

What You Need to Do

For this assignment, students will be provided with four data sets from Health Sciences research. Using this data, students will conduct descriptive statistics and select and run the most appropriate statistical tests for each data set using a contemporary statistical software.

Students will then write a brief report summarizing their findings for each data set. The report should include:

- Statistical Hypotheses
- Level of Measurement
- Descriptive statistics (i.e. at least one measure of central tendency and one measure of spread per data set & rationale for the measures selected)
- Outlier Check (how you checked and why you used that method)
- Visualization of the data (i.e. one figure per data set & a description of the figure and why that figure was the appropriate choice)
- Statistical methods: description of the inferential test selected (i.e. type of z-test, t-test, or ANOVA) and rationale for why that inferential test was selected
- Summary of all statistical findings, including the results from any assumption checks and inferential test results
- Summary statement interpreting the results (i.e. what do the results mean)

Specifications

Report length: 4-6 pages (i.e. 1.5 pages per data set, not including statistical output)

1-inch margins, 1.5-spaced

Times New Roman font, size 12

APA referencing style

Assignment 2: Interpreting Data Written Assignment

Instructions: Answer each problem and present your report as though it were sections from a manuscript in a peer-reviewed journal (i.e., using full sentences and statistical language).

- 1) Under the heading “Purpose” state the purpose of the research question and the hypotheses (i.e., what you are looking for).
- 2) Under the heading “Statistical Methods”, describe the statistical methods you applied to answer the research question (i.e., what you did). This should include a description of the descriptive statistics you conducted, what inferential statistical test was selected (and why), the significance level, and statistical software used
- 3) Under the heading “Results” present your findings (i.e., what you found) and 1 figure. Include at least one measure of central tendency and variability. An assumption check (describe what you did and what you found, as needed), check for potential outliers, and present the findings of your inferential test (i.e., your critical value and p value), as appropriate. You may use tables in your results section if it helps your explanation. If you find outliers, you must elaborate on what you did with them (i.e., whether you removed or kept them), in the results section.
- 4) Finally, under the heading “Interpretation” provide a **brief** interpretation of your results, including a description of the figure. Discuss whether you reject or fail to reject the null hypothesis and what that means.

The answers to each problem should be approximately 1 - 1.5 pages, 12-point Times New Roman font; 1.5 spaced. Upload the report as a PDF.

Statistical output should be provided as a supporting document (not included in page count). SPSS output should be merged into one PDF and uploaded to the assignment dropbox. If using Excel to build graphs, please upload an Excel document to the assignment dropbox as well.

Refer to the assignment description & rubric for additional guidance on assignment expectations.

See course timeline for due date

Problem #1

A clinician was interested in exploring functionality in patients following a stroke rehabilitation program. Participants were recruited through the rehabilitation unit at Providence Care Hospital. Functional status was evaluated at baseline (immediately following stroke), and 8 weeks later. Patients' functional outcomes were rated on the following 5-point scale: 1 – poor, 2- fair, 3 – moderate, 4 -good, 5 – excellent. The clinician wants to know whether patients improved their functioning over the 8-week period.

Problem #2

A respiratory therapist reviewed patient records in four family practices for a period of 1 year. Newly diagnosed cases of asthma were noted, and whether the case was referred to hospital or not. The research team wants to know whether the practices differ in their proportions of hospital referrals for patients suffering from asthma.

Problem #3

A researcher was interested in studying the best way to teach suturing and casting to surgical residents. To study this, all incoming orthopaedic residents were divided into three groups: a standard training group scheduled to work in the emergency department (n=8), an instructor-led surgical skills boot camp group (n=8), and student-led surgical skills boot camp group (n=8). After 7 days of the intervention, suturing and casting skills were measured through a simulation-based exam. The researcher wants to know whether average exam scores differ between the three groups.

Problem 4

Recall from Module 01 you learned about Dr. Harold Shipman. A researcher is interested in reviewing the public inquiry data from Dr. Shipman's case and exploring whether the age of his victims differed based on gender.