

Tuesday 5th November

Practical: Sample size calculations

1. Why is it important to calculate a sample size when designing a trial?
2. What parameters are required to be able to determine a sample size for a continuous outcome?
3. What are the parameters required to determine a sample size for a binary outcome (proportions)?
4. What would the total sample be for a trial that had been designed to detect a minimum clinical difference of 6 points on the General Health Questionnaire (a continuous outcome), given previous research indicated that the expected variation in the scale was a Standard Deviation of 10 point:
 - a. For $\alpha = 0.05$ and power of 80% ?
(HELP: For $\alpha = 0.05$ and power of 80% $N \approx 31 / \Delta^2$ (total for 2 groups))
 - b. For $\alpha = 0.05$ and power of 90% ?
(HELP: For $\alpha = 0.05$ and power of 90% $N \approx 42 / \Delta^2$ (total for 2 groups))
5. The total sample size for a trial has been calculated for an effect size of 0.5 , with 90% power and 2 sided significance level at 5%, $N(\text{total}) = 170$. The trial investigators expect 15% attrition during the trial, what is the total sample size accounting for the attrition?
(HELP: Inflate your sample size by $1 / (1 - \text{attrition proportion})$)
6. Is the total sample size for a cluster randomised trial bigger or smaller than that of an individual randomised trial?