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**Assignment #1 – Core Essential Elements**

1. Splitting Dependent Variable Data: In the context of the fictional study, "Religiosity and Social Behavior in a Diverse Community," how can researchers split dependent variable data based on independent variables? Discuss the rationale behind this approach and how it allows for meaningful subgroup comparisons.

2. Conducting Correlational Procedures: Explain the process of conducting correlational procedures with statistical software. What statistical measures can researchers employ to determine the strength and direction of relationships between variables? Interpret the findings of correlational analyses from the fictional dataset.

 3. Post-hoc Analysis Interpretation: What statistical tests can be employed when conducting post-hoc analyses to compare multiple groups? How do researchers interpret the results of these tests to identify significant pairwise differences? Discuss the importance of post-hoc analyses in exploring additional research questions beyond the primary hypotheses.

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.

1. Splitting Dependent Variable Data: In the context of the fictional study, "Religiosity and Social Behavior in a Diverse Community," how can researchers split dependent variable data based on independent variables? Discuss the rationale behind this approach and how it allows for meaningful subgroup comparisons.

Researchers are interested in the interaction between their data sets. Based on the fictional study, “Religiosity and Social Behavior in a Diverse Community,” there are six categories in the dataset (participant ID, race, religiosity level, community service, social justice attitudes, and social cohesion). The study seeks to understand how individuals’ religious beliefs influence their interactions with others, their attitudes toward social issues, and their involvement in community activities. Therefore, the researcher can split the dataset to analyze mean scores to see the difference among racial groups and religiosity levels or racial groups and social justice attitudes. The researcher is also able to examine gender and race by using a T-test. By splitting the variables, the researcher can make comparisons or generalizations or check for correlations regarding the impact that race, gender, and religiosity levels have on each one of the variables. This will enable the researcher to answer various research questions, for example, “To what extent does religiosity influence individuals’ engagement in community service and volunteering?” The researcher may want to examine whether race affects an individual’s community service or volunteering engagement. In statistics, dependent variables respond to a change in the independent variable. It is cause and effect, where the dependent variable is the effect.

2. Conducting Correlational Procedures: Explain the process of conducting correlational procedures with statistical software. What statistical measures can researchers employ to determine the strength and direction of relationships between variables? Interpret the findings of correlational analyses from the fictional dataset.

Researchers or statisticians are interested in the relationship between variables or how one variable's value changes when another variable's value changes (Salkind & Frey, 2019, p. 77). This is expressed through the computation of a simple correlation coefficient. For example, what is the relationship between religiosity and social justice attitudes? Religiosity and social cohesion? One can use software to conduct correlational procedures. The researcher would use the software to run the Pearson product-moment correlation (Salkind & Frey, 2019, p. 77). The data from the fictional dataset for the study “Religiosity and Social Behavior in a Diverse Community” shows that when the community service hours are ten or more, the religiosity level is four or more. If the variable x increases in value, then y increases in value, which shows a direct or positive correlation (Salkind & Frey, 2019, p. 78).

 3. Post-hoc Analysis Interpretation: What statistical tests can be employed when conducting post-hoc analyses to compare multiple groups? How do researchers interpret the results of these tests to identify significant pairwise differences? Discuss the importance of post-hoc analyses in exploring additional research questions beyond the primary hypotheses.

Post hoc analysis is run after correlations or significant tests like the analysis of variance (ANOVA). For example, in analyzing the fictional data regarding Religiosity and Social Behavior in a Diverse Community, I used the PSPP program to examine gender and determine if there was a difference in males and females regarding religiosity level. The data showed that the null hypothesis of “there is no significant difference between males and females regarding religiosity levels was rejected. The post hoc test shows which groups are different from each other. In this case, a post hoc test can be done with multiple groups like race. When the null is rejected, showing a statistically significant difference, the p-value is less than .05 percent. The researcher can now analyze or evaluate relationships by observing the means to make group comparisons.

WORKS CITED

Salkind, N. J., & Frey, B. B. (2019). *Statistics for people who (think they) hate statistics* (7th edition). SAGE Publications, Inc.