

PSYC 948: Latent Trait Measurement and Structural Equation Modeling

Homework #7 (Total 10 Points)

Due: Wednesday, April 10, 2013 at 11:59pm.

Homework Problems:

The homework problems are based a simulated data set mimicking the properties of data collected using the Difficulty in Emotion Regulation Scale (Gratz & Roemer, 2004):

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, 26, 41-54.

A total of 36 items were administered to 490 participants (with no missing values for this assignment). The DERS scale was developed to measure six factors:

- Nonacceptance of emotional responses (6 items)
- Difficulties engaging in goal-directed behaviors (5 items)
- Impulse control difficulties (6 items)
- Lack of emotional awareness (6 items)
- Lack of access to emotion regulation strategies (8 items)
- Lack of emotional clarity (5 items)

The items of the DERS, separated by the factors they were written to measure, can be found at the end of this assignment. Each item used a Likert-type response format where responses were coded as follows:

- 1 = Almost Never (1-10%)
- 2 = Sometimes (11-35%)
- 3 = About Half the Time (36-65%)
- 4 = Most of the Time (66-90%)
- 5 = Almost always (91-100%)

All reverse-worded items were scored accordingly and are in the appropriate direction in the data set.

The set of analyses for this assignment will mimic those done when building a multi-factor scale. For all analyses, use the MLR estimator in Mplus.

Unidimensional Models

1. Run a single-factor model and assessing the fit of the nonacceptance of emotional responses items. Your model log-likelihood should be -3,389.763. Be sure to report model Chi Square test, RMSEA, CFI, TLI, and SRMR. Also, report the standardized factor loadings and the model “R-Square” for each item. Does the single factor model fit well? (.5 points)
2. Run a single-factor model and assessing the fit of the difficulties engaging in goal-directed behaviors items. Your model log-likelihood should be -3,208.596. Be sure to report model Chi Square test, RMSEA, CFI, TLI, and SRMR. Also, report the standardized factor loadings and the model “R-Square” for each item. Does the single factor model fit well? (.5 points)

3. Run a single-factor model and assessing the fit of the impulse control difficulties items. Your model log-likelihood should be -2,775.839. Be sure to report model Chi Square test, RMSEA, CFI, TLI, and SRMR. Also, report the standardized factor loadings. Also, report the standardized factor loadings and the model “R-Square” for each item. Does the single factor model fit well? (.5 points)
4. Run a single-factor model and assessing the fit of the lack of emotional awareness. Your model log-likelihood should be -3,677.483. Be sure to report model Chi Square test, RMSEA, CFI, TLI, and SRMR. Also, report the standardized factor loadings. Also, report the standardized factor loadings and the model “R-Square” for each item. Does the single factor model fit well? (.5 points)
5. Run a single-factor model and assessing the fit of the lack of access to emotion regulation strategies items. Your model log-likelihood should be -4,730.420. Be sure to report model Chi Square test, RMSEA, CFI, TLI, and SRMR. Also, report the standardized factor loadings and the model “R-Square” for each item. Does the single factor model fit well? (.5 points)
6. Run a single-factor model and assessing the fit of the lack of emotional clarity items. Your model log-likelihood should be -2,850.645. Be sure to report model Chi Square test, RMSEA, CFI, TLI, and SRMR. Also, report the standardized factor loadings and the model “R-Square” for each item. Does the single factor model fit well? (.5 points)

Multidimensional Models

As the unidimensional models mostly fit (or should have mostly fit), the next step is to combine them into a multi-factor model. The next questions do that and then assess the fit of the multi-factor model to the data.

7. Run a six-factor model where all six factors are estimated simultaneously. Your model log-likelihood should be -20,252.926. Be sure to report model Chi Square test, RMSEA, CFI, TLI, and SRMR. Does the six-factor model fit well? (1 point)
8. Run a one-factor model on all 36 items as a baseline model. Your model log-likelihood should be -21,558.054. Conduct a MLR rescaled likelihood ratio test comparing the fit of the one-factor model to the six-factor model. State which model is the null model and which is the alternative model. Which model is preferred? (1 point)
9. Starting with the six-factor model, add a method factor that (a) measures all reverse coded items (so these items will measure more than one factor) and (b) is uncorrelated with all other factors (you can do this by setting these covariances to zero. Your log-likelihood should be -20,113.330. Using an MLR-rescaled likelihood ratio test, compare the fit of this model to that of the six-factor model from Question #8. State which model is the null model and which is the alternative model. Which model is preferred? (1 point)
10. From the six-plus-method-factor model, report the goodness of fit indices. Be sure to report model Chi Square test, RMSEA, CFI, TLI, and SRMR. Does the six-plus-method-factor model fit well? (.5 points)

Although the model fit was suspect, we will continue with this analysis based on the RMSEA value giving us acceptable fit.

Higher Order Factor Models

11. Create a higher-order factor named emotional regulation that is measured by the six factors of the DERS (but not the reverse coded method factor) using the six-plus-method-factor model. Your log-likelihood should be -20,229.181. Using an MLR-rescaled likelihood ratio test, compare the fit of this model to that of the six-factor model from Question #9. State which model is the null model and which is the alternative model. Which model is preferred? (.5 points)

Results Interpretation

12. Report the factor correlation matrix from the model preferred from Question #11. Does one factor not appear to have a higher correlation than the other factors? (1 point)
13. Report the (omega) model-based reliability for a sum score for each of the seven factors of the scale. (1 point)
14. Report the reliability for the factor scores for each of the seven factors of the scale. (1 point)

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) 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.

Nonacceptance of Emotional Responses

- 11. When I'm upset, I become angry with myself for feeling that way.
 - 12. When I'm upset, I become embarrassed for feeling that way.
 - 21. When I'm upset, I feel ashamed with myself for feeling that way.
 - 23. When I'm upset, I feel like I am weak.
 - 25. When I'm upset, I feel guilty for feeling that way.
 - 29. When I'm upset, I become irritated with myself for feeling that way.
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Difficulties in Engaging in Goal-Directed Behaviors

- 13. When I'm upset, I have difficulty getting work done.
 - 18. When I'm upset, I have difficulty focusing on other things.
 - 20. When I'm upset, I can still get things done. (R)
 - 26. When I'm upset, I have difficulty concentrating.
 - 33. When I'm upset, I have difficulty thinking about anything else.
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Impulse Control Difficulties

- 3. I experience my emotions as overwhelming and out of control.
 - 14. When I'm upset, I become out of control.
 - 19. When I'm upset, I feel out of control.
 - 24. When I'm upset, I feel like I can remain in control of my behaviors. (R)
 - 27. When I'm upset, I have difficulty controlling my behaviors.
 - 32. When I'm upset, I lose control over my behaviors.
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Lack of Emotional Awareness

- 2. I pay attention to how I feel. (R)
 - 6. I am attentive to my feelings. (R)
 - 8. I care about what I am feeling. (R)
 - 10. When I'm upset, I acknowledge my emotions. (R)
 - 17. When I'm upset, I believe that my feelings are valid and important. (R)
 - 34. When I'm upset, I take time to figure out what I'm really feeling. (R)
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Limited Access to Emotion Regulation Strategies

- 15. When I'm upset, I believe that I will remain that way for a long time.
 - 16. When I'm upset, I believe that I'll end up feeling very depressed.
 - 22. When I'm upset, I know that I can find a way to eventually feel better. (R)
 - 28. When I'm upset, I believe there is nothing I can do to make myself feel better.
 - 30. When I'm upset, I start to feel very bad about myself.
 - 31. When I'm upset, I believe that wallowing in it is all I can do.
 - 35. When I'm upset, it takes me a long time to feel better.
 - 36. When I'm upset, my emotions feel overwhelming.
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Lack of Emotional Clarity

- 1. I am clear about my feelings. (R)
 - 4. I have no idea how I am feeling.
 - 5. I have difficulty making sense out of my feelings.
 - 7. I know exactly how I am feeling. (R)
 - 9. I am confused about how I feel.
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