

Two-Sample T-Tests Allowing Unequal Variance

Numeric Results for Two-Sample T-Test Allowing Unequal Variance

Alternative Hypothesis: $\mu_1 \neq \mu_2$

Power	N1	N2	μ_1	μ_2	$\mu_1 - \mu_2$	σ_1	σ_2	Alpha	Beta
0.80453	131	126	10.2	10.7	-0.6	1.8	1.5	0.050	0.19547

References

- Julious, S. A. 2010. Sample Sizes for Clinical Trials. Chapman & Hall/CRC. Boca Raton, FL.
- Chow, S.-C., Shao, J., and Wang, H. 2008. Sample Size Calculations in Clinical Research (Second Edition). Chapman & Hall/CRC. Boca Raton, FL.
- Machin, D., Campbell, M., Fayers, P., and Pinol, A. 1997. Sample Size Tables for Clinical Studies, 2nd Edition. Blackwell Science. Malden, MA.
- Zar, Jerrold H. 1984. Biostatistical Analysis (Second Edition). Prentice-Hall. Englewood Cliffs, New Jersey.

Report Definitions

Power is the probability of rejecting a false null hypothesis.

N1 and N2 are the number of items sampled from each population.

μ_1 and μ_2 are the assumed population means for power and sample size calculations.

$\mu_1 - \mu_2$ is the difference between population means at which power and sample size calculations are made.

σ_1 and σ_2 are the assumed population standard deviations for groups 1 and 2, respectively.

Alpha is the probability of rejecting a true null hypothesis.

Beta is the probability of accepting a false null hypothesis.

Summary Statements

Group sample sizes of 131 and 126 achieve 80.453% power to reject the null hypothesis of equal means when the population mean difference is $\mu_1 - \mu_2 = 10.2 - 10.7 = -0.6$ with standard deviations of 1.8 for group 1 and 1.5 for group 2, and with a significance level (alpha) of 0.050 using a two-sided two-sample unequal-variance t-test.

