STA10003 FOUNDATIONS OF STATISTICS ASSIGNMENT - Part 2

This **Assignment Part 2** is worth **40%** of your final mark for STA10003.

Scenario

You are a new graduate researcher at a social and psychological sciences research institute. You have been given a dataset based on a survey of Australian public service sector employees, and asked to analyse the data to answer several questions of interest that are presented on the following pages.

For your assignment you should use the data **STA10003 Sem 2 2020 Assignment Data.sav**.

Data Preparation

For the purpose of your report, you must use **SPSS** to draw a **random sample of 1500 cases** of the 4352 observations. You will conduct your analysis on this sample of 1500. You should ideally use the same 1500 cases you used for Assignment Part 1. However, you can draw a new random sample of 1500 cases if you need to.

Submission Instructions

- Your submission must be a single Word file or PDF file.
- Although a cover page is not required, you should include your name and student number within the document [e.g., in footer].
- You must submit your file via the Canvas link by Monday 12 October at 11:59pm. Only the last document you submit will be marked.
- Once submitted, please review your submission to ensure the correct file has been submitted.
- This is an individual assignment. Do not share your work with other students. They will have a different random sample of data, so any copying will be detected.

ASSIGNMENT PART 2

For your Assignment - *Part 2*, you are required to complete the first three (3) questions by producing the appropriate analyses using SPSS and writing the relevant report for each question. You are also required to complete question 4, which contains short answer questions.

For each of the first three questions requiring SPSS, you should include the relevant output [e.g., tables] immediately following your report.

Question 1

The variable **TeamEngagement** is a scale score [0 to 20] of how engaged an employee is with the team of colleagues they regularly work with, with higher values representing greater employee engagement with their team.

Previous research indicates that Australian public service employees have an average 'team engagement' score of 14.5. However, an organisational psychologist at the institute has claimed that this has decreased due to changes made by the current government. Conduct a one-sample *t*-test using the **TeamEngagement** variable to test this claim.

Produce the relevant SPSS output and write a one-sample *t*-test report based on your output in the style presented in the ***Week 6 Supplement G: Report writing One Sample ttest & Binomial test.*** Include the relevant output with your answer.

Question 2

Researchers hypothesise that Australian public service employees who have less than 5 years tenure in their job are more engaged with their supervisor than Australian public service employees who have 5 years or more tenure. Conduct an independent samples *t*-test using the **SupervisorEngagement** and **Tenure** variables to test this claim.

Produce the relevant output and write an independent samples *t*-test report based on your output in the style presented in **Week 7** ***Supplement H: Report Writing for Independent Samples t-test.*** Include the relevant output with your answer. After the report address the assumptions of the independent samples t-test and include relevant SPSS output.

Question 3

Researchers hypothesise that Australian public service employees are more engaged, on average, with the team of colleagues they regularly work in than with their supervisor. Conduct a paired samples *t*-test using the **SupervisorEngagement** and **TeamEngagement** variables to test this claim.

Produce the relevant output and write a paired samples *t*-test report based on your output in the style presented in the **Week 8 *Supplement* J*: The Paired Samples t-tests*.** Include the relevant output with your answer. After the report address the assumptions of the paired samples t-test and include relevant SPSS output.

Question 4

A medical survey in 2015 indicated that 48% of Australian adults prefer to take a generic brand prescription drug than pay more for the name brand equivalent. A pharmaceutical company believes that with the financial crisis, the percentage of Australian adults willing to take a cheaper generic drug may have risen. The research department conducted a study where a random sample of Australian adults were asked whether or not they would accept a cheaper generic prescription drug.

(a) What type of hypothesis test would be appropriate to investigate the pharmaceutical company's prediction?

(b) What is the population we can draw conclusions about in this study?

(c) The appropriate hypothesis test was conducted and a *p*-value of .110 was obtained. Based on the results of this study, the pharmaceutical company concludes that the percentage of Australian adults willing to take a cheaper generic prescription drug has remained the same, exactly 48%. Comment on the validity of this conclusion. Provide justification for your answer.

STA10003 Assignment – *Part 2* Marking Rubric [out of 20]:

	0	1	2	3	4	5
Q1 One-sample t-test [5 marks]	Incorrect procedure and / or No report	Correct procedure, but: Incorrect variable or comparison and /or Major errors in report	Correct output Report presented following format used in course materials Report has no major errors, however not all components are included and report has multiple minor errors.	Correct output Report presented following format used in course materials. Report has no major errors, however not all components are included or report has multiple minor errors.	Correct output Report presented following format used in course materials Report has only 1-2 minor errors	Correct output. Report presented following format used in course materials Report has no errors and is clearly and concisely written
Q 2 Independent samples t-test [5 marks]	Incorrect procedure and / or No report	Correct procedure, but: Incorrect variable or comparison and /or Major errors in report	Correct output Report presented following format used in course materials Report has no major errors, however not all components are included and report has multiple minor errors.	Correct output Report presented following format used in course materials. Report has no major errors, however not all components are included or report has multiple minor errors.	Correct output Report presented following format used in course materials Report has only 1-2 minor errors	Correct output. Report presented following format used in course materials Report has no errors and is clearly and concisely written
Q3 Paired samples t-test [5 marks]	Incorrect procedure and / or No report	Correct procedure, but: Incorrect variable or comparison and /or Major errors in report	Correct output Report presented following format used in course materials Report has no major errors, however not all components are included and report has multiple minor errors.	Correct output Report presented following format used in course materials. Report has no major errors, however not all components are included or report has multiple minor errors.	Correct output Report presented following format used in course materials Report has only 1-2 minor errors	Correct output. Report presented following format used in course materials Report has no errors and is clearly and concisely written
Question 4a [1 mark]	No attempt / incorrect	Correct	Not applicable	Not applicable	Not applicable	Not applicable
Q4b [1 mark]	Incorrect answer or Incomplete answer	Correct answer- all required specific details included.	Not applicable	Not applicable	Not applicable	Not applicable
Q4c [3 marks]	No attempt/ Incorrect	Correct conclusion	Correct Conclusion Partial Justification	Correct Conclusion Full Justification	Not applicable	Not applicable

Prior to submitting your Assignment via Canvas, use the following checklist as a guide to ensure that all of the relevant information is provided.

Checklist:

- Correct variable used to produce output;
- Correct procedure performed;
- Correct test values used;
- All figures quoted in report correct according to your own output;
- Including 95% confidence interval interpretations;
- Significance interpreted correctly (i.e. not saying that the finding is significant when it is not or vice versa);
- Correctly referring to the sample or population when appropriate;
- Proof reading of reports for errors
- Where asked address the assumptions of the test