

Supplementary. Table 1

Bias/Size of misspecification and power/type I error rate when data generation model was ABiM1 and ABiM2 (8 items per facet)

GM	Key parameter	FM	Bias/Size of misspecification								Power / Type I error rate							
			200	300	400	500	600	700	800	10000	200	300	400	500	600	700	800	10000
ABiM1	R2=.313	ABiM	.035	.021	.017	.014	.014	.006	.010	-.003	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		AHOM	.095	.068	.059	.043	.040	.040	.035	.008	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		CFM	-.091	-.102	-.105	-.107	-.107	-.111	-.111	-.113	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	G=.25	ABiM	.005	-.001	-.001	-.002	.001	.000	-.001	.000	0.85	0.94	0.96	0.99	1.00	1.00	1.00	1.00
		AHOM	.013	.005	.002	.001	.002	-.003	-.003	.000	0.43	0.56	0.67	0.75	0.83	0.85	0.90	1.00
		CFM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S1/R1/F1=.25	ABiM	-.003	-.005	.001	-.001	.002	-.001	-.002	.000	0.81	0.92	0.97	1.00	1.00	1.00	1.00	1.00
		AHOM	-.008	-.008	.000	-.002	.001	.004	.002	.000	0.34	0.49	0.62	0.73	0.83	0.86	0.91	1.00
		CFM	-.107	-.112	-.107	-.112	-.109	-.109	-.112	-.110	0.27	0.38	0.51	0.54	0.64	0.71	0.75	1.00
ABiM2	R2=.188	ABiM	.045	.025	.021	.018	.015	.010	.009	.003	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		AHOM	.119	.083	.062	.058	.046	.036	.031	.003	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		CFM	.014	.006	.001	.000	-.003	-.006	-.007	-.008	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	G=.25	ABiM	-.002	.003	.000	.000	-.001	.000	.000	.000	0.79	0.94	0.98	0.99	1.00	1.00	1.00	1.00
		AHOM	.001	.006	.005	-.006	-.003	.000	-.002	.000	0.41	0.55	0.65	0.73	0.81	0.85	0.91	1.00
		CFM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S1/R1/F1=.25	ABiM	.004	-.003	-.003	.001	.001	-.002	-.002	.000	0.79	0.93	0.97	0.99	1.00	1.00	1.00	1.00
		AHOM	.004	-.005	-.005	.009	.004	-.001	.001	.000	0.38	0.50	0.60	0.75	0.80	0.85	0.90	1.00
		CFM	.042	.038	.034	.038	.038	.035	.034	.040	0.76	0.91	0.96	0.99	1.00	1.00	1.00	1.00
	S3/R3/F3=.00	ABiM	.001	-.007	-.002	.001	.002	.001	.000	.000	0.08	0.07	0.06	0.05	0.06	0.06	0.05	0.06
		AHOM	.000	-.010	-.006	.008	.003	.001	.002	.000	0.03	0.05	0.05	0.04	0.04	0.05	0.05	0.06
		CFM	-.075	-.079	-.078	-.074	-.074	-.072	-.073	-.070	0.13	0.16	0.17	0.18	0.22	0.24	0.28	1.00

Note. GM=Generation model; FM=Fitted model; ABiM=Augmented bifactor model; AHOM=Augmented higher-order model; CFM=Correlated-factors model

Supplementary. Table 2

Bias/Size of misspecification and power/type I error rate when data generation model was AHOM1 and AHOM2 (8 items per facet)

GM	Key parameter	FM	Bias/Size of misspecification								Power / Type I error rate							
			200	300	400	500	600	700	800	10000	200	300	400	500	600	700	800	10000
AHOM1	R2=.313	ABiM	.076	.082	.069	.061	.040	.042	.032	.008	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		AHOM	.064	.067	.042	.045	.033	.035	.028	.008	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		CFM	-.089	-.097	-.102	-.104	-.107	-.107	-.108	-.113	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	G=.25	ABiM	.065	.024	.009	.003	.006	.002	.003	.000	0.71	0.71	0.73	0.79	0.85	0.87	0.92	1.00
		AHOM	.023	.008	.007	.000	.001	-.001	.000	.000	0.48	0.55	0.68	0.75	0.83	0.87	0.91	1.00
		CFM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S1/R1/F1=.25	ABiM	-.072	-.025	-.013	-.004	-.010	-.004	-.003	.000	0.45	0.63	0.70	0.79	0.83	0.88	0.93	1.00
		AHOM	-.027	-.007	-.011	.000	-.005	-.001	.000	.000	0.30	0.52	0.63	0.75	0.82	0.86	0.92	1.00
		CFM	-.115	-.108	-.113	-.107	-.112	-.111	-.109	-.110	0.28	0.40	0.47	0.58	0.66	0.72	0.78	1.00
AHOM2	R2=.188	ABiM	.156	.116	.096	.074	.053	.042	.041	.003	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		AHOM	.102	.075	.062	.048	.040	.033	.029	.003	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		CFM	.012	.001	.003	-.001	-.004	-.005	-.007	-.008	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	G=.25	ABiM	.020	.007	-.003	.002	.000	.005	-.001	.000	0.63	0.68	0.72	0.79	0.84	0.89	0.89	1.00
		AHOM	.009	.002	.000	.004	.000	.002	.000	.000	0.42	0.56	0.65	0.76	0.81	0.87	0.90	1.00
		CFM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S1/R1/F1=.25	ABiM	-.025	-.012	.008	.002	-.003	-.003	.002	.000	0.52	0.64	0.73	0.79	0.83	0.87	0.90	1.00
		AHOM	-.011	-.006	.005	.000	-.003	.001	.001	.000	0.36	0.53	0.63	0.72	0.78	0.87	0.90	1.00
		CFM	.033	.028	.039	.036	.031	.037	.035	.030	0.78	0.90	0.96	0.99	0.99	1.00	1.00	1.00
	S3/R3/F3=.00	ABiM	-.019	-.003	.005	.001	.000	-.004	.004	.000	0.24	0.20	0.19	0.16	0.13	0.13	0.15	0.05
		AHOM	-.007	.003	.002	-.001	.000	.000	.003	.000	0.04	0.04	0.04	0.04	0.07	0.06	0.06	0.05
		CFM	-.069	-.065	-.070	-.070	-.069	-.070	-.066	-.070	0.11	0.13	0.17	0.20	0.20	0.25	0.26	1.00

Note. GM=Generation model; FM=Fitted model; ABiM=Augmented bifactor model; AHOM=Augmented higher-order model; CFM=Correlated-factors model

Supplementary. Table 3

Bias/Size of misspecification and power/type I error rate when data generation model was CFM1 and CFM2 (8 items per facet)

GM	Key parameter	FM	Bias/Size of misspecification								Power / Type I error rate							
			200	300	400	500	600	700	800	10000	200	300	400	500	600	700	800	10000
CFM1	R2=.625	ABiM	.090	.076	.065	.050	.044	.036	.032	-.005	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		AHOM	.070	.050	.038	.031	.026	.024	.022	-.005	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		CFM	.012	.008	.006	.005	.003	.003	.005	-.005	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	S1/R1/F1=.25	ABiM	-.069	-.060	-.063	-.070	-.067	-.066	-.069	-.060	0.57	0.68	0.70	0.73	0.78	0.81	0.84	1.00
		AHOM	-.068	-.062	-.067	-.066	-.066	-.064	-.066	-.060	0.33	0.50	0.59	0.68	0.73	0.80	0.84	1.00
		CFM	-.004	.002	.001	.001	-.001	-.001	.000	.000	0.87	0.96	0.99	1.00	1.00	1.00	1.00	1.00
CFM2	R2=.186	ABiM	.163	.149	.123	.091	.072	.056	.050	.002	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		AHOM	.129	.087	.068	.057	.045	.035	.033	.002	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		CFM	.022	.016	.010	.010	.006	.005	.005	.002	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	S1/R1/F1=.25	ABiM	-.060	-.065	-.058	-.052	-.058	-.054	-.053	-.050	0.48	0.53	0.58	0.64	0.67	0.72	0.78	1.00
		AHOM	-.059	-.063	-.056	-.050	-.056	-.055	-.053	-.050	0.27	0.36	0.44	0.54	0.58	0.65	0.73	1.00
		CFM	.001	.001	-.001	.003	-.001	-.001	.004	.000	0.68	0.85	0.92	0.98	0.99	0.99	1.00	1.00
	S3/R3/F3=.00	ABiM	.008	.009	.011	.012	.009	.015	.013	.010	0.19	0.24	0.26	0.19	0.18	0.16	0.16	0.10
		AHOM	.010	.010	.014	.014	.011	.014	.012	.010	0.03	0.04	0.04	0.04	0.05	0.06	0.06	0.10
		CFM	-.004	.004	.001	-.004	-.005	-.001	-.001	.000	0.07	0.06	0.06	0.05	0.06	0.05	0.06	0.05

Note. GM=Generation model; FM=Fitted model; ABiM=Augmented bifactor model; AHOM=Augmented higher-order model; CFM=Correlated-factors model