

(Continued)

1. What is the hypothesis being tested?
2. What is the mean for each of the three groups?
3. What is the standard deviation for each group?
4. Was the assumption of homogeneity of variances violated?
5. What are the two sources of variability in these data?
6. Plug in the numbers needed to obtain the F ratio test statistic of 1.286.
7. According to Appendix C, and assuming an alpha level of .05, what is the critical value that was used to see whether we reject or do not reject the null hypothesis?
8. What is the precise probability that the differences among our group means were due to random variation?
9. Did the researchers reject or not reject the null hypothesis?
10. Given your answer to question 9, what does that mean in plain English?
11. What is the effect size?
12. Which means, if any, are statistically different from one another?

Answers

1. That there is no difference in moral evaluations based on the type of food to which people were exposed.
2. Organic foods = 5.50; Comfort foods = 4.00; Control Foods = 4.00
3. Organic foods = 1.29; Comfort foods = 0.82; Control Foods = 2.16
4. Looking at the Levene's Test of Equality of Error Variances, we see that the p value, which is denoted as "Sig.", is greater than .05. Therefore, we fail to reject the notion that variances are similar across our three groups. In plain English, this assumption was not violated.
5. We have (a) between-groups variability and (b) within-groups variability, which SPSS labels *Error*.
6.
$$F = \frac{3}{2.33}$$
7. With 2 between-groups degrees of freedom, 9 within-groups degrees of freedom, and using an alpha level of .05, our critical value is 4.26.
8. The "Sig" level (p value) of .323 means that there is a 32.3% chance that the differences between our means are due to random variation.
9. The researchers failed to reject the null hypothesis because, as noted in the previous answer, the p value exceeded .05.
10. There is no difference in people's moral evaluation of behavior based on whether they were exposed to organic foods, comfort foods, or a control group of foods.
11. The effect size is the partial eta squared, which is 0.222.
12. Because the F ratio test statistic was not statistically significant, we know that none of the means are different from each other. To confirm this is the case, examination of the post hoc tests confirms that all mean differences fall outside the region of null hypothesis rejection (in others words, all p values are greater than .05).