**2021/22 Assignment**

**Guidelines**

Please answer all the questions.

Your final mark will be based on your answers to all of the questions. If you skip questions, marks for the skipped items will not be given. You are responsible for deciding which statistical tests you will use for your analysis.

create your own markdown r script to answer the questions in the assignment. In it:

1. include all the steps you used during your analyses and outputs. In other words, the file should include the codes that can perfectly reproduce your reported findings from the raw data. This file needs to be organised as if you were reporting to your supervisor or a collaborator (i.e. output should be sufficiently annotated and organised). **Please remember:** your code does not have to be pretty, perfect, efficient or elegant. As long it “gets the job done” that is fine.
2. use text around this code to describe all your analyses and results. For every statistical test you use, please justify why the test is appropriate for the analysis you plan to perform and interpret your results accordingly (i.e. what do your results mean in light of the test you chose to use?). This document must be written in the style of a results section for a paper published in APA psychological journals (i.e. the narrative should read like a results section of a manuscript). Please follow APA 7th format. If needed, please also add tables or figures to describe your results in your document. These figures and tables should be like the ones that appear in an actual manuscript/published article.

The idea here is that when knitted your document should reflect the style of a Results section in a paper which includes text and data figures/tables and data analysis (including justification).

Submit **BOTH** the “.rmd” file and the knitted word document output from it.

**Data**

Please use the data scz\_loneliness\_PYM0S1\_2021.xls to complete the assignment. An accompanying data dictionary is also available in the scz\_loneliness\_PYM0S1.xls file. The data you will use for this assignment has been modified from the original dataset.

Briefly, 110 individuals with schizophrenia and 100 non-psychiatric comparison subjects took part in a study investigating loneliness in schizophrenia ([Eglit et al., 2018](#_ENREF_1)). Participants’ loneliness was assessed using the University of California, Los Angeles Loneliness Scale (UCLA-3). Additional clinical and positive psychological measures were collected, as well as demographic characteristics of the two groups.

**EACH QUESTION IS WORTH 25 MARKS (100 marks in total, 100% of your final grade)**

**Question 1**

In the data output you can see that a range of demographic, clinical and psychological characteristics of the sample were recorded (e. g., gender, age, marital status, education, living status, personal and family income, ethnicity etc) across both the schizophrenia cohort and non-psychiatric comparison group. Present the demographics in a table.

Check for differences across groups by comparing characteristics where appropriate.

If appropriate check for differences across groups by comparing characteristics where appropriate. Remember to describe any transformations you performed on the data, the tests you used to analyse your data and explain why these tests were appropriate.

**Question 2**

Schizophrenia is associated with positive symptoms (e.g. delusions, hallucinations) negative symptoms (e.g. anhedonia, lack of motivation) and cognitive symptoms (e.g. problems with learning and memory).

How do positive symptoms (measured using the Scale for the Assessment of Positive Symptoms; SAPS) and negative symptoms (measured using the Scale for the Assessment of Negative Symptoms; SANS) relate to one another in the whole sample and in those with schizophrenia only? Could the relationship between SAPS and SANS in the schizophrenia cohort be attributed to differences in executive function (Executive Functioning Composite Score)?

Remember to check your data for assumptions of the tests and things like outliers. Describe any transformations you performed on the data, the tests you used to analyse your data and explain why these tests were appropriate.

**Question 3**

Is it possible to predict total loneliness score based on Anxiety, Depression and Stress in the whole sample? How about only with those with schizophrenia?

Note that the total loneliness score is not included in the data - you will need to calculate this yourself. Importantly, variables uclals01, uclals05, uclals06, uclals09, uclals10, uclals15, uclals16, uclals19, uclals20 should be reverse coded.

Provide summary output describing the coefficients associated with each variable and their respective *t* and *p* values. How well does your model predict loneliness in the non-psychiatric comparison subjects (note, for this it is worth being aware of the predict() function here)?

Remember to check your data for assumptions of the tests and things like outliers. Describe any transformations you performed on the data, the tests you used to analyse your data and explain why these tests were appropriate.

**Question 4**

Are people with schizophrenia lonelier than non-psychiatric comparison subjects? State your null hypothesis, details of the statistical test you choose to analyse the data with and proof that the data meets any required assumptions. Please create a figure showing your results using an appropriate graph including measures of data spread. Next, determine the effect size of your result and interpret your findings accordingly. Remember to describe any transformations you performed on the data, the tests you used to analyse your data and explain why these tests were appropriate.

**References (**Read through this reference and any other sources you need to get a sense of the data and measures employed)

Eglit, G. M. L., Palmer, B. W., Martin, A. v. S., Tu, X., & Jeste, D. V. (2018). Loneliness in schizophrenia: Construct clarification, measurement, and clinical relevance. *PloS One*, *13*(3), e0194021. https://doi.org/10.1371/journal.pone.0194021