**Supplementary Material for Bifactor Model of Internalizing Symptoms at Age 19**

Using Confirmatory Factor Analysis (CFA), we tested a bifactor model to examine the structure of internalizing psychopathology in our sample using MPlus. We used the weighted least square means and variance adjusted (WLSMV) algorithm (Asparouhov & Muthen, 2010). Model fit was assessed using various indicators, including chi-square, CFI, TLI, and RMSEA. CFI greater than .95, TLI greater than .95, and RMSEA less than .05 are considered good fit (Bollen & Curran, 2006).

The bifactor model tests whether the item measures reflect both general internalizing latent factor and two symptom-specific psychopathologies (i.e., depression-specific and anxiety-specific latent factors). 20 items from the Youth Self-Report (YSR) DSM-oriented depression and anxiety subscales (Achenbach et al., 2003) were set to load on both the general internalizing and symptom-specific latent variables. Consistent with the bifactor modeling approach, general internalizing and symptom-specific latent factors were not allowed to correlate one another.

The results of the bifactor modeling indicated good fit: RMSEA = .044 (CI = .22 - .61); CFI = 0.980, TLI = 0.974. The model reflects both general internalizing latent factor and specific symptom-level latent factors. Specifically, general internalizing variable is represented by a factor that directly influences all of the depression and anxiety items in the YSR. Loadings on the general internalizing latent factor were all positive, all *p*s were statistically significant, and had average loading of .62 (please see below table for model fit statistics and standardized factor loadings). In addition, several items in the YSR depression and anxiety subscales were significantly loaded to symptom-specific depression and anxiety latent factors. Specifically, three items were significantly loaded on the depression-specific latent factor. For anxiety-specific latent factor, 5 items were significantly loaded. Low number of statistically significant loadings on symptom-specific latent factors is understandable, given that the items generally loaded highly on the general internalizing latent factor. Larger proportion of significant loading for anxiety than depression suggests that intercorrelations of the depression items are well-fitted by the general factor compared to those of anxiety items in our sample.

Supplementary Table 1. Model fit statistics and standardized factor loads for the bifactor model of depression and anxiety symptoms

|  |  |  |  |
| --- | --- | --- | --- |
|  | General Internalizing | Depression-specific | Anxiety-specific |
| *Model Fit Statistics* |
| Chi-Square (WLSMV) | 192.751 |
| Degrees of Freedom | 150 |
| CFI | 0.980 |
| TLI | 0.974 |
| RMSEA[90% CI] | 0.044[0.022, 0.061] |
| *Standardized factor loadings* |
| DSM-oriented Depression items  | 5. Enjoys little | 0.577\*\*\* | 0.104 |  |
| 14. Cries | 0.772\*\*\* | -0.211 |  |
| 24. Doesn’t eat well | 0.536\*\*\* | 0.282\* |  |
| 35. Worthless | 0.876\*\*\* | -0.073 |  |
| 52. Guilty | 0.787\*\*\* | -0.099 |  |
| 54. Tired | 0.823\*\*\* | 0.052 |  |
| 76. Sleeps less | 0.311\*\* | 0.894\*\*\* |  |
| 77. Sleeps more | 0.233\* | -0.063 |  |
| 100. Sleep problems | 0.568\*\*\* | 0.498\*\*\* |  |
| 102. Lacks energy | 0.817\*\*\* | 0.159 |  |
| 103. Sad | 0.882\*\*\* | -0.181 |  |
| DSM-oriented Anxiety items | 11. Dependent | 0.394\*\*\* |  | 0.150 |
| 29. Fears | 0.421\*\*\* |  | 0.345\*\* |
| 30. Fears school | 0.448\*\*\* |  | 0.238 |
| 31. Fears doing bad | 0.612\*\*\* |  | 0.208 |
| 45. Nervous | 0.671\*\*\* |  | 0.601\*\*\* |
| 47. Nightmares | 0.516\*\*\* |  | 0.161 |
| 50. Fearful | 0.718\*\*\* |  | 0.569\*\*\* |
| 71. Self-conscious | 0.698\*\*\* |  | 0.273\*\* |
| 112. Worries | 0.622\*\*\* |  | 0.579\*\*\* |

*Note*. \**p* < .05, \*\**p* < .01, \*\*\**p* < .001

References

Achenbach, T. M., Dumenci, L., & Rescorla, L. A. (2003). DSM-Oriented and Empirically Based Approaches to Constructing Scales from the Same Item Pools. *Journal of Clinical Child and Adolescent Psychology*, *32*(3), 328–340. https://doi.org/10.1207/S15374424JCCP3203\_02

Asparouhov, T., & Muthén, B. (2010). Weighted least squares estimation with missing data (Technical Report). Retrieved from <http://www.statmodel.com/download/GstrucMissingRevision.pdf>

Bollen, K. A., & Curran, P. J. (2006). *Latent curve models: A structural equation perspective*. Hoboken, NJ: Wiley.