

Practice Problems

Use this research scenario to answer questions 1 through 5.

Dr. Mackintosh believes a new olfactory therapy would be more successful in promoting weight loss among obese patients. His patients are first weighed and then randomly assigned to olfactory therapy, dance therapy, or a control condition. At the end of the three weeks, the amount of weight lost is recorded. The results indicate no significant difference in the amount of weight lost between the three conditions.

1. Is this a one or two-tailed prediction?
2. Identify the independent and dependent variables.
3. List two possible extraneous variables.
4. Is this a between, within, or mixed design?
5. If the researcher fails to detect true differences between the conditions, what type of error has occurred?

Use this research scenario to answer questions 6 through 10.

A sleep researcher wants to determine whether a new pillow might reduce snoring amongst patients with this type of sleep apnea. Participants are randomly assigned to use the new pillow or a control condition (regular pillow). Their sleep behavior is recorded on audiotape and time snoring is recorded as well. When the sleep researcher gives the new pillows to patients, she is pleased to see how much they want the pillow to work also. The findings indicate significantly less snoring takes place with the new pillow.

6. Is this a one or two-tailed prediction?
7. Identify the independent and dependent variables.
8. If the researcher made a Type II error, what does this mean?

9. In addition to the use of the new pillow, what are two additional explanations for this outcome?

10. If married patients snore less than single patients, will the results indicate that marriage is another factor that reduces snoring? Explain.

Use this research scenario to answer questions 11 through 16.

A social psychologist expects participants' evaluation of a job applicant's capability will differ depending on gender and whether the applicant is described as thin or heavy. Forty participants are asked to imagine themselves in a hiring capacity and to read a job application, resume, and a personal recommendation for an applicant applying for an accounting position. There are four experimental conditions: 1) gender of applicant: male or female, 2) weight: thin or heavy. After reviewing the materials, participants evaluate the applicant's capability on a scale of 1 (not very capable) to 7 (very capable). The results of the study are contrary to expectations. No significant differences are detected.

11. State the research hypotheses.

12. Identify the independent(s) and the number of levels of each.

13. Identify the dependent variable.

14. Is this a between, within, or mixed design?

15. What type of error will the experimenter make if true differences exist?

16. Is there something about sample size that might be important in this study? Explain.