**Study:** In this experiment, we are testing the development of a new scale. We gave participants a 25 question scale with the intention of measuring sport related attitudes (see attached scale). Participants were given a -3 *strongly disagree* to +3 *strongly agree* Likert scale for each question with 0 indicating a neutral score.

You can also upload your excel file for data screening, which will help us figure out what happened if your answers are incorrect.

**Questions:** Please see attached scale for individual questions.

**Data Screening:**

**Accuracy:**

1. **Check a** summary showing you do/do not have out of range scores. Just denote here if anything is out of range (no need to paste output).
2. If necessary, fix the out of range scores.
   1. Indicate what the problems were in the dataset.
   2. Make all out of range values NA.

**Missing data:**

1. Include information about percent complete by column after you exclude participants with too much missing data. (just columns! Not all the participants!)
2. Estimate the appropriate missing data!

**Outliers:**

1. Calculate z-scores for the average score.
   1. How many outliers did you have?
   2. Delete them!

**Additivity:**

1. Include a correlation table of the continuous independent variables.
2. Are any of the variables too highly correlated?

**Normality:**

1. Include the multivariate normality histogram.
2. Interpret the graph. Does it indicate multivariate normality?

**Linearity:**

1. Include the multivariate PP plot.
2. Interpret the graph. Does it indicate multivariate linearity?

**Homogeneity and Homoscedasticity:**

1. Include the multivariate residuals plot.
2. Interpret the graph.
   1. Does it indicate homogeneity?
   2. Does it indicate homoscedasticity?

**Hypothesis testing:**

1. Before you start:
   1. How many participants do you have? Do you seem to meet the 10-15 people per item suggestion?
2. Number of factors:
3. Theory suggests **three** factors.
4. How many does the Kaiser criterion suggest?
5. How many does the scree plot suggest?
   * 1. Include the scree plot.
6. How many does the parallel analysis indicate?
7. **Run the factor analysis with three factors.**
8. Simple structure:
9. Use oblimin for the rotation.
10. Rounds of Loading Interpretation:
    * 1. Include the loadings for each round of analysis.
      2. Describe which questions were considered *bad* and why you excluded them.
      3. Continue this process until you achieve simple structure.
11. Adequate solution:
12. Include the fit indices (RMSEA + CI, TLI).
13. Describe the fit indices (good, acceptable, poor).
14. Include the reliabilities, averages, and standard deviations for each factor.
15. Are the reliabilities acceptable?
16. Label the factors based on the questions.
17. Write up:
18. Short description of the scale.
19. List the type of analysis – rotation, fitting estimation, program used.
20. Values on why you had enough people and an adequate set of correlations.
21. Number of factors suggested you choose and why (scree, eigenvalues, parallel analysis)
22. What questions you eliminated – why did you eliminate them? Go through the rounds one at a time.
23. Simple solution table of the last round of loadings. (APA style!)
24. Interpretation of the factors.
25. Description of adequacy of solution – fit indices, reliabilities, and average/SD scores for the factors.