Mann-Whitney U Test

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Mann-Whitney U test is the alternative test to the independent sample t-test. It is a non-parametric test that is used to compare two population means that come from the same population, it is also used to test whether two population means are equal or not. It is used for equal sample sizes, and is used to test the median of two populations. Usually the Mann-Whitney U test is used when the data is ordinal. Wilcoxon rank sum, Kendall's and Mann-Whitney U test are similar tests and in the case of ties, it is equivalent to the chi-square test.

Assumptions:

Mann-Whitney U test is a non-parametric test, hence it does not assume any assumptions related to the distribution. There are, however, some assumptions that are assumed
1. The sample drawn from the population is random.
2. Independence within the samples and mutual independence is assumed.
3. Ordinal measurement scale is assumed.

Calculation:

Where:
U=Mann-Whitney U test
N_1 = sample size one
N2= Sample size two
R_i = Rank of the sample size

Use:

Mann-Whitney U test is used for every field, but in frequently used in psychology, medical/nursing and business. For example, in psychology, it is used to compare attitude or behavior, etc. In medicine, it is used to know the effect of two medicines and whether they are equal or not. It is also used to know whether or not a particular medicine cures the ailment or not. In business, it can be used to know the preferences of different people and it can be used to see if that changes depending on location.

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