**Study**: This study examined male body disorder to determine what questions were related to different facets of body disorder. We found that there were two general components: muscularity and leanness. You will be determining if the questions are related to their component, which questions are the most predictive, and how many relationships there are between components.

**Canonical Correlation**

Variables:

* Muscularity questions (q1-q14) – these questions are rated from 1 extremely dissatisfied to 5 extremely satisfied OR 1 strongly agree to 5 strongly disagree.
  + Weight
  + Leanness of stomach/abdomen
  + Muscularity of stomach/abdomen
  + Leanness of chest/upper torso
  + Leanness of back
  + Overall body build
  + Overall leanness of body
  + Overall level of body's muscularity
  + Overall size and shape of body
  + Overall muscle tone/definition of body
  + I am happy with how much muscle I have compared to how much fat I have
  + Other people think I have a good body
  + I think I have a generally attractive body
  + My body looks healthy
* Leanness questions (q15-27) – these questions are rated from 1 never to 5 usually/always.
  + I think my body should be leaner
  + I am concerned that my stomach is too flabby
  + I think I have too much fat on my body
  + I think my abs are not thin enough
  + Have you felt excessively large and rounded (i.e., fat)?
  + Have you felt ashamed of your body size or shape?
  + Has seeing your reflection (e.g., in a mirror or window) made you feel badly about your size or shape?
  + Have you been so worried about your body size or shape that you have been feeling that you ought to diet?
  + I think my body should be leaner
  + I think I have too much fat on my body
  + Eating sweets, cakes, or other high calorie foods makes me feel fat
  + I feel excessively fat
  + Seeing my reflection (e.g., in a mirror or window) makes me feel badly about my body fat

1. Data screening:
   1. Accuracy:
      1. Include box that shows that the data are accurate.
   2. Missing data:
      1. Include a box with a missing data line to show the data has/has no missing data.
      2. Fix/list what you did with the missing data if necessary.
   3. Outliers
      1. What are the top 5 Mahalanobis scores?
      2. What is the cut off for Mahalanobis (df and X2)?
      3. Delete any multivariate outliers.
   4. Multicollinearity: run an SPSS correlation table (no need to include that huge thing). Are any of the variables too correlated? (*r* > .999).
   5. Normality
      1. Include the **multivariate** normality chart for the combined DVs.
      2. Is the data normal?
   6. Linearity
      1. Include the PP Plot for the combined DVs.
      2. Is the data linear?
   7. Homoscedasticity.
      1. Include the residuals graph for the combined DVs.
      2. Is the data homoscedastic?
2. Analysis
   1. Run a canonical correlation analysis with the muscularity questions loading on a muscle latent variable and the leanness questions loading on a lean latent variable.
   2. How many significant correlations are there?:
      1. Include the output for canonical correlations (there should be 13 of them).
      2. Include the output for test that the remaining correlations are zero.
      3. How many variates were significant?
   3. For the significant variates ONLY, complete the following table with the standardized loading coefficients (you can cut and paste into excel to help not type them all).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Muscularity | | |  | Leanness | | |
|  | Variate 1 | Variate 2 | Variate 3 |  | Variate 1 | Variate 2 | Variate 3 |
| Q1 |  |  |  | Q15 |  |  |  |
| Q2 |  |  |  | Q16 |  |  |  |
| Q3 |  |  |  | Q17 |  |  |  |
| Q4 |  |  |  | Q18 |  |  |  |
| Q5 |  |  |  | Q19 |  |  |  |
| Q6 |  |  |  | Q21 |  |  |  |
| Q7 |  |  |  | Q22 |  |  |  |
| Q8 |  |  |  | Q23 |  |  |  |
| Q9 |  |  |  | Q24 |  |  |  |
| Q10 |  |  |  | Q25 |  |  |  |
| Q11 |  |  |  | Q26 |  |  |  |
| Q12 |  |  |  | Q27 |  |  |  |
| Q13 |  |  |  |  |  |  |  |
| Q14 |  |  |  |  |  |  |  |

* 1. Using the canonical loadings, put a \* next to the significant coefficients in the table denoting which variables were important for each variate.
  2. Interpret the redundancy analysis:
     1. Are there any questions that appear to measure the *other* variate better?
     2. Include one set of variances (set 1 versus set 2) to indicate how you made that comparison.

1. Write up:
   1. Write a short paragraph explaining what you think each variate denotes. You can make this write up purely descriptive – what kinds of questions load on the first variate, second, etc. Create an overall picture of what the analysis explains.
   2. You do not need to include any of the numbers or data screening, but can reference the table you made above.