**Assessment Brief**

### **Module name: Advanced Quantitative Methods in Health Psychology**

### **Module code: 7PS537**

### **Trimester: Summer (Trimester 3)**

### **Academic year: 2021-22**

# Learning Outcomes

On successful completion of this assessment and this module, you will have demonstrated your ability to:

1. Design, explore and evaluate a psychometric scale.
2. Analyse and interpret advanced statistical techniques using appropriate software for statistical analysis (SPSS).

### Summative Assessment(s) [Graded Assessment(s)]

|  |  |
| --- | --- |
| Assessment: | Coursework – SPSS Portfolio |

|  |  |  |  |
| --- | --- | --- | --- |
| Assessment Component: | Assessment weighting:  | Length:  | Assessed module learning outcome(s): |
| 1  | 100%Q1 – 50%Q2 and Q3 – 50% | Q1 = 3,000 words (Not marked after this limit)Q2 & Q3 = 1,000 words (not marked after this limit)No limit for individual questions, but recommend approximately 500 words each | 1 & 2 |
| Submission date/time:  | Provisional feedback released: |
| Completed final work: Thursday 11th August 2022 by 23:59 hrs UK time | Completed final work feedback (provisional grade):Monday 5th September 2022, 09:00 UK time. |
| Your work will be marked anonymously: Markers will not be aware of which student has written the work that is being marked. Provisional marks and feedback will have been reviewed by an internal moderator (member of teaching staff who have not been involved with the module). A sample of your marks and feedback will then be reviewed by our external examiner and the ratified mark will be published following the assessment board which will be held in September 2022. |

## Assessment Overview

There is one piece of coursework for this module comprising a 4000-word portfolio of statistical tests that address the three questions set below. This portfolio is worth 100% of your module mark. The portfolio must be written in English.

You will be presented with three research questions and data sets. For each question you are required to conduct and report the findings of an appropriate analysis of the data provided, in the report style shown during the module. You should screen the data prior to any analyses and routinely report appropriate estimates of effect size and other relevant statistical information where appropriate. You should also include appropriate and clearly expressed predictions.

The word limit for the portfolio is 4000 words (maximum) and includes in-text citations, tables and figures. The word could DOES NOT include your title page (including declaration statement), reference list or appendices. There is no 10% variance applied. Words beyond the 4000-word limit will NOT be reviewed for marking.

Please note that module staff cannot help you with questions regarding **specific exercises** in this assessment. This is because a fundamental part of this assessment is for you to be able to identify the statistical analyses that you need to conduct to address the exercise questions, conduct the appropriate analyses, and then write them up in the correct manner. Module staff can support you with more general assessment related questions including general questions about analyses, but not specific questions (e.g., “do I do a regression for question two?”, etc.).

ALL of the statistical processes and tests that you are required to conduct have been taught through the individual units on the module. You are not required to learn any additional tests to enable you to complete this portfolio.

## Portfolio Questions

**Question 1**

You will be provided with a dataset containing responses from women to three quality of life measures. This can be found in the assessment tab on the module pages and is titled “Question 1 – Data set”. Using this dataset, you need to choose the appropriate tests to summarise the scale and then conduct a factor analysis on the data to indicate subscales, which you will name and produce a written report. You should also calculate the reliability and validity of the scale.

You should include the following sections:

 Prediction(s): These should be clearly written and explain what you would predict based upon the description of the research question, including a *brief* introduction to the topic area.

• Results: This section should begin with coverage of data screening. You should then write up the results of the chosen statistical test(s) in the reporting style you will be shown during the relevant unit on the module.

• Discussion: There should be a brief (i.e. a few sentences) discussion of the findings of the results in light of the research question.

• Appendix *(not included in word count):* Please include any calculations and all relevant SPSS outputs (e.g. data screening checks, analyses etc.) as appendices. (Please provide an appendix for each question, rather than a single appendix at the end).

A researcher wants to measure women’s quality of life. After conducting some focus groups and consultations with experts, the researcher has designed a new measure. They have asked nearly 300 women to complete the new scale along with two established measures: the Short Form Health Survey (SF-36) (Ware & Sherbourne, 1992) and the EQ-5D (EuroQol Group, 1990). Missing values are coded as 99 and 999 in the database. You are asked to help refine the scale by identifying any subscales and by examining its validity and reliability. Using factor analysis, you should provide advice about how many subscales there are and what they appear to measure. Finally, you are asked to recommend any further testing that should be performed in the future to ensure the measure’s psychometric properties.

EuroQol Group (1990). EuroQol: a new facility for the measurement of health-related quality of life. *Health policy, 16,* 199-208.

Ware, J.E & Sherbourne, C.D. (1992). The MOS 36-item short-form health survey (SF-36): I. Conceptual framework and item selection. *Medical care, 30,* 473-483.

For Questions 2 and 3, you are presented with research questions and their accompanying data sets. For each question, you are required to conduct and then report the findings of an appropriate analysis of the data provided, in the reporting style shown during the module. You should screen the data prior to any analyses and routinely report appropriate estimates of effect size and other relevant statistical information where appropriate. You should also include appropriate and clearly expressed predictions.

For each question, you should include the following sections:

• Prediction(s): These should be clearly written and explain what you would predict based upon the description of the research question, including a *brief* introduction to the research topic.

• Results: This section should begin with coverage of data screening (testing assumptions). You should then write up the results of the chosen statistical test(s) in the reporting style you will be shown during the module.

• Discussion: There should be a brief (i.e. a few sentences) discussion of the findings of the results in light of the research question.

• Appendix *(not included in word count):* Please include any calculations and all relevant SPSS outputs (e.g. data screening checks, analyses etc.) as appendices. (Please provide an appendix for each question, rather than a single appendix at the end).

**Question 2**

A researcher wanted to examine whether a self-management programme was useful in helping to improve adherence with lipid reduction medication use amongst patients with coronary heart disease. ***The researcher has asked you to examine: 1) whether the number of training hours on the programme predicts medication adherence, and 2) whether self-efficacy is a significant mediator within this relationship.***

You have been provided with the following variables:

* Adherence score (number of days adhering to medication);
* Self-efficacy;
* Training hours (number of training hours on the programme);

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Participant number*** | ***Gender*** | ***Adherence score*** | ***Self-efficacy*** | ***Training hours*** |
| ***1*** | Male | 9 | 51 | 6 |
| ***2*** | Female | 6 | 55 | 6 |
| ***3*** | Female | 6 | 56 | 3 |
| ***4*** | Female | 4 | 55 | 3 |
| ***5*** | Male | 7 | 62 | 5 |
| ***6*** | Male | 7 | 63 | 5 |
| ***7*** | Female | 8 | 64 | 5 |
| ***8*** | Male | 7 | 64 | 4 |
| ***9*** | Female | 8 | 73 | 6 |
| ***10*** | Female | 9 | 74 | 6 |
| ***11*** | Male | 9 | 73 | 5 |
| ***12*** | Female | 11 | 76 | 5 |
| ***13*** | Female | 12 | 77 | 5 |
| ***14*** | Male | 12 | 79 | 6 |
| ***15*** | Female | 12 | 88 | 6 |
| ***16*** | Male | 13 | 89 | 6 |
| ***17*** | Female | 13 | 90 | 6 |
| ***18*** | Male | 13 | 93 | 6 |
| ***19*** | Female | 13 | 95 | 7 |
| ***20*** | Female | 13 | 96 | 7 |
| ***21*** | Male | 13 | 98 | 7 |
| ***22*** | Female | 13 | 102 | 7 |
| ***23*** | Female | 13 | 103 | 7 |
| ***24*** | Female | 14 | 111 | 7 |
| ***25*** | Male | 14 | 112 | 7 |
| ***26*** | Male | 14 | 113 | 7 |
| ***27*** | Female | 14 | 114 | 7 |
| ***28*** | Female | 15 | 119 | 7 |
| ***29*** | Female | 15 | 121 | 7 |
| ***30*** | Male | 20 | 85 | 8 |
| ***31*** | Male | 22 | 70 | 8 |
| ***32*** | Female | 22 | 85 | 8 |
| ***33*** | Female | 26 | 74 | 9 |
| ***34*** | Female | 25 | 124 | 9 |
| ***35*** | Female | 23 | 51 | 9 |
| ***36*** | Male | 27 | 124 | 10 |
| ***37*** | Male | 21 | 63 | 10 |
| ***38*** | Male | 21 | 72 | 10 |
| ***39*** | Male | 11 | 79 | 10 |
| ***40*** | Female | 4 | 72 | 10 |
| ***41*** | Male | 19 | 80 | 10 |
| ***42*** | Male | 4 | 84 | 11 |
| ***43*** | Male | 13 | 113 | 11 |
| ***44*** | Female | 22 | 94 | 14 |
| ***45*** | Male | 14 | 123 | 14 |
| ***46*** | Female | 25 | 83 | 15 |
| ***47*** | Male | 20 | 78 | 11 |
| ***48*** | Female | 18 | 90 | 10 |
| ***49*** | Male | 23 | 93 | 13 |
| ***50*** | Male | 15 | 110 | 12 |
| ***51*** | Male | 14 | 114 | 10 |
| ***52*** | Male | 10 | 94 | 13 |
| ***53*** | Male | 27 | 119 | 14 |
| ***54*** | Female | 4 | 79 | 15 |
| ***55*** | Female | 5 | 89 | 10 |
| ***56*** | Male | 20 | 81 | 12 |
| ***57*** | Male | 28 | 117 | 10 |
| ***58*** | Female | 22 | 60 | 14 |
| ***59*** | Female | 8 | 120 | 14 |
| ***60*** | Male | 15 | 111 | 13 |

**Question 3**

Data on the relationship between personality profile and nicotine dependence may help health professionals to design and improve programs for the treatment and prevention of this dependence. A researcher obtains three groups of 20 participants; 1) current smokers; 2) individuals who have given up smoking for more than twelve months; and 3) individuals who have never smoked. In addition to providing their smoking status, participants completed Costa and McCrae’s (1992) NEO Personality Inventory Revised (NEO-PI-R).

***Do levels of extraversion, agreeableness and neuroticism differ amongst these three groups?***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Participant number*** | ***Smoking status*** | ***Extraversion*** | ***Agreeableness*** | ***Neuroticism*** |
| ***1*** | Current | 138 | 93 | 85 |
| ***2*** | Current | 164 | 120 | 71 |
| ***3*** | Current | 142 | 88 | 98 |
| ***4*** | Current | 150 | 151 | 94 |
| ***5*** | Current | 130 | 86 | 22 |
| ***6*** | Current | 146 | 87 | 101 |
| ***7*** | Current | 167 | 171 | 25 |
| ***8*** | Current | 147 | 111 | 77 |
| ***9*** | Current | 168 | 114 | 95 |
| ***10*** | Current | 153 | 66 | 104 |
| ***11*** | Current | 159 | 85 | 95 |
| ***12*** | Current | 142 | 123 | 87 |
| ***13*** | Current | 168 | 162 | 94 |
| ***14*** | Current | 143 | 135 | 19 |
| ***15*** | Current | 139 | 97 | 57 |
| ***16*** | Current | 166 | 85 | 100 |
| ***17*** | Current | 167 | 68 | 57 |
| ***18*** | Current | 134 | 156 | 27 |
| ***19*** | Current | 144 | 97 | 75 |
| ***20*** | Current | 161 | 65 | 74 |
| ***21*** | Ex-smoker | 155 | 90 | 105 |
| ***22*** | Ex-smoker | 138 | 105 | 88 |
| ***23*** | Ex-smoker | 151 | 108 | 65 |
| ***24*** | Ex-smoker | 160 | 85 | 120 |
| ***25*** | Ex-smoker | 132 | 166 | 44 |
| ***26*** | Ex-smoker | 143 | 94 | 82 |
| ***27*** | Ex-smoker | 160 | 107 | 52 |
| ***28*** | Ex-smoker | 124 | 135 | 98 |
| ***29*** | Ex-smoker | 153 | 93 | 63 |
| ***30*** | Ex-smoker | 168 | 79 | 106 |
| ***31*** | Ex-smoker | 123 | 114 | 88 |
| ***32*** | Ex-smoker | 156 | 75 | 107 |
| ***33*** | Ex-smoker | 120 | 112 | 89 |
| ***34*** | Ex-smoker | 102 | 143 | 114 |
| ***35*** | Ex-smoker | 124 | 56 | 108 |
| ***36*** | Ex-smoker | 148 | 128 | 112 |
| ***37*** | Ex-smoker | 107 | 75 | 111 |
| ***38*** | Ex-smoker | 135 | 57 | 64 |
| ***39*** | Ex-smoker | 127 | 86 | 59 |
| ***40*** | Ex-smoker | 129 | 61 | 83 |
| ***41*** | Never smoked | 100 | 55 | 109 |
| ***42*** | Never smoked | 105 | 83 | 136 |
| ***43*** | Never smoked | 117 | 167 | 61 |
| ***44*** | Never smoked | 109 | 155 | 120 |
| ***45*** | Never smoked | 76 | 108 | 65 |
| ***46*** | Never smoked | 114 | 120 | 141 |
| ***47*** | Never smoked | 105 | 165 | 116 |
| ***48*** | Never smoked | 108 | 111 | 110 |
| ***49*** | Never smoked | 98 | 142 | 103 |
| ***50*** | Never smoked | 86 | 106 | 67 |
| ***51*** | Never smoked | 93 | 129 | 107 |
| ***52*** | Never smoked | 100 | 140 | 134 |
| ***53*** | Never smoked | 96 | 69 | 51 |
| ***54*** | Never smoked | 79 | 89 | 66 |
| ***55*** | Never smoked | 72 | 62 | 87 |
| ***56*** | Never smoked | 86 | 137 | 52 |
| ***57*** | Never smoked | 97 | 134 | 113 |
| ***58*** | Never smoked | 118 | 72 | 139 |
| ***59*** | Never smoked | 87 | 173 | 116 |
| ***60*** | Never smoked | 91 | 75 | 50 |

### Formative feedback opportunities

Formative feedback opportunities are designed to help you with your summative assessment. Formative activities are not assessed and do not contribute to your module mark. These are opportunities for you to apply, practice and make sense of the learning materials and content that you have worked with so that you are competent to apply your learning in your summative assessment. These opportunities will mainly take place during the end of unit activities and in the corresponding discussions on MS Teams.

# Assessment Rubric

Your work will be marked based on the rubric below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criteria** | **Excellent****(70 – 100%)** | **Very Good****(60 – 69%)** | **Good/****Satisfactory** **(50 – 59%)** | **Unsatisfactory** **(40 – 49%)** | **Poor/Very Poor****(1 – 39%)** |
| **Prediction and analysis**  | Predictions for the questions are clearly written and appropriate and explain what you would predict based upon the description of the research question. | Provides predictions for the questions based upon the description of the research question, however there are some minor errors / misunderstandings. | Provides predictions for the questions based upon the description of the research question, however there are some errors / misunderstandings. | Fails to provide accurate or complete predictions for the questions based upon the description of the research question.  | Fails to provide predictions for the questions based upon the description of the research question.  |
| **Data screening** | Provides insightful descriptions of the data screening process using appropriate psychological terminology. Supported by references where appropriate.  | Describes the data screening process in detail using appropriate psychological terminology.  | Describes the data screening process using appropriate psychological terminology. There may be some errors / misunderstandings in reporting. | Fails to satisfactorily screen the data for the questions. | Fails to screen the data for the questions. |
| **Results** | The correct tests are identified, justified and reported correctly with no errors. All relevant information is included. There is an insightful description of the results using appropriate psychological terminology. Supported by references where appropriate.  | The correct tests are identified and reported clearly and accurately with minimal errors or missing elements. The results are described in detail using appropriate psychological terminology.  | The correct tests are identified and reported competently/to a passing standard, but there may be some weaknesses, errors or missing elements. The results are described using appropriate psychological terminology. There may be some errors / misunderstandings in reporting. | The correct tests are not identified or expressed to a passing standard and there may be considerable weaknesses, errors or missing elements. The description of the results is unsatisfactory. | The correct tests are not identified and the answer is expressed very poorly, with considerable misunderstandings, errors or missing elements. The results are not described. |
| **Discussion** | There is a short discussion of the findings of the results, demonstrating a thorough understanding of what the results can tell us. | There is a short discussion of the findings of relevant results. | There is a short discussion of the findings of relevant results, however there may be some minor errors or missing information (good). There may also be some evidence of weaknesses, errors or missing elements (satisfactory).  | The discussion of the findings may be missing most of the information or include many errors. | The discussion of the findings is missing. |
| **Appendices** | All relevant calculations and SPSS outputs are included as appendices. | Nearly all relevant calculations and SPSS outputs are included as appendices. | Most of the relevant calculations and SPSS outputs are included as appendices, but some material may be missing. | The relevant calculations and SPSS outputs may be missing from the appendices. | The relevant calculations and SPSS outputs are missing from the appendices. |
| **Presentation and expression** | Excellent standard of presentation and expression, with very well structured academic writing. Appropriate psychological language used throughout. | Very good standard of presentation and expression, with very well structured academic writing. Consistent use of appropriate psychological language. | Good/satisfactory standard of presentation and expression, with generally well-structured/ adequately-structured academic writing. Ability to use appropriate psychological language/terms. | Unsatisfactory standard of presentation and expression, with inadequately structured academic writing. Limited ability to use appropriate psychological terms. | Poor standard of presentation, expression and academic writing that is not up to postgraduate standard. Inability to use appropriate psychological terms. |

# Useful Links

Library: <https://www.derby.ac.uk/services/library/>

Assessment regulations: <https://www.derby.ac.uk/about/organisation/academic-regulations/> (sections F and E).

Citing and referencing: <https://www.derby.ac.uk/services/library/study-skills/citing-and-referencing/>

Study Skills: <https://www.derby.ac.uk/services/library/study-skills/>

Study Advisor Scheme: <https://www.derby.ac.uk/services/library/study-skills/study-advisor-scheme/>

Essay Writing: <https://www.derby.ac.uk/services/library/study-skills/essay-writing/>

Turnitin (video): <https://www.youtube.com/watch?v=822ZoLhsNZE>

IT Service Centre: <https://www.derby.ac.uk/services/its/it-services-for-students/help-and-advice/>

Personal Development Planning: <https://courseresources.derby.ac.uk/bbcswebdav/institution/UDOL/Student%20Portal%20Pages/Personal%20Development%20Planning%20in%20the%20Digital%20Age/Personal%20Development%20Planning%20in%20the%20Digital%20Age_00_00_Welcome.html>

Cite Them Right: <https://www-citethemrightonline-com.ezproxy.derby.ac.uk/>