L15 - Two Groups - Two proportions - Theoretical

Validity Conditions - At least 10 observations in each category

	Group A	Group B
Result 1	≥10	≥10
Result 2	≥10	≥10

$$\hat{p}_A = \frac{A_{R_1}}{A_{Total}} \qquad \hat{p}_B = \frac{B_{R_1}}{B_{Total}} \qquad \hat{p} = \frac{R_1}{R_{Total}}$$

Statistic: $\hat{p}_1 - \hat{p}_2$

Parameter: $\pi_1 - \pi_2$

Validity Conditions: At least 10 observations in each category

$$z = \frac{\hat{p}_1 - \hat{p}_2}{\sqrt{\hat{p}(1-\hat{p})\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

* $\hat{p}$ is pooled proportion

Confidence interval: $(\hat{p}_1 - \hat{p}_2) \pm \text{Multiplier} * \sqrt{\frac{\hat{p}_1(1-\hat{p}_1)}{n_1} + \frac{\hat{p}_2(1-\hat{p}_2)}{n_2}}$

Standard error

"Two sample z-test"