

# What Statistical Test Should I Use?

## UM Clinical Scholars Core Competencies

Tables of common statistical tests for making bivariate and multivariate comparisons.

### Bivariate Tests

Dependent Variable	Independent Variable	Parametric Test ( <i>Stata command</i> )	Non-Parametric Test ( <i>Stata command</i> )
Continuous ( <i>spearman</i> )	Continuous	Pearson Correlation ( <i>pwcorr</i> ) or  Linear regression ( <i>regress</i> ) Linear regression preferable with identified dependent variable	Kendall Tau-b or Spearman Correlation
	Categorical - Dichotomous - >2 Categories	t-test ( <i>ttest</i> ) ANOVA ( <i>oneway</i> )( <i>anova</i> )	Wilcoxon Rank Sum ( <i>ranksum</i> ) Kruskal-Wallis Test ( <i>kwallis</i> )
Dichotomous	Continuous or Categorical	logistic or probit functions ( <i>logistic</i> ) ( <i>probit</i> ) ( $\chi^2$ another choice if IndVar is Categorical)	logistic or probit functions ( <i>logistic</i> )
Categorical	Categorical	Chi-square ( <i>tabulate, chi</i> )	Chi-square ( <i>tabulate, chi</i> )

### Multivariate Tests

If the dependent variable is:	Type of Multivariable Model ( <i>Stata Command</i> )
Continuous: Near normal	Linear Regression ( <i>regress</i> ).
Skewed	1) Transform dependent variable to make it more nearly normal 2) For counts (like # of hospitalizations) use Negative binomial regression ( <i>nbreg</i> ), Poisson regression ( <i>poisson</i> ) or Two-part models (uses both linear and logistic regression)
Categorical: Dichotomous	Logistic regression ( <i>logistic</i> ), or Cox-proportional hazards ( <i>cox</i> )
Multiple categories	Multinomial logistic regression ( <i>mlogit</i> ).
Ordered categories	Ordered logistic regression ( <i>ologit</i> ).

*Note: The above tables should not be seen as complete, but include some of the more commonly used tests.*