STEPS FOR MAKING NORM WORK WITH SPSS ANALYSES: Regression, Linear Data Reduction, Factor Scale, Reliability Analysis

Version 2 (November 12, 2008)

1. Impute ***m*** datasets with NORM
   a. The name of input dataset can have no more than five characters (e.g., abcde.dat)
   b. Impute one additional dataset from EM parameters (e.g., abcde_0.imp)
   c. DA-imputed files will have the names with numbers 1 to ***m*** (e.g., abcde_1.imp, abcde_2.imp, etc.)
   d. Be sure that the original file (abcde.dat), the corresponding variables names file (abcde.nam), all the imputed datasets, and all of the utility files are in the same folder.

STEPS FOR PERFORMING DATA QUALITY ANALYSES WITH THE SINGLE DATASET IMPUTED FROM EM PARAMETERS (abcde_0.imp)

2. Prepare the imputed dataset by running (double-clicking on) the **PREP.BAT** utility.
   a. This utility stacks the imputed files into a single dataset (for this single dataset imputed from EM parameters, this part of the routine simply prepares the file abcde_0.imp for analysis with SPSS, and renames it to "abcdeALL.imp")
   b. The utility also writes out SPSS syntax (to spss1.sps) for reading the imputed file into SPSS.
   c. Steps:
      i. Specify the Windows folder containing all your files.
         (1) For the workshop, this folder will be: \workshop\
         (2) Be sure to have the backslash "\" as the first and last characters.
         (3) More complex folders are certainly possible, e.g., \mydata\study5\impute\ but you are advised to keep the folder names simple until you get the hang of it. Spaces in the folder names may be a problem.
      ii. Specify the original dataset name:
         (1) For the workshop, this will be: "mar24.dat" (no quotes)
      iii. How many imputed datasets?
         (1) Enter "1" (no quotes)
      iv. Read only the "***_0.imp" file?
         (1) Enter "y"
      v. Add variable names to top of file?
         (1) Enter "y"
      vi. Input what variable names file
         (1) press "Enter" key to accept default
   d. The dataset is now prepared for use with SPSS.

3. Start SPSS (up through version 16)
   a. Import the syntax file spss1.sps (click on File, Open, Syntax, and find spss1.sps in the folder containing all your files)
   b. Run the entire syntax file (click on Run, All)

4. Perform data quality analysis as you would if you had a data set with no missing values.
   a. Data Reduction, Factor
   b. or Scale, Reliability Analysis

   c. Results from these analyses can be included directly in your article, provided you are clear in describing the input dataset as "a single dataset imputed from EM parameters, following the guidelines suggested by Graham, Cumsille, and Elek-Fisk (2003) and Graham (2009).

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STEPS FOR PERFORMING REGRESSION ANALYSES WITH THE M MULTIPLE IMPUTED DATA SETS (stacked into abcdeALL.imp)

1. Prepare the imputed datasets by running (double-clicking on) the **PREP.BAT** utility.
   a. This utility stacks the imputed files into a single dataset named "abcdeALL.imp", and inserts a new variable called "imputat" to identify the ***m*** imputed datasets.
   b. The utility also writes out SPSS syntax (to spss1.sps) for reading the imputed file into SPSS.
   c. The utility also writes out SPSS syntax (to spss2.sps) for writing regression results out to an ascii file.

2. Start SPSS (up through version 16)
   a. Import the syntax file **spss1.sps** (click on File, Open, Syntax, and find **spss1.sps** in the folder containing all your files)
   b. Run the entire syntax file (click on Run, All)

   c. The last section of this syntax sorts the cases by "imputat", and runs the SPLIT FILE by Imputat routine so that regression analyses will be performed separately on each of the ***m*** imputed datasets.

3. In the usual way, perform any RECODEs, COMPUTEs or other data manipulations of your choice.
   a. For the workshop compute four scales for the regression analysis:
      i. COMPUTE rebel7 = mean(ra98, ra182, ra194, ra202)
      ii. COMPUTE likepar7 = mean(ra92, ra95, ra101, ra105, ra109)
      iii. COMPUTE posatt7 = mean(ra51, wa55, wa68)
      iv. COMPUTE lifealc8 = mean(wc19, rc25)

4. Perform any linear regression analysis of your choosing (using Analyze, Regression, Linear).
   a. For the workshop, specify
      i. **lifealc8** as the Dependent variable
      ii. rebel7, likepar7, posatt7, and wa19 as Independent variables

   b. **BE SURE TO SAVE THE COEFFICIENTS TO A FILE: results.sav**
      i. Click on Save, Create Coefficient Statistics, Write a New Data File
      ii. Click on File, and write in "**results.sav**" (this file should always have this name). Especially with SPSS 16, be sure you are saving to the correct Windows folder.

   c. Click on OK to run the regression analysis.

5. When the regression analysis is done, there are ***m*** sets of outputs, and the parameter estimates and SEs are saved to the file.
   a. DELETE these ***m*** sets of regression output without viewing them.
   b. Or at the very least, do NOT look at them
   c. Looking at these outputs can be very misleading.

6. Load and run (all) the syntax file, "spss2.sps" to output parameter estimate and standard errors to an external ascii file.
   a. Run the whole syntax file (run, all)

7. Exit SPSS to the open Windows Explorer window
   a. Find the file "spssinf.bat", and run (double-click on) it.
   b. You will need to know:
      i. number of imputed datasets (you will be asked twice)
      ii. number of parameter estimates (number of columns in dataset just saved in step 12). Don't forget to count the "CONST_" (intercept).
         (1) For the workshop, there are 5 parameter estimates.
      iii. For "is there a parameter names file", press "Y"

8. The MI Inference output will be written to the file, "minfer.txt", and will automatically come up in a Notepad screen.