Tamar M. Shaw

Omega Graduate School

Sean Taladay, Ed.D.

Submission Date: August 19th, 2023

Course Assignments

All assignments will be evaluated for the following structure:

1. Download the "OGS Course Assignments Template" template OR the

"Developmental Reading Assignment Template" template from the General Helps

folder in DIAL to create the following pages:

Example Header for OGS Assignment

2. Title Page (not included in page count).

3. Instruction Page: Copy and paste the assignment instructions from the

syllabus, starting on a new page after the title page.

4. Start the assignment on a new page after the Instructions Page. Follow all APA 7th

edition guidelines for documentation and style.

5. Works Cited: Include a separate Works Cited page, formatted according to APA style,

7th edition (not included in page count).

6. Submit all assignments in DIAL.

Assignment #1 – Core Essential Elements

1. Assumptions Testing Interpretation: Examine the outcomes of assumptions tests in a

dataset. How can researchers interpret the results to determine if the data meet the

assumptions required for parametric tests? What strategies can be employed when

assumptions are not fully met, and how might this impact the choice of statistical

procedures?

2. Choosing Between t-test and Nonparametric Equivalent: Given a specific research

scenario, discuss the decision-making process for choosing between a t-test and its

nonparametric equivalent, such as the Mann-Whitney U test. Under what

circumstances might researchers opt for the nonparametric test, and what implications

could this have on the study's conclusions?

3. Literature Review and Methodological Choices: Explore the role of the literature review in shaping methodological choices in a research study. How can insights gained from previous research influence the selection of statistical tests and the study's overall

design? Discuss how researchers can leverage existing literature to inform their own

methodological decisions.

**Core essential elements #2 Choosing between t-test and non-parametric equivalent**

A t-test is essentially a parametric test. This test can give you the mean or average of two different groups. One would choose the parametric method if the population were normally distributed, the sample is somewhat large or sizable, they all have the same variance and each observation is independent. Each observation qualifies as independent if they are not dependent on each other and they have experienced or completed the dependent variable separately and not in groups . The t-test or parametric test is quantitative versus a non-parametric test being qualitative. There is more than one parametric statistical test or procedure a researcher can use. The types of procedures are as follows: 1) A One Way ANOVA or one way analysis of variance is an analysis of three or more groups; 2) An Independent group T-test where there is two independent groups; 3) The paired t-test would analyze one group over time or in different circumstances; 4) last but not least is the Pearsons Correlation Coefficient which measures the strength of the relationship between two variables.

To assess a particular groups median, one would use a non-parametric test. This type of analysis generally helps when the distribution of data is skewed. This statistical analysis works if the groups that are being observed are not dependent on one another, if they have a totally different set of variables, and the distribution shape is the same. Necessary conditions or decision elements for us non-parametric measures are 1) nominal or ordinal data are able to be used and 2) interval or ratio data can be used but only if no assumptions can be made about the population’s probability distribution (the data is not assumed to be normal).

Non-parametric methods are 1) The Mann-Whitney U test which will determine if the median of the two groups is statistically significant and is also a good test if the distributions of the groups are about the same but one has slightly higher values, 2) The Chi-Square or cross tabulation analysis, 3) Spearman Rank test, 4) Wilcoxon Signed-Rank test or 5) The Kruskall-Wallis test which is used to compare three or more independent groups. It is good to note that a non-parametric test may be less efficient.

**WORKS CITED**

Chi-Square https://www.texasoft.com/tutorial-chisquare-crosstabulation.html

Independent group t-test (https://www.texasoft.com/tutorial-independent-groupt-test.html

Kruskal-Wallis https://www.texasoft.com/tutorial-kruskal-wallis.html

Nonparametric Statistical Tests a. Mann-Whitney U <https://www.texasoft.com/tutorial-mann-whitney.html>

Paired t-test https://www.texasoft.com/tutorial-paired-t-test.html

Pearson’s Correlation Coefficient https://www.texasoft.com/tutorial-pearsonscorrelation.html

.