**Title: Online Supplement to Psychometric Properties and Correlates of Precarious Manhood Beliefs in 62 Nations**

Description: Supplemental material for Psychometric Properties and Correlates of Precarious Manhood Beliefs in 62 Nations by Jennifer K. Bosson et al. (full list of authors appears in the manuscript) in *Journal of Cross-Cultural Psychology.*

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**I. Analyses with Age and Gender Distribution as Covariates**

**Table A1**

*Comparison of Multilevel Factor Analysis Models for the PMB (Including Age and Gender Distribution as Covariates)*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model type | Model | Fit statistics | | | | |
| BIC | CFI | RMSEA | SRMRW | SRMRB |
| Ignoring multilevel structure | One-factor (Model 1) | 490528 | 0.94 | 0.073 | 0.033 | – |
| Strong configural isomorphism | One-factor (Model 2) | 731443 | 0.93 | 0.066 | 0.036 | 0.029 |
| Strong metric isomorphism | One-factor, all loadings constrained to be equal (Model 3) | 731449 | 0.93 | 0.059 | 0.036 | 0.116 |
| Partial strong metric isomorphism | One-factor, all loadings constrained to be equal, except Item #2 (Model 4) | 731433 | 0.93 | 0.061 | 0.036 | 0.063 |

*Note.* *N* = 30,648. BIC = Sample-size adjusted Bayesian Information Criterion; CFI = Comparative Fit Index; RMSEA=Root Mean Square Error of Approximation; SRMRW = Standardized Root Mean Square Residual within covariance matrix; SRMRB = Standardized Root Mean Square Residual between covariance matrix.

**Table A2**

*Comparison of Multilevel Factor Analysis Models including Precarious Manhood Beliefs (PMB), Hostile Sexism (HS), Benevolent Sexism (BS), Hostility toward Men (HM), and Benevolence toward Men (BM) (Including Age and Gender Distribution as Covariates)*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model type | Model | Fit statistics | | | | |
| BIC | CFI | RMSEA | SRMRW | SRMRB |
| Ignoring multilevel structure | One-factor (Model 5) | 1758491 | 0.66 | 0.109 | 0.091 | – |
| Three-factor (Model 6) | 1742376 | 0.78 | 0.091 | 0.076 | – |
| Five-factor (Model 7) | 1722974 | 0.92 | 0.058 | 0.046 | – |
| Strong configural isomorphism | One-factor at L2 (Model 8) | 1929766 | 0.90 | 0.041 | 0.046 | 0.094 |
| Three-factor at L2 (Model 9) | 1929704 | 0.90 | 0.041 | 0.046 | 0.075 |
| Five-factor at both levels  (Model 10) | 1929711 | 0.90 | 0.042 | 0.046 | 0.073 |
| Strong metric isomorphism | Five-factor (Model 11) | 1929699 | 0.90 | 0.041 | 0.046 | 0.079 |
| With covariates at county level | Five-factor ~ GGGI (Model 12) | 1929539 | 0.90 | 0.040 | 0.046 | 0.072 |
| Five-factor ~ HDI (Model 13) | 1930470 | 0.90 | 0.040 | 0.046 | 0.072 |

*Note.* *N* = 30,648. BIC = Sample-size adjusted Bayesian Information Criterion; CFI = Comparative Fit Index; RMSEA=Root Mean Square Error of Approximation; SRMRW = Standardized Root Mean Square Residual within covariance matrix; SRMRB = Standardized Root Mean Square Residual between covariance matrix.

**II. Analyses with Five Countries Excluded**

Table A3

*Comparison of Multilevel Factor Analysis Models for the PMB (Using Data from 57 Countries)*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model type | Model | Fit statistics | | | | |
| BIC | CFI | RMSEA | SRMRW | SRMRB |
| Ignoring multilevel structure | One-factor (Model 1) | 496681 | 0.97 | 0.095 | 0.030 | – |
| Strong configural isomorphism | One-factor (Model 2) | 490522 | 0.97 | 0.075 | 0.030 | 0.027 |
| Strong metric isomorphism | One-factor, all loadings constrained to be equal (Model 3) | 490524 | 0.96 | 0.058 | 0.030 | 0.105 |
| Partial strong metric isomorphism | One-factor, all loadings constrained to be equal, except Item #2 (Model 4) | 490511 | 0.97 | 0.062 | 0.030 | 0.028 |

*Note.* *N* = 31,102. BIC = Sample-size adjusted Bayesian Information Criterion; CFI = Comparative Fit Index; RMSEA=Root Mean Square Error of Approximation; SRMRW = Standardized Root Mean Square Residual within covariance matrix; SRMRB = Standardized Root Mean Square Residual between covariance matrix.

**Table A4**

*Comparison of Multilevel Factor Analysis Models including Precarious Manhood Beliefs (PMB), Hostile Sexism (HS), Benevolent Sexism (BS), Hostility toward Men (HM), and Benevolence toward Men (BM) (Using Data from 57 Countries)*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model type | Model | Fit statistics | | | | |
| BIC | CFI | RMSEA | SRMRW | SRMRB |
| Ignoring multilevel structure | One-factor (Model 5) | 1774494 | 0.69 | 0.117 | 0.092 | – |
| Three-factor (Model 6) | 1758502 | 0.81 | 0.094 | 0.075 | – |
| Five-factor (Model 7) | 1741764 | 0.93 | 0.059 | 0.046 | – |
| Strong configural isomorphism | One-factor at L2 (Model 8) | 1710665 | 0.92 | 0.039 | 0.047 | 0.092 |
| Three-factor at L2 (Model 9) | 1710606 | 0.92 | 0.039 | 0.047 | 0.071 |
| Five-factor at both levels  (Model 10) | 1710618 | 0.92 | 0.040 | 0.047 | 0.067 |
| Strong metric isomorphism | Five-factor (Model 11) | 1710586 | 0.92 | 0.039 | 0.047 | 0.080 |
| With covariates at county level | Five-factor ~ GGGI (Model 12) | 1710462 | 0.92 | 0.038 | 0.047 | 0.079 |
| Five-factor ~ HDI (Model 13) | 1711314 | 0.92 | 0.038 | 0.047 | 0.079 |
|  | Five-factor ~ GGGI and HDI (Model 14) | 1711125 | 0.92 | 0.038 | 0.047 | 0.100 |

*Note.* *N* = 31,102. BIC = Sample-size adjusted Bayesian Information Criterion; CFI = Comparative Fit Index; RMSEA=Root Mean Square Error of Approximation; SRMRW = Standardized Root Mean Square Residual within covariance matrix; SRMRB = Standardized Root Mean Square Residual between covariance matrix.

**III. Cluster Analyses of Country-Level Variables**

For both pairs of variables (PMB by GGGI and PMB by HDI) we performed exploratory k-means clustering of countries. We applied the classical approach, based on scaled values of our variables and using Euclidean distance. In both cases we investigated how many clusters were recommended: elbow, silhouette, and gap statistics methods were used. Next we assessed goodness of fit for the numbers of clusters indicated (for PMB by GGGI we considered k = 4 and 8; for PMB by HDI we considered k = 2, 4, and 7). We selected final models with the smallest numbers of clusters and with at least decent values for Sums of Squares between divided by Sums of Squares total. In both cases k = 4. For PMB by GGGI (SS between) / (SS total) = 73.6%; for PMB by HDI (SS between) / (SS total) = 76.3%.

As shown in Table A5, national scores on the PMB are not randomly distributed across the globe, but rather show geographical clustering. Specifically, we found four clusters each for the associations of the PMB with gender equality and human development. For the PMB and gender equality associations, three clusters show a linear negative relationship between these variables. These clusters include countries with low GGGI and high PMB (e.g., Iran, Nigeria, Lebanon, Japan); countries with average levels of both variables (e.g., China, Vietnam, Brazil, Chile); and countries with high GGGI and low PMB (e.g., Spain, Germany, Sweden, Norway). However, the fourth cluster contains nations with high PMB scores and moderate GGGI, including Eastern European countries (e.g., Kosovo, Albania, Kazakhstan, Russia) and South Africa, Suriname, and the Philippines (see Figure A1). Very similar results emerged from cluster analyses on the association of the PMB with human development. However, in this case, the fourth cluster includes Eastern European countries along with highly economically developed countries such as the UAE and Japan (see Figure A2).

**Table A5**

*Centers of Clusters*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cluster | PMB versus HDI | | PMB versus GGGI | |
| HDI | PMB | GGGI | PMB |
| 1 | 691 | 0.172 | 0.777 | -0.274 |
| 2 | 906 | 0.044 | 0.627 | 0.419 |
| 3 | 824 | 0.471 | 0.735 | 0.419 |
| 4 | 896 | -0.403 | 0.697 | 0.024 |

**Figure A1**

*Scatterplot Showing Four Clusters for Country-Level Precarious Manhood Beliefs (the PMB) and Gender Equality (the GGGI)*



**Figure A2**

*Scatterplot Showing Four Cluster for Country-Level Precarious Manhood Beliefs (PMB) and Human Development (HDI)*

