# Get the right sample size the first time

If your sample size is too small, you could miss important research findings. If it's too large, you could waste valuable time and resources. Why risk critical funding and time when you can get the right sample size the first time with SamplePower?

In just a few easy steps, SamplePower helps you find the optimum sample size for your research, so you can proceed with the knowledge that you have the right foundation for your project. Whether you're a researcher, statistician, or an instructor, you'll find that SamplePower makes power analysis clear and effortless.

### Get precise answers quickly

Simply specify parameters of the test situation, such as effect size, alpha level, and one- or two-tailed tests, and then generate sample sizes for any level of power with just one click. SamplePower's interactive guide leads you through each step, explaining terms and options as you go. And you don't have to hunt for information—the interactive summary panel displays your power and precision at every point.

### Compare and save research options

Explore and save different research scenarios, and use SamplePower's unique sensitivity analysis to adjust alpha level, power, effect size, or sample size, and see how the results change. Then save your results for comparison as your research progresses.

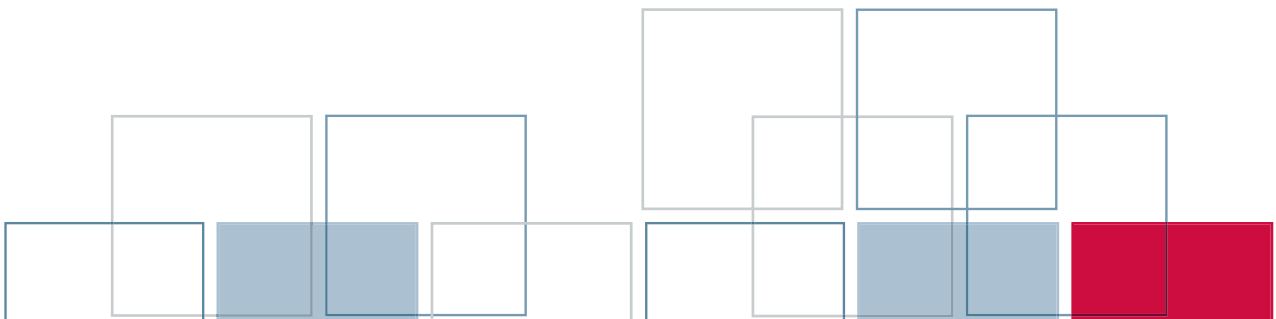
### Present results in many formats

When you want to share your findings, use SamplePower's report, table, and graph features to create graphical or text summaries. If you need to complete a grant application, for example, you can create a comprehensive text report in just a few steps. The report automatically includes explanations of the study design, assumptions, and power. And with SamplePower's one-click charts and graphs, you and others can evaluate your results at a glance. All of these options are exportable to popular presentation, spreadsheet, and word processing programs, such as Microsoft® Word, Excel, and PowerPoint.®

SamplePower is the front end of an integrated line of products from SPSS Inc. that covers each step in the analysis process: planning, data collecting, data access, data management and preparation, analysis, reporting, and deployment. For more than 35 years, people like you have used SPSS Inc. tools and software for research of all types.

"Thank you for bringing such a wonderful product to market... I have had to do power calculations manually. I cannot believe the time SamplePower saves. I cannot believe how easy SamplePower is to use."

– *Mandell Bellmore*
*President, Block, McGibony, Bellmore & Associates*
*Health and Hospital Consultants*



# Conduct research and present results quickly with SamplePower

### Plan any research situation with the interactive guide

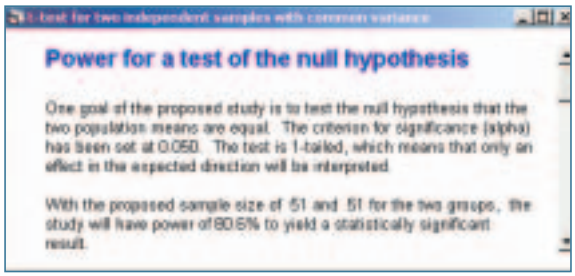
The interactive guide leads you through each power analysis step, providing explanations of terms and enabling you to see instantly how changes affect power.

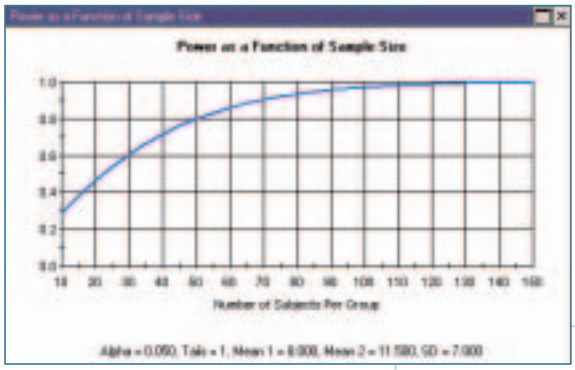
### Explore and compare research scenarios

With SamplePower, you can create and store scenarios that show how adjustments to alpha level, effect size, or sample size affect power. You can also calculate the sample size for a specified power.

### Communicate your findings to a variety of audiences

SamplePower's report, chart, and graph options help you document your progress and present your results quickly and accurately. In just a few steps, you can create a report that details the study design, assumptions, and power, or translate your results into charts and graphs for visual impact.



## Features*

### Statistical option

- Set alpha level, one- or two-tailed tests, number of decimals displayed
- Set N of cases spin control for minimum, maximum, and increment
- Set computational formula (some exact formulas implemented)
- Set data entry and study design options

### Tools

- Show power and precision (availability depends on test) with varied sample sizes, power only, or power with varied effect sizes and alphas
- Create scenario text reports and lists of stored computations
- Find N for any power or for default power
- Show Cohen's effect size conventions for specific tests

### Reports, tables, and graphs

- Pivot tables interactively
- Export table data to Excel or other spreadsheet programs
- Save graphs in your choice of formats, including WMF, EMF, and BMP
- Export graphs to Word, PowerPoint,® and other programs
- Display several graphs simultaneously to assess impact of factors alone and together
- Drag and drop columns in a table and the related graphs will automatically be updated

### Statistical tests

*Means*

- One-sample t-test that mean=zero
- One-sample t-test that mean=specified value: population variance known, unknown
- Paired t-tests that mean difference=zero or that difference=specified value
- Precision
- T-test for two independent groups with common variance: common variance known, unknown

*Proportions*

- One-sample test that proportion=0.50, proportion=specific value
  - Computational options for power: normal approximation (arcsin transformation), exact binomial distribution
  - Find N for power: normal approximation (arcsin transformation), exact formula
  - Precision: normal approximation, exact formula (binomial distribution)
- 2x2 for independent samples
  - Computational options for power: arcsin approximation, normal approximation (weighted and unweighted mean p), chi-square (two-tailed only), chi-square with Yates correction (two-tailed only), Kramer and Greenhouse, Casagrande, and Pike (Fisher approximation)
  - Fisher exact
  - Computational options for precision: log method, log method with Yates correction, Cornfield/Gart method, Cornfield/Gart method with Yates correction
  - Effect size displayed: rate difference (default), odds and log-odds ratios, relative and log-relative risks
- 2x2 for paired samples (McNemar)
  - Computational options for power: normal approximation, exact binomial
- Sign test
  - Computational options for power: normal approximation, exact binomial
- KxC for independent samples
  - Indices of effect: effect size index, contingency coefficient, Cramér's V and phi
  - Computational option for power: non-central chi-square

*Correlations*

- One-sample tests that correlation=zero, correlation=specific value
  - Computational options for power: exact for test versus null of zero, Fisher Z transform for nonzero null
  - Computational options for precision: reports precision for test versus null of zero or for test versus null of specific value
- Two-sample test that correlations are equal: computational option for power, Fisher Z transformation

*ANOVA/ANCOVA*

- Oneway Analysis of Variance and Analysis of Covariance
  - Effect size: enter F directly, between-groups standard deviation, range of group means and pattern of dispersion, mean for each group
- Factorial Analysis of Variance and Analysis of Covariance: two factors, three factors
  - Effect size: enter F directly, between-groups standard deviation, range of group means and pattern of dispersion, mean for each group

*Regression*

- Templates for study design
  - One set of predictors or one set of covariates followed by one set of predictors
  - Set A, Set B, and interaction
  - Polynomial regression
  - Covariates followed by dummy coded variable
- Error model
  - Model I error: error is 1-R2 through the current set
  - Model II error: error is 1-R2 for all variables in the model

*Logistic regression*

- One continuous predictor or two continuous predictors
- One categorical predictor with two levels or one categorical predictor with more than two levels

*Survival analysis*

- Accrual options: subjects entered prior to first study interval, subjects entered during study at constant rate, accrual varies
- Hazard rate options: constant, varies
- Attrition rate options: no attrition, constant rate, rate varies

### Equivalence tests

- Equivalence tests for means and for proportions

## System requirements

- Operating system: Microsoft Windows® 95, 98, 2000, or NT® 4.0
- Hardware:
  - Pentium-class processor
  - SVGA monitor
- Memory: 16MB RAM
- Minimum free drive space: 10MB

SamplePower was developed by a team of experts, including Michael Borenstein, Jacob Cohen, Hannah Rothstein, David Schoenfeld, Jesse Berlin, and Ed Lakatos.

The printed manual for SamplePower explains the logic and proper application of power analysis. It also includes full examples for each statistical procedure and details for all algorithms. An extensive help system provides step-by-step instructions for each procedure.

** Features are subject to change based on the final product release.*

## About SPSS Inc.

SPSS Inc. [NASDAQ: SPSS] is the world's leading provider of predictive analytics software and solutions. The company's predictive analytics technology connects data to effective action by drawing reliable conclusions about current conditions and future events. More than 250,000 commercial, academic, and public sector organizations rely on SPSS technology to help increase revenue, reduce costs, improve processes, and detect and prevent fraud. Founded in 1968, SPSS is headquartered in Chicago, Illinois. To learn more, please visit **www.spss.com**. For SPSS office locations and telephone numbers, go to **www.spss.com/worldwide**.