

Having Chosen the Most Appropriate Test using the Flow Chart, some additional advice for some of the tests i.e. t tests; χ^2 Interval and F test.

In all cases, Normality should be verified by drawing and interpreting Normal Probability Plots

1. ONE SAMPLE : Compare Mean with a Hypothesised Mean - One Sample t test

Check that the data is Normally distributed. If not, transform and check again.

When you have verified Normality possibly using transformation, run either a two tailed or a one tailed test, depending on the question, and interpret. Useful also to determine the magnitude of any difference using a Confidence Interval.

Subjective Impression using Stem & Leaf Plot or Histogram or Boxplot and numerical summaries of the data.

2. ONE SAMPLE : Compare Standard Deviation with a Hypothesised Standard Deviation One Sample χ^2 Confidence Interval

Check that the data is Normally distributed. If not, transform and check again.

When you have verified Normality, run the Confidence Interval and interpret

Subjective Impression using Stem & Leaf Plot or Histogram or Boxplot and numerical summaries of the data.

3. TWO SAMPLES, INDEPENDENT GROUPS : Compare Variances – F Test

Check that both sets of data are Normally distributed. If not, transform and check again.

When you have verified Normality possibly using transformation, run a two tailed test and Interpret

Subjective Impression using Stem & Leaf Plots or Histograms or Boxplots and numerical summaries for both sets of data.

4. TWO SAMPLES, INDEPENDENT GROUPS : Compare Means

- (i) Check that both sets of data are Normally distributed. If not, transform and check again.
- (ii) When you have verified Normality possibly using transformation, run an F-test to compare the variances.
- (iii) Depending on the result of the F-test, run the Unpaired test that assumes equal variance or the Unpaired test that does not assume equal variance. Run that test, either one tailed or two tailed depending on the question, and interpret. Useful also to determine the magnitude of any difference using a Confidence Interval.

Subjective Impression using Stem & Leaf Plots or Histograms or Boxplots and numerical summaries for both sets of data.

5. TWO SAMPLES, PAIRED OR MATCHED : Compare Mean

- (i) Check that differences are Normally distributed. If not, transform and check again.
- (ii) When you have verified Normality possibly using transformation. Run a Paired t test, either one tailed or two tailed depending on the question, and interpret. Useful also to determine the magnitude of any difference using a Confidence Interval.

Subjective Impression using Stem & Leaf Plot or Histogram or Boxplot of the Differences and numerical summaries.

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