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

1. What is the researcher's hypothesis?

___The herbal supplement have an effect on anxiety levels_____

2. What is the null hypothesis?

____The herbal supplement has NO effect on anxiety levels_____

3. What is the independent variable?

__a herbal supplement (from a pharmaceutical company)_____

4. What is the dependent variable?

___16 adults from Essex County_____

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

_____Between-subjects design_____

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

____ Independant measure t-test_____

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

___mean from a group that take the herbal supplement, and the mean from other group with placebo, that is the caparison of the control group and the experimental group_____

8. What is the definition of a random assignment?

____it is the selected sample with the equal chance to put into the control group or the experimental group while the independent variable is the only difference during the test_____

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

____random assignment, that is to random select the sample while these samples have the same individual variable, for the research to test and see that the IV is the only difference in the study to learn whether the IV has the effect or no effect to the DV. That is, the study is intended to the population, while the selected sample has be in its approximately to represent that population_____

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

___If researcher do not use random assignment, the experiment to test the effect of the IV will not longer be representative to the population to make the IV the only differences, that can lead to the invalidate of the research conclusion. That is, when test any hypothesis, it is not to influence by any other variables, BUT the IV to be the ONLY difference to compare in between the groups (the control group and the experimental group)____

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

_____It will be causing the sample error that the the sample will no longer be representative enough for the research to get the result that close to the reality, the hypotheses will be invalid for the research fail to exclude other variables (influences) rather than the IV _____

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

T-Test

[DataSet0]

Group Statistics

	VAR00002	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							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
VAR00001	Equal variances assumed	.149	.705	-.818	14	.213	.427	-1.12500	1.37500	-4.07408	1.82408
	Equal variances not assumed			-.818	13.873	.214	.427	-1.12500	1.37500	-4.07661	1.82661

Independent Samples Effect Sizes

		Standardizer[a]	Point Estimate	95% Confidence Interval Lower	Upper
VAR00001	Cohen's d	2.75000	-.409	-1.393	.589
	Hedges' correction	2.90917	-.387	-1.317	.557
	Glass's delta	2.87849	-.391	-1.378	.623

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control group.

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____

(b) Write the "statistical statement" of your SPSS analysis: __t(14) = -0.818, 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 the group with placebo (fake supplement) was M=17.37 with a SD=2.61. The mean for the group with a herbal supplement was M =18.5 with a SD=2.87. The data fail to fail to reach significance. There was not a significant difference between the groups, t(14) = -0.818, p > .05_____

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

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