

## Practice Assignment: Sampling Methods

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For Questions 1–4: An online health magazine focused on healthy eating and exercise would like to get information from their subscribers to assist in negotiating new rates with their advertisers. The magazine selected a simple random sample of 300 of their subscribers and called them using the phone numbers that were on file. About 64% of their sample expressed interest in learning more about sleep meditation.

- 1) Determine whether this statement is true or false: The population of interest is the people who subscribe to the magazine.

**Answer: True**

- 2) Discuss any potential sources of bias in this study.

**Answer: As long as a random mechanism is used to choose subscribers, there does not seem to be any potential sources of bias.**

- 3) Is it likely that the 300 subscribers selected for the random sample will be representative of the population? Why or why not?

**Answer: Yes, because the 300 subscribers were selected using a random sampling method. Since the population of interest were all subscribers, each subscriber had an equal chance of being selected for the survey; so, it is very likely that the sample will be representative of the population.**

- 4) Determine whether this statement is true or false: Based on the sample, the magazine can infer that 64% of all people in Texas are interested in sleep meditation.

**Answer: False**

- 5) A major airline has 12 daily flights from Minneapolis to Chicago. To make sure their passengers are satisfied with the boarding process and in-flight service, the airline decides to take a sample of 25 passengers from each of the 12 flights on a single day. The sample of passengers are emailed a survey link a few hours after their flight lands. What type of sampling method is this?
- a) Simple random sample
  - b) Stratified random sample
  - c) Systematic random sample

d) Convenience sample

Answer: b

For Questions 6–9: A college track coach in Nevada wants to test the effectiveness of a new training program for distance runners in his program. He decides to select the top 10 fastest runners from the last competition for the study.

6) What type of sampling method is this?

- a) Simple random sample
- b) Stratified sample
- c) Systematic sample
- d) Convenience sample

Answer: d

7) What is the population of interest for this study?

Answer: The population of interest for this study are the distance runners in the college track program.

8) Discuss any potential sources of bias in this study.

Answer: There is potential for undercoverage. Since only the fastest runners are included, the runners with the slower times are not be represented in the sample.

9) Is the sample representative of the population? Why or why not?

Answers will vary.

Sample answer: This sample is not a random sample because each student in the track program did not have an equal chance of being selected. Also, the sample is not representative of all runners on the team because only the fastest runners were selected. The runners with slower times are not represented in the sample.

For Questions 10 and 11: A large hospital is concerned about how satisfied their employees (i.e., doctors, nurses, staff, etc.) are with their jobs. The healthcare administrators of the hospital decide to take a sample of their employees and ask them to take a survey.

10) The administrators decide to categorize all the employees into the following categories: doctors, medical staff (i.e., nurses, technicians, etc.), office staff, and

support staff (i.e., custodians, maintenance, etc.). Then, they randomly sample 35 employees from each category. What type of sampling method is this?

- a) Simple random sample
- b) Stratified sample
- c) Systematic sample
- d) Convenience sample

**Answer: b**

11) The administrators obtain a list of all the doctors from the different departments at the hospital (i.e., Emergency Room, Psychiatry, Pediatrics, Social Services, etc.). One hundred doctors are randomly selected using a random number generator of employee IDs. What type of sampling method is this?

- a) Simple random sample
- b) Stratified sample
- c) Systematic sample
- d) Convenience sample

**Answer: a**

