To do: Make a submission

Opened: Thursday, 17 April 2025, 1:05 PM
Due: Friday, 25 April 2025, 12:55 PM

Assignment

This assignment will assess your knowledge and skill in interpreting the results of hypothesis testing for single and two proportions. Complete both Part 1 and Part 2.

Part 1

A group of 441 adults who did not have a college degree and were not currently enrolled in school were randomly selected. 38% of them said they did not attend college because they could not afford it.

For the given data:

a. Conduct a hypothesis test to determine if there is strong evidence supporting the statement that less than 50% of adults who decide not to attend college are because they cannot afford it. State the hypotheses and validate the independence and success-failure condition. Compute test statistic, and p-value, interpret the data, and conclude if the null hypothesis needs to be rejected or not.

b. Suppose we wanted the margin of error for the 90% confidence level to be about 1.5%. How large of a survey would you recommend?

Part 2

A random sample study was conducted on 13,270 Texas and 4,681 Dallas residents. It was found that the proportion of residents who reported insufficient rest or sleep during each of the preceding 31 days is 7.0% in Texas and 6.8% in Dallas.

a. Calculate a 95% confidence interval for the difference between the proportions of sleep-deprived individuals among Texas residents and Dallas residents. Explain the validation of independence and success-failure condition. Construct the interval and interpret it in the context of this study.

b. Conduct a hypothesis test to determine if the provided data is strong evidence for the rate of sleep deprivation is different for the two states given $\alpha = 0.05$. Calculate the test statistics, and p-value and provide a conclusion to support your observation.

INSTRUCTION SUBMISSION

- Submit your submission in one document.
- Write the question number before your answer.

This assignment will be assessed by your instructor using the rubric below.

Note: Always prioritize using JASP to retrieve values, as it will be a key tool for the final exam.

Add submission

Submission status

Attempt number	This is attempt 1.
Submission status	No submissions have been made yet

Grading status	Not graded
Time remaining	4 days 23 hours remaining

Grading criteria

Part 1a	States the hypotheses and validates the independence and success-failure conditions correctly. Performs the hypothesis test and arrives at an accurate conclusion ***20 points***	States the hypotheses and validates the independence and success-failure conditions correctly. Performs the hypothesis test but arrives at an inaccurate conclusion. ***16 points***	States the hypotheses but validates the independence and success-failure conditions incorrectly. Performs the hypothesis test incorrectly leading to an inaccurate conclusion. ***10 points***	Does not write the hypotheses. ***0 points***
Part 1a	Interpretation of the data is correct the information is comprehensive ***10 points***	Interpretation of the data is partially correct ***8 points***	Interpretation is not correct ***5 points***	Does not write any interpretation Unable to meet any of the preceding levels ***0 points***
Part 1b	Correctly calculates the confidence interval by showing all steps of calculation and correctly giving the formula for the confidence interval. ***20 points***	Calculates the margin of error correctly, but the recommended sample size is inaccurate. ***16 points***	Correctly calculates the confidence interval. However, does not give the formula for the confidence interval. ***10 points***	Does not submit the answer for part 1b. ***0 points***
Part 2a	Calculates the 95% confidence interval correctly and interprets it correctly in the context of the study. Explains the validation of independence and success-failure condition correctly. ***25 points***	Calculates the 95% confidence interval correctly, but interprets it incorrectly in the context of the study. Explains the validation of independence and success-failure condition incorrectly. ***20 points***	Calculates the 95% confidence interval incorrectly, but the formula used is correct. Explains the validation of independence and success-failure condition incorrectly ***12 points***	Does not answer part 2a. ***0 points***

Part 2b	Carries out the hypothesis test correctly and concludes by rejecting or failing to reject the null hypothesis correctly. Explains the implications of the results correctly. ***25 points***	Carries out the hypothesis test correctly, but makes an error in concluding whether to reject or fail to reject the null hypothesis. Explains the implications of the results incorrectly ***20 points***	Carries out the hypothesis test incorrectly, but the error is minor and does not affect the overall conclusion. Explains the implications of the results incorrectly. ***12 points***	Does not answer part 2b. ***0 points***