

Chapter 1

Introduction to Data Analysis in an Evidence-Based Practice Environment

- 1.1. Statistical skills can play an important role in nursing because they help nurses to:
 - a. Calculate appropriate doses and clinical measurements
 - b. Generate clinical questions
 - *c. Evaluate and generate research evidence for nursing practice
 - d. Make better use of computers and the Internet

- 1.2. In the context of a quantitative study, a concept is called a(n):
 - a. Operational definition
 - *b. Variable
 - c. Statistic
 - d. Parameter

- 1.3. An example of a variable is:
 - *a. Systolic blood pressure
 - b. Pi (π)
 - c. 52.5 kilograms
 - d. Number of seconds in a minute

- 1.4. An example of a datum is:
 - a. Systolic blood pressure
 - b. Pi (π)
 - *c. 52.5 kilograms
 - d. Number of seconds in a minute

- 1.5. Which of the following is *not* a component of a research question?
 - a. An independent variable
 - b. A population
 - *c. A sample
 - d. A dependent variable

- 1.6. Identify the dependent variable in the following: In elderly men, what is the effect of chronic fatigue on level of depression?
 - a. Age
 - b. Sex
 - c. Chronic fatigue
 - *d. Depression

- 1.7. Which of the following is a continuous variable?
 - a. Number of pages in a book
 - *b. Age at death
 - c. Falls during hospitalization
 - d. Number of times married

- 1.8. Measurement is the assignment of numbers to characteristics of people or objects according to specified _____. (Fill in the blank.)
- *a. Rules
 - b. Definitions
 - c. Concepts
 - d. Parameters
- 1.9. The measurement level that classifies attributes, indicates magnitude, and has equal intervals between values, but does not have a rational zero, is:
- a. Nominal
 - b. Ordinal
 - *c. Interval
 - d. Ratio
- 1.10. The measurement level that is sometimes called *categorical* or *qualitative* is:
- *a. Nominal
 - b. Ordinal
 - c. Interval
 - d. Ratio
- 1.11. It is not meaningful to calculate an arithmetic average with data from which of the following?
- a. Nominal measures
 - b. Ordinal measures
 - *c. Nominal and ordinal measures
 - d. All measures can be meaningfully averaged.
- 1.12. Degree of pain measured as *none*, *a little*, or *a lot* is measured on which of the following scales?
- a. Nominal
 - *b. Ordinal
 - c. Interval
 - d. Ratio
- 1.13. Body temperature is measured on which of the following scales?
- a. Nominal
 - b. Ordinal
 - *c. Interval
 - d. Ratio
- 1.14. Type of birth (vaginal or cesarean) is measured on the:
- *a. Nominal scale
 - b. Ordinal scale
 - c. Interval scale
 - d. Ratio scale

- 1.15. Which of the following is a ratio-level measure?
- *a. Dietary cholesterol intake (mg)
 - b. Cognitive impairment on a 50-item scale
 - c. Pain on a 10-point scale
 - d. Military rank
- 1.16. Ratio-level measures are different than any other level by virtue of which property?
- a. Classification
 - b. Equal intervals between values
 - *c. A true, rational zero
 - d. Indication of magnitude
- 1.17. Which level of measurement communicates the most information?
- a. Nominal
 - b. Ordinal
 - c. Interval
 - *d. Ratio
- 1.18. Researchers typically collect data from a _____ and hope to generalize their results to a _____. (Fill in the blanks.)
- a. Population, sample
 - b. Statistic, parameter
 - c. Sample, statistic
 - *d. Sample, population
- 1.19. If the average amount of sleep for all people in the United States was 7.6 hours per night, this average would be a(n) _____ of the population of U.S. residents. (Fill in the blank.)
- a. Variable
 - *b. Parameter
 - c. Statistic
 - d. Datum
- 1.20. If a nurse researcher measured the anxiety level of 100 hospitalized children, the children's average score on an anxiety scale would be a(n):
- a. Variable
 - b. Parameter
 - *c. Statistic
 - d. Operational definition
- 1.21. Statistical methods that are used to draw conclusions about a population are called:
- *a. Inferential statistics
 - b. Descriptive statistics
 - c. Univariate statistics
 - d. Multivariate statistics

Chapter 2

Frequency Distributions: Tabulating and Displaying Data

- 2.1. A major purpose of constructing a frequency distribution with sample data is to:
- Estimate a population parameter
 - Test a research hypothesis
 - *c. Get an organized view of an entire set of scores
 - Get experience with statistical software
- 2.2. In a frequency distribution, the two key informational components are:
- *a. Score values (X), frequencies (f)
 - A horizontal (X) axis, a vertical (Y) axis
 - Frequencies (f), percentages (%)
 - Participant ID number (id), score values (X)
- 2.3. In a frequency distribution, which of the following is true?
- $\Sigma N = \%$
 - $\Sigma N = f$
 - $\Sigma f = \%$
 - *d. $\Sigma f = N$
- 2.4. In the equation $\Sigma \% = 100.0$, the symbol Σ signifies:
- A percentage
 - *b. The sum of
 - A data value
 - A frequency
- 2.5. In a frequency distribution, percentages are sometimes called:
- Proportions
 - Relative proportions
 - *c. Relative frequencies
 - Cumulative proportions
- 2.6. Data for which of the following variables is most likely to be presented in a grouped frequency distribution?
- Nursing specialty area
 - *b. Daily cholesterol intake
 - Number of abortions
 - Number of pets owned
- 2.7. The level of measurement for data appropriately presented in a bar graph is:
- Interval or ratio
 - Nominal only
 - Interval only
 - *d. Nominal or ordinal

2.8. In a frequency distribution graph, frequencies are typically presented on the ____ and data values are presented on the _____. (Fill in the blanks.)

- *a. Y axis, X axis
- b. X axis, Y axis
- c. f axis, N axis
- d. N axis, f axis

2.9. Which of the following sets of data is *not* unimodal?

- *a. 1, 1, 1, 2, 2, 2, 2, 2, 2, 2, 3, 3, 4, 5, 5, 5, 5, 5, 5, 5, 5
- b. 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 2, 2, 2, 2, 3, 3, 3, 4, 4, 4, 4
- c. 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 2, 2, 3, 3, 4, 5
- d. 1, 1, 2, 2, 3, 3, 4, 4, 5, 5, 5, 5, 5, 6, 6, 7, 7, 8, 8, 9, 9

2.10. Which of the following variables is most likely to be negatively skewed in a general population?

- a. Number of times arrested
- *b. Age at retirement
- c. Number of times married
- d. Age at birth

2.11. A normal distribution is *not*:

- a. Skewed
- b. Leptokurtic
- c. Platykurtic
- *d. All of the above

2.12. A wild code is:

- *a. A value that is impossible given the coding scheme
- b. An outlier or high value
- c. A code for which there is a very low frequency
- d. A code for which there is a very high frequency

The next eight questions pertain to the following table (Table 2):

Table 2

Number of Pregnancies of Study Participants	Frequency	Percentage	Cumulative Percentage
0	24	11.1	11.1
1	29	13.5	24.6
2	78	36.3	60.9
3	46	21.4	82.3
4	22	10.2	92.5
5	11	5.1	97.6
6	4	1.9	99.5
7	1	0.4	100.0
Total	215	100.0	

2.13 In Table 2, the variable is _____ and the measurement level is _____. (Fill in the blanks.)

- a. Discrete, interval
- *b. Discrete, ratio
- c. Continuous, interval
- d. Continuous, ratio

2.14. Table 2 is an example of a:

- *a. Frequency distribution
- b. Grouped frequency distribution
- c. Class interval
- d. Data matrix

2.15. In Table 2, the value of N is:

- a. 24
- b. 100.0
- *c. 215
- d. 7

2.16. In Table 2, the cumulative relative frequency for five or fewer pregnancies is:

- a. 210
- b. 199
- c. 92.5
- *d. 97.6

2.17. The best way to graph information in Table 2 would be to construct:

- *a. A histogram
- b. A pie chart
- c. A bar graph
- d. Either a pie chart or a bar graph

2.18. In Table 2, the distribution of data would be described as:

- a. Symmetric
- *b. Positively skewed
- c. Negatively skewed
- d. It cannot be determined.

2.19. In Table 2, the distribution of data would be described as:

- *a. Unimodal
- b. Bimodal
- c. Multimodal
- d. It cannot be determined.

2.20. In Table 2, the most likely number to be an outlier is:

- a. 0
- b. 1
- *c. 7

d. 24

Chapter 3

Central Tendency, Variability, and Relative Standing

3.1. A distribution of data values can be described in terms of all of the following characteristics *except*:

- a. Central tendency
- b. Variability
- *c. Relative standing
- d. Shape

3.2. Central tendency indexes are all of the following *except* which of the following statements?

- a. They are descriptive statistics.
- *b. They summarize how dispersed a set of scores is.
- c. They provide information about a value around which scores cluster.
- d. They are appropriate for interval- and ratio-level measures.

3.3. In the following distribution (10 11 12 13 14 15 15 15 15) the mode is:

- a. 11
- b. 12
- c. 14
- *d. 15

3.4. In the following distribution (10 11 12 13 14 15 15 15 15) the median is:

- a. 11
- b. 12
- *c. 14
- d. 15

3.5. The median is all of the following *except*:

- a. The 50th percentile
- b. The point that divides a distribution in half
- c. Q_2
- *d. The most popular score in the distribution

3.6. For which of the following set of numbers are the mean, median, and mode the same value?

- *a. 1 2 3 3 4 4 4 4 4 5 5 6 7
- b. 1 1 2 2 3 3 4 4 5 5 6 6 7 7
- c. 1 1 1 2 3 3 4 4 5 5 6 7 7 7
- d. All of the above

3.7. In which type of distribution is the mean a higher value than the median or mode?

- a. A leptokurtic distribution
- *b. A positively skewed distribution

- c. A negatively skewed distribution
 - d. A normal distribution
- 3.8. If there are outliers at either end of a distribution that is symmetric, a researcher might:
- *a. Calculate a trimmed mean
 - b. Report the median rather than the mean
 - c. Report the mode rather than the mean
 - d. Omit the variable from further analyses
- 3.9. Which of the following indexes of dispersion is *not* in the original units of measurement of the variable?
- a. Range
 - b. Interquartile range
 - c. Standard deviation
 - *d. Variance
- 3.10. Which of the following indexes of dispersion tends to be least stable—most likely to fluctuate from one sample to another from the same population?
- *a. Range
 - b. *IQR*
 - c. Standard deviation
 - d. Variance
- 3.11. Which of the following indexes involves the calculation of deviation scores (x)?
- a. Range
 - b. *IQR*
 - *c. *SD*
 - d. *M*
- 3.12. Which of the following indexes involves the calculation of percentiles?
- a. z
 - *b. *IQR*
 - c. *SD*
 - d. *M*
- 3.13. Which of the following statistical symbols does not belong with the others?
- a. *SD*
 - b. *IQR*
 - c. *M*
 - *d. μ
- 3.14. What percentage of cases for a normally distributed variable lies within 1 *SD* above and below the mean?
- a. 34%
 - b. 50%
 - *c. 68%

- d. 95%
- 3.15. In calculating standard scores, which two descriptive statistics are needed?
- Median, *IQR*
 - Median, percentiles
 - Mean, Range
 - *d. Mean, *SD*
- 3.16. A *z* score of 0.00 corresponds to an original score that:
- Could not be used in the calculation of the mean
 - *b. Is the same as the mean in the original distribution
 - Is the lowest score in the original distribution
 - Is an outlier
- 3.17. A *z* score of -1.00 corresponds approximately to a score for a normally distributed variable that is at the:
- 1st percentile
 - 10th percentile
 - *c. 16th percentile
 - 84th percentile
- 3.18. An extreme outlier is:
- More than 3 *SDs* above the mean
 - Equivalent to a *z* score of -3.0 or lower, or +3.0 or higher
 - More than three times the value of the mean
 - *d. More than 3 times the *IQR*, below Q_1 or above Q_3
- 3.19. In a boxplot, information about a distribution is depicted in terms of:
- *a. Percentiles
 - Standard deviation units
 - z* scores
 - T* scores
- 3.20. The number 100 can always be thought of as:
- A mean of a distribution when the *SD* is 15
 - A value equivalent to the 10th percentile
 - *c. A number whose real limits are 99.5 and 100.5
 - An outlier