Chapter 3 – Measurement and Descriptive Statistics
Study Guide

OBJECTIVES:

The student will be able to:

1. Utilize frequency distributions to determine if data is normally distributed.
2. Define the various levels of measurement (nominal, ordinal, interval, ratio, etc.) and recognize terms that are used interchangeably.
3. Distinguish between the types of measurement (e.g. nominal vs. ordered, ordinal vs. normal).
4. Utilize SPSS to generate descriptive statistics (frequency distributions, measures of central tendency, measures of variability) for a data set.
5. Select the appropriate descriptive statistics based upon the level of measurement of the data.
6. Describe the difference between parametric and non-parametric statistics.
7. Describe the properties of the normal curve.
8. Determine whether data is normally distributed and describe types of non-normality exhibited (skewness, kurtosis, etc.).
9. Explain the relationship between the area under the normal curve and probability distributions.
10. Explain the purpose of converting data to a standard normal curve and generating z-scores.

TERMINOLOGY:

- frequency distribution
    - approximately normally distributed
    - not normally distributed
    - negatively skewed
    - positively skewed
- levels of measurement
    - nominal (categorical, qualitative, discrete)
    - dichotomous
    - ordinal (ranks)
    - interval
    - ratio
    - scale
    - approximately normal (continuous, dimensional, quantitative)
- descriptive statistics
    - frequency tables
    - bar charts
    - histograms
    - frequency polygons

    - box and whiskers plot
- measures of central tendency
    - mean
    - median
    - mode
- measures of variability
    - range
    - minimum
    - maximum
    - standard deviation
    - skewness
    - kurtosis
    - interquartile range
- parametric vs. nonparametric statistics
- power
- normal curve
    - area under the normal curve
    - standard normal curve
    - z scores
- kurtosis

ASSIGNMENTS: See additional activities and extra SPSS problems for assignment examples.