

Applied Statistical Analysis

EDUC 6050

Week 13½

“What Are The Odds?”

Finding clarity using data

What are
odds?



$$\text{odds} = \frac{\text{Probability of Yes}}{\text{Probability of No}}$$

What are the odds of getting heads with a fair coin?

What are the odds of something that happens 66% of the time?

$$\text{odds} = \frac{\text{Probability of Yes}}{\text{Probability of No}}$$

Big Odds = High probability of yes compared to no

Small Odds = Low probability of yes compared to no

$$\text{Odds Ratio} = \frac{\text{Odds (when condition)}}{\text{Odds (when another condition)}}$$

Often, we are looking at the odds of something happening *when one condition is happening* vs. the odds of something happening *when another condition is happening*

$$\text{Odds Ratio} = \frac{\text{Odds (when condition)}}{\text{Odds (when another condition)}}$$

Odds Ratio of lung cancer when smoker
vs. not a smoker

One estimate = 103!!