

AP Statistics

Experimental vs. Observational Studies - Part A

For each of the studies described below, do the following:

- 1) Identify if it is an experimental or an observational study. Explain.
- 2) Identify the independent variable (or variables)
- 3) Identify the dependent variable
- 4) Provide at least two confounding variables and explain how these (confounding) variables may be affecting both the independent and the dependent variables you identified in parts 2) and 3).

Study #1) The marketing department of Inter Miami CF wants to better understand the consumer behavior of the team's fan base. In the next home game they survey the people who are attending the game and record their gender, age, and if they are wearing the team's jersey.

Study #2) A research group at the University of Miami has developed a new approach to anxiety counseling that includes service animals. A number of volunteers who suffer from regular anxiety attacks participate in the study. The subjects are randomly assigned to two groups: one receiving standard counseling and one receiving counseling that incorporates the trained service animals. The frequency and intensity of the anxiety attacks of each individual is recorded for a period of one year.

Study #3) A research team from the U.S. Department of Education is collecting data to compare the PSAT scores of middle-class students who are attending public schools vs. those attending private schools.

Study #4) The ACT organization wants to see if there is a relationship between high school students GPA and their score in the (standardized) ACT exam. They retrieve data from the last 10 years on the average (self-reported) GPA of the students who took the ACT exam that year and their average ACT score.

Study #5) A study aimed to explore the relationship between gratitude and well-being among adolescents. More specifically, 221 middle school students participated in this study over a period of two months. The students were randomly assigned to one of the following groups: gratitude, hassles, or control (standard). During the period of the two months the students were asked daily to either list/reflect on few things they are grateful for in the past 24-hours or list/reflect on few things that annoyed them in the past 24-hours, or do nothing. Then the students were asked to rate their current level of satisfaction with school and their optimism for life.