

## Key Concepts and Terminology

Cochran's Q: A non-parametric test relevant past a Chi-square test when the independent variable can be categorized by  $>2$ , while the dependent variable is dichotomous. A method often entails treatment administered although not always the case. A contingency table with  $>2$  categories is used in this setup.

McNemar's Test: Equivalent to running several Chi-squares on a data set with  $>2$  categorical variables.

Null:

1: No difference in the dichotomous (example is pass/fail percentage) outcome pre and post treatment (Pre-test pass rate = post-test pass rate)

1: No difference in the dichotomous (example is pass/fail percentage) outcome post and long-term treatment (Post-test pass rate = long-term post-test pass rate)

0: All distributions (pre, post and long-term) are the same.

Alternate:

1: Post-test pass rate  $>$  Pre-test pass rate

2: long-term Post-test pass rate  $>$  Post-test pass rate

0: All distributions (pre, post and long-term) are NOT the same.

Research Hypothesis: An elucidation of the researcher's inclination on the outcomes based on the experimental set-up.

Mutually-exclusive events: The occurrence of one event means the other event will NOT occur. Example is false negative and true positive events are mutually exclusive.

Discordant responses: These are responses where the outcomes are dissimilar at least once for all categories. Mathematically expressed as  $IF(AND(G2>0, G2<3), "Discordant", "Cordant")$ , where G2 is the sum of the binary numeric code (0,1) for a dichotomous outcome (e.g., pass or fail).

Bonferroni corrected alpha level: Alpha divided by the number of categories.

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