

Lab 7 – Two sample t-tests & violations of assumptions

Sakai Question/Answer key

1. The mean weight gain with family therapy is 7.265. This change (is/is not) is statistically significant at $\alpha = 0.05$. The results of the paired samples test and the one-sample test (are/are not) are the same.
2. The P-value for the lifespan of mice with spinocerebellar ataxia type 1 undergoing a mild exercise regime compared to the same mice without an exercise regime is 0.010.
3. Homophobic men had a statistically significant higher level of arousal when watching homosexual videos than non-homophobic men. True
4. Which of the following statements about the measurement of the heads of NZ army recruits with cardboard calipers compared to metal calipers is true? C. The mean head measurement is higher with cardboard calipers, and the difference is significant at $\alpha = 0.05$.
5. Which of the following describes the attractiveness of participants to mosquitos before and after drinking beer? D. Participants were more attractive after drinking beer, and this was statistically significant.
6. The P-value for the change in the proportion of mosquitos attracted to participants who drank beer compared to participants who drank water is 0.0027.
7. Which of the following is true about the reported number of sex partners between sports majors and biology majors? A. Sports majors reported more sex partners. The difference was significant as determined with a Mann-Whitney U test.
8. A) The Sahpiro-Wilk test indicates that the distribution of health expenditure (is/is not) is not normal.
B) The distribution of the log-transformed data (is/is not) is normal, with a P-value of 0.698 on the Shapiro-Wilk test.
9. A) The exact P-value for time to next cub of female lions who lost a cub to accidental death compared to infanticide is 0.029.
B) Time to next cub was (longer/shorter) longer for females who lost a cub to infanticide.
10. The duck researchers had hypothesized that a female duck would lay eggs in her own nest first so that her young would be the first to hatch and would get out of the nest quickly. Does the data support their research hypothesis? B. No, while there was a significant difference in the parasitism index, it showed that females lay eggs in their own nests last.
11. Female Gouldian finches produce significantly more corticosterone when they mate with a male who has the same colour face as themselves. False
12. Does the contraception prevalence data meet the assumptions of the t-test that would apply to your analysis? No
13. According to your analysis of the contraception prevalence data: A. Contraception prevalence is higher in 2012 than 2002, and this difference is statistically significant.