Requirements

I suppose all variables are clear. Please let me if you have any questions.

Ignore the dataset before “Replicate\_Scale\_Q1”

This is a simulated dataset and it’s common to have no significant findings.

Please add comments for each stat analysis. Thank you so much!

Numeracy Scale:

The **IV** is numeracy scale score written as “Replicate\_Scale\_Q1” to “Replicate\_Scale\_Q10”. If the answer is correct, get 1 mark. If not, get 0 mark.

I have two numeracy scales: replicate and extension (e.g., Extension\_Scale\_Q1).

**Replicate Numeracy Scale:**

1. Answer: 500 out of 1000
2. Answer: 10 persons out of 1000
3. Answer: 0.1%
4. Answer: 1 in 10
5. Answer: 10%
6. Answer: 2%
7. Answer: 2 out of 100

8A. Answer: 10

8B. Answer: 100

1. Answer: 20
2. Answer: 5 people

**Extension Numeracy Scale**

1. Q1, Q2, Q3, Q8b, Q9 from Replicate Numeracy Scale
2. Answer: 5 cents
3. Answer: 47 days
4. Answer: 9

1: If “Q\_R\_Familiarity” answer is 1, then discard the entire responses of this participants.

2: If “Q\_E\_Familiarity” answer is 1, then only discard his/her responses in extension numeracy scale.

We have four studies and each study will need to use 2 statistical methods.

Study 1

Study 1 has two conditions (Positive & Negative), and each condition has five questions.

They are written as (A1a\_positive or A1a\_Negative, etc.)

Hypothesis: Test the relationship between numeracy scores and ratings

Stat Analysis method

1. **Repeated within-subject ANOVA** (Numeracy scales should be dichotomous to Low Numerate + High Numerate) (Low Numerate means get 8 scores or lower, and High Numerate means get 9 scores or higher)

Note: In this method, ONLY need to use replicate numeracy scale. If I write high/low numerate in below, it means dichotomous this scale. IF NOT, please treat it as continuous.

1. **Linear regression (I’m unsure whether it’s HLM, may discuss later)**: Numeracy scale & ratings, then compare positive and negative condition.

**Please do 2 linear regressions**: Replicate numeracy scale and Extension numeracy separately

1. For “A1\_p\_confidence”, please also do another linear regression: between numeracy scales (Replicate & Extension separately) and confidence scores.

Study 2

Study 2 has also two conditions (frequency & percentage). They are written as Study2\_F\_X, or Study2\_P\_X.

Hypothesis: Test the relationship between numeracy scores and risk values (aka. Study2\_X\_risk).

Stat methods

1. **ANOVA**, same logic for study 1. ONLY use replicate numeracy scale
2. **Linear regression**, same logic for study 2.

If “Study2\_F\_Familar” or “Study2\_P\_Familar” answers are 1, then discard this study’s response.

For “Study2\_F\_confidence” or “Study2\_P\_confidence”, same logic as study 1.

Study 3

Study 3 is a little complicated. It has variables: bowl preference (“Study3\_Bowl\_Prefer”), bowl type (“Study3\_Bowl\_type”), clearness (“Study3\_A/B\_Clear”), and feeling (“Study3\_A/B\_feeling”).

Stat Method

1. Chi-square: High/Low numerate (Only in replicate numeracy scale) and bowl choice (coded as 0 & 1)
2. Independent t-test: High/Low numerate and bowl preference
3. Independent t-test: High/Low numerate and “Study3\_A\_Clear”
4. Independent t-test: High/Low numerate and “Study3\_A\_Feelings”

Start from below, please use replication numeracy scale and extension numeracy scale (e.g., two results, one uses replication and one uses extension)

1. Correlation: numeracy scales and bowl type
2. Linear regression: numeracy scales and “Study 3\_A\_Clear” & “Study 3\_B\_Clear” and compare them
3. Linear regression: numeracy scales and “Study 3\_A\_Feeling” & “Study 3\_B\_Feeling” and compare them
4. Linear regression: Numeracy and Confidence, same logic for study 1

If “Study3\_Familar” answers are 1, then discard this study’s response.

For “Study3\_confidence”, same logic as study 1.

Study 4

Study 4 is easier. It only has one variable: “Study4N\_rate” or “Study4L\_rate”

Hypothesis: To test the numeracy and rate of NoLoss/Loss

Stat Methods:

1. **ANOVA:** High/Low numerate and rate of NoLoss/Loss
2. **Linear regression:** Numeracy scale (replication and extension separately) and rate of Noloss/Loss and compare

If “Study4\_NL\_Familar” or “Study4\_L\_Familar” answers are 1, then discard this study’s response.

For “Study4\_NL\_confidence” and ““Study4\_L\_confidence””, same logic as study 1.

Other requirements:

1. Please do the visualization of each study results
2. Please do the assumption check for each study (I’m not familiar topic, please discuss with me if necessary)
3. I want to test the effectiveness of replicate and extension scales. Could you do that if possible.
4. We still have Gender, Age, and Social Class variables, we may discuss how to deal with these variables.