

Suggested Activity: Part 4

Reading Olson R, Wipfli B, Thompson SV, Elliot DL, Anger WK, Bodner T, Hammer LB, Perrin NA. Weight Control Intervention for Truck Drivers: The SHIFT Randomized Controlled Trial, United States. American Journal of Public Health. 2016:e1-e9.

Questions

1. Olson et al. report their adjusted standardized effect size for BMI was $d=-0.14$. Using that value, calculate the number of drivers needed to have 80% power to detect an effect of -0.14 standard deviation units in an individually randomized clinical trial with a type 1 error rate of 5%.
2. How do you reconcile that result with the statement in Olson et al. that they had $>.9$ probability of an effect of the magnitude observed in the pilot with 520 participants?
3. How is it possible that Olson et al. observed a significant effect of -0.14 sd units with only 452 participants?
4. The more typical target in a GRT is 0.25 sd units. Calculate the number of terminals needed per condition to have 80% power to detect an effect of 0.25 standard deviation units for BMI in a GRT having 20 drivers per terminal if the ICC reflecting the average correlation for BMI among truckers in the same terminal was 0.01 . Start with 11 terminals per condition and continue to iterate until the result converges.