Purpose Measure for Youth

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**Abstract**

We had four highly used instruments that test for purpose in life. They are the Short-Form purpose subscale of the Psychological Well-being scale (Ryff, 1989), Sense of Identity subscale of the APSI (Jaffe, 1998), Life Engagement Test (Scheier et al., 2006) and the Meaning in Life Questionnaire (Steger, 2006). All of these have been used extensively in studies assessing youth purpose. However, none of these scales have been psychometrically analyzed for use on adolescents.

We first analyzed each of the scales using CFA Target Rotation to ascertain whether the factors suggested by the authors of the scales held up in our sample. In the case where they did not hold up we conducted a Parallel Analysis analysis with scree plots as well and a Principal Component Analysis. Based upon this analysis we conducted an EFA looking for simple structure and then conducted another CFA sometimes using Target Rotation as well for confirmatory purposes.

Results:

APSI: Despite the fact that this scale is used widely to measure Sense of Identity in adolescence a review of the literature shows that this scale has never been analysed properly for it psychometric properties. Because it contains many of the ideas that are seen as contributing to a sense of purpose such as values and morals (Heine et al. 2006 ), understanding of self and fit in the world (Steger,20??, Wong, 20??), we see this as a scale that represents purpose in life. In any event based on the literature and how this measure is used in practice (Lounsbury et al., 2007, Lounsbury et al., 2004) we tested a one factor model using Confirmatory Factor Analysis (CFA). The fit was poor,  for the model was 20 with a  = 290.059, *p* < .001; CFI =0.91, TLI = 0.874, RMSEA = 0.07 [90% CI = 0.116, 0.143]. Loadings (see Table 1) were also problematic item 6 (I don’t know where I fit in the world) did not load on the factor (0.07) at all and question 3 (I have a set of basic beliefs and values or moral standards) marginally (0.22).

Table 1:

Table 1. Factor Loadings for Confirmatory Factor Analysis with Target Rotation of APSI

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | MR1 | MR1.1 | MR1.2 | com |
| 1 | **0.83** | 0.68 | 0.32 | 1 |
| 2 | **0.76** | 0.58 | 0.42 | 1 |
| 3 | 0.22 | 0.05 | 0.95 | 1 |
| 4 | **0.82** | 0.68 | 0.32 | 1 |
| 5 | **0.67** | 0.45 | 0.55 | 1 |
| 6 | -0.07 | 0.01 | 0.99 | 1 |
| 7 | **0.77** | 0.60 | 0.40 | 1 |
| 8 | **0.81** | 0.66 | 0.34 | 1 |

SS loadings 3.71

We then conducted Parallel Analysis using Maximum Likelihood which suggested that there were four factors in the measure. Eigenvalues analysis suggested that there was only one factor. The first factor had and eigenvalue of 3.7 wits SD of 2.03 and explained 51% of the variance, the second factor had an eigenvalue of .3 and SD pf 1.13 and explained 16% of the variance, the third factor had an eigenvalue of .18 and SD of .06 and explained 10% of the variance. Given the inclusivity of these results an Exploratory Factor Analysis (EFA) was conducted.

An initial analysis with two factors was conducted. The fit was again poor,  for the model was 13 with a  = 151.85, *p* < .001; CFI =0.95, TLI = 0.9, RMSEA = 0.11 [90% CI = 0.099, 0.132]. Loadings (see Table 2) were also problematic item 6 (I don’t know where I fit in the world) loaded fully (1.00) on 2 but question 3 (I have a set of basic beliefs and values or moral standards) marginally (-0.31).

Table 2:

Table 2. Factor Loadings for Exploratory Factor Analysis with Oblimin Rotation of APSI

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | ML2 | ML1 | h2 | u2 | com |
| 1 | **0.83** | -0.03 | 0.69 | 0.31 | 1.00 |
| 2 | **0.76** | 0.00 | 0.58 | 0.42 | 1.00 |
| 3 | 0.00 | **1.00** | 1.00 | 0.00 | 1.00 |
| 4 | **0.83** | -0.03 | 0.68 | 0.32 | 1.00 |
| 5 | **0.63** | 0.18 | 0.49 | 0.51 | 1.17 |
| 6 | 0.15 | **-0.31** | 0.10 | 0.90 | 1.43 |
| 7 | **0.77** | 0.03 | 0.60 | 0.40 | 1.00 |
| 8 | **0.82** | -0.04 | 0.66 | 0.34 | 1.01 |
| SS loadings | 3.65 | 1.13 |  |  |  |
| ML2 | 1.00 | 0.22 |  |  |  |
| ML1 | 0.22 | 1.00 |  |  |  |

An analysis with three factors was conducted. The resulted in a better, yet not optimal fit of the data.  for the model was 7 with a  = 62.73, p < .001; CFI =0.98, TLI = 0.92, RMSEA = 0.1 [90% CI = 0.078, 0.123]. Loadings (see Table 3) were still problematic whilst item 6 (I don’t know where I fit in the world) loaded fully (.99) on factor 2, item 5 (I have a clear set of personal values or moral standards) was now loading on factor 3 (.84) and item 3 (I have a set of basic beliefs and values or moral standards) cross loaded on factor 2 and 3 (-.316 and -.39).

Table 3:

Table 3. Factor Loadings for Exploratory Factor Analysis with Oblimin Rotation of APSI

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | ML2 | ML1 | ML3 | h2 | u2 | com |
| 1 | **0.73** | -0.03 | 0.13 | 0.67 | 0.33 | 1.07 |
| 2 | **0.61** | -0.01 | 0.21 | 0.58 | 0.42 | 1.23 |
| 3 | -0.01 | **0.99** | 0.03 | 1.00 | 0.00 | 1.00 |
| 4 | **0.86** | 0.00 | -0.04 | 0.70 | 0.30 | 1.00 |
| 5 | 0.08 | 0.07 | **0.84** | 0.84 | 0.16 | 1.03 |
| 6 | -0.13 | **-0.36** | **0.39** | 0.18 | 0.82 | 2.21 |
| 7 | **0.80** | 0.05 | -0.04 | 0.62 | 0.38 | 1.01 |
| 8 | **0.85** | -0.02 | -0.03 | 0.68 | 0.32 | 1.00 |
| SS loadings | 3.13 | 1.11 | 1.01 |  |  |  |
| ML2 | 1.00 | 0.19 | 0.66 |  |  |  |
| ML1 | 0.19 | 1.00 | 0.26 |  |  |  |
| ML3 | 0.66 | 0.26 | 1.00 |  |  |  |

Based on the Parallel Analysis that suggested there were four factors an analysis with four factors was conducted. This resulted in an over fit of the data.  for the model was 2 with a  = .24, p = .57; CFI =1.00, TLI = .00, RMSEA = 0.1 [90% CI = NA, 0.059]. Loadings (see Table 4) were still problematic whilst item 6 (I don’t know where I fit in the world) loaded fully (.99) on factor 1 (nothing else loaded on that factor), item 1 (I have a definite sense of purpose in life) was now cross loading on factors 2 (.32) and 4 (.57), item 5 (I have a clear set of personal values or moral standards) was now cross loading on factor 3 (.37) and 4 (.52), item 3 (I have a set of basic beliefs and values or moral standards) loaded on factor 3 (.67).

# Table 4:

Table 4. Factor Loadings for Exploratory Factor Analysis with Oblimin Rotation of APSI

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | ML2 | ML4 | ML1 | ML3 | h2 | u2 | com |
| 1 | **0.32** | **0.57** | -0.01 | -0.03 | 0.70 | 0.30 | 1.59 |
| 2 | 0.03 | **0.81** | -0.04 | 0.00 | 0.70 | 0.30 | 1.01 |
| 3 | 0.03 | -0.01 | -0.14 | **0.67** | 0.51 | 0.49 | 1.10 |
| 4 | **0.67** | 0.21 | -0.04 | -0.04 | 0.69 | 0.31 | 1.22 |
| 5 | 0.07 | **0.52** | 0.20 | **0.37** | 0.63 | 0.37 | 2.18 |
| 6 | 0.00 | -0.01 | **0.99** | -0.03 | 1.00 | 0.00 | 1.00 |
| 7 | **0.90** | -0.11 | 0.03 | 0.07 | 0.71 | 0.29 | 1.04 |
| 8 | **0.65** | 0.22 | 0.00 | -0.05 | 0.67 | 0.33 | 1.25 |
| SS loadings | 2.14 | 1.75 | 1.06 | 0.66 |  |  |  |
| ML2 | 1.00 | 0.78 | 0.08 | 0.27 |  |  |  |
| ML4 | 0.78 | 1.00 | 0.10 | 0.28 |  |  |  |
| ML1 | 0.08 | 0.10 | 1.00 | -0.17 |  |  |  |
| ML3 | 0.27 | 0.28 | -0.17 | 1.00 |  |  |  |

Based on this analysis we determined that items 1, 2, 4, 7 and 8 may be a factor on their own. We therefore conducted an EFA with only these items. This analysis resulted in an excellent fit to data.  for the model was 5 with a  = 59.33, p = .000; CFI =.97, TLI = .95, RMSEA = 0.116 [90% CI = 0.091, 0.143] – this was expected to be high because it is effected by a small . All items loaded well onto one factor (see Table 5). This indicated that the remaining items 3, 5 and 6 were causing problems in the overall fit of the measure and represented either an independent factor or multiple factors and would not fit neatly into an additional factor.

# Table 5:

Table 5. Factor Loadings for Exploratory Factor Analysis with Oblimin Rotation of APSI

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | ML1 | ML1.1 | ML1.2 | com |
| 1 | **0.82** | 0.67 | 0.33 | 1 |
| 2 | **0.75** | 0.56 | 0.44 | 1 |
| 4 | **0.83** | 0.69 | 0.31 | 1 |
| 7 | **0.78** | 0.61 | 0.39 | 1 |
| 8 | **0.82** | 0.68 | 0.32 | 1 |
| SS loadings | 3.2 |  |  |  |

We nonetheless conducted a CFA using Target Rotation (TR) to see if a two factor model could be made to fit the data using that method. We set items 1, 2, 4, 7 and 8 onto one factor and items 3, 5 and six onto the other. This analysis resulted in a decent yet not excellent fit to data.  for the model was 13 with a  = 151.85, p = .000; CFI =.95, TLI = .9, RMSEA = 0.115 [90% CI = 0.099, 0.132. Whilst items 1, 2, 4, 7, and items loaded well onto one factor (see Table 6). The remaining three items did not load well onto a single second factor. Item 5 was now loading onto factor 1 (.61) and onto factor 2 (.22), Item 3 loaded fully onto factor 2 (1.0), and item 6 did not load well onto either factor (-.17 on factor 1 and .31 on factor 2) were causing problems in the overall fit of the measure and represented either an independent factor or multiple factors and would not fit neatly into an additional factor. In addition a Heywood case was detected. An examination found that this was because item 3 was loading more that 1.0 on the second factor.

Table 6:

Table 6. Factor Loadings for Confirmatory Factor Analysis with Target Rotation of APSI

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | MR1 | MR2 | h2 | u2 | com |
| 1 | **0.83** | 0.01 | 0.69 | 0.31 | 1.00 |
| 2 | **0.75** | 0.04 | 0.58 | 0.42 | 1.01 |
| 4 | **0.82** | 0.01 | 0.68 | 0.32 | 1.00 |
| 7 | **0.75** | 0.07 | 0.60 | 0.40 | 1.02 |
| 8 | **0.82** | 0.00 | 0.66 | 0.34 | 1.00 |
| 5 | **0.61** | 0.22 | 0.49 | 0.51 | 1.25 |
| 3 | -0.08 | **1.01** | 1.00 | 0.00 | 1.01 |
| 6 | -0.17 | **0.31** | 0.10 | 0.90 | 1.56 |
| SS loadings | 3.58 | 1.2 |  |  |  |
| MR1 | 1.00 | 0.25 |  |  |  |
| MR2 | 0.25 | 1.00 |  |  |  |

Based on these results we thought we could perhaps try and fit the data into a 2 factor model using TR. We therefore specified items 1, 2, 4, 7, 8 and 5 to factor 1 and items 3 and 6 to factor 2. This analysis resulted in an identical fit to the previous model.  for the model was 13 with a  = 151.85, p = .000; CFI =.95, TLI = .9, RMSEA = 0.115 [90% CI = 0.099, 0.132. The loadings were slightly different, all items for factor one loaded slightly better than in the previous model (see table 7). In addition no Heywood Case was detected because item see was now loading .99 on factor 2. Item six however was still not loading well on the second item. This indicated that items 3 (I have a set of basic beliefs and values that guide my actions and decisions) and 6 (I don't know where I fit in the world) represent distinct factors and confirming that a three factor model best fits the data although two of these factors are represented by only one item each.