MOD006811 Essential Research Methods – Quantitative assessment for 010 Patchwork Portfolio

**Context**

You are a research assistant on a project which is examining the role of diet (viz. the *5:2* and *low carb* diets) on people’s health. The project consisted of an experimental design where participants were randomly assigned to one of three conditions: (1) eat normally, (2) eat normally for five days and fast on the other two, (3) reduce carbs by around one third.

**Details of the research study**

Participants were invited to come into the laboratory where they provided informed consent. They were asked to complete some questionnaires which assessed demographic and health variables including age, gender, BMI (body mass index), cigarettes smoked per day, and alcohol intake per week.

After completion of these questionnaires, participants were randomly assigned to one of three groups: the no diet group, the 5:2 diet group, the low carb group. Participants in the no diet group were asked to continue eating as they would normally. Participants in the 5:2 diet group were asked to eat normally for five days and fast on the other two. Participants in the low-carb group were asked to reduce their usually carb intake by about one-third. After two months, the participants were asked to return to the lab. The researchers again measured the participants’ body mass index (BMI), which is a measure used to work out whether a person’s weight is healthy or not.

The data were collected by another researcher on the project and are available for you in the accompanying data set “ERM resit component 1”.

**Questions**

*There are two questions below, each with three parts to them. Please answer all parts of each question. Indicative word counts are outlined, but there is a maximum total word count of 1000 words for this entire component.*

Your research supervisor would like you to answer the following questions and present your findings in a written format for the rest of the research team to consider.

1. The research team would like to know the effect the diets had on BMI.
   1. Briefly state what method of analysis you have chosen to address this question and explain why this was a suitable choice (approximately 75 words).
   2. Select, run and report the results of suitable statistical analyses (which you described in part a) in an appropriate scientific format, with the use of tables or figures if necessary to support the in-text information (approximately 350 words).
   3. The research team would like your recommendations in relation to future directions for the analysis of the data which has been collected. More specifically, stemming from the already-conducted analyses they would like to know what additional analyses of the data could be performed to better understand these results or these variables? (approximately 75 words)
2. The research team would like to know what other factors may predict BMI. In particular, they are interested to know whether smoking, age, and/or alcohol consumption predict BMI.
3. Briefly state what method of analysis chosen to address this question and explain why this was a suitable choice (approximately 50 words)
4. Select, run and report the results of the statistical analyses (which you described in part a) in an appropriate scientific format, with the use of tables or figures if necessary to support the in-text information (approximately 350 words).
5. The research team would like your recommendations in relation to future directions for the analysis of the data which has been collected. More specifically, they would like to know what *other* hypotheses / research questions could be investigated using this data set (specifically, looking at variables not used in the previous analyses) which would further enhance their understanding of the data. Please describe your recommendation(s) and state what analytic approaches could be used to address them. (approximately 100 words)