Tammy believes that watching Sherlock makes life worth living. I like the show, but I’m not sure I would go that far. We approach this disagreement the same way we approach all forms of marital discord: we collect some data. We asked a group of Sherlock Fans and a group of Sherlock haters to write their life satisfaction on a scale from 1-20, with higher scores indicating greater happiness. The data appear below.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Raw Data | | | | | | | | | ***Mean*** | ***Variance*** |
| Haters | 8 | 9 | 5 | 9 | 10 | 10 | 9 | 12 |  | ***9*** | ***4*** |
| Fans | 9 | 11 | 14 | 13 | 10 | 14 | 17 | 16 | 13 | ***13*** | ***7*** |

1. Conduct a two-tailed hypothesis test with α = .01 to determine whether these data provide enough evidence to conclude that being a Sherlock fan influences life satisfaction. Your answer should include a statement of the null and alternative hypotheses, the critical value for your test statistic, the observed value of your test statistic, your decision regarding the null, an interpretation of the results, and a correct report of your test statistic. (15 pts)



Because tobs exceeds the critical value, I would reject the null. There is a significant difference between the happiness of Sherlock Fans and the Happiness of Sherlock haters. Sherlock fans are significantly happier than Sherlock haters: t(15) = 3.48, p < .01.

1. Calculate and interpret the effect size (Cohen’s d) (3 pts)



This represents a large effect.