How do you write a confidence interval conclusion step-by-step?

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April 30, 2024

A confidence interval is a statistical tool used to estimate the true value of a population parameter. It provides a range of values within which the true value is likely to fall with a certain level of confidence. Writing a confidence interval conclusion involves following several steps:

1. State the confidence level: The first step in writing a confidence interval conclusion is to state the confidence level, which is typically expressed as a percentage (e.g. 95% confidence level).

2. Identify the sample mean and standard deviation: The next step is to identify the sample mean and standard deviation, which are used to calculate the confidence interval.

3. Calculate the margin of error: The margin of error is the amount added to and subtracted from the sample mean to create the confidence interval. It is calculated by multiplying the standard deviation by the appropriate z-score or t-score for the given confidence level.

4. Write the confidence interval: Using the sample mean, margin of error, and confidence level, write the confidence interval in the form of (sample mean - margin of error, sample mean + margin of error).

5. Interpret the confidence interval: The confidence interval provides a range of values within which the true population parameter is likely to fall. It is important to interpret the interval in the context of the specific study and explain what it means.

6. Make a conclusion: Based on the confidence interval, make a conclusion about the population parameter. If the interval includes the hypothesized value or falls within a predetermined threshold, we can conclude that there is no significant difference between the sample and population. If the interval does not include the hypothesized value, we can conclude that there is a significant difference.

7. Consider limitations: It is important to consider any limitations of the study or potential sources of error that may affect the accuracy of the confidence interval.

In summary, writing a confidence interval conclusion involves stating the confidence level, calculating the margin of error, interpreting the interval, making a conclusion, and considering limitations. It is a crucial step in accurately interpreting the results of a study and making informed decisions based on the data.

Write a Confidence Interval Conclusion (Step-by-Step)

A is a range of values that is likely to contain a with a

certain level of confidence. It is written as:

Confidence Interval =

We can use the following sentence structure to write a conclusion about a confidence interval:

We are confident that is between .

The following examples show how to write confidence interval conclusions for different statistical tests.

Example 1: Confidence Interval Conclusion for a Mean

Suppose a biologist wants to estimate the mean weight of dolphins in a population. She collects data for a of 50 different dolphins and constructs the following 95% confidence interval:

95% confidence interval =

Here's how to write a conclusion for this confidence interval:

The biologist is 95% confident that the mean weight of dolphins in this population is between 480.5 pounds and 502.5 pounds.

Example 2: Confidence Interval Conclusion for a Difference in Means

Suppose a zoologist wants to estimate the difference in mean weights between two different species of turtles. He collects data for a simple random sample of 25 of each species and constructs the following 90% confidence interval:

90% confidence interval =

Here's how to write a conclusion for this confidence interval:

The zoologist is 90% confident that the difference in mean weight between these two species of turtles is between 3.44 pounds and 12.33 pounds.

Example 3: Confidence Interval Conclusion for a Proportion

Suppose a politician wants to estimate the proportion of citizens in his city who support a certain law. He sends out a survey to 200 citizens and constructs the following 99% confidence interval for the proportion of citizens who support the law:

Here's how to write a conclusion for this confidence interval:

The politician is 99% confident that the proportion of citizens in the entire city who support a certain law is between 0.25 and 0.35.

Example 4: Confidence Interval Conclusion for a Difference in Proportions

Suppose a researcher wants to estimate the difference in the proportion of citizens between city A and city B who support a certain law. He sends out a survey to 500 citizens in each city and constructs the following 95% confidence interval for the difference in proportions of citizens who support the law:

95% confidence interval =

Here's how to write a conclusion for this confidence interval:

The researcher is 95% confident that the difference in the proportion of citizens who support a certain law between city A and city B is between 0.02 and 0.08.

The following tutorials provide simple introductions to the most commonly used confidence intervals: