AS1(Assignment 1, Unit 5) Independent Measures t-test

Please write your responses in red ☺

A pharmaceutical company wishes to test the effects of a herbal supplement on anxiety levels. The researcher randomly selects a sample of n=16 adults from Essex County. The sample is randomly assigned to either the herbal supplement, Group B or a placebo, Group A.

Here are the data:

GROUP "A"	GROUP " B "
12, 16, 18, 21,	13, 18, 20, 16
17, l8, l8, 19	19, 21, 19, 22

l. What is the researcher's hypothesis?

The herbal supplement will have a effect on anxiety levels

2. What is the null hypothesis?

That the herbal supplement has no effect on anxiety levels

3. What is the independent variable?

Herbal supplement

4. What is the dependent variable?

Anxiety levels

5. What is the name of the ***research design*** in this study?

between-subject two-group design

6. What is the appropriate ***hypothesis test*** to analyze the data from this study?

The independent measures t test

7. What are the two mean “differences” you are analyzing in these data?

In this data we analyze the effect that the placebo herbal supplement has on anxiety levels of a random sample group (random assignment) verses the effect of the real herbal supplement on anxiety levels in order to test whether or not the herbal supplement has a affect of a random sample of people.

8. What is the definition of a random assignment?

that everyone in the population has an equal chance to be selected for the sample.

9. Why is using a random sample important in this study?

I think that using a random sample is important in this study so that the results are accurate, although finding the results of a sample doesn’t necessarily mean that the population mean is the same, using a random sample gives the best chance of accurate results.

10. If a researcher failed to use random assignment, how would this affect the research conclusion?

We can look at it as if the researcher didn’t use the random assignment then the researcher couldn’t assume that the only different between the groups would be the independent variable, therefore this would effect the conclusion made within the research. The limitation would then be that the researcher cannot attribute the cause to the independent variable which is the point of the experiment.

11. If a researcher failed to use a random sample, how would this affect the research results?

We use a random sample so that the researcher can use this sample to generalize or infer back to the population, however if a research does not use a random sample but takes a sample of for example university students then this could affect the research results as the anxiety levels could be heightened and therefore this sample cannot be generalized back to the population.

12. Run the appropriate SPSS analysis on the data and cut and paste your SPSS results here:

13. Based on your SPSS results, please answer the following questions:

(a) What is the appropriate decision, reject the null or fail to reject the null? Reject the null

(b) Write the "statistical statement" of your SPSS analysis: _____

(c) Please write your results as they might be written in a research study (refer to the "In the Literature" section of chapter lo of your textbook).

_____
_____
_____
_____

(d) Is there a probability of Type I error? Yes

(e) Is there a probability of Type II error? Yes