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Chapter 2 Baseline Quiz: Experimental Design

1) A **sample** is a subset of the population, selected for study in some manner.

2) The design of a statistical study shows __**bias**__ if the collection of data consistently underestimates or consistently overestimates the value you want to know.

3) The characteristic or variable of a sample is called a __**statistic**__.

4) If your population is all residents of Kentucky, and your opinion poll only contacts households with a landline, you would neglect any residents that only have cell phones. This would represent selection bias known as __**undercoverage**__.

5) A __**census**__ collects data from every individual in the defined population.

6) __**Nonresponse**__ bias occurs when measurements from all individuals selected for a sample cannot be obtained because some refuse to participate.

7) The __**treatment**__ is the experimental condition (or conditions) applied to the participants in an experiment.

8) The goal of an **observational study** is usually to draw conclusions about a defined population or about differences between two or more populations.

9) The symbol for a sample mean is _$\bar{x}$_, and for population mean is μ

10) The two major branches of statistics are __**descriptive statistics**__ and **inferential statistics**

11) A sample that consists of people who choose for themselves to participate by responding to a general invitation is called a **voluntary response sample**.

12) In an experiment, a group that receives no treatment is called the **control** group.

13) The tendency for samples to differ from the defined population because of the systematic exclusion of some part of the population is called __**selection bias**__.

14) When bias results from problems in the measurement process, such as the use of leading questions, this is known as measurement or __**response**__ bias.

15) The characteristic or variable of a population is called a __**parameter**__.

16) Dividing a population into homogeneous subgroups and then taking a separate random sample from each group is known as __**stratified (random)**__ sampling.

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17) In a designed experiment, the independent variable(s) controlled by the researcher are called **explanatory** variables, and the dependent variable is called the **response** variable.

18) A **dot plot** is a graph of numerical data in which each observation is represented by a dot on or above a horizontal measurement scale.

19) A **double-blind** experiment is one in which neither the subjects nor the researchers know who receives which treatment until after the data has been gathered.

20) Using extraneous variables to create groups that are similar with respect to those variables and then assigning treatments at random within each group is known as **blocking**.

21) A **placebo** is a treatment that resembles the other treatments in an experiment in all apparent ways but that actually has no active ingredients.

22) **Replication** is a strategy for ensuring that there is an adequate number of observations for each experimental treatment so that results are not merely a chance outcome.

1) The two main types of data are **categorical (or qualitative)** and **numerical (or quantitative)**.

23) A variable that might confound the results, but is neither an explanatory variable, nor a response variable, and is not included in the study is called a **lurking (+1) or** an **extraneous** variable.