1. Three groups of participants were measured for their life satisfaction (young, middle, and old aged) to determine if life satisfaction increases over the life span. Using *p* < .05, what are the group differences in life satisfaction? Include the six steps of hypothesis testing and a measure of effect size. Use a post hoc test to analyze where group differences can be found, and list your final explanation in plain English. Include your R script and output in this file.

|  |  |  |
| --- | --- | --- |
| Young Adult | Middle Adult | Older Adult |
| 4  2  3  4  2 | 7  5  7  5  6 | 10  7  9  8  11 |
| 7  4  3  6  5 | 8  10  7  7  8 | 10  9  12  11  13 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Step 1 | | | | |
| Step 2 | | | | |
| Step 3 | | | | |
| Step 4 | | | | |
| Step 5 | | | | |
| Step 6 | | | | |
| Effect size | | | | |
| Group 1 | Group 2 | P-value | Comparison | Reject |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Explain what happened in the study in a couple of short sentences with no statistical terms:

1. Your instructor recently installed Endnote reference management software on her computer to be able to import citations for research articles. If her normal level of frustration with formatting APA style articles is 6.3 on a 1-7 point scale, is the new level of frustration lower with this software? Use *p* < .01 for your significance level. Frustration levels were recorded for ten articles after installing the software. Include the six steps of hypothesis testing and a measure of effect size.

|  |
| --- |
| 3.00 |
| 4.00 |
| 2.00 |
| 3.00 |
| 4.00 |
| 6.00 |
| 4.00 |
| 2.00 |
| 4.00 |
| 7.00 |

|  |
| --- |
| Step 1 |
| Step 2 |
| Step 3 |
| Step 4 |
| Step 5 |
| Step 6 |
| Effect size |
| Confidence Interval |

1. Participants were randomly assigned to one of two groups: biofeedback (a technique that measures bodily functions and gives you information about them in order to help train you to control them) or special diet to determine which would help control blood pressure better. Using *p* < .05, which system has a better blood pressure (smaller numbers are better)? List the assumptions and six steps to hypothesis testing.

|  |  |
| --- | --- |
| ***Biofeedback*** | ***Diet*** |
| 88 | 119 |
| 114 | 113 |
| 98 | 98 |
| 108 | 105 |
| 98 | 130 |
| 116 | 96 |
| 103 | 89 |
| 125 | 88 |
| 126 | 129 |
| 121 | 121 |

|  |
| --- |
| Step 1 |
| Step 2 |
| Step 3 |
| Step 4 |
| Step 5 |
| Step 6 |
| Effect Size |
| Confidence Interval |

1. A sports psychologist was interested in testing the effect of a simple relaxation technique on college basketball players’ free throw shooting accuracy. Each player was asked to shoot 20 consecutive free throws and the number of successful attempts was recorded. The players were then trained to use a simple 5 second relaxation technique while preparing to shoot a free throw. The players then returned to the court and shot 20 consecutive free throws again. Using *p* < .01, did the relaxation technique improve their free throw numbers? List the six steps of hypothesis testing and the confidence interval of the mean difference. The resulting data are given below:

|  |  |
| --- | --- |
| Pre-Test | Post-Test |
| 12 | 13 |
| 15 | 15 |
| 9 | 11 |
| 16 | 15 |
| 12 | 15 |
| 15 | 18 |
| 17 | 17 |
| 10 | 12 |
| 12 | 13 |
| 14 | 17 |

|  |
| --- |
| Step 1 |
| Step 2 |
| Step 3 |
| Step 4 |
| Step 5 |
| Step 6 |
| Confidence interval |