

Week 7 Polling

Homeowners ($n=16$) or renters ($n=16$) are asked to rate how concerned with the economy they are [scale from 0 (not) to 7 (very concerned)]. Homeowners' mean rating is 4.8 and renters' is 5.6. The estimated SE for the difference is 0.6. [KEEP READING]

If the null hypothesis states that there is no difference in concern about the economy, then is this result significant ($\alpha=.05$) for a two-tailed independent-samples test?

Yes, this result is significant.

$$t = \frac{M_1 - M_2}{SE} = \frac{5.6 - 4.8}{.6} = \frac{.8}{.6} = 1.3\bar{3}$$

No, this result is not significant.

$$t_{cv}(30) = 2.042$$

$$df = n_1 + n_2 - 2 = 32 - 2 = 30$$

$$t < t_{cv} \therefore \text{Fail to reject}$$

A researcher finds a statistically significant mean difference of 1.0 between two sample means. If the pooled sample variance is 4.0, then what is the Cohen's d ?

0.25

$$d = \frac{M_1 - M_2}{\sqrt{S^2_p}} = \frac{1.0}{\sqrt{4.0}} = \frac{1}{2}$$

0.50

1.40

2.0

A researcher observes the same group of participants in the morning and again at night. What type of research design did the researcher use?

Repeated-measures design

Matched-pairs design

A researcher compares differences in personality traits among pairs of identical twins. What type of research design did the researcher use?

Repeated-measures design

Matched-pairs design

Difference scores are computed _____ we compute the test statistic for the related-samples t test.

Before

After

A group of 20 participants is observed two times. The related-samples t test for this study will have a degree(s) of freedom equal to:

1

$$\begin{aligned} df &= n - 1 \\ &= 20 - 1 = 19 \end{aligned}$$

18

19

39

A researcher measures scores in two groups ($n = 12$ in each group) with a mean difference of 5. In this study, the estimated standard error for difference scores is 2.9. What is the decision for a related-samples t test using a two-tailed test, alpha .05?

Reject the null hypothesis

$$t = \frac{\bar{D}}{s_D/\sqrt{n}} = \frac{5}{2.9} = 1.7241$$

Fail to reject the null hypothesis

$$t_{cv}(11) = 2.201$$

$$df = n - 1 = 11$$

$t < t_{cv} \therefore$ Fail to reject

A researcher computes the following test statistic for a related-samples t test: $t(22) = 3.14$, $p < .05$. What is the proportion of variance explained using the formula for eta-squared?

0.21

0.27

0.24

0.31

$$\eta^2 = \frac{t^2}{t^2 + df} = \frac{(3.14)^2}{(3.14)^2 + 22} = \frac{9.8596}{31.8596} = .31$$