

## **PSYC 948: Latent Trait Measurement and Structural Equation Modeling**

### **Homework #5 (Total 10 Points)**

**Due: Wednesday, March 6, 2013 at 11:59pm.**

#### **Homework Problems:**

The homework problems are based on the analysis of data from the Body Image Rating Scale (BIRS), a survey created to measure individual differences in body image. Data used come from a study (with 2,297 undergraduate students of a Midwestern university) of Body Dysmorphic Disorder (BDD), a somatoform disorder defined in the Diagnostic and Statistical Manual of Mental Disorders (4<sup>th</sup> Edition, Text Revision; or DSM-IV-TR). When otherwise not accounted for by another mental disorder, BDD is defined by when an individual meets two criteria:

- A. Preoccupation with an imagined defect in appearance. If a slight physical anomaly is present, the person's concern is markedly excessive.
- B. The preoccupation causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

The Body Image Rating Scale (BIRS) is a diagnostic assessment used for diagnosing BDD consisting of 14 nine-point Likert-type items that focus on cognitive, affective, and behavioral characteristics of BDD. The items of the BIRS can be found at the end of this document.

Using the data set found in our dropbox folder and the items found in this document, answer the following questions (use MLR for all analyses):

1. Examine each of the items of the BIRS – are there any items (or general features of the test) that appear to have issues in writing (e.g., are poorly worded, ask multiple questions within an item, or otherwise may be confusing) or in the response scale (e.g., the format for responses)? (.5 points)
2. Attempt to match the items with the DSM criteria listed above (some may measure more than one). (.5 points)
3. Run a one-factor confirmatory factor analysis model on the 14 items. Report the RMSEA, CFI, and TLI. (Log likelihood should be -61,605.807) Does the one-factor model fit the data? (1 point)
4. Report the five largest positive normalized residual covariances. Also, report the five largest modification index values for adding residual covariances. (1 point)
5. Using the PLOT command (PLOT: followed by TYPE = PLOT1 PLOT2 PLOT3;), report a plot of the distribution of factor scores from the 14-item instrument (if you are using Tusker, you will have to use a different program to plot the histograms as Mplus will only plot in Windows). Do the factor scores look normally distributed? (1 point)
6. Remove items 2, 4, 5, 6, 9, 12, 13, and 14 and run a one-factor CFA model with only items 1, 3, 7, 8, 10, and 11 (Log likelihood should be -27,679.104). Report the RMSEA, CFI, and TLI. Does the one-factor model fit the data? (1 point)

7. Using the PLOT command (PLOT: followed by TYPE = PLOT1 PLOT2 PLOT3;), report a plot of the distribution of factor scores from the 6-item analysis (if you are using Tusker, you will have to use a different program to plot the histograms as Mplus will only plot in Windows). Do the factor scores look normally distributed? Compare this distribution with the one found in question 6. (1 point)
8. Using the results of the 6-item analysis, create a path diagram using standardized coefficients and their standard errors. (1 point)
9. Using your data: construct a 1-factor scale that fits the data well using a similar process. If you omit items from an original analysis, be sure to list which ones you removed and why. Note the fit for each successive model. Once you find your best fitting one-factor model, write an APA-formatted results section describe the analyses and results. Look in Chapters 4 and 5 of Brown (2005) for which information to include. (3 points)

**Submission Instructions:**

All homework and final answers must be your own and not be copied or paraphrased from anyone else's answers. Homework must be submitted via email ([jtemplin@unl.edu](mailto:jtemplin@unl.edu)) in the form of Microsoft Word document with the name: 948\_FirstLast\_HW#.docx. Late homework will have a penalty of 10% per calendar day.

### Body Image Rating Scale Items

- 1) I \_\_\_\_\_ that other people may be noticing my physical appearance.  
1.....2.....3.....4.....5.....6.....7.....8.....9  
don't worry                      sometimes worry                      worry
  
- 2) It \_\_\_\_\_ when I think that I am in a situation where others are evaluating my physical appearance.  
1.....2.....3.....4.....5.....6.....7.....8.....9  
does not bother me          makes me feel a little                      frightens me  

uneasy
  
- 3) During the day, I \_\_\_\_\_ as the result of a specific aspect of my physical appearance.  
1.....2.....3.....4.....5.....6.....7.....8.....9  
rarely or never seek out    sometimes seek out or                      seek out or avoid  
or avoid mirrors                 avoid mirrors                      mirrors
  
- 4) I \_\_\_\_\_ find myself touching/physically inspecting a certain part of my physical appearance.  
1.....2.....3.....4.....5.....6.....7.....8.....9  
rarely if ever                      sometimes                      very often
  
- 5) I \_\_\_\_\_ articles of clothing and/or makeup to mask part of my physical appearance.  
1.....2.....3.....4.....5.....6.....7.....8.....9  
never find myself using    sometimes find myself                      often find myself using  

using
  
- 6) I spend \_\_\_\_\_ deciding how I can best conceal a certain aspect of my physical appearance.  
1.....2.....3.....4.....5.....6.....7.....8.....9  
a minimal amount of time                      a lot of time
  
- 7) If I could change a certain aspect of my physical appearance, my overall quality of life would \_\_\_\_\_.  
1.....2.....3.....4.....5.....6.....7.....8.....9  
remain the same                      improve somewhat                      greatly improve
  
- 8) Most people \_\_\_\_\_ about my physical appearance.  
1.....2.....3.....4.....5.....6.....7.....8.....9  
have felt the same as I                      don't know what it is like  
feel                      to feel as bad as I feel
  
- 9) Discussing my physical appearance with others \_\_\_\_\_.  
1.....2.....3.....4.....5.....6.....7.....8.....9  
does not bother me          makes me feel slightly                      makes me feel very  
self conscious                      uncomfortable
  
- 10) If I never thought about my physical appearance, things in life would be \_\_\_\_\_.  
1.....2.....3.....4.....5.....6.....7.....8.....9  
no different                      about the same                      much improved
  
- 11) I \_\_\_\_\_ because of a specific aspect of my physical appearance.  
1.....2.....3.....4.....5.....6.....7.....8.....9  
never avoid things          rarely avoid things                      often avoid things  
that I love doing                 I love doing                      that I love doing

12) When I am engaged in a conversation with someone, I \_\_\_\_\_.

1.....2.....3.....4.....5.....6.....7.....8.....9	
don't hide any part of	shield part of my
physical appearance	physical appearance
from them	from their view

13) When I think of my physical appearance the word(s) that best corresponds to my thoughts is/are \_\_\_\_\_.

1.....2.....3.....4.....5.....6.....7.....8.....9		
beautiful/handsome	not bad	ugly

14) If I ran naked through the street, people would \_\_\_\_\_.

1.....2.....3.....4.....5.....6.....7.....8.....9		
act disgusted, but	be shocked, but	notice a defect in
secretly admire	wouldn't necessarily	my physical appearance
God's masterpiece	study my entire	
	physical appearance	