

## What statistical analysis should I use?

The following table shows general guidelines for choosing a statistical analysis. Usually your data could be analyzed in multiple ways, each of which could yield legitimate answers. The table below covers a number of common analyses and helps you choose among them based on the number of dependent variables (sometimes referred to as outcome variables), the nature of your independent variables (sometimes referred to as predictors). You also want to consider the nature of your dependent variable, namely whether it is an [interval variable, ordinal or categorical variable, and whether it is normally distributed](#) (see the hyperlink for more information). The table shows one or more statistical tests for these types of variables (but not necessarily the only type of test that could be used) and syntax links are included for SPSS applications. Video and article links are provided to explain each method.

\* Using the table below, we will determine our method choice according to (1) number of dependent variables, (2) number of independent variables, (3) scale of dependent variables, (4) number of levels in the independent variable, and sample size. Students should also be sensitive to the meaning of "causation", "correlation", and "association". This part of training is particularly helpful in Quiz 2.

Number of Dependent Variables	Nature of Independent Variables	<a href="#">Nature of Dependent Variable(s)</a>	Test(s) Hyperlink to Video Clips	Syntax Links	Article Links
1	0 IVs (1 population)	interval & normal	<a href="#">one-sample t-test</a>	<a href="#">SPSS</a>	<a href="#">1</a>
		ordinal	<a href="#">one-sample median test</a>	<a href="#">SPSS</a>	<a href="#">2</a>
		categorical (2 categories)	<a href="#">binomial test</a>	<a href="#">SPSS</a>	<a href="#">3</a>
		categorical	<a href="#">Chi-square goodness-of-fit</a>	<a href="#">SPSS</a>	<a href="#">4</a>
	1 IV with 2 levels (independent groups)	interval & normal	<a href="#">2 independent sample t-test</a>	<a href="#">SPSS</a>	<a href="#">5</a> <a href="#">6</a>
		ordinal	<a href="#">Wilcoxon-Mann Whitney test</a>	<a href="#">SPSS</a>	<a href="#">7</a> <a href="#">8</a>
		categorical	<a href="#">Chi-square test</a>	<a href="#">SPSS</a>	<a href="#">9, 10</a>
			<a href="#">Fisher's exact test</a>	<a href="#">SPSS</a>	<a href="#">11, 12</a>
	1 IV with 2 or more levels (independent groups)	interval & normal	<a href="#">one-way ANOVA</a>	<a href="#">SPSS</a>	<a href="#">13</a>
		ordinal	<a href="#">Kruskal Wallis</a>	<a href="#">SPSS</a>	<a href="#">14</a>
		categorical	<a href="#">Chi-square test</a>	<a href="#">SPSS</a>	<a href="#">15, 16</a>
		interval & normal	<a href="#">paired t-test</a>	<a href="#">SPSS</a>	<a href="#">17</a>

	<b>1 IV with 2 levels (dependent/matched groups)</b>	ordinal	<a href="#">Wilcoxon signed ranks test</a>	<a href="#">SPSS</a>	<a href="#">18</a>
		categorical	<a href="#">McNemar</a>	<a href="#">SPSS</a>	<a href="#">19, 20</a>
	<b>1 IV with 2 or more levels (dependent/matched groups)</b>	interval & normal	<a href="#">one-way repeated measures ANOVA</a>	<a href="#">SPSS</a>	<a href="#">21</a>
		ordinal	<a href="#">Friedman test</a>	<a href="#">SPSS</a>	<a href="#">22</a>
		categorical	<a href="#">repeated measures logistic regression</a>	<a href="#">SPSS</a>	<a href="#">23</a>
	<b>2 or more IVs (independent groups)</b>	interval & normal	<a href="#">factorial ANOVA</a>	<a href="#">SPSS</a>	<a href="#">24</a>
		ordinal	<a href="#">ordered logistic regression</a>	<a href="#">SPSS</a>	<a href="#">25</a>
		categorical	<a href="#">factorial logistic regression</a>	<a href="#">SPSS</a>	<a href="#">26</a>
	<b>1 interval IV</b>	interval & normal	<a href="#">correlation</a>	<a href="#">SPSS</a>	<a href="#">27</a>
		interval & normal	<a href="#">simple linear regression</a>	<a href="#">SPSS</a>	<a href="#">28</a>
		ordinal	<a href="#">non-parametric correlation</a>	<a href="#">SPSS</a>	<a href="#">29</a>
		categorical	<a href="#">simple logistic regression</a>	<a href="#">SPSS</a>	<a href="#">30</a>
	<b>1 or more interval IVs and/or 1 or more categorical IVs</b>	<b>interval &amp; normal</b>	<a href="#">multiple regression</a>	<a href="#">SPSS</a>	<a href="#">31</a>
			<a href="#">analysis of covariance</a>	<a href="#">SPSS</a>	<a href="#">32</a>
		<b>categorical</b>	<a href="#">multiple logistic regression</a>	<a href="#">SPSS</a>	<a href="#">33</a>
			<a href="#">discriminant analysis</a>	<a href="#">SPSS</a>	<a href="#">34</a>
<b>2+</b>	<b>1 IV with 2 or more levels (independent groups)</b>	interval & normal	<a href="#">one-way MANOVA</a>	<a href="#">SPSS</a>	<a href="#">35</a>
	<b>2+</b>	interval & normal	<a href="#">multivariate multiple linear regression</a>	<a href="#">SPSS</a>	<a href="#">36</a>
	<b>0</b>	interval & normal	<a href="#">factor analysis</a>	<a href="#">SPSS</a>	<a href="#">37</a>
<b>2 sets of 2+</b>	<b>0</b>	interval & normal	<a href="#">canonical correlation</a>	<a href="#">SPSS</a>	<a href="#">38, 39, 40</a>

Dr. Wang expanded the table from UCLA by including video and article links for each method.