You believe your new mental exercise will influence men’s and women’s satisfaction with their lives differently. You gather 6 married couples, give them the therapy, and test their life satisfaction (normally distributed at the population level).

 1. H0 =

 2. HA =

 Your data:

 Husbands Wives

5 6

7 8

 6 5

6 7

 8 8

5 7

3. Why is a dependent t test appropriate for this data set?

4. How does this test take advantage of the relationship between the groups?

5. Calculate your t statistic

6. Evaluate your Null Hypothesis

a. Explain what this evaluation means about your independent variable.

 b. Power for this experiment is .38. What does this mean?

c. How high is your Type 2 error rate?

7. What are two specific things you could do to increase power in your next experiment?

 a. Explain how things would make your *t* statistic bigger the next time.

Answers:

H0 = mental exercise has no effect (population difference = 0; sample differences are chance)

HA = mental exercises affect life satisfaction

Because your two groups are made of pairs of people with naturally occurring relationships.

Subtracting the scores reduces confounding variables that are shared.

*t* = 1.58; df = 5, *p =* .175 (17.5%)

Retain

The mental exercise probably did not affect life satisfaction.

38% of the time in this experiment, you would be able to reject the null.

62%

Several options here, see me if you have questions.