

Cohen's Conventions for Small, Medium, and Large Effects

These conventions should be used with caution. What is a small or even trivial effect in one context may be a large effect in another context. For example, Rosnow and Rosenthal (1989) discussed a 1988 biomedical research study on the effects of taking a small, daily dose of aspirin. Each participant was instructed to take one pill a day. For about half of the participants the pill was aspirin, for the others it was a placebo. The dependent variable was whether or not the participant had a heart attack during the study. In terms of a correlation coefficient, the size of the observed effect was $r = .034$. In terms of percentage of variance explained, that is 0.12%. In other contexts this might be considered a trivial effect, but in this context it was so large an effect that the researchers decided it was unethical to continue the study and they contacted all of the participants who were taking the placebo and told them to start taking aspirin every day.

Difference Between Two Means*

| Size of effect | d | % variance |
|----------------|-----|------------|
| small | .2 | 1 |
| medium | .5 | 6 |
| large | .8 | 16 |

Cohen's d is not influenced by the ratio of n_1 to n_2 , but r_{pb} and eta-squared are.

Pearson Correlation Coefficient

| Size of effect | ρ | % variance |
|----------------|--------|------------|
| small | .1 | 1 |
| medium | .3 | 9 |
| large | .5 | 25 |

Contingency Table Analysis

| Size of effect | $w = \phi$ | odds ratio* |
|----------------|------------|-------------|
| small | .1 | 1.49 |
| medium | .3 | 3.45 |
| large | .5 | 9 |

*For a 2 x 2 table with both marginals distributed uniformly.

ANOVA Effect

| Size of effect | f | % of variance |
|----------------|-----|---------------|
| small | .1 | 1 |
| medium | .25 | 6 |
| large | .4 | 14 |

A less well known effect size parameter developed by Cohen is [delta](#), for which Cohen's benchmarks are .25 = small, .75 = medium, and 1.25 = large.

Multiple R^2

| Size of effect | f^2 | % of variance |
|----------------|-------|---------------|
| small | .02 | 2 |
| medium | .15 | 13 |
| large | .35 | 26 |

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- [More detail on these conventions and power](#)
- [Wuensch's Statistics Lessons](#)