Descriptive Studies

- Descriptive cross-sectional studies are purely used to characterize and assess the prevalence and distribution of one or many health outcomes in a defined population.
- They can assess how frequently, widely, or severely a specific variable occurs throughout a specific demographic.
- This is the most common type of cross-sectional study.

Examples

- Evaluating the COVID-19 positivity rates among vaccinated and unvaccinated adolescents
- Investigating the prevalence of dysfunctional breathing in patients treated for asthma in primary care
- Analyzing whether individuals in a community have any history of mental illness and whether they have used therapy to help with their mental health
- Comparing grades of elementary school students whose parents come from different income levels
- Determining the association between gender and HIV status (Setia, 2016)
- Investigating suicide rates among individuals who have at least one parent with chronic depression
- Assessing the prevalence of HIV and risk behaviors in male sex workers (Shinde et al., 2009)
- Examining sleep quality and its demographic and psychological correlates among university students in Ethiopia (Lemma et al., 2012)

- Calculating what proportion of people served by a health clinic in a particular year have high cholesterol
- Analyzing college students' distress levels with regard to their year level (Leahy et al., 2010)

Advantages

Simple and Inexpensive

These studies are quick, cheap, and easy to conduct as they do not require any follow-up with subjects and can be done through self-report surveys.

Minimal room for error

Because all of the variables are analyzed at once, and data does not need to be collected multiple times, there will likely be fewer mistakes as a higher level of control is obtained.

Multiple variables and outcomes can be researched and compared at once

Researchers are able to look at numerous characteristics (ie, age, gender, ethnicity, and education level) in one study.

The data can be a starting point for future research

The information obtained from cross-sectional studies enables researchers to conduct further data analyses to explore any causal relationships in more depth.

Limitations

Does not help determine cause and effect

Cross-sectional studies can be influenced by an *antecedent consequent bias* which occurs when it cannot be determined whether exposure preceded disease. (Alexander et al.)

Report bias is probable

Cross-sectional studies rely on surveys and questionnaires, which might not result in accurate reporting as there is no way to verify the information presented.

The timing of the snapshot is not always representative

Cross-sectional studies do not provide information from before or after the report was recorded and only offer a single snapshot of a point in time.

It cannot be used to analyze behavior over a period of time

Cross-sectional studies are designed to look at a variable at a particular moment, while longitudinal studies are more beneficial for analyzing relationships over extended periods.

Cross-Sectional Vs. Longitudinal

Both cross-sectional and longitudinal studies are observational and do not require any interference or manipulation of the study environment.

However, cross-sectional studies differ from longitudinal studies in that cross-sectional studies look at a characteristic of a population at a specific point in time, while longitudinal studies involve studying a population over an extended period.

Longitudinal studies require more time and resources and can be less valid as participants might quit the study before the data has been fully collected.

Unlike cross-sectional studies, researchers can use longitudinal data to detect changes in a population and, over time, establish patterns among subjects.

Cross-sectional studies can be done much quicker than longitudinal studies and are a good starting point to establish any associations between variables, while longitudinal studies are more timely but are necessary for studying cause and effect.

Examples of Descriptive Research

#1: Census Data Analysis

When governments conduct censuses to gather detailed demographic information about their population, they use descriptive research. The data collected includes age, gender, ethnicity, education, occupation, and more. The authorities can analyze this data to describe the population's characteristics, such as the distribution of age groups, gender ratios, or educational attainment in different regions.

#2: Workplace Observations

Industrial and organizational psychologists may conduct workplace observational studies to describe employee behaviors, job performance, and corporate culture. This descriptive research can provide insights into factors that impact productivity, job satisfaction, and employee well-being.

#3: Sleep Habits and Technology Use

Sleep researchers may conduct surveys or studies to describe how technology usage before bedtime affects people's sleep quality and duration. This research is particularly relevant in the context of modern technology's impact on sleep patterns.

Data Collection Methods of Descriptive Research

1. Survey Method

- Surveys involve gathering data from a sample of individuals or groups through structured questionnaires or interviews.
- They help collect information on opinions, attitudes, behaviors, and demographics.
- Researchers can use surveys in various formats, such as online surveys, face-to-face interviews, telephone interviews, or mailed questionnaires.

2. Observation Method

- Observation involves simply looking at the behavior and characteristics of individuals or groups and recording the observations.
- Researchers may be unobtrusive observers, meaning they can remain hidden and not interact, or participant observers, meaning they engage with the subjects.
- Observations can provide valuable insights into real-life behaviors and contexts.

3. Case Study Method

- In a case study, the researcher studies a single individual, group, or organization over a period.
- Researchers gather data from multiple sources, such as interviews, observations, documents, and artifacts, to comprehensively understand the case.

- Case studies are beneficial when investigating unique or rare phenomena and providing in-depth insights into complex situations.

How to Conduct Descriptive Research?

Step 1: Choose your Research Topic

Pick a subject you want to study and define what you want to learn about it. Make sure it's something you can realistically investigate and relevant to your field of interest.

Step 2: Read Existing Studies

Look at what others have already researched about your topic. It will help you understand the subject better, find gaps in knowledge, and refine your research questions.

Step 3: Decide how to Collect Information

Decide how you will gather information. You can use surveys, questionnaires, interviews, observations, case studies, or analyze existing data. Choose the method that suits your topic best.

Step 4: Choose Your Sample

Pick a group representing the larger population, so your findings can apply to more people. Also, make sure to use random or stratified sampling to avoid bias.

Step 5: Gather and Organize the Data

Collect information following your chosen method. Be careful and accurate in recording the data. You can collect data in person, online, or through other appropriate ways. Finally, arrange your data in an organized manner.

Step 6: Draw Conclusions

Look at what you found in your data analysis. Explain the key findings and what they mean. Based on your findings, come to conclusions that answer your research questions. Relate your results to what others have found in previous studies.

Step 7: Share Your Results

Write a detailed report with an introduction, what others have studied before, your methods, findings, and conclusion. Use tables, graphs, and visuals to make it easier to understand.

When using a case-control strategy for sampling, it is not possible to calculate the incidence (**attack rate**) in exposed and non-exposed subjects, because the denominators of the exposure groups are unknown. However, one can calculate the odds of disease in exposed and non-exposed subjects, and these can be expressed as an odds ratio, which is a good approximation of a risk ratio in a situation like this, i.e., when the outcome is rare. An odds ratio can be computed for each of the possible sources. Consider the following example:

	Cases	Controls
Ate at Papa Gino's	10	19

Did not eat at Papa Gino's	9	19
	19	38

Given these hypothetical results, the odds that someone who ate a Papa Gino's was a case were 10/19, while the odds that someone not exposed to Papa Gino's became a case were 9/19. These odds are quite similar, and the odds ratio is close to 1.0. The odds ratio can be interpreted the same way as a risk ratio.

$$\text{Odds Ratio} = (10/19) / (9/19) = 1.1$$

This certainly provides no compelling evidence to suggest an association with Papa Gino's, but, as we did with the risk ratio, we could compute a 95% confidence interval for the odds ratio, and we could also compute a p value. In this case the 95% confidence interval is 0.37 to 3.35, and p= 0.85.

In contrast, consider the findings for Ron's Grill: