Spearman's Rank Order Correlation -- **Analysis fo the Relationship between two Quantitative Variables**

Application: To test for a relationship between two quantitative variables when concerned that one or both variables is ordinal (rather than interval) and/or not normally distributed, o rwhen the sample size is small. Spearman's is often used as a nonparametric substitute for Pearson's correlation.

Research Hypothesis: Knowing that store owners are often over-worked, the researcher hypothesized that stores with fewer fish would have healthier fish (thus predicting a negative or inverse relationship betweenthese variables in this population).

H0: There is no rank order relationship between the number of fish displayed in pet stores and the quality rating of the fish.

Analyze/Statistics ➜ Correlate ➜ Bivariate
- highlight the two desired variables and click the arrow button
- click "Spearman" and unclick "Pearson"

Correlations

The correlation value, N, (df = n - 2), and indication of the level of significance.
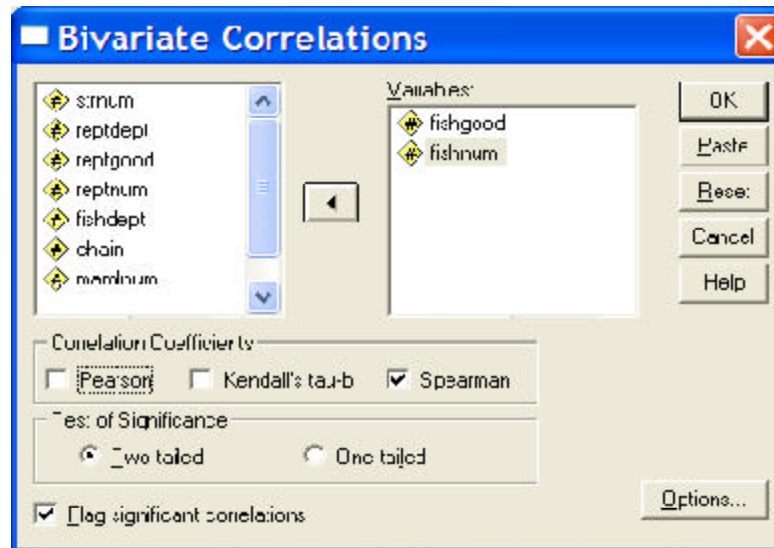
			'rating of fish quality - 1-10 scale'	'number of fish at store'
Spearman's rho	'rating of fish quality - 1-10 scale'	Correlation Coefficient	1.000	-.886**
		Sig. (2-tailed)	.	.000
		N	12	12
	'number of fish at store'	Correlation Coefficient	-.886**	1.000
		Sig. (2-tailed)	.000	.
		N	12	12

. Correlation is significant at the .01 level (2-tailed).

Reporting Results (including univariates from before -- if you ask for descriptives, you will get a parametric analysis):

The median number of fish displayed in these stores was 21.5 (IQR = 17.0-31.75). The median quality rating for the fish was 7.0 (IQR = 5.25-8.75). Spearman's correlation between these variables was -.886 (p<.001), which supports the research hypothesis that stores which display fewer fish will tend to have healthier fish.