

Tutorial 7: Creating Composite Scores

Description

In this tutorial we will learn how to create variables that are composite scores. The goal of using several items to measure a construct is to produce a single composite score that is more reliable than any single item in your measure. In the current example, we will use the Moral Foundations Questionnaire (Graham, et al., 2011). This questionnaire has 30 questions that can be used to measure five foundations of morality underlie people's moral judgments (i.e., harm/care; fairness; loyalty; respect; and purity). Typically, researchers do this by computing the **mean** of the items. To get people's moral score on each foundation, there are 6 items from the questionnaire that can be averaged to create a single composite.

Note: we are using the datafile ARMF2020_wave1andwave2.omv

We will compute people's scores for the **purity foundation**. Here are the items:

Purity:

MFQ 5 DECENCY - Whether or not someone violated standards of purity and decency

MFQ 11 DISGUSTING - Whether or not someone did something disgusting

MFQ 16 GOD - Whether or not someone acted in a way that God would approve of

MFQ 21 HARMLESSDG - People should not do things that are disgusting, even if no one is harmed.

MFQ 27 UNNATURAL - I would call some acts wrong on the grounds that they are unnatural.

MFQ 32 CHASTITY - Chastity is an important and valuable virtue.

Content

1. Create the composite score
2. Verify the new score
3. Reporting creation of a composite score

STEPS

1. Create the composite score
 - a. Scroll to the end of the variables and click in the top box and select "New Computed Variable".

- b. Give the new composite variable a name, we use "Purity_comp." In the formula box, select MEAN and double click it and it will be placed in the formula window. Then in the variable window, scroll down and find your specific variables and inside the parentheses, double click and add a comma after each variable you want in the composite and close the parentheses.

COMPUTED VARIABLE

purity_comp

purity mfg

Formula f_x = eg: consent = 'yes'

Functions

- MAX
- MAXABSZ
- MEAN
- MIN
- RANK
- SCALE
- STDEV

Variables

- ID
- gender
- age
- religion
- religion_2_TEXT
- Eng

MEAN(number 1, number 2, ..., ignore_missing=0, min_valid=0)

Returns the mean of a set of numbers.

Ready Filters 0 Row count 180 Filtered 0 Deleted 0 Added 61 Cells edited 10454

COMPUTED VARIABLE

purity_comp

purity mfg

Formula f_x = MEAN(MFQ5, MFQ11,MFQ16,MFQ21,MFQ27,MFQ32)

Functions

- MAX
- MAXABSZ
- MEAN
- MIN
- RANK
- SCALE
- STDEV

Variables

- MFQ27
- MFQ28
- MFQ29
- MFQ30
- MFQ31
- MFQ32

Variable: MFQ32

This is a data variable.

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- c. That new 'Purity_comp' variable is the composite score. It is a single variable that will take the place of the 6 individual purity items and is more reliable (has less error) than any of the original items.
- *Note.** that in this dataset, only wave 2 completed the MFQ so you will see scores only starting with case 120

The screenshot displays the SPSS 'COMPUTED VARIABLE' dialog box. The variable name is 'purity_comp' and the formula is $\text{= MEAN(MFQ5, MFQ11, MFQ16, MFQ21, MFQ27, MFQ32)}$. Below the dialog, a data view shows columns for MFQ28, MFQ29, MFQ30, MFQ31, MFQ32, k_conte..., and purity_co... with data for cases 118-132. On the right, the 'Results' pane shows 'Descriptives' for 'Apology_c...' with statistics for N, Missing, and Mean.

Case	MFQ28	MFQ29	MFQ30	MFQ31	MFQ32	k_conte...	purity_co...
118							
119							
120	4	3	2	1	1	7	1.500
121	2	4	3	2	1	4	2.833
122	5	5	4	5	3	5	3.500
123	6	4	5	6	4	2	4.000
124	2	1	6	6	4	4	4.833
125	2	2	3	3	3	4	2.000
126	6	6	2	1	5	6	3.000
127	4	5	4	4	3	2	2.833
128	6	6	6	5	6	3	4.167
129	6	3	4	4	2	2	3.000
130	3	3	3	3	3	5	3.167
131	6	6	5	5	4	5	4.000
132	6	2	2	4	1	7	1.500

2. Verify the new score

- a. Examine the descriptives statistics of the new variable. Click on the *Analyses* tab at the top and then *Descriptives* at the left end.

The screenshot shows the SPSS software interface. On the left, a data table is visible with columns labeled MFQ32, k_conte..., and purity_co... The table contains data for rows 167 through 180. The 'Descriptives' dialog box is open in the center, showing a list of variables on the left and a 'Variables' list on the right. The variable 'purity_comp' is selected in the list. Below the variable list, there are sections for 'Statistics' and 'Plots'. On the right side of the interface, there are panels for 'Frequencies' and 'Descriptives'.

Row	MFQ32	k_conte...	purity_co...
167	5	1	5
168	5	4	6
169	4	4	4
170	2	1	2
171	1	1	6
172	2	1	7
173	5	3	1
174	2	1	4
175	3	3	6
176	3	5	1
177	4	6	3
178	4	3	3
179	2	3	3
180	6	6	1

- b. Put "Purity" into the "Variables" list and press "Enter".
- c. Then click on Statistic below the item list to expand the descriptives you can examine.
- d. You should at least check "Standard Deviation" and "Variance" under *Dispersion* and any other statistics you would like to example. You should get this:

The screenshot shows the SPSS interface. On the left is a data grid with columns MFQ32, k_conte..., and purity_co... and rows 167-180. The Descriptives dialog box is open for the variable 'purity_co...'. The 'Statistics' section is expanded, showing options for Sample Size (N, Missing), Percentile Values (Cut points for 4, Percentiles 25,50,75), Dispersion (Std. deviation, Minimum, Maximum, S. E. Mean, Variance, Range, IQR), Central Tendency (Mean, Median, Mode, Sum), Distribution (Skewness, Kurtosis), and Normality (Shapiro-Wilk). The 'Plots' section is collapsed.

Descriptives

Descriptives

	purity_comp
N	61
Missing	119
Mean	3.19
Median	3.17
Standard deviation	0.999
Minimum	1.00
Maximum	5.50

3. Reporting creation of a composite score

- a. Your report of a new score should include:
 - i. How many items went into the new score (6 in this case).
 - ii. How the item values were combined (mean, sum, etc.).
 - iii. The Cronbach's alpha reliability. (see tutorial # 8)
 - iv. The minimum, maximum, mean, and standard deviation of the scores.

For example:

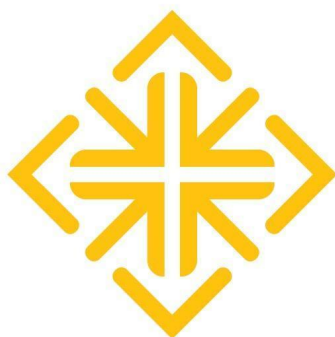
A Purity Foundation score was computed for each participant by taking the mean of the 6 items of the Moral Foundations Questionnaire (MFQ). The Cronbach's alpha reliability of the Purity foundation was XX. Purity scores ranged from XX to XX, with a mean of XX and standard deviation of XX. High scores on the Purity foundation indicate that a person believes that some behaviors are immoral because they invoke disgust and represent spiritual or sacred violations.

-----END TUTORIAL-----

This Jamovi tutorial is a companion to a video tutorial and these materials were developed by:

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