

Name _____

3.1: Overview of Statistics

Objectives

- Can you define statistics?
- Can you identify a population and a sample?
- Can you distinguish between a parameter and a statistic?
- Can you distinguish between descriptive statistics and inferential statistics?

VocabularyData

Consist of information coming from observations, counts, measurements, or responses.

- "People who eat three daily servings of whole grains have been shown to reduce their risk of...stroke by 37%." (Source: Whole Grains Council)
- "Seventy percent of the 1500 U.S. spinal cord injuries to minors result from vehicle accidents, and 68 percent were not wearing a seatbelt." (Source: UPI)

Statistics

The science of collecting, organizing, analyzing, and interpreting data in order to make decisions.

Population

The collection of all outcomes, responses, measurements, or counts that are of interest.

Sample

A subset of the population.



Sample data can be used to form concl. about populations.

→ Parameter: a numerical description of a population characteristic.

→ Statistic: a numerical description of a sample characteristic.

Example: In a recent survey, 1708 adults in the United States were asked if they think global warming is a problem that requires immediate government action. Nine hundred thirty-nine of the adults said yes. (Adapted from: Pew Research Center)

Identify a) the population: the responses of all U.S. adults

b) the sample. the responses of the 1708 adults surveyed.

c) Describe the data set. → info
939 yes, 769 no

Responses of adults in the U.S. (population)

Responses of adults in survey (sample)

Example 2: Decide whether the numerical value describes a population parameter or a sample statistic.

Starting salaries for the 667 MBA graduates from the University of Chicago Graduate School of Business increased 8.5% from the previous year.

all → pop. parameter



Branches of Statistics

Descriptive

Statistics Involves organizing, summarizing, and display of data.

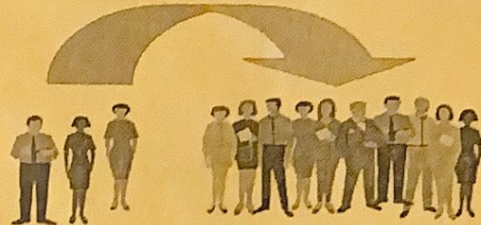


e.g. Tables, charts, averages



Inferential Statistics

Involves using sample data to draw conclusions about a population.



Example: Decide which part of the study represents the descriptive branch of statistics. What conclusions might be drawn from the study using inferential statistics?

A large sample of men, aged 48, was studied for 18 years. For unmarried men, approximately 70% were alive at age 65. For married men, 90% were alive at age 65. (Source: The Journal of Family Issues)

Descriptive statistics:

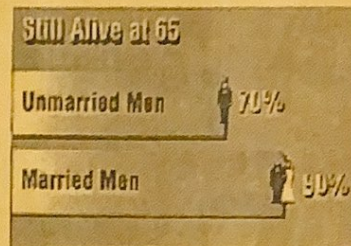
→ summary statements:

For unmarried men, 70% were alive at age 65

For married men, 90% were alive at age 65

A possible inference drawn from the study is:

Being married correlates to longer life for men.



Obj 1-4