PSYC*6380: Final Data Analysis Project

Due: Sunday, April 10th, 2022 @ 11:59pm

Aims of the Project:

A major goal for this course is to help you think about research questions in terms of their logistics (data set-up, complexity and appropriateness of analyses, etc.), so that you're in a better position to plan out your methodology and analyze your data when running your thesis project or other research work. To help meet this goal, the final major assignment for this course will involve you selecting an analysis method for a given data set, and running and interpreting your findings in a brief report.

Project Scenario:

A personality psychologist was interested in developing a measure that would assess people's trait-level propensity to go on wacky and ill-advised adventures: *The Wacky Adventurer Trait ('WAT')* scale. To do this, the psychologist developed an initial pool of 12 Likert-scaled items. The items were as follows:

The Wacky Adventurer Trait ('WAT') Scale:

1. My friends would describe me as "pretty normal" (R)
2. I'm a pretty "odd duck", overall.
3. I usually try to avoid getting involved with weird shenanigans (R)
4. Some people might say I'm too open to new experiences for my own good.
5. My friends have told me I have a poor sense of self-preservation.
6. I find myself in a lot of situations that some might call "sketchy".
7. Wacky adventures are best left to fools and dreamers. (R)
8. Sometimes I think I take more risks than I really should
9. I believe that new experiences are key to a life well lived.
10. On the whole, I would say I meet more interesting people than most
11. When asked to try something new, I usually say 'yes'.
12. I have a lot of random stories about my life.

* "(R)" indicates a reverse-coded item.

The WAT scale was then administered to a pilot sample of 1,500 individuals. In order to assess evidence of the WAT scale's convergent, discriminant, and criterion validity, the psychologist also collected data on a number of other constructs that they felt would be theoretically linked to individuals' overall adventurousness. These included: 1) individuals' general openness to new experiences; 2) individuals' self-identification as either a promotion-focussed person (i.e., looks at life in terms of opportunities) or a prevention-focussed person (i.e., looks at life in terms of risks); 3) whether individuals admitted to having encountered something dangerous in their past; and, 4) the number of self-identified wacky adventures that individuals had been on.

These data – along with participants' responses to the 12-item WAT scale, were compiled into the following data file:

Filename: "*finalAssignmentData.csv*"

Structure: Comma-separated values

Variables:

Participant ID Number (*ID*): 1-1500

Overall Adventurousness (*Adventure1-Adventure12*): 1-9 Likert-type scale

Personal Life Focus (*FocusType*): 1 = "Promotion Focus"; 2 = "Prevention Focus"

Previous Self-Reported Dangerous Experience (*DangerExp*): 1 = "No", 2 = "Yes"

Openness to New Experiences (*Openness*): 1-9 Likert-type scale

Number of Wacky Adventures (*NumAdventures*): Continuous score count of total adventures

Missing Data Code(s): N/A (no values are missing in this file)

Project Deliverable(s):

There are three major research questions that the psychologist is interested in addressing (described below). Your task is to run all of the analyses needed to address these three questions; and then summarize the results that you found:

factor analysis question

run initial pca, follow-up cfa, report on scale sttats

week 7

1. The researcher suspects that the WAT scale is multidimensional in nature, and specifically expects there to be two factors: One measuring an individual's openness to weird experiences (i.e., items 1, 2, 3, 7, 9, 10, 11, and 12), and another measuring their propensity for taking risks (i.e., items 4, 5, 6, and 8). Do the data support this conclusion? To answer this question, please run an initial exploratory factor analysis **and** a follow-up confirmatory factor analysis on the WAT measure, and then report on its scale statistics.

have code for scale scores

multiple regression—mediation

week 3

2. Does general openness to experience predict: 1) scores on the 'openness to weird experiences' factor of the WAT scale; and, 2) the number of wacky adventures that a person has been on? Moreover, does the 'weird experiences' factor of the WAT scale **mediate** the relation between *general* openness to experiences and the number of wacky adventures someone has been on? Note that in order to answer this question, you will need to use the results from question 1 to create scale scores for the WAT scale factors.

multiple ANOVA with an interaction term

week 4

3. Do focus type and previous experience with danger predict scores on the risk-taking propensity factor of the WAT scale? Moreover, is there an interaction (i.e., **moderation**) between focus type and previous danger in predicting this factor of the WAT scale? Note that in order to answer this question, you will need to use the results from question 1 to create scale scores for the WAT scale factors.

go to example write-up

The final deliverable will be a written report that: 1) gives an overview of the statistical analyses that you ran; 2) details your findings from each of these analyses; and, 3) conceptually explains and interprets the results that you found. This paper should not exceed eight double-spaced pages (excluding a cover page and any tables, figures, or appendices), and should be written in full-sentence APA style (i.e., 1" margins, 12-point Times New Roman Font).

Data Availability:

You will find the simulated data file for this study on our *CourseLink* page. Please note, however, that instead of this simulated data set, you are also welcome to use actual study data from other sources (such as archival data from your lab or open source data), **pending my approval**. If you are interested using your own data, please consult with me to go over your study and proposed data set prior to using it, so that I can ensure what you are proposing falls within the scope of *PSYC*6380*, and meets the assessment criteria for our final assignment.

Project Submission Instructions:

Once completed, your final report should be submitted using the *CourseLink* Dropbox, along with your complete *R* script and any other supporting materials (e.g., the raw data file you used if you use external data instead of the sample I've provided, etc.).

Assessment Criteria:

Your report will be assessed in terms of its numerical accuracy; its replicability (i.e., whether your *R* script runs and is commented appropriately); the appropriateness and thoroughness of your analyses; your adherence to APA formatting guidelines; and, the extent to which your report demonstrates a thorough understanding of the concepts we covered in our class.

You can find a full rubric for the final paper on our *CourseLink* page, along with these instructions and the simulated data file.

Good luck!