

Chi Square Test of Independence (χ^2)

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<ul style="list-style-type: none">• AKA<ul style="list-style-type: none">– Abbreviated: (χ^2)– Pearson Chi-square test¹– Chi-square¹• 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 level¹• This is one of the most useful statistics for testing hypotheses when the variables are nominal¹.	

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 data¹.
 - It permits evaluation of both dichotomous independent variables, and of multiple group studies¹.

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](https://doi.org/10.11613/bm.2013.018)