

- Problem 2: Two-Sample Inferences

A two-sample inference deals with dependent and independent inferences. In a two-sample hypothesis testing problem, underlying parameters of two different populations are compared. In a longitudinal (or follow-up) study, the same group of people is followed over time. Two samples are said to be paired when each data point in the first sample is matched and related to a unique data point in the second sample.

This problem demonstrates inference from two dependent (follow-up) samples using the data from the hypothetical study of new cases of tuberculosis (TB) before and after the vaccination was done in several geographical areas in a country in sub-Saharan Africa. Conclusion about the null hypothesis is to note the difference between samples.

The problem that demonstrates inference from **two dependent samples** uses hypothetical data from the TB vaccinations and the number of new cases before and after vaccination.

Table 5: Cases of TB in Different Geographical Regions

Geographical regions	Before vaccination	After vaccination
1	85	11
2	77	5
3	110	14
4	65	12
5	81	10
6	70	7
7	74	8
8	84	11
9	90	9
10	95	8

Using the Minitab statistical analysis program to enter the data and perform the analysis, complete the following:

- Construct a one-sided 95% confidence interval for the true difference in population means.
- Test the null hypothesis that the population means are identical at the 0.05 level of significance.

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In addition, in a Microsoft Word document, provide a written interpretation of your results in APA format.

Submission Details:

- Name your Minitab output file
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- Name your document
SU_PHE5020_W1_A3c_LastName_FirstInitial.doc.
- Submit your document to the **Submissions Area** by **the due date assigned.**