

TITLE: Nomograms for Power, Sample Size and Effect Size for Statistical Tests

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PROJECT OBJECTIVE:

To develop a reference which can be used to quickly determine the statistical power of a variety of widely used statistical tests.

SUMMARY:

This reference contains 124 nomograms or charts which can be used to determine the statistical power of:

1. The  $t$  test for mean differences.
2. The significance test for a Pearson product-moment correlation.
3. The test that a proportion is 0.50.
4. The test for differences between proportions.
5. The Chi-Square tests for goodness of fit and contingency tables.
6. The F test for fixed effect ANOV A and ANCOV A.
7. Multiple regression and correlation analyses.

An explanatory material it is stated that for each statistical test, the alpha level, number of observations per group ( $n$ ), and measure of the standardized effect size must be known or estimated. Standardized effect size is defined, in general, as the difference between group means divided by either the standard deviation or variance, although this definition varies somewhat for each specific statistical test. The author reminds readers that the power of a statistical test is a measure of the ability of the test, under specific conditions of alpha,  $n$ , and effect size, to reject the null hypothesis when it should be rejected. In other words, it is the ability of a statistical test to evaluate results as significant when they are significant.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The nomograms are used as a reference to determine power for planned studies.

SUPPLEMENTARY INFORMATION:

None.