Chi Square Test of Independence (χ^2)

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    - Abbreviated: (χ^2)
    - Pearson Chi-square test[1]
    - Chi-square[1]

- Chi-square (χ^2) statistic is a non-parametric (distribution free) tool designed to analyze group differences when the dependent variable is measured at a nominal level[1]
- This is one of the most useful statistics for testing hypotheses when the variables are nominal[1].

1 what makes this test unique?

1.1 Similarities to other non-parametric statistics

- the Chi-square (χ^2) is robust with respect to the distribution of the data (This is true for all non-parametric statistics)[1]
- Specifically, it does not require equality of variances among the study groups or homoscedasticity in the data[1].

    - It permits evaluation of both dichotomous independent variables, and of multiple group studies[1].

1.2 Dissimilarities from non-parametric statistics

- The calculations needed to compute the Chi-square provide considerable information about how each of the groups performed in the study.
- This richness of detail allows the researcher to understand the results and thus to derive more detailed information from this statistic than from many others.

1.   McHugh ML. The chi-square test of independence. *Biochemia Medica*. 2013;23(2):143-149. doi:10.11613/bm.2013.018