

Classroom Voting Questions: Elementary Statistics

Design of Experiments

1. “Graduating is good for your health,” according to a headline in the Boston Globe (3 April 1998). The article noted “According to the Center for Disease Control, college graduates feel better emotionally and physically than do high school dropouts.” Do you think the headline is justified based on this statement?
 - (a) Yes, as long as the data was from random samples of college graduates and high school dropouts.
 - (b) Yes, because this must have been an observational study. As long as it was a well-designed study, the headline is justified.
 - (c) No, because the headline implies a cause and effect relationship, which is not justified based on an observational study.
 - (d) No, because this study must have been an experiment and we cant draw cause and effect conclusions from an experiment.

2. In a study of perceived importance of money, 100 attorneys were selected at random from those in private practice and 100 attorneys were selected at random from those employed by government agencies as district attorneys. The attorneys in each group were asked to respond to a set of questions designed to assess level of stress in the workplace. This study is -----.
 - (a) an observational study
 - (b) an experiment

3. When is it unreasonable to reach a cause-and-effect conclusion based on data from a statistical study?
 - (a) Any time the study is based on a random sample from a population of interest.
 - (b) When the study is observational.
 - (c) When the study is a well-designed experiment that uses random assignment to experimental conditions (treatments).
 - (d) It is always reasonable to reach a cause-and-effect conclusion based on data from a statistical study.