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Lecture 3b: Practice Problems

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Practice Problems

1. Let's employ Stata to experiment with power and sample size calculations:
   - For the O.C.-B.P. experiment, suppose researchers were interested in looking at finer differences in B.P. between the O.C.-users and non-users. Suppose a pilot study estimated the mean B.P. in O.C. users to be 130.1 mmHg and 127.4 mmHg in the non-users. This difference is considered scientifically interesting but was not found to be statistically significant in the pilot study.
   - Recall that the estimated standard deviation for O.C. users is 15.3 mmHg for non-O.C. users it is 18.3 mmHg. What would the necessary group sizes be to conduct a study with α = .05 and 80% power to detect a difference of this size? (assume equal numbers of O.C. users and non-users)

Practice Problems

2. What would the necessary group sample sizes be to do the same study as in question one, but with three times the number of non-O.C. users as compared to O.C. users?
   - How does the total sample size (both groups together) compare in this scenario relative to the situation with equal group sizes?