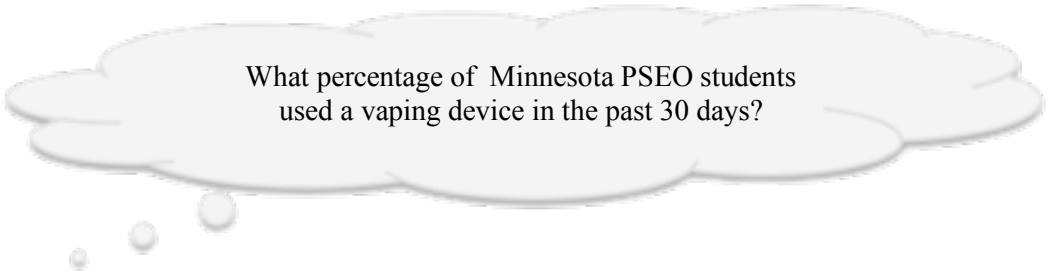
EPsy 3264: Basic and Applied Statistics 10 pts.
Assignment 08

College Student Health Survey

The College Student Health Survey (CSHS), developed by Boynton Health Services, is used to collect health information from a random sample of Minnesota post-secondary students. The survey, given annually, provides information on these students' experiences and behaviors in the areas of health insurance and health care utilization, mental health, tobacco use, alcohol and other drug use, personal safety and financial health, nutrition and physical activity, and sexual health.

Observed Data: One of the reported findings from the 2015 CSHS was that 3 of the 56 sampled Minnesota PSEO students used a vaping device in the past 30 days.



Explore the Observed Data

1. What is the sample estimate of Minnesota PSEO students used a vaping device in the past 30 days?

Bootstrapping

Set up a bootstrap model in TinkerPlotsTM based on the results in the observed data. Carry out 500 trials of the bootstrap simulation, collecting the percentage of PSEO students who reported they had vaped in the previous 30 days. Plot the 500 bootstrapped percentages.

2. Copy-and-paste the plot of the bootstrap distribution into your word- processed document.

3. Compute the mean of the bootstrap distribution.

4. Explain why you could have predicted this value based on the model included in your TinkerPlots^{TM} sampler.

5. Compute and report the margin of error.

6. Compute and report the endpoints of the compatibility interval. Show your work.

7. Answer the research question posed at the beginning of the assignment. Use evidence from the bootstrap analysis to support your answer.

Interpretation

8. Albert Hoffman's best friend, Dawson Leery, works for the Health Services at Worthington University. A survey of N=100 Worthington students found that similar to the Minnesota PSEO students, 5.4% of Worthington students surveyed also used a vaping device in the past 30 days. If Dawson were to bootstrap an interval estimate of the actual percentage of Worthington students that vape, how would that interval compare to the interval you computed in Question #6? Explain.

9. It turns out that the survey study at Worthington University sampled students from only one student housing building. Does this have an impact on the amount of uncertainty (range of the compatibility interval) computed in the bootstrap interval? Explain.

10. Would sampling students from only one student housing building have an impact on the external validity of the study? Explain.