

For the main effect of soup consumption on the number of relationship-related words completed:

$$H_0: \mu_{\text{not-consumed}} = \mu_{\text{consumed}}$$

For the main effect of comfort food status of soup on the number of relationship-related words completed:

$$H_0: \mu_{\text{not comfort food}} = \mu_{\text{comfort food}}$$

For the interaction:

H_0 : There is no interaction between soup consumption and comfort food status of soup on the number of relationship-related words completed.

2.

Soup Consumption

		Yes	No
Comfort Food Status of Soup	Comfort Food	1.60	1.29
	Not Comfort Food	1.11	1.31

3.

Soup Consumption

		Yes	No	
Comfort Food Status of Soup	Comfort Food	1.60	1.29	1.45
	Not Comfort Food	1.11	1.31	1.21
		1.37	1.30	

- The four sources of variability are (1) the main effect of soup consumption; (2) the main effect of comfort food status of soup; (3) the interaction between these two factors; and (4) within-groups variability.
- A p value of .056 means that there is a 5.6% chance that the difference between the two means (1.45 and 1.21) for the factor of comfort food status is due to random variation.
- $F = \frac{1.806}{.403} = 4.48$
- Both main effects and the interaction have $df_{\text{between-groups}} = 1$ and $df_{\text{within-groups}} = 107$. By consulting Appendix C, we find that the approximate critical value to compare all F ratio test statistics to is between 3.92 and 4.00.
- .037 or 3.7%
- The researchers failed to reject the null hypotheses for the two main effects; however, they rejected the null hypothesis for the interaction.
- Be very careful here; remember that we cannot use the partial eta squared that SPSS provides. Instead, we must use the eta squared, which we must calculate for ourselves. Here again is the eta squared (η^2) formula:

$$\eta^2 = \frac{SS_{\text{between-groups}}}{SS_{\text{total}}}$$

(Continued)