

Supplementary material

Supplementary File 1 Calculation of Effect Size

$$\text{Cohen's } d = (M2 - M1) / \text{SD}_{\text{pooled}}$$

$$\text{SD}_{\text{pooled}} = \sqrt{((\text{SD}_1^2 + \text{SD}_2^2) / 2)}$$

$$\text{Hence, Cohen's } d = (61.2 - 47.28) / 22.521524 = 0.618$$

Supplementary File 2 Sample Size Calculation

$$k = n_2 / n_1 = 1$$

$$n_1 = ((\sigma_1^2 + \sigma_2^2 / K) (z_{1-\alpha/2} + z_{1-\beta})^2) / \Delta^2$$

$$n_1 = ((24.3^2 + 24.3^2 / 1) (1.96 + 1.28)^2) / 13.92^2$$

$$n_1 = 62$$

$$n_2 = K \times n_1 = 62$$

$\Delta = |\mu_2 - \mu_1|$ = absolute difference between two means

σ_1, σ_2 = variance of mean #1 and #2

n_1 = sample size for group #1

n_2 = sample size for group #2

α = probability of type I error (usually 0.05)

β = probability of type II error (usually 0.2)

z = critical Z value for a given α or β

k = ratio of sample size for group #2 to group #1

Considering a further contingency of 10% of dropouts, the final sample size will be $62/0.9 \approx 69$ per group.