

Confidence Intervals

We've seen what the mean police confidence scores are for men and women in our survey sample. What are the potential police confidence mean scores for men and women in the entire population of England?

Another way to look at our measure of police confidence is to calculate confidence intervals. Our dataset, while quite comprehensive, only includes information about our sample, the people who participated in the CSEW. We can calculate the means of variable values in our dataset, but we cannot say that these means are indicative of the true means across the entire population of England. We can, however, calculate a range of values within which the mean across the entire population is likely to fall. This range of values is called a confidence interval. It is possible to calculate a 95% confidence interval and a 99% confidence interval. These intervals are simply a way of giving a range of values that we are fairly (either 95% or 99%) confident includes the true population mean.

A 99% confidence interval will allow you to be more confident that the true value in the population is represented in the interval. However, it gives a wider interval than a 95% confidence interval. For most analyses, it is acceptable to use a 95% confidence interval to extend your results to the general population.

So, let's begin by calculating a 95% confidence interval for the mean level of confidence in the police.

Select **Analyze, Descriptive Statistics**, and then **Explore**.

Move **policeconf1** to the **Dependent List** box and then click **OK**.

Your output table should look like this:

Descriptives				
			Statistic	Std. Error
I have confidence in the police	Mean		13.5265	.02091
	95% Confidence Interval for Mean	Lower Bound	13.4856	
		Upper Bound	13.5675	
	5% Trimmed Mean		13.5151	
	Median		13.0000	
	Variance		18.629	
	Std. Deviation		4.31619	
	Minimum		6.00	
	Maximum		30.00	
	Range		24.00	
	Interquartile Range		5.00	
	Skewness		.821	.012
	Kurtosis		1.237	.024

You can see in the table above that the Lower Bound of our 95% Confidence Interval is 13.4856 and the Upper Bound is 13.5675. We can interpret these results by saying that we are 95% confident the mean score for confidence in the police for all people in England will fall between 13.4856 and 13.5675. This is a simple interpretation of the interval – there are more nuances to the actual interpretation – but this will be adequate for now!

Now we can calculate a 99% confidence interval for mean confidence in the police.

Select **Analyze, Descriptive Statistics**, and then **Explore**.

Our variable **policeconf1** should still be in the **Dependent List** box. Click on the **Statistics** tab on the upper right. In the dialogue box that opens, make sure **Descriptives** is marked and change the **Confidence Interval for Mean** from 95% to **99%**.

Your output should look like this:

Descriptives			
		Statistic	Std. Error
I have confidence in the police	Mean	13.5265	.02091
	99% Confidence Interval for Mean		
	Lower Bound	13.4727	
	Upper Bound	13.5804	
	5% Trimmed Mean	13.3151	
	Median	13.0000	
	Variance	18.629	
	Std. Deviation	4.31619	
	Minimum	6.00	
	Maximum	30.00	
	Range	24.00	
	Interquartile Range	5.00	
	Skewness	.821	.012
	Kurtosis	1.237	.024

What is the 99% confidence interval for mean confidence in the police?

How would you interpret this confidence interval?

Summary

You’ve just calculated 95% and 99% confidence intervals using the data in our continuous variable, policeconf1. Confidence intervals allow us to generalize our findings from the samples from which

our data was taken to the population from which our survey sample was drawn. This ability to generalize one's findings is often very helpful in social science research.