

Simple Comparison Tests

Univariate and Bivariate tests with a Categorical IV and a Single DV

Univariate
Compare values in 1 variable to a hypothesized or known value.
aka One-Sample, Goodness of Fit

Compares outcomes from groups that are unrelated (e.g., different people). Typically, one variable is the outcome (DV) and the other is categorical and indicates group (IV).
aka Two Sample, Between Subjects (most common)

Compares multiple measures of the same outcome from identical or related groups or cases (e.g., from Before vs After). Specific values from each group are compared.
aka Dependent, Within Subjects, Repeated Measures, Related, Yoked

Outcome or Value being compared (Dependent Variable/DV)

Exactly 2 categories/possible outcomes.
Binary, Binomial

From 2 to approx. 5 outcomes/categories.
Nominal

Not from a normally distributed measure.
Ordinal, Count data

Numeric data with a normal distribution.
Interval or Ratio

	Comparing data to a Single Value or Distribution	Comparing data from Independent Samples		Comparing data from Paired Samples	
		2 Groups (K)	2+ Groups (K)	2 Measures	2+ Measures
Dichotomous	Binomial test or One-Sample Proportion	Two-Sample Proportion	Chi-Square ** Test of Independence	McNemarr's Chi-Square	Cochran's Q
Categorical	Chi-Square Goodness of Fit	Chi-Square ** Test of Independence	Chi-Square ** Test of Independence	Repeated Measures Logistic Regression	Repeated Measures Logistic Regression
Non-parametric	One-Sample Wilcoxon Signed Rank	Wilcoxon * Rank Sum z	Kruskal-Wallis H test	Paired Sample Wilcoxon * Signed-Rank	Friedman's test ***
Parametric	One-Sample t-test or Z-Test	Independent-Samples t-test	One-Way ANOVA (F)	Paired Sample t-test	Repeated Measures ANOVA (F)

Tests for just 2 groups or measures match those for 2+, but can be easier to calculate or interpret and allow for one-tailed tests.

* **Wilcoxon Rank Sum** is the same as **Mann-Whitney U**, and thus sometimes called Mann-Whitney Rank Sum or Wilcoxon-Mann-Whitney. The **Rank-Sum** test compares ranks whereas the **Signed-Rank** test compares medians.

Instead of or along with the **Wilcoxon** tests, some fields will use **Kolmogorov-Smirnov (K-S) D** tests to also compare the cumulative distribution. K-S tests are not used with many equal values ("ties").

Wilcoxon Signed Rank → One-Sample K-S test
Wilcoxon Rank Sum → Two-Sample K-S test

** Chi-Square with yates correction is used where a cell has <5 cases observed. Fisher's Exact is used when a cell has <5 cases expected.

*** To determine the amount of agreement among the data (e.g., data are from multiple raters), use **Kendall's W**.