A Handy Guide to Common Psych Stats Analyses in SPSS

This guide is intended as a procedural refresher for running common analyses in SPSS. It is incumbent upon you to ensure that you understand *when* and *why* each of these analyses is appropriate given your research question and resultant data, and to check any assumptions.

So you want to….

…run a correlation!

1. Don't panic.
2. Analyze → Correlate → Bivariate
3. Select variables of interest and move them to "Variables"
4. Check your main menu settings
   a. Correlation Coefficients: ✓ Pearson
   b. Test of Significance: If hypothesis is directional, one-tailed. If not, two-tailed.
   c. ✓ Flag significant correlations
5. Check the Options menu
   a. ✓ Means and standard deviations
6. Consider the remaining menus
   a. Style: not necessary for simple bivariate correlations
   b. Bootstrap: not necessary for simple statistical analyses
7. Click Paste to roll into Syntax Editor
8. Write a comment reminding yourself of what you're testing
   a. Type a note to yourself above the syntax you just pasted
      i. "Testing for an association between accuracy and response time"
   b. Highlight the note
   c. Click the /* button to denote it as a comment
9. Highlight the syntax
10. Click the green arrow button to run the analysis
11. Interpret, then select the appropriate data visualization

A Handy Guide to Common Psych Stats Analyses in SPSS

<u>…run an Independent-Samples T Test!</u>

1. Don't panic.
2. Analyze → Compare means → Independent-Samples T Test
3. Select your dependent (outcome) variable and move it to "Test Variable(s)"
4. Select your independent (predictor) variable and move it to "Grouping Variable"
5. Indicate to SPSS how you have numerically coded the IV groups
    a. Click "Define Groups"
    b. Fill in the boxes with the two numbers that represent the two IV levels
        i. This will depend on how you coded your data
        ii. Often times, this will be "0, 1" or "1, 2"
        iii. When in doubt, click back to "Variable View" and look at the "Values" section for the IV
6. Check the Options menu (just to be safe!)
7. Click Paste to roll into Syntax Editor
8. Write a comment reminding yourself of what you're testing
    a. Type a note to yourself above the syntax you just pasted
        i. "Testing for an differences in accuracy across 2 treatment groups"
    b. Highlight the note
    c. Click the /* button to denote it as a comment
9. Highlight the syntax
10. Click the green arrow button to run the analysis
11. Interpret, then select the appropriate data visualization

Note. Levene's Test for Equality of Variances tests the null hypothesis that variances are equal. If the test is not significant, assume that variances are equal. If the test is significant, the assumption has been violated, and variances are not considered equal.

A Handy Guide to Common Psych Stats Analyses in SPSS

<u>…run a One-Way Analysis of Variance (ANOVA)!</u>

1. Don't panic.
2. Analyze → Compare means → One-Way ANOVA
3. Select your dependent (outcome) variable and move it to "Dependent List)"
4. Select your independent (predictor) variable and move it to "Factor"
5. Check the Contrasts Menu
    a. If you have established rationale for planned comparisons, specify them here.
    b. If you have not established rationale for planned comparisons, close the menu.
6. Check the Post Hoc menu
    a. Use this to specify to SPSS that you would like to compare the IV groups after the initial ANOVA has been completed
    b. ✓ LSD (Least Significant Differences)
    c. ✓ any other Post Hoc tests you have a reason to run
    d. Close this menu
7. Check the Options menu
    a. ✓ Descriptives
    b. ✓ Homogeneity of variance (needed so that you can interpret the Post Hoc test)
8. Smile and wave at the Boostrap menu
    a. If you need to use this, please come back and teach the rest of us. ☺
9. Click Paste to roll into Syntax Editor
10. Write a comment reminding yourself of what you're testing
    a. Type a note to yourself above the syntax you just pasted
        i. "Testing for an differences in response time across 3 treatment groups"
    b. Highlight the note
    c. Click the /* button to denote it as a comment
11. Highlight the syntax
12. Click the green arrow button to run the analysis
13. Interpret, then select the appropriate data visualization

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…make a bar graph!

1. Graphs → Legacy Dialogs → Bar → Simple
2. In the "Bars Represent" region:
   a. Select "Other Statistic"
   b. Assign your dependent (outcome) variable to the "Variable" slot
   c. You want to plot means for t-tests and ANOVAs, so leave the statistic as Mean
3. Assign your independent (predictor) variable to the Category Axis slot
4. Check the Titles menu
   a. Add a title or subtitle if needed
5. Check the Options menu
   a. ✓ Display error bars
   b. In Error Bars Represent, select "Standard error"
   c. Select 1.0 as Multiplier
      i. This will plot error bars to reflect +/- 1 standard error
   d. Continue
6. Click Paste to roll into Syntax Editor
7. Write a comment reminding yourself of what you're plotting
   a. Type a note to yourself above the syntax you just pasted
      i. "Plotting accuracy by treatment group for a word recall task"
   b. Highlight the note
   c. Click the /* button to denote it as a comment
8. Highlight the syntax
9. Click the green arrow button to generate the graph

…make a scatter plot!

1. Graphs → Legacy Dialogs → Scatter/Dot → Simple Scatter
2. Assign one variable to the Y axis, and the other to the X axis.
3. Check the Titles menu
   a. Add a title or subtitle if needed
4. Check the Options menu
   a. None of these items are relevant for a simple scatter plot, but it's nice to look!
5. Click Paste to roll into Syntax Editor
6. Write a comment reminding yourself of what you're plotting
   a. Type a note to yourself above the syntax you just pasted
      i. "Plotting accuracy by response time for a word recall task"
   b. Highlight the note
   c. Click the /* button to denote it as a comment
7. Highlight the syntax
8. Click the green arrow button to generate the graph