Supplement

Procedure for Manifest Indicators

Following the same procedure as Schweizer and colleagues (2018), manifest indicators were created within the early adolescent group by parceling items using a correlational parceling approach for unidimensional measures (i.e., dysfunctional attitudes, brooding, self-criticism, dependency) (Little, Rhemtulla, Gibson, & Schoemann, 2013). In addition, because negative inferential style as measured via the ACSQ had multiple subscales (stable, global, consequence, self), a facet-representative approach was utilized such that a parcel was constructed for each subscale of the ACSQ (Little et al., 2013). Both the correlational and facet-representative parceling approaches group items together that share the highest variance, and have been recommended for multifaceted constructs because what is shared among items tapping different facets of constructs is preserved (Little et al., 2013). For each of the unidimensional individual cognitive risk measures, the bivariate correlations for all items within each measure were examined. The correlational parceling procedure was as follows: the two items with the highest correlation are selected for the first parcel, and the next two items with the highest correlation are grouped into the second parcel and so on. For the multi-dimensional cognitive risk measure of negative inferential style, each manifest indicator was composed of all items within each subscale. Each parcel was the average of all items contained within it. The number of manifest parcel indicators per cognitive risk measure was equivalent to prior work (Schweizer et al., 2018).

Procedure for Bifactor Model Construction

There were two major steps for bifactor model construction. First, within the early adolescent age group, each individual cognitive risk model was checked for adequate indicator

loadings because weak loadings can be significant with large sample sizes. A cut-off of .30 was chosen to indicate meaningful indicators, and loadings falling below this threshold were removed (Kline, 2010). Negative loadings were also removed. If individual cognitive risk models did not have good fit, modification indices for residual correlations between indicators were examined and added if there was a sufficient theoretical basis to justify adding the residual item correlation (e.g., if the items contained similar content) (Mueller & Hancock, 2008). These respecifications were included in the subsequent bifactor model. Second, within the early adolescent age group, the bifactor model including all parcel indicators across all measures of cognitive risks was initially tested and respecified based on the pattern of indicator loadings and the significance of factor variances.

Individual Measurement Models for Cognitive Risks

Within the early adolescent age group, single factor models were created for dysfunctional attitudes, negative inferential style, self-criticism, dependency, and brooding (see Table S1). The dysfunctional attitudes model had 4 parcel indicators. Initial model fit was good by CFI and SRMR but was not acceptable by RMSEA (CFI=.95, SRMR=.04, RMSEA=.16). Examination of modification indices suggested that model fit would be improved by adding one residual correlation between two indicators. With this modification, model fit was good fit by CFI, RMSEA, and SRMR [$\chi2(1)$=1.30, p=.27; CFI=1.0, RMSEA=.03, SRMR=.01]. The negative inferential style model had 4 parcel indicators. Initial model fit was good by CFI and SRMR but was not acceptable by RMSEA (CFI=.98, SRMR=.02, RMSEA=.16). Examination of modification indices suggested that model fit would be improved by adding one residual correlation between two indicators. With this modification, model fit was good fit by CFI, RMSEA, and SRMR [$\chi2(1)$=1.30, p=.25; CFI=1.0, RMSEA=.04, SRMR=.01]. The dependency

model had 4 item parcel indicators. Initial model fit was good by CFI and SRMR but was not acceptable by RMSEA (CFI=.90, SRMR=.07, RMSEA=.24). Examination of modification indices suggested that model fit would be improved by adding one residual correlation between two indicators. With this modification, model fit was good fit by CFI, RMSEA, and SRMR [$\chi 2(1)$=1.53, p=.21; CFI=1.0, RMSEA=.05, SRMR=.01]. The self-criticism and brooding models were just-identified (3 item parcel indicators), so model fit statistics cannot be computed. All factor loadings for all models were adequate and significant. The three residual item correlations identified in individual cognitive risk models (dysfunctional attitudes, negative inferential style, dependency) were included in the bifactor model. The residual item correlation that was identified in the negative inferential style single factor model became non-significant when included in the bifactor model so it was eliminated.

Table S1
Individual Cognitive Risk Single Factor Models

Single Factor Model	Parcel Indicator	Items in Parcel	Std. Loading Estimate	Unstand. Loading Estimate	SE	Est./SE	Item Residual Variance
Dysfunctional attitudes	CDAS1	15, 16, 10, 6, 12	0.47	0.15	0.03	5.92	0.09
	CDAS2	9, 18, 5, 13, 20	0.61	0.34	0.04	8.21	0.20
	CDAS3	17, 19, 14, 11, 1	0.68	0.28	0.03	8.88	0.09
	CDAS4	3, 4, 8, 7, 2	0.78	0.39	0.04	10.04	0.10
Residual indicator correlation	CDAS1 with CDAS3		0.35	0.03	0.01	3.48	
Negative inferential style	ACSQ-Stable	1-6	0.62	0.69	0.07	9.76	0.75
	ACSQ-Global	1-6	0.89	0.86	0.06	14.86	0.19
	ACSQ-Conseq.	1-6	0.86	0.78	0.05	14.54	0.21
	ACSQ-Self	1-6	0.87	0.96	0.07	14.13	0.29
Residual indicator correlation	ACSQ-Self with ACSQ-Global		-0.67	-0.16	0.05	-3.22	
Self-criticism	CDEQ-SC1	1, 4, 8, 16	0.52	0.24	0.03	7.14	0.15
	CDEQ-SC2	9, 23, 2, 12	0.90	0.36	0.03	11.05	0.03
	CDEQ-SC3	14, 19, 21, 5	0.68	0.31	0.03	8.92	0.11
Dependency	CDEQ-D1	3, 17, 6	0.52	0.27	0.04	6.49	0.20
	CDEQ-D2	18, 22, 11	0.88	0.48	0.05	9.06	0.07
	CDEQ-D3	13, 24, 20	0.52	0.22	0.03	6.58	0.13
	CDEQ-D4	15, 7, 10	0.54	0.27	0.04	6.45	0.17
Residual indicator correlation	CDEQ-D3 with CDEQ-D4		0.58	0.09	0.02	5.43	
Brooding	CRSQ1	5, 17	0.86	0.59	0.04	13.85	0.13
	CRSQ2	13, 15	0.65	0.51	0.05	10.09	0.35
	CRSQ3	19, 23	0.88	0.64	0.05	14.19	0.13

Note. ACSQ=Adolescent Cognitive Style Questionnaire; Conseq.=Consequences Subscale; CDAS= Children's Dysfunctional Attitudes Scale; CDEQ-SC = Children's Depressive Experiences Questionnaire-Self Criticism Scale; CDEQ-D= Children's Depressive Experiences Questionnaire-Dependency Scale; CRSQ=Child Response Styles Questionnaire-Brooding items. All factor loadings are significant ($p < .001$).

Table S2
Cognitive Risk Bifactor Model

Factor	Parcel Indicator	Std. Loading Estimate	Unstand. Loading Estimate	SE	Est./SE	Item Residual Variance
Common Cognitive Risk	CDAS1	0.62	0.22	0.01	15.60	0.07
	CDAS2	0.45	0.27	0.03	10.71	0.27
	CDAS3	0.82	0.35	0.02	22.85	0.06
	CDAS4	0.67	0.34	0.02	17.28	0.14
	ACSQ-Stable	0.54	0.66	0.05	13.20	
	ACSQ-Global	0.48	0.50	0.04	11.70	
	ACSQ-Conseq.	0.54	0.49	0.04	13.16	
	ACSQ-Self	0.67	0.73	0.04	17.28	
	CDEQ-SC1	0.63	0.31	0.02	15.94	0.14
	CDEQ-SC2	0.80	0.35	0.02	22.19	0.07
	CDEQ-SC3	0.76	0.32	0.02	20.34	0.08
	CDEQ-D1	0.40	0.21	0.02	9.40	0.16
	CDEQ-D2	0.59	0.32	0.02	14.83	0.12
	CDEQ-D3	0.69	0.30	0.02	17.98	0.10
	CDEQ-D4	0.66	0.33	0.02	16.87	0.14
	CRSQ1	0.56	0.40	0.03	13.97	0.13
	CRSQ2	0.50	0.39	0.03	12.22	0.33
	CRSQ3	0.58	0.43	0.03	14.56	0.13
Negative Inferential Style-Specific	ACSQ-Stable	0.40	0.49	0.05	10.11	0.86
	ACSQ-Global	0.67	0.69	0.04	18.89	0.33
	ACSQ-Conseq.	0.74	0.68	0.03	22.42	0.14
	ACSQ-Self	0.54	0.60	0.03	17.51	0.32
Dependency-Specific	CDEQ-D1 [1]	0.50	0.26	0.02	14.36	
	CDEQ-D2	0.49	0.26	0.02	14.36	
Brooding-Specific	CRSQ1	0.65	0.46	0.03	16.18	
	CRSQ2	0.44	0.34	0.03	11.00	
	CRSQ3	0.66	0.49	0.03	16.47	
Residual Indicator Correlations	CDAS1 with CDAS3	0.22	0.02	0.00	4.29	
	CDEQ-D3 with CDEQ-D4	0.40	0.05	0.01	7.86	
	CDEQ-SC1 with CDAS2	0.53	0.10	0.01	10.40	

Variances				
Factor		**Estimated Variance**	**SE**	**Est./SE**	***p***

[1] The two loadings onto the dependency-specific factor were constrained to be equal for model identification.

Common Cognitive Risk	0.05	0.01	7.80	<.001
Negative Inferential Style-Specific	0.24	0.05	5.05	<.001
Dependency-Specific	0.07	0.01	7.18	<.001
Brooding-Specific	0.22	0.03	8.09	<.001

Note. ACSQ=Adolescent Cognitive Style Questionnaire; Conseq.=Consequences Subscale; CDAS= Children's Dysfunctional Attitudes Scale; CDEQ-SC = Children's Depressive Experiences Questionnaire-Self Criticism Scale; CDEQ-D= Children's Depressive Experiences Questionnaire-Dependency Scale; CRSQ=Child Response Styles Questionnaire-Brooding items. All factor loadings are significant ($p < .001$).

References

Kline, R. B. (2010). Promise and pitfalls of structural equation modeling in gifted research. In *Methodologies for conducting research on giftedness* (pp. 147–169). Washington, DC, US: American Psychological Association.

Little, T. D., Rhemtulla, M., Gibson, K., & Schoemann, A. M. (2013). Why the Items versus Parcels Controversy Needn't Be One. *Psychological Methods*, *18*(3), 285–300.

Mueller, R. O., & Hancock, G. R. (2008). Best Practices in Structural Equation Modeling. In J. Osborne, *Best Practices in Quantitative Methods*. SAGE Publications.

Schweizer, T. H., Snyder, H. R., & Hankin, B. L. (2018). A reformulated architecture of cognitive risks: Common and specific factors and links to internalizing outcomes in adolescence. *Assessment*.