Week 8: Analyzing Data - The Role of Multiple Representations

Data results from observing Variables

<table>
<thead>
<tr>
<th>VARIABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATEGORICAL (QUALATATIVE)</td>
</tr>
<tr>
<td>Nominal</td>
</tr>
<tr>
<td>NUMERICAL (QUANTITATIVE)</td>
</tr>
<tr>
<td>Continuous</td>
</tr>
</tbody>
</table>
NOMINAL – not relating to a number
Ethnic Background:
African
Hispanic etc

ORDINAL – position within a series
Infant’s Condition:
Excellent
Good, etc.

CONTINUOUS
Birth-weight: in grams

DISCRETE
# of prenatal visits: [1, 2, 3 …]
SUMMARIZING CATEGORICAL DATA

Frequency Tables

Pareto Charts – distribution charts “vital few from the trivial many”: 

SUMMARIZING NUMERICAL DATA

Summary Statistics

Sample Mean
  - Arithmetic Mean

Sample Median
  - Middle of ranked data

Mode

Measures of Dispersion
  - Quartiles and percentiles
  - Range
  - IQR
  - SD
  - CV
  - z-scores
  - Skewness
  - Kurtosis
Graphical Techniques

Histograms

Stem and Leaf

Box and Whisker

Normal Plots
- easier to make judgments about normality with straight lines vs. bell shaped curves