Chapter 5 - Foundations for Inference

5.19 Cyberbullying rates. Teens were surveyed about cyberbullying, and 54% to 64% reported experiencing cyberbullying (95% confidence interval).Answer the following questions based on this interval.

(a) A newspaper claims that a majority of teens have experienced cyberbullying. Is this claim supported by the confidence interval? Explain your reasoning.

(b) A researcher conjectured that 70% of teens have experienced cyberbullying. Is this claim supported by the confidence interval? Explain your reasoning.

(c) Without actually calculating the interval, determine if the claim of the researcher from part (b) would be supported based on a 90% confidence interval?

(a) A newspaper claims that a majority of teens have experienced cyberbullying. Is this claim supported by the confidence interval? Explain your reasoning.

Yes, this claim is supported We are about 95% confident that the actual proportion is between 54% to 64%. Since the whole interval is above 50%, we can be reasonably confident that the actual proportion is above 50%

(b) A researcher conjectured that 70% of teens have experienced cyberbullying. Is this claim supported by the confidence interval? Explain your reasoning.

No, for the same reasons as above, only on the other side. 70% is outside of our confidence interval, so we can be reasonably confident that it is not the true proportion

(c) Without actually calculating the interval, determine if the claim of the researcher from part (b) would be supported based on a 90% confidence interval?

No, 70% would still not be included As you decrease confidence, you narrow the confidence interval. The upper limit of our interval will be below 64%, so 70% will not be included.