

Quiz 7 Markdown

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Hypotheses (Question A)

- a) It is hypothesized that the population correlation between self-esteem and academic performance will result in a large positive effect according to Bosco et al. (2015).
- b) It is hypothesized that the relationship between self-esteem and quality of dating relationships will result in a large negative effect according to Bosco et al. (2015).
- c) It is hypothesized that the relationship between self-esteem and quality of friendships will result in a weak positive effect according to Bosco et al. (2015).

Analysis Plan A (Question B)

- a) a bivariate correlation power analysis will be conducted to determine what sample size is needed to conduct a study that finds a large positive effect on self esteem and academic performance. A power analysis was conducted to reveal that for power to be .80, the sample size needed to find a large effect is $N = 28$ (significant at the $p = .05$ level)
- b) a bivariate correlation power analysis will be conducted to determine what sample size is needed to conduct a study that finds a large negative effect on self esteem and quality of dating relationships. A confidence interval was calculated for an $N = 100$, and a safeguard power analysis was conducted to reveal that for power to be .80, the sample size needed to find a large effect is $N = 33$ (significant at the $p = .05$ level)
- c) a bivariate correlation power analysis will be conducted to determine what sample size is needed to conduct a study that finds a weak positive relation between self esteem and quality of friendships. A confidence interval was calculated for an $N = 5000$, and a safeguard power analysis was conducted to reveal that for power to be .80, the sample size needed to find a large effect is $N = 4902$ (significant at the $p = .05$ level)

Analysis Plan B (Question C)

- a) A confidence interval for a large positive effect size between self-esteem and academic performance was calculated, and it was determined that an $N=50$, 95% CI [.26, .68] ensures a confidence interval that is less than the desired population correlation of $\rho = .50$.
- b) A confidence interval for a large negative effect size between self-esteem and quality of dating relationships was calculated, and after safeguard analysis, it was determined that an $N=100$, 95% CI [-.61, -.30] ensures a confidence interval that is less than the desired population correlation of $\rho = -.30$.
- c) A confidence interval for a weak positive effect between self-esteem and quality of friendships was calculated using the small effect size of $r=.07$ recommended by Bosco et al. (2015), and it was determined that an $N=6000$, 95% CI [.04, .1] ensures a confidence interval that is less than the desired population correlation of $\rho = .07$