Cochran's Q Test -- Analysis of 2-Within-Groups Data with a Qualitative (binary) DV

Application: To compare the patterns of responses to two qualitative variables obtained from dependent samples (repeated measures or matched groups). The two scores might be the same variable measured at two different times, under two different circumstances, or two comparable variables measured at the same time.
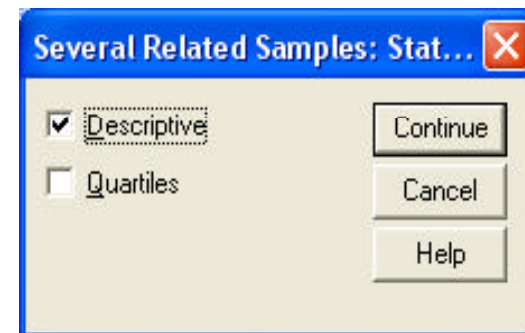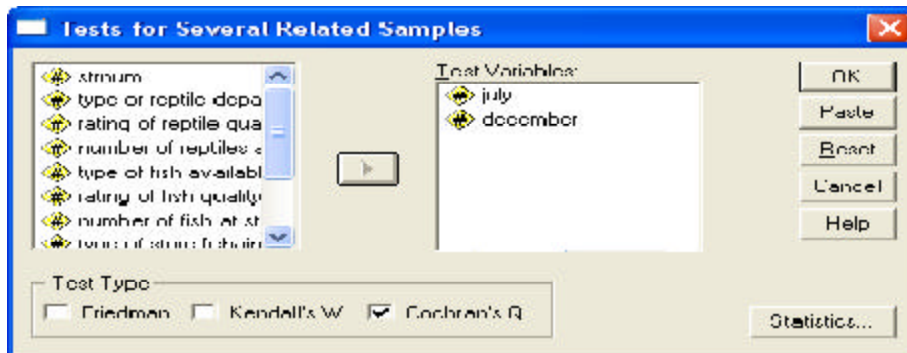
We will use a different set of data for this topic. The researcher returned to the pet stores during July and December of the next year and recorded if the shop displayed only snakes or lizards, or both smakes and lizards.

Research Hypothesis: The researcher hypothesized that pet shops would be more likely to display both types of reptiles prior to Christmas than during the summer.

H0: Stores are equally likely to display both types of reptiles during each time of the year.

Analyze /Statistics ➔ Nonparametric Tests ➔ K Related Samples

- highlight each variable (be sure it is **binary**) and click the arrow
- check the "Cochran's Q" selection
- "Statistics" — check that you want "Descriptives"

This is the p-value.

There is a systematic difference in the types of reptiles displayed during the two different times of the year.

Frequencies

	Value	
	1	2
JULY	9	3
DECEMBE|	2	10

Test Statistics

N	12
Cochran's Q	5.444ᵃ
df	1
Asymp. Sig.	.020

a. 1 is treated as a success.

Reporting the Results

The percentage of stores that displayed both snakes and lizards was 25% during during July and 83% during December, Q(1) = 5.444, p = .02). As hypothesized, there were more stores displaying both types of reptiles during December than during July.