8.8: Chapter 8 Formula Review

8.2 Comparing Two Independent Population Means

Standard error: $se = \sqrt{\frac{(s_1)^2}{n_1} + \frac{(s_2)^2}{n_2}}$

Test statistic (*t*-score): $t_{obs} = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\frac{(s_1)^2}{n_1} + \frac{(s_2)^2}{n_2}}}$

Degrees of freedom: $df = n_1 + n_2 - 2$

8.3 Cohen's Standards for Small, Medium, and Large Effect Sizes

Cohen's d is the measure of effect size:

$d = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{2} + \frac{s_2^2}{2}}}$

8.4 Comparing Two Independent Population Proportions

Confidence Interval: $(P_2' - P_1') \pm z_{\frac{\alpha}{2}} * \sqrt{\frac{P_1' * (1 - P_1')}{n_1} + \frac{P_2' * (1 - P_2')}{n_2}}$

8.5 Matched or Paired Samples

Test Statistic (*t*-score): $t_{obs} = \frac{\bar{x}_d - \mu_d}{\left(\frac{s_d}{\sqrt{n}}\right)}$

where:

$\bar{x}_d$ is the mean of the sample differences, μ_d is the mean of the population differences, s_d is the sample standard deviation of the differences, and n is the sample size.