**Answers: Part 1 - Central Tendency & Variability**

Using hoola data file

Checked for errors - made these corrections

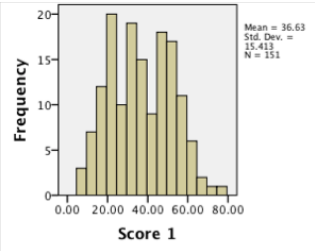
for the variable gender, made the values 11 and 12 missing

for the variable semester, made the value 13 missing

Obtain appropriate measure of Central Tendency and Variability, for hoola 1 and hoola 2 (continuous data)

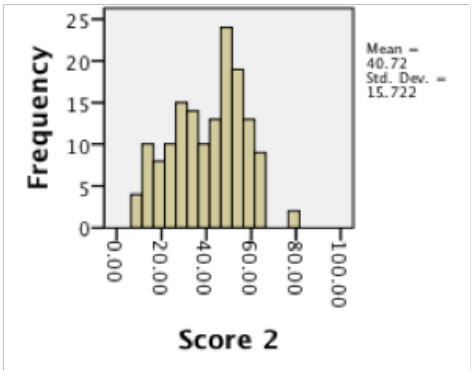
Checked shape for hoola 1 scores - obtained histograms under the graphs menu

Looks reasonably normal




Checked shape for hoola 1 scores - obtained histograms under the graphs menu

Looks negatively skewed




Used stats under frequencies to obtain mean and standard deviation for hoola 1; median and standard deviation for hoola 2.

| Score 1 | | |
|---|---|---|
| N | Valid | 151 |
| | Missing | 0 |
| Mean | 36.6291 | |
| Std. Deviation | 15.41325 | |
| Minimum | 7.00 | |
| Maximum | 79.00 | |

| Score 2 | | |
|---|---|---|
| N | Valid | 151 |
| | Missing | 0 |
| Median | 44.0000 | |
| Std. Deviation | 15.72233 | |
| Minimum | 9.00 | |
| Maximum | 80.00 | |

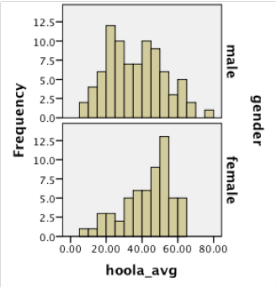
Compare average hoola scores of men and women

Created new variable under transform menu: average hoola score

Used Graphs to check shapes

women: negative skew

men: positive skew




Used compare means to obtain medians for central tendency

| hoola_avg | | | |
|---|---|---|---|
| gender | N | Std. Deviation | Median |
| male | 84 | 15.58822 | 35.0000 |
| female | 59 | 13.32188 | 45.0000 |
| Total | 143 | 14.96952 | 40.0000 |

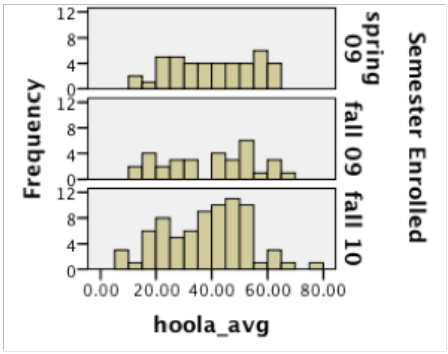
Compare average hoola scores from each semester

Used Graphs to check shapes

Spring 09: not normal (rectangular)

Fall 09: negatively skewed

Fall 10: negatively skewed




Used compare means to obtain medians (under options button) for central Tendency

| hoola_avg | | | |
|---|---|---|---|
| Semester Enrolled | N | Std. Deviation | Median |
| spring 09 | 43 | 14.42427 | 40.0000 |
| fall 09 | 32 | 16.26766 | 41.7500 |
| fall 10 | 75 | 14.79488 | 37.5000 |
| Total | 150 | 14.94270 | 40.0000 |

Cleaned up my output file. Made sure there are headings for each analysis. Saved output file to desktop then uploaded output file to D2L dropbox titled orientation output.

**Answers: Part 2 - Creating New Data File; Central Tendency & Variability**

Created a data file for the handstand balance scores.

Created Variable Label for each variable: score; group

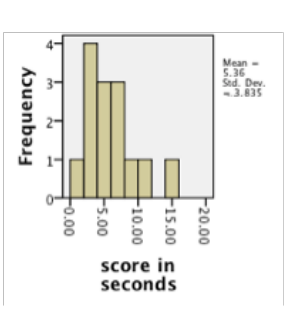
Created Value labels for the variable Group: 1=male; 2=female

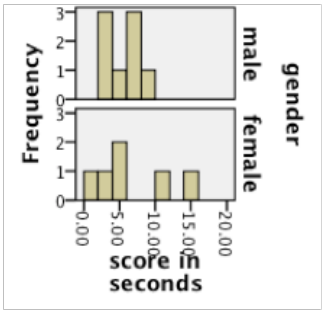
Looked at shape overall and for each group

Scores overall: positively skewed

Women's scores: positively skewed

Men's scores: not normal (bimodal)



Obtained all measures of CT and variability for the group overall as well as separately for men and women.

| score in seconds | | | | | | |
|---|---|---|---|---|---|---|
| gender | Mean | Median | Std. Deviation | Minimum | Maximum | N |
| male | 4.7500 | 5.0000 | 2.05287 | 2.00 | 8.00 | 8 |
| female | 6.1667 | 4.0000 | 5.56477 | 1.00 | 15.00 | 6 |
| Total | 5.3571 | 4.0000 | 3.83520 | 1.00 | 15.00 | 14 |

**Answers: Part 3 - Error Checking; Percentages; Central Tendency; Variability**

Used Cereals File - Noted from the description of the file that the value -1 would need to be made missing.

Checked for errors - corrected using missing values:

made value of -1 missing for the variables carbohydrates, sugar, potassium
made value of 4 missing for the shelf variable

NOTE: also needed to provide variable names for every variable and value labels for the variables manufacturer, type, and shelf

Constructed frequency distribution tables for summary of all categorical & ordinal variables

Categorical variables: manufacturer; type
Ordinal variables: shelf

| **Manufacturer** | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | American Home Food Products | 1 | 1.3 | 1.3 | 1.3 |
| | General Mills | 22 | 28.6 | 28.6 | 29.9 |
| | Kelloggs | 23 | 29.9 | 29.9 | 59.7 |
| | Nabisco | 6 | 7.8 | 7.8 | 67.5 |
| | Post | 9 | 11.7 | 11.7 | 79.2 |
| | Quaker Oats | 8 | 10.4 | 10.4 | 89.6 |
| | Ralston Purina | 8 | 10.4 | 10.4 | 100.0 |
| | Total | 77 | 100.0 | 100.0 | |

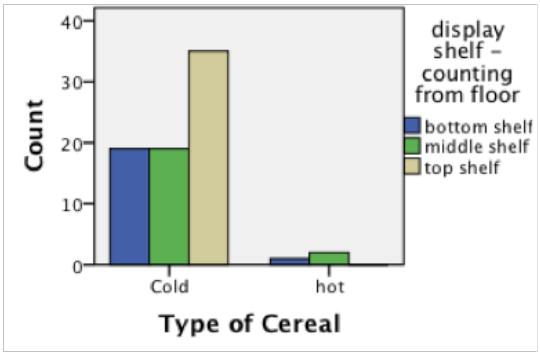
| Type of Cereal | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Cold | 74 | 96.1 | 96.1 | 96.1 |
| | hot | 3 | 3.9 | 3.9 | 100.0 |
| | Total | 77 | 100.0 | 100.0 | |

| display shelf - counting from floor | | | | | |
|---|---|---|---|---|---|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | bottom shelf | 20 | 26.0 | 26.3 | 26.3 |
| | middle shelf | 21 | 27.3 | 27.6 | 53.9 |
| | top shelf | 35 | 45.5 | 46.1 | 100.0 |
| | Total | 76 | 98.7 | 100.0 | |
| Missing | System | 1 | 1.3 | | |
| Total | 77 | 100.0 | | | |

interpretations:

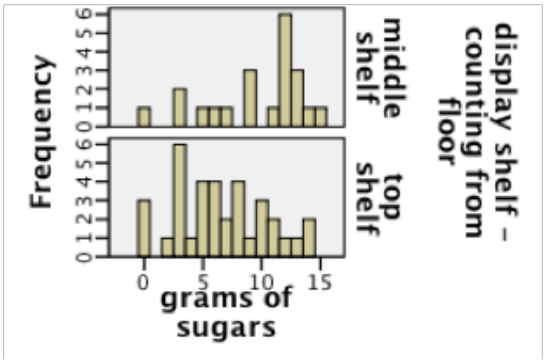
cereals in this data file primarily manufactured by Kellogs and General Mills
very few hot cereals (4%) in this data file
cereal location primarily on top shelf (46.1%) followed by middle then bottom shelf

obtained clustered bar chart for shelf and type of cereal
interpretation: no hot cereals on top shelf; location for cold cereals, primarily top shelf




Compared sugar content for cereals on shelf 2 and 3.
Note: used Select if shelf >1 so I could work with just the cereals on shelf 2 & 3
checked shapes with graphs

middle shelf, negatively skewed
top shelf, positively skewed




obtained medians for Central Tendency and standard deviation for Variability with compare means

| grams of sugars | | | |
|---|---|---|---|
| display shelf - counting from floor | N | Median | Std. Deviation |
| middle shelf | 21 | 12.00 | 4.129 |
| top shelf | 35 | 6.00 | 3.891 |
| Total | 56 | 8.00 | 4.226 |

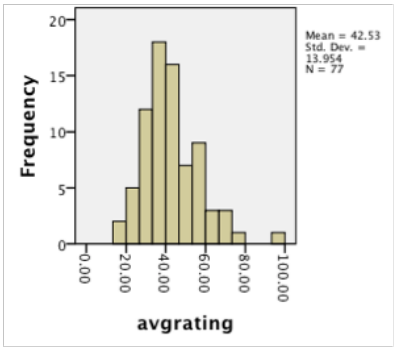
interpretation: middle shelf cereals have very high sugar content compared to top shelf cereals. Variability with respect to sugar content similar for cereals on each shelf.

**Answers: Part 4 - Creating New Variable; Central Tendency**

Continue using Cereals File - Note: needed to undo the select cases from part 3.

Summarize the ratings information. You have two scores which you must average.

Created new variable (average of rating 1 and 2)
Checked shape of average scores - positively skewed



used stats under frequencies menue to obtain mean, median, mode, standard deviation, min, max

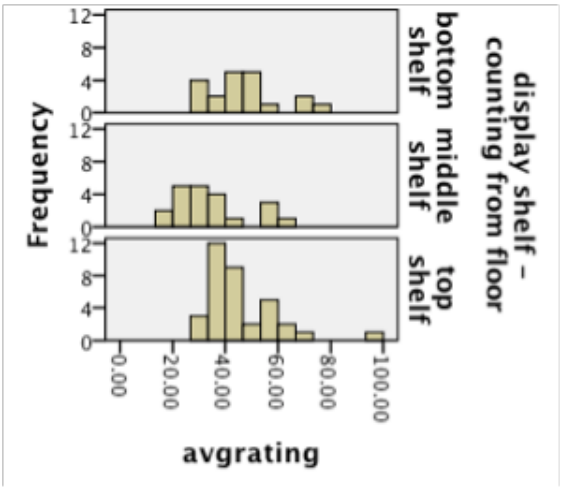
| avgrating | | |
|---|---|---|
| N | Valid | 77 |
| | Missing | 0 |
| Mean | 42.5342 | |
| Median | 40.7801 | |
| Mode | 17.52[a] | |
| Std. Deviation | 13.95396 | |
| Range | 76.33 | |
| Minimum | 17.52 | |
| Maximum | 93.85 | |
| a. Multiple modes exist. The smallest value is shown | | |

interpretation: very large variability in ratings; half the ratings are below the value 41 which is itself a low rating since they range from zero to 100.

Based on the average rating variable, which shelf contains the cereals that on average have higher ratings?

Checked shape for ratings on each shelf

bottom shelf: slight positive skew
middle shelf: positive skew
top shelf: strong positive skew



| avgrating | | | | | |
|---|---|---|---|---|---|
| display shelf - counting from floor | N | Median | Std. Deviation | Minimum | Maximum |
| bottom shelf | 20 | 43.5771 | 13.36513 | 28.37 | 74.24 |
| middle shelf | 21 | 31.6150 | 13.65333 | 17.52 | 64.77 |
| top shelf | 35 | 41.4585 | 13.08932 | 28.80 | 93.85 |
| Total | 76 | 40.8131 | 14.04406 | 17.52 | 93.85 |

Interpretation: Based on medians, bottom shelf cereals rated best followed by top shelf then middle shelf. Middle shelf had the lowest rated cereal (17.52) and top shelf had the highest rated (93.85) cereal. Standard deviations for the rating variable similar for all shelves.