Chi-square Test for Independence

For this example, we will perform a Chi-square Test of Independence using data in the following contingency table to see if there is correlation between treatment and outcome.

1) To create a Table to represent the “Yes +” and “No –“

Statistics -> Contingency tables

-> Enter and analyze two-way table…
2) Enter the Data from the above chart to match the table in the R Commander window as shown below:

![R Commander Window](image)

**Compute Percentages:**
If one needs the percentages, it can be calculated by selecting the bullet next to the needed percentage. For example, No percentages is selected.

**Hypothesis Tests:**
Choose: Chi-square test of independence

And click OK button.

**Interpret Results:**

*Pearson's Chi-squared test*

\[
data: \ .Table \\
X-squared = 11.616, \ df = 1, \ p-value = 0.0006539
\]

For this example: The resultant is a Chi-squared statistic = 11.616 and a p-value of 0.00065.

To test the hypothesis at 5% level of significance:

**P-value Approach:**
One would reject Null Hypothesis since the p-value: 0.00065 < 0.05

**Critical Value Approach:**
Reject null hypothesis since Chi-squared: 11.616 > 3.84