effect size” will display Cohen’s d; and “Descriptives” will offer a mean and standard deviation for the variable.
9. Updated output will automatically appear on the right side of the window.

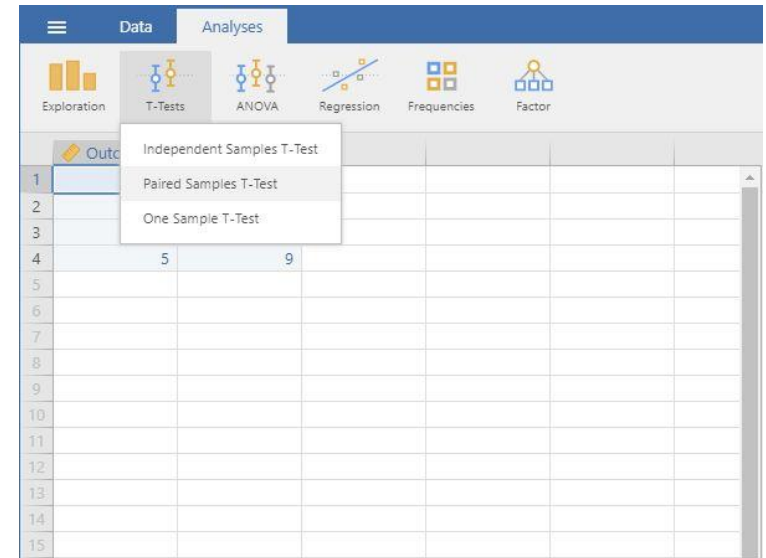
The image shows a screenshot of the Jamovi software interface, specifically the 'Tests' and 'Additional Statistics' panels. The 'Tests' panel on the left includes options for 'Student's' (checked), 'Bayes factor' (unchecked), 'Prior' (0.707), and 'Wilcoxon rank' (unchecked). The 'Hypothesis' section has a 'Test value' field with a blue icon and three radio buttons: '≠ Test value' (selected), '> Test value', and '< Test value'. The 'Missing values' section has two radio buttons: 'Exclude cases analysis by analysis' (selected) and 'Exclude cases listwise'. The 'Additional Statistics' panel on the right includes 'Mean difference' (checked), 'Effect size' (checked), 'Confidence interval' (checked) with an 'Interval' of 95%, 'Descriptives' (checked), and 'Descriptives plots' (unchecked). The 'Assumption Checks' section has two unchecked options: 'Normality (Shapiro-Wilk)' and 'Normality (Q-Q plot)'.

Section	Option	Status
Tests	Student's	Checked
	Bayes factor	Unchecked
	Prior	0.707
	Wilcoxon rank	Unchecked
Hypothesis	Test value	Field with icon
	≠ Test value	Selected
	> Test value	Unchecked
Missing values	Exclude cases analysis by analysis	Selected
	Exclude cases listwise	Unchecked
Additional Statistics	Mean difference	Checked
	Effect size	Checked
	Confidence interval	Checked
	Interval	95 %
	Descriptives	Checked
Assumption Checks	Descriptives plots	Unchecked
	Normality (Shapiro-Wilk)	Unchecked
	Normality (Q-Q plot)	Unchecked

# Paired Samples t Test

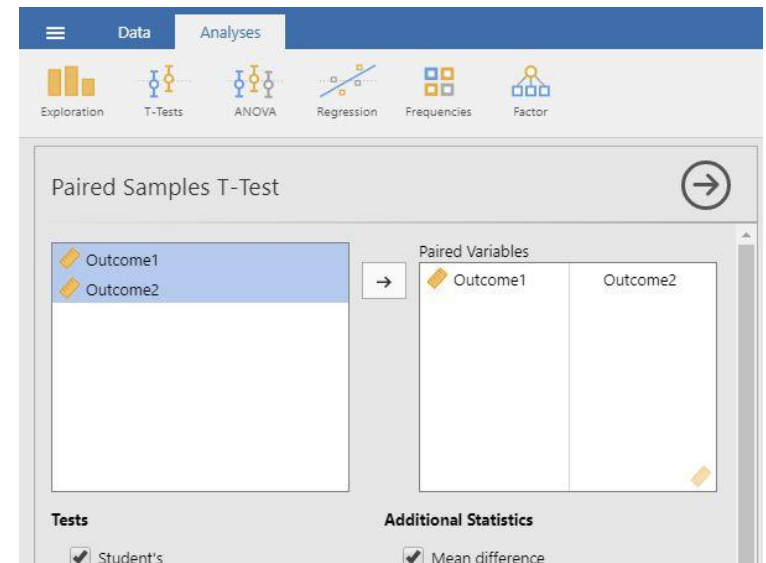
## Selecting the Analysis

1. First, enter paired samples data (described elsewhere).
2. On the “Analysis” tab, Select the “T-Tests → Paired Samples T-Test” option.



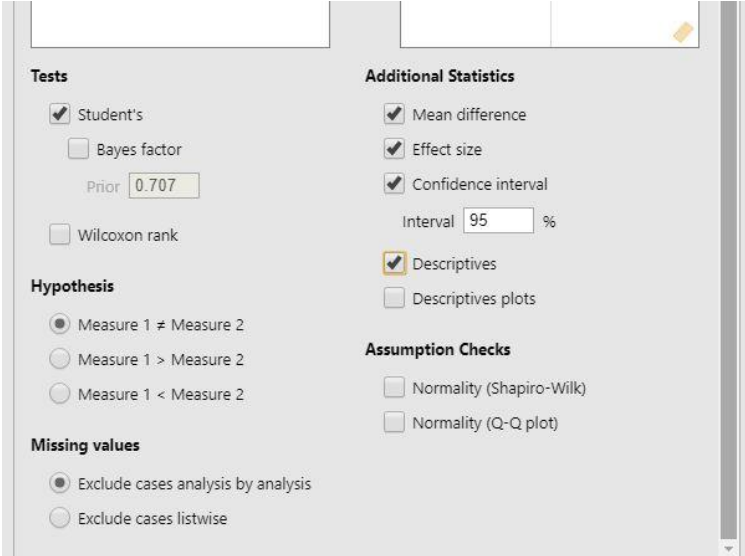
## Obtaining Inferential Statistics

3. A set of options will then appear for you to choose the variables and statistics of interest.
4. Select the variables you wish to analyze by clicking on both of them while holding down the “CTRL” key. Then click on the arrow to move the pair of variables to the right-hand box.
5. Output will automatically appear on the right side of the window.



### **Obtaining Additional Statistics**

6. If you wish to view (and alter) the width of the confidence interval, check the “Confidence Interval” box.
7. Similarly, select other options that are important for you: “Mean Difference” will display the size of the difference between the two means; “Effect size” will display Cohen’s d; and “Descriptives” will offer means and standard deviations for each variable.
8. Updated output will automatically appear on the right side of the window.



The screenshot shows the 'Additional Statistics' dialog box in SPSS. The 'Tests' section on the left has 'Student's' checked, 'Bayes factor' unchecked with a 'Prior' of 0.707, and 'Wilcoxon rank' unchecked. The 'Hypothesis' section has 'Measure 1 ≠ Measure 2' selected. The 'Missing values' section has 'Exclude cases analysis by analysis' selected. The 'Additional Statistics' section on the right has 'Mean difference', 'Effect size', and 'Confidence interval' checked, with the confidence interval set to 95%. 'Descriptives' is also checked, while 'Descriptives plots' is unchecked. The 'Assumption Checks' section has both 'Normality (Shapiro-Wilk)' and 'Normality (Q-Q plot)' unchecked.

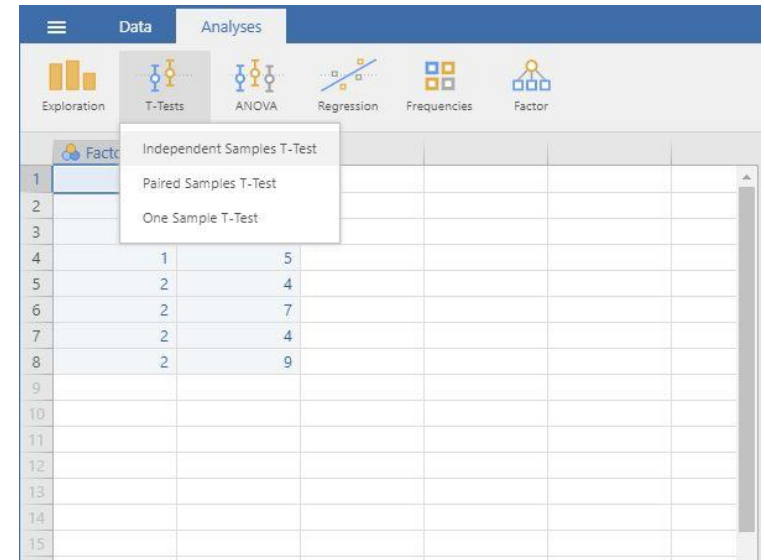
Section	Option	Status
Tests	Student's	Checked
	Bayes factor	Unchecked
	Wilcoxon rank	Unchecked
Hypothesis	Measure 1 ≠ Measure 2	Selected
	Measure 1 > Measure 2	Unselected
	Measure 1 < Measure 2	Unselected
Missing values	Exclude cases analysis by analysis	Selected
	Exclude cases listwise	Unselected
Additional Statistics	Mean difference	Checked
	Effect size	Checked
	Confidence interval	Checked
	Interval	95 %
Additional Statistics	Descriptives	Checked
	Descriptives plots	Unchecked
Assumption Checks	Normality (Shapiro-Wilk)	Unchecked
	Normality (Q-Q plot)	Unchecked



# Independent Samples t Test

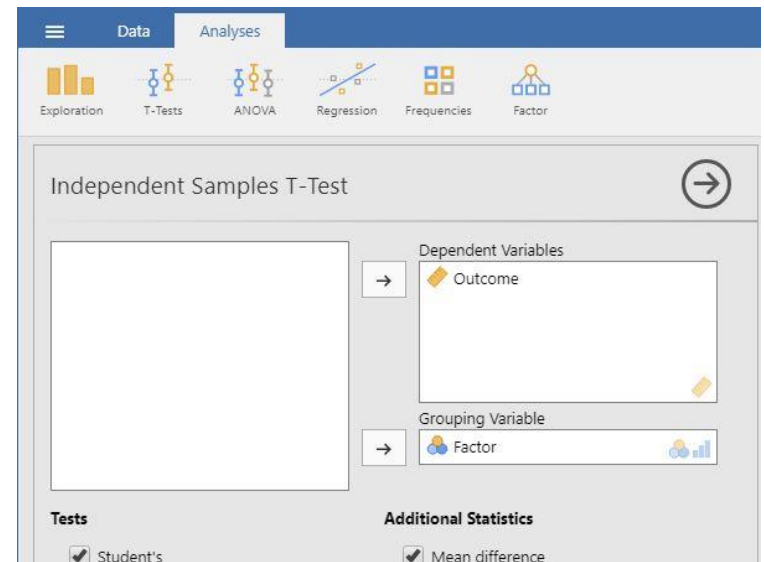
## Selecting the Analysis

1. First, enter two sample data (described elsewhere).
2. On the “Analysis” tab, select the “T-Tests → Independent Samples T-Test” option.



## Obtaining Inferential Statistics

3. A set of options will then appear for you to choose the variables and statistics of interest.
4. Select the outcome variable and click the arrow to move it into the “Dependent Variables” box.
5. Move the Independent Variable to the “Grouping Variable” box.
6. Output will automatically appear on the right side of the window.



### Obtaining Additional Statistics

7. If you wish to view (and alter) the width of the confidence interval, check the “Confidence Interval” box.
8. Similarly, select other options that are important for you: “Mean Difference” will display the size of the difference between the two group’s means; “Effect size” will display Cohen’s d; and “Descriptives” will offer means and standard deviations for each group.
9. Updated output will automatically appear on the right side of the window.

**Tests**

☒ Student's  
☐ Bayes factor  
Prior: 0.707

☐ Welch's  
☐ Mann-Whitney U

**Hypothesis**

☒ Group 1 < Group 2  
☐ Group 1 > Group 2  
☐ Group 1 = Group 2

**Missing values**

☒ Exclude cases analysis by analysis  
☐ Exclude cases listwise

**Additional Statistics**

☒ Mean difference  
☒ Effect size  
☒ Confidence interval  
Interval: 95 %

☒ Descriptives  
☐ Descriptives plots

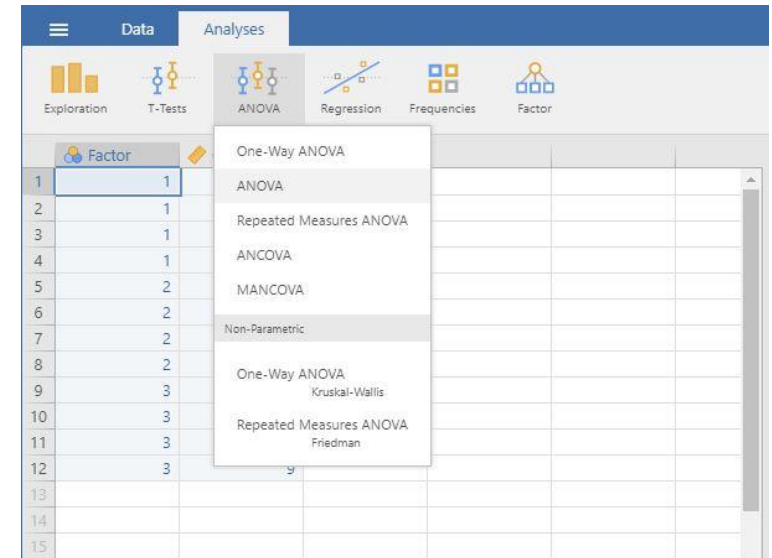
**Assumption Checks**

☐ Normality (Shapiro-Wilk)  
☐ Normality (Q-Q plot)  
☐ Equality of variances

# OneWay ANOVA

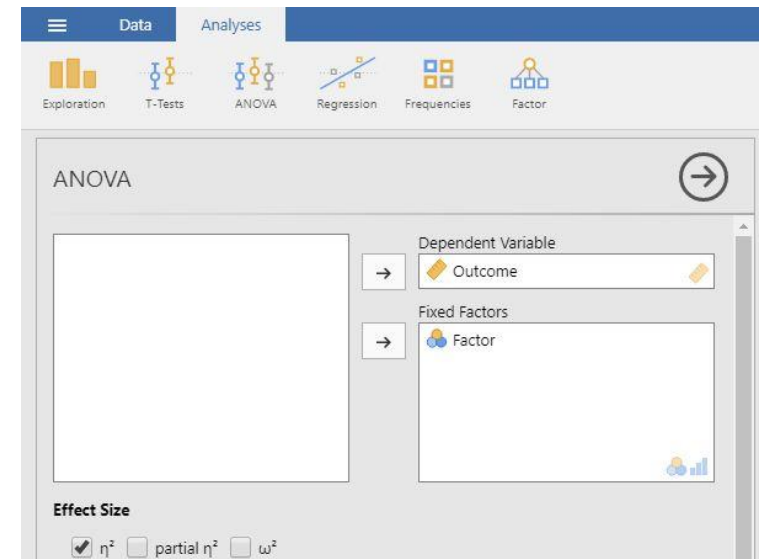
## Selecting the Analysis

1. First, enter multiple group data (described elsewhere).
2. On the “Analysis” tab, select the “ANOVA → ANOVA” option.



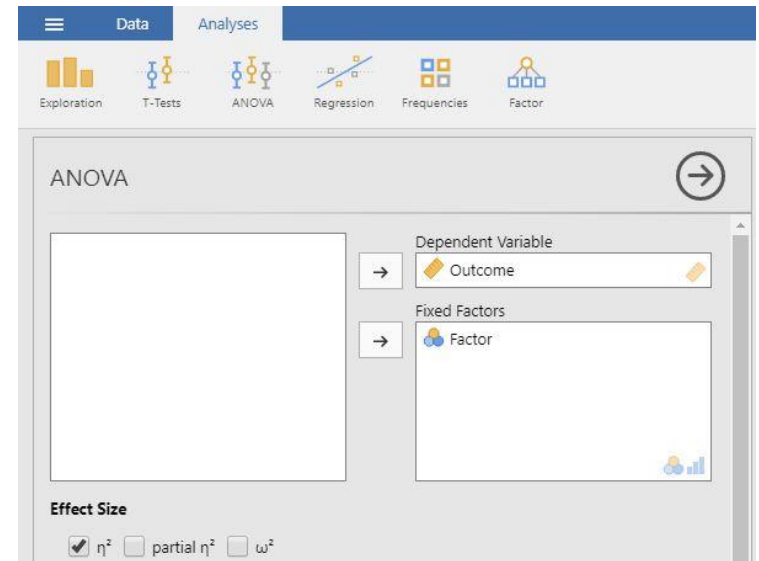
## Obtaining Inferential Statistics

3. A set of options will then appear for you to choose the variables and statistics of interest.
4. Select the outcome variable and click the arrow to move it into the “Dependent Variable” box.
5. Move the Factor (Independent Variable) to the “Fixed Factors” box.
6. Output will automatically appear on the right side of the window.



### Obtaining Additional Statistics

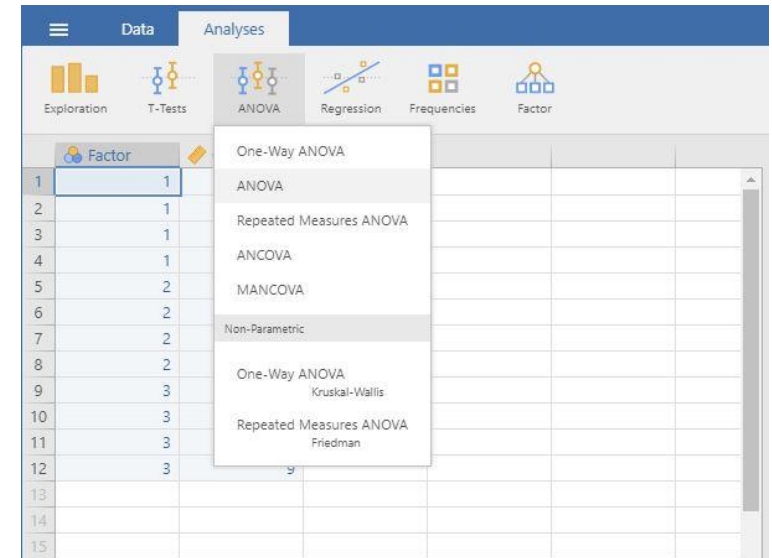
7. Choose an effect size measure from the “Effect Size” list.
8. If you wish descriptive statistics for each group, use the “Descriptives” command described earlier in the sourcebook.
9. Updated output will automatically appear on the right side of the window.



# Post Hoc Comparisons

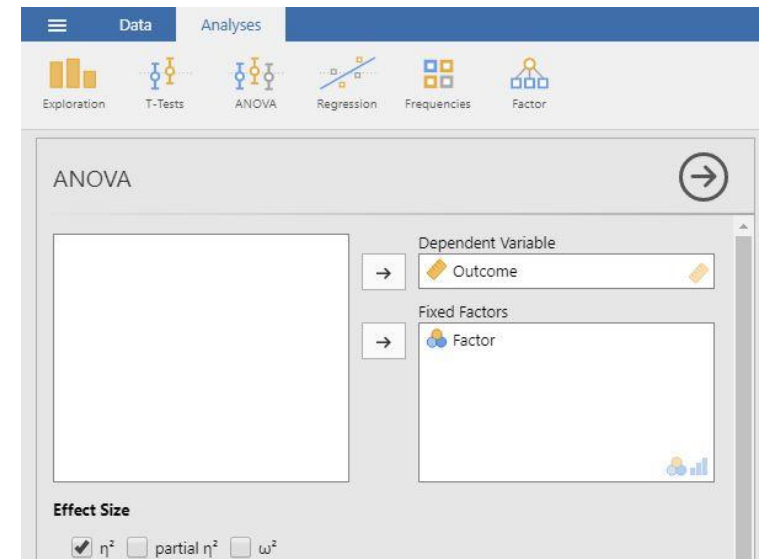
## Selecting the Analysis

1. First, enter multiple group data (described elsewhere).
2. On the “Analysis” tab, select the “ANOVA → ANOVA” option.



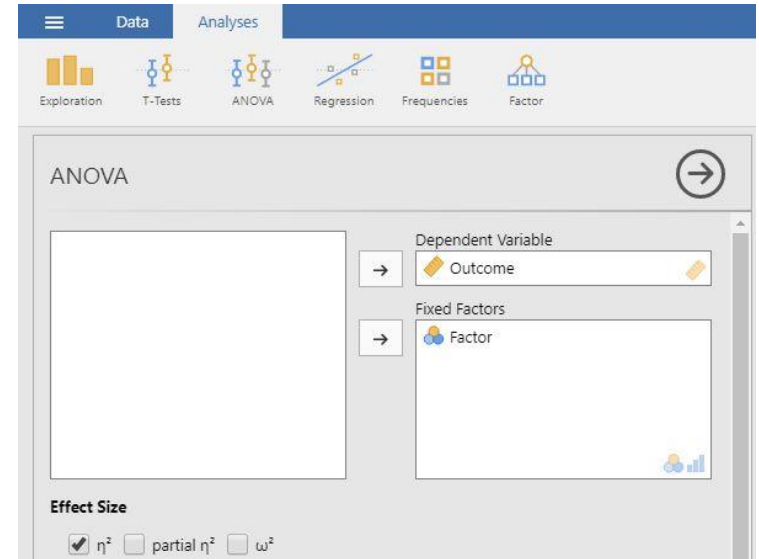
## Obtaining Inferential Statistics

3. A set of options will then appear for you to choose the variables and statistics of interest.
4. Select the outcome variable and click the arrow to move it into the “Dependent Variable” box.
5. Move the Factor (Independent Variable) to the “Fixed Factors” box.
6. Output will automatically appear on the right side of the window.



### Obtaining Additional Statistics

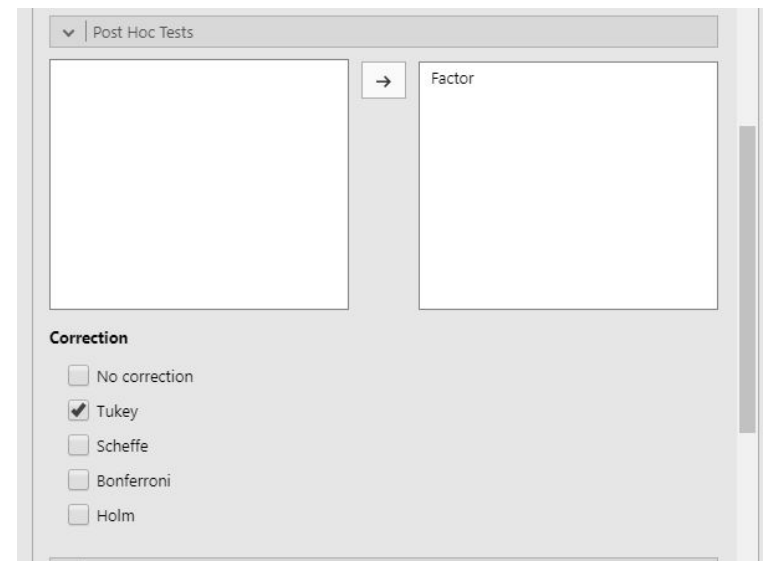
7. Choose an effect size measure from the “Effect Size” list.
8. If you wish descriptive statistics for each group, use the “Descriptives” command described earlier in the sourcebook.
9. Updated output will automatically appear on the right side of the window.



The screenshot shows the SPSS ANOVA dialog box. At the top, there is a navigation bar with icons for Exploration, T-Tests, ANOVA, Regression, Frequencies, and Factor. The ANOVA tab is selected. The dialog box has a title bar "ANOVA" with a right arrow button. It contains two main sections: "Dependent Variable" and "Fixed Factors". The "Dependent Variable" section has a right arrow button and a text box containing "Outcome". The "Fixed Factors" section has a right arrow button and a list box containing "Factor". At the bottom, there is an "Effect Size" section with three checkboxes:  $\eta^2$  (checked), partial  $\eta^2$ , and  $\omega^2$ .

### Obtaining Post Hoc Tests

10. If you wish to obtain post hoc tests for the purpose of making comparisons between groups, click the “Post Hoc Tests” drop-down button.
11. Move the factor (Independent Variable) name from the left-hand box to the right-hand box.
12. Select “Tukey” to get Tukey HSD post hoc tests (or whatever option you prefer).
13. Updated output will automatically appear on the right side of the window.

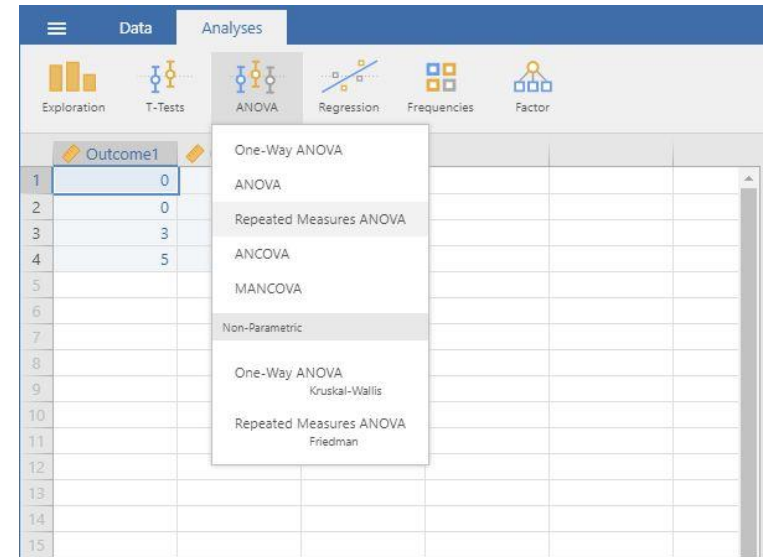


The screenshot shows the SPSS ANOVA: Post Hoc Tests dialog box. It has a title bar "ANOVA: Post Hoc Tests" with a drop-down arrow. The dialog box contains two main sections: "Post Hoc Tests" and "Correction". The "Post Hoc Tests" section has a right arrow button and a list box containing "Factor". The "Correction" section has five checkboxes: "No correction", "Tukey" (checked), "Scheffe", "Bonferroni", and "Holm".

# Repeated Measures ANOVA

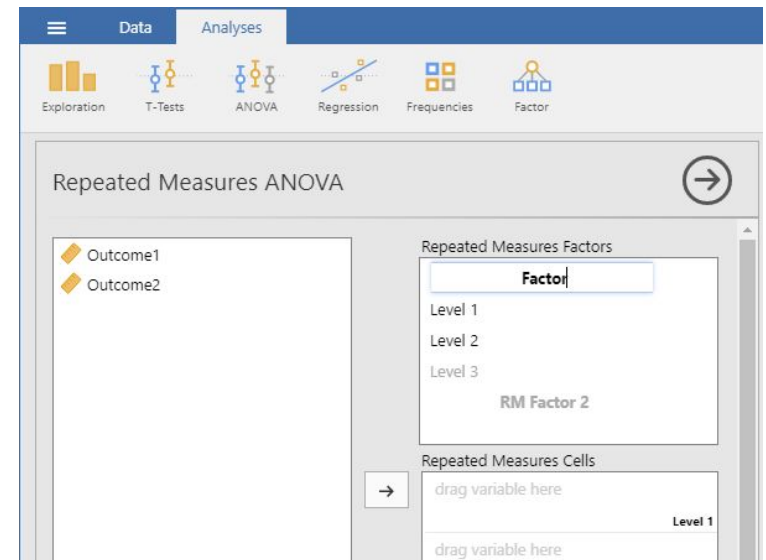
## Selecting the Analysis

1. First, enter repeated measures data (described elsewhere).
2. On the “Analysis” tab, select the “ANOVA → Repeated Measures ANOVA” option.



## Labeling the Within-Subjects Variable/Factor

3. A set of options will then appear for you to choose the variables and statistics of interest.
4. In the “Repeated Measures Factors” box, you will define the repeated measures factor. This box is necessary for labeling the repeated measurements of the same underlying factor.
5. Click on “RM Factor 1” and type in the name you wish to give to the repeated measures factor. In this example, “Factor” is used as the name.
6. Below that, click on “Level 1” to type the name of the individual level of the repeated measures factor. You may do the same for each level. In this example, there were only 2 levels of the factor.



## Obtaining Inferential Statistics

7. In the “Repeated Measures Cells” box, you will indicate which measurements/columns in the data set reflect the instances of the repeated measurements.
8. Select the instances you wish to associate with the factor by clicking on them and then arrow to move them. In this example, “Outcome1” reflects the first level of the factor and “Outcome2” reflects the second level of the factor.
9. Note that this factor only exists in the computer’s memory. For examples, nowhere in the data set will you see a variable called “Time.”
10. Output will automatically appear on the right side of the window.

## Obtaining Additional Statistics

11. Choose an effect size measure from the “Effect Size” list.
12. If you wish descriptive statistics associated with each variable, follow the “Descriptives” procedures described earlier in this sourcebook.
13. Updated output will automatically appear on the right side of the window.

Exploration T-Tests ANOVA Regression Frequencies Factor

### Repeated Measures ANOVA

Repeated Measures Factors

**Factor**

Level 1  
Level 2  
Level 3

RM Factor 2

Repeated Measures Cells

→ Outcome1 Level 1  
Outcome2 Level 2

Between Subject Factors

→

Covariates

→

**Effect Size**

☐ Generalised  $\eta^2$  ☐  $\eta^2$  ☒ Partial  $\eta^2$

**Dependent Variable Label**

Dependent

> Model

> Assumption Checks

> Post Hoc Tests

> Estimated Marginal Means

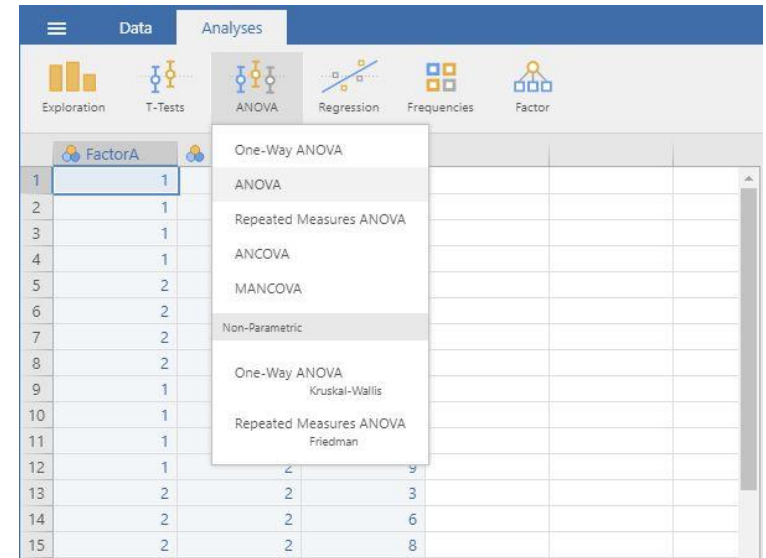
> Options



# Factorial ANOVA

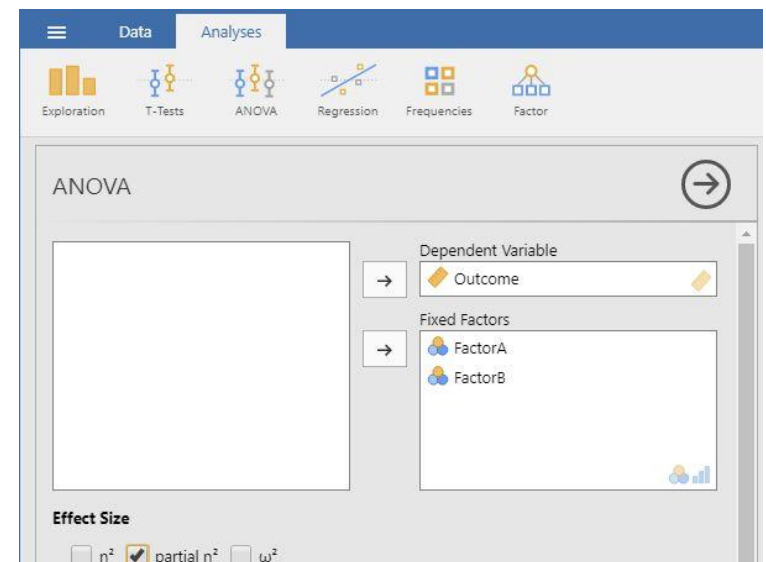
## Selecting the Analysis

1. First, enter factorial data (described elsewhere).
2. On the “Analysis” tab, select the “ANOVA → ANOVA” option.



## Obtaining Inferential Statistics

3. A set of options will then appear for you to choose the variables and statistics of interest.
4. Select the outcome variable and click the arrow to move it into the “Dependent Variable” box.
5. Move the multiple Factors (Independent Variables) to the “Fixed Factors” box. (The interaction term will be automatically generated in the output.)
6. Output will automatically appear on the right side of the window.



### **Obtaining Additional Statistics**

7. Choose an effect size measure from the “Effect Size” list.
8. If you wish descriptive statistics associated with each variable, follow the “Descriptives” procedures described earlier in this sourcebook.
9. Updated output will automatically appear on the right side of the window.

Dependent variable  
→ Outcome

Fixed Factors  
→ FactorA  
FactorB

**Effect Size**  
☐  $\eta^2$  ☒ partial  $\eta^2$  ☐  $\omega^2$

> Model

> Assumption Checks

> Contrasts

> Post Hoc Tests

> Estimated Marginal Means