

4. Correlation and Causation What is meant by the statement that “correlation does not imply causation”?

Consider the Source. *In Exercises 5–8, determine whether the given source has the potential to create a bias in a statistical study.*

5. Physicians Committee for Responsible Medicine The Physicians Committee for Responsible Medicine tends to oppose the use of meat and dairy products in our diets, and that organization has received hundreds of thousands of dollars in funding from the Foundation to Support Animal Protection.

6. Body Measurements Data Set 1 in Appendix B includes body measurements obtained by the U.S. Department of Health and Human Services, National Center for Health Statistics.

7. Word Counts Data Set 17 in Appendix B includes word counts obtained by members of the Departments of Psychology at the University of Arizona, Washington University, and the University of Texas at Austin.

8. Chocolate An article in *Journal of Nutrition* (Vol. 130, No. 8) noted that chocolate is rich in flavonoids. The article notes that “regular consumption of foods rich in flavonoids may reduce the risk of coronary heart disease.” The study received funding from Mars, Inc., the candy company, and the Chocolate Manufacturers Association.

Sampling Method. *In Exercises 9–12, determine whether the sampling method appears to be sound or is flawed.*

9. Wi-Fi Security A survey of 721 subjects involved the providing of personal information when using Wi-Fi hotspots. The survey subjects were Internet users who responded to a question that was posted on the electronic edition of *USA Today*.

10. Text Messaging In a survey of 109 subjects, each was asked to indicate how many text messages they send and receive each day. The sample consisted of those who chose to respond to the request posted on the StatCrunch Web site.

11. Applying for a Job In a survey of 514 human resource professionals, each was asked about the importance of the appearance of a job applicant. The survey subjects were randomly selected by Harris Interactive pollsters.

12. Evolution In a survey of beliefs about evolution, Gallup pollsters randomly selected and telephoned 1018 adults in the United States.

Statistical Significance and Practical Significance. *In Exercises 13–16, determine whether the results appear to have statistical significance, and also determine whether the results have practical significance.*

13. Waite Diet In a study of the Marisa Waite diet, four subjects lost an average of 45 pounds. It is found that there is about a 30% chance of getting such results with a diet that has no effect.

14. Gender Selection In a study of the Gender Aide method of gender selection, 1000 users of the method gave birth to 540 boys and 460 girls. There is about a 1% chance that such extreme results would occur if the method had no effect.

15. Guessing Technique When making random guesses for difficult multiple-choice test questions with possible answers of a, b, c, d, and e, we expect to get about 20% of the answers correct. The Ashton Prep Program claims to have developed a better method of guessing. In a test of that program, guesses were made for 100 answers, and 23 were found to be correct. There is a 23% chance of getting such results if the program has no effect.