

Two-Way Contingency Table Analysis

A two-way contingency table analysis evaluates whether a statistical relationship exists between two variables.

A two-way contingency table consists of two or more rows and two or more columns.

The rows represent the different levels of one variable and the columns represent different levels of a second variable.

Such a table is sometimes described as an $r \times c$ table, where r is the number of rows, and c the number of columns. The cells in the table, which are the combinations of the levels of the row variable and the column variables, contain frequencies.

Analyses of two-way contingency tables focus on these cell frequencies to evaluate whether the row and column variables are related.

Three types of studies can be analyzed with the use of two-way contingency tables:

1. Independence between variables.
2. Homogeneity of proportions.
3. Unrelated classification.

Independence between variables

The relationship between the row and the column variables in the population is being evaluated.

Homogeneity of proportions

Evaluates whether the proportions of individuals in the levels of the column variable are the same for all populations.

Regardless of the design of the study, an SPSS data file for a Two-Way Contingency Table Analysis can be structured in one of two ways.

- 1. Standard method.**
- 2. Weighted cases method.**

Application of a Two-Way Contingency Table Analysis

Independence between variables:

Carrie is interested in assessing the relationship between religion and occupation for men. She sample a group of 2000 men between the ages 30 and 50 and asked them to complete a demographic questionnaire.

Homogeneity of proportions:

Claude wants to determine whether young men are unjustifiably more likely to treat elderly people in a condescending manner.

To address this hypothesis, he recruits a young woman from his class and her mother and her grandmother.

The daughter, mother, and grandmother are 20, 43, and 72 years old, respectively.