**Statistics for Psychology - PSYCH-UH 1004Q**

**Homework #1 – Answer Key**

27 points

(The homework assignments will never require you to use R unless the problem explicitly says “use this R code”. For other problems, can use R if you find it useful, they should be completed easily by hand.)

1. Imagine an experiment where patients are randomly assigned to one of four types of psychotherapy. The progress of each subject is rated at the end of 6 months. Now use this experiment to answer the following 4 questions (a-d).

a. What is the independent variable? (1 point)

b. What is the dependent variable? (1 point)

c. What kind of scale is formed by the levels of the independent variable? (1 point)

d. Describe one type of scale that might be used to measure the dependent variable and include the name of the measurement type (nominal, ordinal, interval, ratio). (1 point)

2. Make up your own set of at least five numbers and demonstrate that Σ*X*i2 ≠(Σ*X*i)2. (4 points)

3. An ethnographer surveyed 25 homes to determine the number of people per household. She found the following household sizes: 2, 1, 3, 5, 1, 4, 3, 2, 2, 6, 3, 4, 5, 1, 2, 4, 2, 7, 4, 6, 5, 5, 6, 6, 5.

a. Complete the frequency table below by adding the values in columns *f*, *cf, rf, crf*, and *cpf*. (10 points)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Household size | *f* | *cf* | *rf* | *crf* | *cpf/pr* |
| 7 |  |  |  |  |  |
| 6 |  |  |  |  |  |
| 5 |  |  |  |  |  |
| 4 |  |  |  |  |  |
| 3 |  |  |  |  |  |
| 2 |  |  |  |  |  |
| 1 |  |  |  |  |  |

b. What percentage of households have three or fewer members? (1 point)

c. What household size corresponds to the 80th percentile? (1 point)

d. How many households have only one member? To what proportion does that correspond? (2 points)

e. What proportion of households have five or more members? (2 points)

f. Draw a bar graph to represent the data. You can draw the bar graph by hand and take a photo/scan with your phone; or you can use Excel or another piece of software. (3 points)