Exercise 2-2b Gaining Practice in Sampling Critique

In Chapter 1, "Foundations," you began to think about what to study. In this one, you begin to consider who knows, has experience with, or can otherwise be studied to find the what you want to know more about. In Chapter 2, "Sampling," you read how researchers address the very real problem that you usually have to choose some participants from the general population you want to study. In just about every field of research from political science to biology, scientists study samples but are really interested in being able to talk about populations. That is, they want to make general statements about the problem they've identified. This is true except for the rare instances in which you have a whole population at your fingertips, or you have the resources to conduct a complete census of a large population like the U.S. Census Bureau. In the next exercise, you'll get some practice thinking about how you can make conclusions from studying samples and also what limits there might be (the threats to external validity). We'll consider situations that are relatively common in life so you can focus on the critical thinking rather than the details of an unfamiliar area of science. Several cases will be described, and then you'll be asked to think critically about the external validity issues in each case.

Case 1

A marketing firm develops a campaign for a new weight loss program. The campaign features testimonials from a few people who have successfully completed the program. The firm will have these "success stories" give brief statements about how much weight they've lost and note that they had tried other methods unsuccessfully before. The marketing firm decides to use some males and females between the ages of 30 and 50.

Sampling Critique

1. How would you describe the sampling strategy using the concepts from Chapter 2?

2. What is the population that the company hopes the sample will generalize to?

3. What are the limits or threats to the external validity of the sampling strategy?

Case 2

A new law was passed making it illegal to smoke in restaurants and bars. The law was unpopular with bar owners who feared the loss of business. They decided to get some "data" to help them in their fight to overturn the law. The month before the law was to take effect, the bar owners association surveyed the patrons of their establishments who were smoking and asked them what they thought about the new law. They reported the following results in their report: "We surveyed over 500 adults in 25 taverns across the state. We found that 100 percent of the people are against this law and ask the legislature to consider the opinions of the taxpayers in this state rather than the special interests of the health insurance industry."
Sampling Critique

1. How would you describe the sampling strategy using the concepts from Chapter 2?

2. What is the population that the bar owners say the sample will generalize to?

3. What are the limits or threats to the external validity of the sampling strategy?

Case 3
A graduate student wanted to study the quality of life of women with a chronic illness. She found an Internet-based support group for these women and received permission to invite the group members to visit the research website that she set up and answer her survey about their quality of life.

Sampling Critique

1. How would you describe the sampling strategy using the concepts from Chapter 2?

2. What is the population that the student hopes the sample will generalize to?

3. What are the limits or threats to the external validity of the sampling strategy?

2.3 Skills
The two main skills in sampling are being able to pick an appropriate sampling strategy and to estimate the number of participants you will need. The next two exercises will give you some practice with each of these skills, though you will learn more about calculating sample size in a subsequent chapter.
Exercise 2.9a: Examining the Consequences of Choosing a Sampling Procedure

Excerpts from several published studies are reprinted here. Read each one and then answer the questions that follow.

Study 1. Alcohol use in college. (Yu, Evans, & Perfetti, 2003)
Prior studies have shown that many college students engage in heavy drinking and that such drinking may lead to alcohol-related problems. This study examined treatment-seeking attitudes among students in relation to their alcohol education background, alcohol environment, alcohol consumption, and perceived and actual drinking problems. A sample of 878 students from five New York State colleges were randomly selected through the use of complete student telephone directories provided by students' colleges for a telephone interview. The results indicated that alcohol education was associated with positive attitudes toward treatment and this may be important in efforts to reduce drinking related problems on campuses.

Sampling Critique
1. What kind of sampling strategy was used?

2. What effect does this choice of strategy have on your confidence that the results are valid?

3. Can you think of any alternative sampling strategies for this kind of research?

Study 2. Rap music and health risk behavior. (Wingood et al., 2003)
Rap music videos are the focus of increasing attention by researchers concerned about the behavior and attitudes of young people. This study examined whether exposure to rap music videos could predict health risk behaviors and sexually transmitted diseases among African American adolescent females over a 12-month period. The study screened female teenagers residing in nonurban, lower-socioeconomic-status neighborhoods from school health classes and county health department clinics. Students were eligible if they were African American, female, between ages 14 and 18, had been sexually active in the previous six months, and provided written informed consent. The study enrolled 522 single African American females.


**Sampling Critique**

1. What kind of sampling strategy was used?

2. What effect does this choice of strategy have on your confidence that the results are valid?

3. Can you think of any alternative sampling strategies for this kind of research?

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**Study 3.** The mental health of adults in Iran. (Noorbala, Bagheri Yazdi, Yasamy, & Mohammad, 2004)

The prevalence of mental disorders in Iran is currently unknown. This study sought to determine the mental health status of a population sample aged 15 years and over. A sample of 35,014 individuals was selected by random cluster sampling. Participants completed the 28-item version of the General Health Questionnaire. A semi-structured clinical interview was also included to gather data on learning disability, epilepsy and psychosis. The study results indicated that about a fifth of the people in the study (25.9 percent of the women and 14.9 percent of the men) were diagnosable. The study included a number of analyses showing that there are wide regional differences and women are at greater risk.

**Sampling Critique**

1. What kind of sampling strategy was used?

2. What effect does this choice of strategy have on your confidence that the results are valid?

3. Can you think of any alternative sampling strategies for this kind of research?

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Study 4. Internet use and mental health. (Mathy & Cooper, 2003)

Prior research has noted that Internet usage may increase communication but decrease social involvement. This study examined the relationship between duration and frequency of Internet usage and five mental health domains. A community-based sample of 40,935 Internet users was obtained via the website of a major news organization. Every 1,000th visitor to the news organization's website was invited to participate in a study of human sexuality, resulting in a sample of 7,544 participants. Analyses revealed that duration mediated the adverse effects of frequency in some domains and that age was significantly associated with adverse outcomes of Internet use.

Sampling Critique

1. What kind of sampling strategy was used?

2. What effect does this choice of strategy have on your confidence that the results are valid?

3. Can you think of any alternative sampling strategies for this kind of research?

Study 5. Costs associated with alternative diagnostic procedures. (Smitten et al., 2004)

The purpose of this study was to evaluate costs of three different sentinel node biopsy (SNB) protocols compared to those of diagnostic axillary lymph node dissection (ALND). The study included 237 consecutive breast cancer patients who underwent SNB with frozen section diagnosis. The treatment procedures for the same patients were evaluated using three hypothetical scenarios: diagnostic ALND, SNB without frozen section diagnosis and SNB as day case surgery prior to the breast operation. The total hospital costs were calculated for all three procedures for each patient. The hospital costs per patient would have been 3020 Euros when using the ALND model, 4087 Euros had the frozen section not been applied and 4573 Euros using “SNB as day case surgery” model. These results suggest that SNB seems to be associated with higher hospital costs than diagnostic ALND and that the frozen section procedure is worthwhile as long as the false negative rate is under 35 percent.


Sampling Critique

1. What kind of sampling strategy was used?

2. What effect does this choice of strategy have on your confidence that the results are valid?

3. Can you think of any alternative sampling strategies for this kind of research?