Practicing Inference

Dr. Ab Mosca (they/them)

Slides based off slides courtesy of OpenIntro and John McGreedy of Johns Hopkins University

Plan for Today

- Have some fun
- Recap Inference for Proportions
- Recap Inference for Means

So far...

- Hypothesis test for a difference between a sample proportion and a population proportion
 - What are the parameters of interest?
 - What are the conditions?
 - What is the test statistic?
- Hypothesis test for a difference between two proportions
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So far...

- Hypothesis test for a difference between a sample proportion and a population proportion
 - What are the parameters of interest?
 - \hat{p} , p (point estimate, population parameter)
 - What are the conditions?
 - Independence, >= 10 successes and failures
 - What is the test statistic?
 - T-score or Z-score
- Hypothesis test for a difference between two proportions
 - What are the parameters of interest?
 - $\hat{p}_1 \hat{p}_2$, $p_1 p_2$ (point estimate, population parameter)
 - What are the conditions?
 - Independence w/in and between groups, >= 10 successes and failures
 - What is the test statistic?
 - T-score or Z-score

Hand Turkey Time



Practice Time

The national proportion of left-handed people is 10%. Is the proportion of left-handed people in this class significantly different than the national proportion?

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- Hypotheses H_0 , H_A
- Check Conditions
- Calculate test statistic (t-score)
- Find p-value for that test statistic
- Conclusion

 $T = \frac{obs - null}{SE}$ df = n - 1

 $SE = \sqrt{\frac{p_0(1-p_0)}{n}}$

(Throwback) Practice Time

The national average hand size (measured from the tip of the longest finger to the bottom of the palm) is 7.2 inches. Is the average hand size of people in this class significantly different than the national average?

- Hypotheses H_0 , H_A
- Check Conditions
- Calculate test statistic (t-score)
- Find p-value for that test statistic
- Conclusion

 $T = \frac{obs - null}{SE}$ df = n - 1

$$SE = \frac{S}{\sqrt{n}}$$

$$s = \sqrt{\frac{\sum_{i=1}^{n} (x_i - \bar{x})^2}{n-1}}$$