

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

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*Statistical Support Core*

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Number of Dependent Variables	Number/Type of Independent Variables	Type of Dependent Variable(s)	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	interval & normal	GLM, MLM, growth models,

	(including repeated measures, within-subject factors)		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
<b>Number of Dependent Variables</b>	<b>Number/Type of Independent Variables</b>	<b>Type of Dependent Variable(s)</b>	<b>Examples of Analysis/Test(s)</b>

This chart was adapted by M-L. Brecht from

<https://stats.oarc.ucla.edu/other/mult-pkg/whatstat/>

which, in turn, was adapted from Choosing the Correct Statistic by James D. Leeper, Ph.D.