Examples of Analysis Approaches/Statistical Tests to Use Depending on Number and Type of Dependent and Independent Variables

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| **Number of  Dependent  Variables** | **Number/Type of   Independent  Variables** | [**Type of Dependent  Variable(s)**](http://www.ats.ucla.edu/stat/mult_pkg/whatstat/nominal_ordinal_interval.htm) | **Examples of Analyses/Test(s)** |
| 1 | 0 IVs  (1 group/population) | interval & normal | one-sample t-test |
| ordinal or interval | one-sample median |
| categorical  (2 categories) | binomial test |
| categorical | chi-square goodness-of-fit |
| 1 IV with 2 levels  (independent groups) | interval & normal | 2 independent sample t-test |
| ordinal or interval |  |
| Wilcoxon-Mann Whitney test |
| categorical | chi- square test |
| Fisher's exact test |
| 1 IV with 2 or more levels (independent groups) | interval & normal | one-way ANOVA |
| ordinal or interval | Kruskal Wallis |
| categorical | chi- square test |
|  | other special | If DV is “time to event,” Survival analysis |
| 1 IV with 2 levels (dependent/matched groups) | interval & normal | paired t-test |
| ordinal or interval | Wilcoxon signed ranks test |
| categorical | McNemar |
| 1 IV with 2 or more levels (dependent/matched groups, repeated measures) | interval & normal | repeated measures ANOVA |
| ordinal or interval | Friedman test |
| categorical | GEE (e.g. repeated measures logistic regression) |
| 2 or more IVs  (independent groups) | interval & normal | multi-factor ANOVA  general linear model (GLM)  multilevel model (MLM)  structural equation model (SEM) |
| ordinal or interval | (treat DV as interval/normal or create categories—use analyses above or below) |
| categorical | logistic regression, multinomial regression, GEE |
|  | other special | If DV is “time to event,” Survival analysis |
| 2 or more IVs  (including repeated measures, within-subject factors) | interval & normal | GLM, MLM, growth models,  growth mixture models |
|  | categorical | generalized estimating equations (GEE), growth/mixture models, non-linear mixed |
|  |  |  |
| 1 interval IV | interval & normal | correlation |
| linear/non-linear regression |
| ordinal or interval | non-parametric correlation |
| categorical | logistic regression |
|  | other special | If DV is “time to event,” Survival analysis |
| 1 or more interval IVs and/or 1 or more categorical IVs | interval & normal | multiple regression |
| analysis of covariance, GLM, MLM |
| Categorical, other special | logistic regression, GEE, non-linear mixed, survival analysis |
| discriminant analysis |
| >1 | 1 IV with 2 or more levels (independent groups) | interval & normal | MANOVA/GLM, structural equation models (SEM) |
| >1 | 2 or more IVs (categorical or interval) | interval & normal | SEM, series of regression analyses or GEE/MLM etc. |
| 2 sets of   2 or more | 0 | interval & normal | canonical correlation |
| >1 | 0 | interval & normal | factor analysis  latent variable models |
| >1 | 0 | categorical | latent variable models for categorical data |
| **Number of  Dependent  Variables** | **Number/Type of   Independent  Variables** | [**Type of Dependent  Variable(s)**](http://www.ats.ucla.edu/stat/mult_pkg/whatstat/nominal_ordinal_interval.htm) | **Examples of Analysis/Test(s)** |

This chart was adapted by M-L. Brecht from <http://www.ats.ucla.edu/stat/mult_pkg/whatstat/choosestat.html>

which, in turn, was adapted from [Choosing the Correct Statistic](http://bama.ua.edu/~jleeper/627/choosestat.html)  by James D. Leeper, Ph.D.