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

Please write your responses in red ☺

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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 an effect on anxiety levels

2. What is the null hypothesis?

__Herbal supplement will not have an effect on anxiety level.

3. What is the independent variable?

___Herbal supplement and Placebo_____

4. What is the dependent variable?

___The effect it has on anxiety level___

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

_____Experimental study_____

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

_____Sample T test_____

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

__Sample mean of Group A and sample mean of Group B_____

8. What is the definition of a random assignment?

___Random assignment is a type of experiment, where everyone has an equal chance of getting into the control group or experimental group.

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

_____Random sample is important because it control the confounding variable and to ensure the isolation of the causal variable. _____

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

____I will not be able to imply the results to the population._____

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

The researcher will not be able to assume that the only difference between the groups is the independent variable. _____

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

Group Statistics

	VAR00003	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	1.00	8	17.3750	2.61520	.92461
	2.00	8	18.5000	2.87849	1.01770

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
VAR00001	Equal variances assumed	.149	.705	-.818	14	.427	-1.12500	1.37500	-4.07408	1.82408
	Equal variances not assumed			-.818	13.873	.427	-1.12500	1.37500	-4.07661	1.82661

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? _Fail to Reject the null hypothesis_____

(b) Write the "statistical statement" of your SPSS analysis: __t(14)=-.818, p>.05_____

(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).

The mean for herbal supplement group was M=17.375 with a SD = 2.615. The mean for Placebo group was M=18.500 with a SD= 2.878. The data failed to reach significance, t(14)=-.818, p>.05

_____

(d) Is there a probability of Type I error? Yes _____ No _____

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