Homework 3

Due Thurs Mar 12 10 AM (pdf format please)

For all questions, please **show your work** or **include a copy of the output**, whichever is relevant. Please type your answers in report form, as if you were describing results in a published study. Include the relevant statistical values in the text. **Your answers should be in your own words** and most answers should be approximately one paragraph. Please email a pdf copy to me by the deadline.

1. A researcher conducts a study comparing the three types of personnel interviewing approaches used for hiring new employees. Fifteen companies are randomly assigned to unstructured, semi-structured, and structured interview groups (n = 5 per group). The head of personnel at each company then rates the quality (on a 1-10 scale) of the new employees hired over the past year using their interviewing approach. Using the data from the table below, compute an ANOVA **by hand** to determine whether the three interviewing approaches differ significantly on employee quality. Compute eta-squared to examine the variance in employee quality accounted for by interviewing approach. **Please show your work.** Report and interpret your results, including the relevant means and statistics in your write-up.

Unstructured	Semi-structured	Structured
1	2	5
1	3	6
2	4	7
4	2	8
2	4	9

2. Enter the data from Problem 1 and use **SPSS <u>and</u> R** to explore your results further by conducting an ANOVA and, if significant, requesting Tukey and Games-Howell post hoc tests to check which interviewing groups differ from one another on employee quality. Report and interpret your post hoc test findings in terms of the research problem.

3. The data set for this problem comes from an experimental study of the effects of anticipated stress on moral judgments (`antstress.sav`).[1] Download the data from the data page http://web.pdx.edu/~newsomj/data.htm. The experiment compared the moral judgments of those who were randomly assigned to an anticipated stress condition (told they would be viewing some horrifying photos) to a control condition (N = 188; `cond`, 0=control, 1=stress). They were then asked to judge several moral dilemma vignettes. The moral judgments measure (`moral`) had ratings from 1 "morally wrong" to 9 "perfectly ok", and I have included an average of ratings. The participant's gender (`gend`; 1=female, 2=male) was also recorded.[2] Use **SPSS <u>and</u> R** to conduct a factorial analysis of variance to investigate whether there was a significant interaction between the stress condition and gender for moral judgements. Report your findings and include the relevant statistics, including means and standard deviations, F-values, significance, and magnitude of effect.

4. Conduct a simple effects test to determine whether there is a significant effect for the stress factor for female participants. Report the means, standard deviations, and the appropriate statistical test results.

Data from the next problems come from a survey of adolescent political opinions (`political2.sav`),[3] which can be downloaded from the data page, http://web.pdx.edu/~newsomj/data.htm. I have constructed a composite measure (`critical1`) that

[1] van 't Veer, A.E. and Sleegers, W.W.A., 2019. Psychology Data from an Exploration of the Effect of Anticipatory Stress on Disgust vs. Non-Disgust Related Moral Judgments. Journal of Open Psychology Data, 7(1), p.1. DOI: http://doi.org/10.5334/jopd.43

[2] The researchers only included two possibilities for gender.

[3] McDevitt, M., & Kiousis, S. (2007). The red and blue of adolescence: Origins of the compliant voter and the defiant activist. *American Behavioral Scientist*, *50*(9), 1214-1230.

assesses the extent to which students used critical thinking when encountering news stories (possible range from 1 to 3), based on the average of three items ("When I see or read a news story about an issue, I try to figure out if it is biased," "When I hear news about politics, I try to figure out what is REALLY going on," and "News about people running for office makes me wonder how they might change things.") A follow-up survey that included the critical thinking measure was collected again after the midterm election (`critical2`) and then once again at a later date (`critical3`). The dataset also contains a variable about the student's political knowledge by asking them to identify which political party (Republican or Democrat) currently has a majority control in the US Senate (`knowsen`: 1="incorrect", 2="correct").

5. Use **SPSS <u>or</u> R** to obtain an ANOVA that will answer whether there were significant differences among the three time points on critical thinking (`critical1`, `critical2`, and `critical3`). Report and interpret your findings being sure to include all of the relevant values for this type of test in your write-up. **Examine and report the recommended type (univariate or multivariate) of repeated-measures ANOVA test based on the recommendations given in class for this sample size.**

6. Use **SPSS <u>or</u> R** to determine whether differences in critical thinking over time (use all three time points: `critical1`, `critical2`, and `critical3`) depends on political knowledge (`knowsen`). Obtain a plot of the means and describe the pattern of results. Report and interpret your findings and include all of the relevant values for this type of test in your write-up. **Examine and report the recommended type (univariate or multivariate) of repeated-measures ANOVA test based on the recommendations given in class for this sample size.** No follow-up tests are required for this problem, but, based on the results, describe the possible follow-up statistical tests that would be appropriate given your results, specifying what means would be compared and the specific statistical test you would use.

7. Read **one** of the following articles (password protected copies are available from the class website http://web.pdx.edu/~newsomj/) and write **two paragraphs** summarizing the article. First, describe the study design (e.g., randomized experiment, non-equivalent control group design, cross-sectional survey; for a quick refresher, see https://conjointly.com/kb/research-design-types/ and purpose of the study **in your own words**. Be sure to include who/what was studied (e.g., who were the participants?) and the number of cases. Then, choose one statistical test used in the article that you have learned about in the course in this section (i.e., two-way, within-subjects, mixed ANOVA, loglinear, nonparametric tests), and, **in your own words**, describe the hypothesis that is being tested, the results obtained, and what the findings mean. **Be sure to include the relevant statistical values and whether the results were significant. <u>If there were follow-up tests conducted, describe those results (if not, indicate that there were no follow-ups and whether or not you think this was appropriate in this case).</u>** Write your paragraphs as if you were describing results in a published article and reporting someone else's results as in a review article.

Berduzco-Torres, N., Medina, P., Choquenaira-Callañaupa, B., San-Martín, M., Delgado Bolton, R. C., & Vivanco, L. (2020). Family loneliness: Its effects in the development of empathy, teamwork and lifelong learning abilities in medical students. *Frontiers in Psychology, 11*, 2046.

Lombardo, C., Ballesio, A., Gasparrini, G., & Cerolini, S. (2020). Effects of acute and chronic sleep deprivation on eating behaviour. *Clinical Psychologist, 24*(1), 64-72.

Mache, S., Servaty, R., & Harth, V. (2020). Flexible work arrangements in open workspaces and relations to occupational stress, need for recovery and psychological detachment from work. *Journal of Occupational Medicine and Toxicology, 15*(1), 1-11.

Majee, W., & Anakwe, A. (2020). Youth engagement: A mixed method investigation of adult and youth perceptions of community resources in rural America. *Community Development, 51*(2), 140-156.

Schroeder, J., & Epley, N. (2020). Demeaning: Dehumanizing others by minimizing the importance of their psychological needs. *Journal of Personality and Social Psychology*, *119(4*), 765–791.