

ANOVA Interpretation

p -value is a number between 0 and 1 and interpreted in the following way:

- A small p -value (typically ≤ 0.05) indicates strong evidence against the null hypothesis being true, so the difference between the means is statistically significant, so you Reject the null hypothesis and accept the alternative hypothesis H_a that the means of the different groups are Not Equal.
- A large p -value (> 0.05) indicates weak evidence against the null hypothesis, so the difference between the means is Not statistically significantly different so you Accept the null hypothesis H_0 that the means of the different groups are Equal.

Always report and discuss the p -value and what it is saying so your readers can better understand.

Note: An example P Value of 5.1636E-07 is a very small number - much less than .05. The E-07 is scientific notation which means that you move the decimal place to the left by 7 places, in other words, the 5.1636 would be .00000051636 which is much less than .05 so the difference between the means is significant and you accept the alternative hypothesis H_a is the valid answer.

F Value (degree of variance)

A low F-value shows a case where the group means are close together (low variability) relative to the variability within each group. A high F-value graph shows a case where the variability of the group means is large relative to the within group variability.