

Table 1.1. Model convergence and model rejection and selection rates for ML analysis of continuous responses

DF	NC	Model rejection rates						Model selection rates				
		Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		Chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	SRMSR (cut = 0.04)	Diff. test ( $\alpha = 0.05$ )	
		NR/NC	NR/NT	NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	NS/NT	
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.369	0.369	0.298	0.298	0.000	0.000	0.631	0.702	1.000	0.352
4 factor model	24	626	0.053	0.033	0.054	0.034	0.000	0.000	0.199	0.154	0.000	0.405
5 factor model	16	292	0.000	0.000	0.003	0.001	0.000	0.000	0.026	0.023	0.000	0.078
6 factor model	9	112	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.003	0.000	0.002
7 factor model	3	44	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.000
no model selected									0.137	0.115	0.000	0.163
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.344	0.344	0.277	0.277	0.000	0.000	0.656	0.723	1.000	0.381
4 factor model	24	617	0.058	0.036	0.068	0.042	0.000	0.000	0.174	0.124	0.000	0.384
5 factor model	16	287	0.007	0.002	0.010	0.003	0.000	0.000	0.030	0.030	0.000	0.072
6 factor model	9	120	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.010	0.000	0.002
7 factor model	3	44	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000
no model selected									0.129	0.112	0.000	0.161
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	999	0.989	0.988	0.962	0.961	1.000	0.999	0.011	0.038	0.000	0.000
3 factor model	33	994	0.156	0.155	0.113	0.112	0.076	0.076	0.828	0.844	0.918	0.630
4 factor model	24	465	0.004	0.002	0.004	0.002	0.000	0.000	0.067	0.044	0.036	0.244
5 factor model	16	172	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.002	0.001	0.028
6 factor model	9	89	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.003	0.000
7 factor model	3	39	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
no model selected									0.086	0.068	0.042	0.098
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>												
1 factor model	54	1,000	0.965	0.965	0.882	0.882	1.000	1.000	0.035	0.118	0.000	0.000
2 factor model	43	947	0.543	0.514	0.378	0.358	0.901	0.853	0.402	0.480	0.094	0.110
3 factor model	33	813	0.081	0.066	0.057	0.046	0.025	0.020	0.392	0.278	0.720	0.551
4 factor model	24	388	0.003	0.001	0.005	0.002	0.000	0.000	0.036	0.021	0.028	0.163
5 factor model	16	172	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.001	0.009	0.008
6 factor model	9	64	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.002	0.000
7 factor model	3	28	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000
no model selected									0.129	0.100	0.146	0.168
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.997	0.997	0.047	0.047	0.000	0.000	0.003	0.953	1.000	0.002
4 factor model	24	941	0.892	0.839	0.002	0.002	0.000	0.000	0.099	0.044	0.000	0.026
5 factor model	16	785	0.321	0.252	0.000	0.000	0.000	0.000	0.451	0.001	0.000	0.240
6 factor model	9	635	0.005	0.003	0.000	0.000	0.000	0.000	0.253	0.001	0.000	0.454
7 factor model	3	209	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.000	0.000	0.007
no model selected									0.178	0.001	0.000	0.271
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	999	1.000	0.999	1.000	0.999	1.000	0.999	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.995	0.995	0.060	0.060	0.000	0.000	0.005	0.940	1.000	0.000
4 factor model	24	946	0.889	0.841	0.002	0.002	0.000	0.000	0.100	0.057	0.000	0.029
5 factor model	16	819	0.305	0.250	0.000	0.000	0.000	0.000	0.486	0.001	0.000	0.257
6 factor model	9	661	0.005	0.003	0.000	0.000	0.000	0.000	0.242	0.001	0.000	0.484
7 factor model	3	225	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.000	0.003
no model selected									0.156	0.001	0.000	0.227
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.773	0.773	0.000	0.000	0.000	0.000	0.227	1.000	1.000	0.066
4 factor model	24	827	0.305	0.252	0.000	0.000	0.000	0.000	0.394	0.000	0.000	0.339
5 factor model	16	515	0.027	0.014	0.000	0.000	0.000	0.000	0.172	0.000	0.000	0.295
6 factor model	9	324	0.000	0.000	0.000	0.000	0.000	0.000	0.032	0.000	0.000	0.074
7 factor model	3	172	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.000	0.000	0.001
no model selected									0.163	0.000	0.000	0.225
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	0.999	0.999	0.999	0.999	0.000	0.001	0.001	0.000
2 factor model	43	999	1.000	0.999	0.583	0.582	0.049	0.049	0.000	0.416	0.949	0.000
3 factor model	33	1,000	0.747	0.747	0.000	0.000	0.000	0.000	0.253	0.583	0.050	0.078
4 factor model	24	778	0.261	0.203	0.000	0.000	0.000	0.000	0.378	0.000	0.000	0.366
5 factor model	16	468	0.017	0.008	0.000	0.000	0.000	0.000	0.133	0.000	0.000	0.251
6 factor model	9	282	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.047
7 factor model	3	118	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.000	0.000	0.001
no model selected									0.175	0.000	0.000	0.257

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 1.2. Model convergence and model rejection and selection rates for ML analysis of four response options

DF	NC	Convergence						Model rejection rates				Model selection rates			
		Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		Chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	SRMSR (cut = 0.04)	Diff. test ( $\alpha = 0.05$ )				
		NR/NC	NR/NT	NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	NS/NT				
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>															
1 factor model	54	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000		
2 factor model	43	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000		
3 factor model	33	1,000	0.216	0.216	0.159	0.159	0.000	0.000	0.000	0.784	0.841	1.000	0.527		
4 factor model	24	555	0.018	0.010	0.020	0.011	0.000	0.000	0.000	0.121	0.083	0.000	0.345		
5 factor model	16	222	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.012	0.000	0.036		
6 factor model	9	84	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000		
7 factor model	3	39	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000		
no model selected										0.078	0.062	0.000	0.092		
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>															
1 factor model	54	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000		
2 factor model	43	1,000	0.999	0.999	0.997	0.997	0.998	0.998	0.998	0.001	0.003	0.002	0.000		
3 factor model	33	996	0.262	0.261	0.205	0.204	0.001	0.001	0.001	0.734	0.789	0.993	0.482		
4 factor model	24	510	0.029	0.015	0.031	0.016	0.000	0.000	0.000	0.112	0.085	0.000	0.328		
5 factor model	16	207	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.014	0.000	0.035		
6 factor model	9	73	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000		
7 factor model	3	47	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.002	0.000	0.000		
no model selected										0.135	0.106	0.005	0.155		
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>															
1 factor model	54	998	0.999	0.997	0.996	0.994	1.000	0.998	0.998	0.001	0.004	0.000	0.000		
2 factor model	43	992	0.870	0.863	0.764	0.758	0.999	0.991	0.991	0.128	0.231	0.001	0.010		
3 factor model	33	951	0.079	0.075	0.056	0.053	0.090	0.086	0.086	0.754	0.672	0.864	0.708		
4 factor model	24	402	0.002	0.001	0.002	0.001	0.000	0.000	0.000	0.034	0.029	0.043	0.177		
5 factor model	16	163	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.006	0.010	0.009		
6 factor model	9	56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.004	0.000		
7 factor model	3	30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.001	0.000		
no model selected										0.072	0.054	0.077	0.096		
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>															
1 factor model	54	1,000	0.813	0.813	0.642	0.642	1.000	1.000	1.000	0.187	0.358	0.000	0.000		
2 factor model	43	885	0.306	0.271	0.183	0.162	0.845	0.748	0.748	0.454	0.413	0.137	0.251		
3 factor model	33	656	0.044	0.029	0.035	0.023	0.043	0.028	0.028	0.179	0.106	0.535	0.436		
4 factor model	24	277	0.004	0.001	0.004	0.001	0.000	0.000	0.000	0.022	0.016	0.050	0.069		
5 factor model	16	118	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.005	0.013	0.003		
6 factor model	9	66	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.009	0.000		
7 factor model	3	26	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.002	0.000		
no model selected										0.145	0.100	0.254	0.241		
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>															
1 factor model	54	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000		
2 factor model	43	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000		
3 factor model	33	1,000	0.878	0.878	0.001	0.001	0.000	0.000	0.000	0.122	0.999	1.000	0.026		
4 factor model	24	851	0.371	0.316	0.000	0.000	0.000	0.000	0.000	0.427	0.000	0.000	0.295		
5 factor model	16	556	0.047	0.026	0.000	0.000	0.000	0.000	0.000	0.202	0.000	0.000	0.317		
6 factor model	9	313	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.037	0.000	0.000	0.101		
7 factor model	3	144	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.000	0.000	0.000		
no model selected										0.195	0.001	0.000	0.261		
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>															
1 factor model	54	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000		
2 factor model	43	999	1,000	0.999	1,000	0.999	1,000	0.999	0.999	0.000	0.000	0.000	0.000		
3 factor model	33	1,000	0.938	0.938	0.005	0.005	0.000	0.000	0.000	0.062	0.995	1.000	0.017		
4 factor model	24	872	0.522	0.455	0.000	0.000	0.000	0.000	0.000	0.364	0.004	0.000	0.197		
5 factor model	16	624	0.072	0.045	0.000	0.000	0.000	0.000	0.000	0.304	0.000	0.000	0.377		
6 factor model	9	378	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.063	0.000	0.000	0.136		
7 factor model	3	152	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.000	0.000		
no model selected										0.187	0.001	0.000	0.273		
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>															
1 factor model	54	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000		
2 factor model	43	999	1,000	0.999	1,000	0.999	1,000	0.999	0.999	0.000	0.000	0.000	0.000		
3 factor model	33	1,000	0.484	0.484	0.000	0.000	0.000	0.000	0.000	0.516	1.000	1.000	0.240		
4 factor model	24	718	0.067	0.048	0.000	0.000	0.000	0.000	0.000	0.312	0.000	0.000	0.447		
5 factor model	16	405	0.007	0.003	0.000	0.000	0.000	0.000	0.000	0.042	0.000	0.000	0.148		
6 factor model	9	212	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.008		
7 factor model	3	118	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000		
no model selected										0.113	0.000	0.000	0.157		
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>															
1 factor model	54	1,000	1,000	1,000	0.730	0.730	0.815	0.815	0.815	0.000	0.270	0.185	0.000		
2 factor model	43	999	1,000	0.999	0.037	0.037	0.000	0.000	0.000	0.000	0.692	0.814	0.000		
3 factor model	33	998	0.506	0.505	0.000	0.000	0.000	0.000	0.000	0.493	0.038	0.001	0.248		
4 factor model	24	705	0.106	0.075	0.000	0.000	0.000	0.000	0.000	0.291	0.000	0.000	0.403		
5 factor model	16	380	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.048	0.000	0.000	0.149		
6 factor model	9	205	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.000	0.000	0.011		
7 factor model	3	117	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000		
no model selected										0.141	0.000	0.000	0.189		

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 1.3. Model convergence and model rejection and selection rates for ML analysis of three response options

DF	NC	Convergence								Model rejection rates				Model selection rates			
		Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		Chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	SRMSR (cut = 0.04)	Diff. test ( $\alpha = 0.05$ )						
		NR/NC	NR/NT	NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	NS/NT						
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>																	
1 factor model	54	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000		
2 factor model	43	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000		
3 factor model	33	1,000	0.183	0.183	0.135	0.135	0.000	0.000	0.817	0.865	1.000	0.581	0.084	0.059	0.000	0.291	
4 factor model	24	524	0.017	0.009	0.021	0.011	0.000	0.000	0.084	0.059	0.000	0.000	0.012	0.011	0.000	0.028	
5 factor model	16	236	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.011	0.000	0.000	0.004	0.001	0.000	0.003	
6 factor model	9	92	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.001	0.000	0.000	0.002	0.002	0.000	0.000	
7 factor model	3	42	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.081	0.062	0.000	0.097	
no model selected																	
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>																	
1 factor model	54	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000		
2 factor model	43	999	0.996	0.995	0.987	0.986	0.995	0.994	0.004	0.013	0.005	0.000	0.004	0.013	0.005	0.000	
3 factor model	33	998	0.228	0.228	0.166	0.166	0.001	0.001	0.766	0.819	0.992	0.551	0.007	0.003	0.000	0.001	
4 factor model	24	481	0.025	0.012	0.025	0.012	0.000	0.000	0.097	0.071	0.001	0.285	0.010	0.007	0.001	0.032	
5 factor model	16	179	0.000	0.000	0.006	0.001	0.000	0.000	0.010	0.007	0.001	0.000	0.007	0.003	0.000	0.001	
6 factor model	9	90	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.003	0.000	0.000	0.004	0.003	0.000	0.000	
7 factor model	3	32	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.003	0.000	0.000	0.112	0.084	0.001	0.131	
no model selected																	
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>																	
1 factor model	54	996	0.995	0.991	0.981	0.977	1.000	0.996	0.005	0.019	0.000	0.000	0.228	0.357	0.002	0.022	
2 factor model	43	982	0.763	0.749	0.617	0.606	0.998	0.980	0.647	0.538	0.833	0.712	0.023	0.016	0.044	0.154	
3 factor model	33	912	0.054	0.049	0.030	0.027	0.086	0.078	0.023	0.016	0.044	0.154	0.005	0.004	0.006	0.003	
4 factor model	24	395	0.008	0.003	0.008	0.003	0.000	0.000	0.005	0.004	0.006	0.003	0.002	0.001	0.002	0.000	
5 factor model	16	147	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.002	0.000	0.001	0.001	0.001	0.000	
6 factor model	9	65	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.000	
7 factor model	3	24	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.089	0.064	0.112	0.109	
no model selected																	
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>																	
1 factor model	54	1,000	0.759	0.759	0.529	0.529	1.000	1.000	0.241	0.471	0.000	0.000	0.453	0.337	0.144	0.344	
2 factor model	43	853	0.236	0.201	0.135	0.115	0.831	0.709	0.133	0.078	0.471	0.344	0.018	0.013	0.053	0.060	
3 factor model	33	577	0.038	0.022	0.026	0.015	0.043	0.025	0.018	0.013	0.053	0.060	0.007	0.001	0.015	0.004	
4 factor model	24	278	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.001	0.015	0.004	0.002	0.002	0.004	0.000	
5 factor model	16	125	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.004	0.000	0.001	0.001	0.006	0.000	
6 factor model	9	44	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.006	0.000	0.001	0.001	0.006	0.000	
7 factor model	3	22	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.006	0.000	0.145	0.097	0.307	0.248	
no model selected																	
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>																	
1 factor model	54	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
2 factor model	43	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000	0.230	1.000	1.000	0.081	
3 factor model	33	1,000	0.770	0.770	0.000	0.000	0.000	0.000	0.390	0.000	0.000	0.340	0.134	0.000	0.000	0.269	
4 factor model	24	764	0.266	0.203	0.000	0.000	0.000	0.000	0.134	0.000	0.000	0.269	0.029	0.000	0.000	0.036	
5 factor model	16	491	0.026	0.013	0.000	0.000	0.000	0.000	0.029	0.000	0.000	0.036	0.013	0.000	0.000	0.000	
6 factor model	9	254	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.013	0.000	0.000	0.000	
7 factor model	3	136	0.000	0.000	0.000	0.000	0.000	0.000	0.204	0.000	0.000	0.274	0.000	0.000	0.000	0.274	
no model selected																	
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>																	
1 factor model	54	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
2 factor model	43	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000	0.148	1.000	1.000	0.044	
3 factor model	33	1,000	0.852	0.852	0.000	0.000	0.000	0.000	0.380	0.000	0.000	0.284	0.213	0.000	0.000	0.322	
4 factor model	24	808	0.384	0.310	0.000	0.000	0.000	0.000	0.041	0.000	0.000	0.065	0.041	0.000	0.000	0.065	
5 factor model	16	543	0.041	0.022	0.000	0.000	0.000	0.000	0.014	0.000	0.000	0.000	0.014	0.000	0.000	0.000	
6 factor model	9	289	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.000	0.000	0.204	0.000	0.000	0.285	
7 factor model	3	137	0.000	0.000	0.000	0.000	0.000	0.000	0.204	0.000	0.000	0.285	0.000	0.000	0.000	0.285	
no model selected																	
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>																	
1 factor model	54	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0.000	0.000	0.000	0.000	0.000	0.006	0.001	0.000	
2 factor model	43	1,000	1,000	1,000	0.994	0.994	0.999	0.999	0.000	0.006	0.001	0.000	0.623	0.994	0.999	0.309	
3 factor model	33	1,000	0.377	0.377	0.000	0.000	0.000	0.000	0.223	0.000	0.000	0.427	0.046	0.000	0.000	0.124	
4 factor model	24	705	0.061	0.043	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.124	0.013	0.000	0.000	0.007	
5 factor model	16	368	0.003	0.001	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.007	0.005	0.000	0.000	0.000	
6 factor model	9	173	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.090	0.000	0.000	0.133	
7 factor model	3	94	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.000	0.000	0.133	0.000	0.000	0.000	0.133	
no model selected																	
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>																	
1 factor model	54	1,000	1,000	1,000	0.398	0.398	0.612	0.612	0.000	0.602	0.388	0.000	0.005	0.393	0.612	0.000	
2 factor model	43	1,000	0.995	0.995	0.005	0.005	0.000	0.000	0.597	0.005	0.000	0.339	0.212	0.000	0.000	0.385	
3 factor model	33	995	0.395	0.393	0.000	0.000	0.000	0.000	0.212	0.000	0.000	0.385	0.040	0.000	0.000	0.099	
4 factor model	24	634	0.063	0.040	0.000	0.000	0.000	0.000	0.040	0.000	0.000	0.099	0.010	0.000	0.000	0.004	
5 factor model	16	345	0.003	0.001	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.004	0.007	0.000	0.000	0.000	
6 factor model	9	160	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.129	0.000	0.000	0.173	
7 factor model	3	88	0.000	0.000	0.000	0.000	0.000	0.000	0.129	0.000	0.000	0.173	0.000	0.000	0.000	0.173	
no model selected																	

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 1.4. Model convergence and model rejection and selection rates for ML analysis of two response options

DF	NC	Convergence		Model rejection rates				Model selection rates					
				Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		Chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	SRMSR (cut = 0.04)	Diff. test ( $\alpha = 0.05$ )
		NR/NC	NR/NT	NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	NS/NT		
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>													
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	999	1.000	0.999	1.000	0.999	1.000	0.999	1.000	0.000	0.000	0.000	0.000
3 factor model	33	998	0.130	0.130	0.093	0.093	0.010	0.010	0.868	0.905	0.988	0.643	
4 factor model	24	527	0.009	0.005	0.009	0.005	0.000	0.000	0.065	0.044	0.011	0.271	
5 factor model	16	199	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.005	0.000	0.018	
6 factor model	9	79	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.001	
7 factor model	3	40	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	
no model selected									0.057	0.044	0.001	0.067	
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>													
1 factor model	54	1,000	0.998	0.998	0.997	0.997	1.000	1.000	0.002	0.003	0.000	0.000	
2 factor model	43	992	0.911	0.904	0.823	0.816	0.976	0.968	0.086	0.173	0.024	0.008	
3 factor model	33	935	0.166	0.155	0.223	0.104	0.015	0.014	0.696	0.672	0.900	0.595	
4 factor model	24	444	0.020	0.009	0.020	0.009	0.000	0.000	0.068	0.052	0.020	0.220	
5 factor model	16	158	0.000	0.000	0.006	0.001	0.000	0.000	0.012	0.005	0.004	0.019	
6 factor model	9	67	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.004	0.001	0.001	
7 factor model	3	34	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	
no model selected									0.132	0.090	0.051	0.157	
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>													
1 factor model	54	978	0.893	0.873	0.736	0.720	1.000	0.978	0.105	0.258	0.000	0.000	
2 factor model	43	923	0.385	0.355	0.223	0.206	0.983	0.907	0.473	0.477	0.016	0.164	
3 factor model	33	754	0.034	0.026	0.023	0.017	0.099	0.075	0.274	0.160	0.666	0.568	
4 factor model	24	339	0.003	0.001	0.003	0.001	0.000	0.000	0.022	0.016	0.060	0.095	
5 factor model	16	145	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.004	0.014	0.003	
6 factor model	9	45	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.000	
7 factor model	3	22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	
no model selected									0.120	0.084	0.240	0.170	
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>													
1 factor model	54	1,000	0.493	0.493	0.277	0.277	0.999	0.999	0.507	0.723	0.001	0.000	
2 factor model	43	760	0.105	0.080	0.041	0.031	0.768	0.584	0.297	0.186	0.176	0.416	
3 factor model	33	489	0.010	0.005	0.008	0.004	0.037	0.018	0.067	0.027	0.373	0.217	
4 factor model	24	217	0.000	0.000	0.000	0.000	0.000	0.000	0.01	0.005	0.043	0.020	
5 factor model	16	86	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.002	0.018	0.002	
6 factor model	9	53	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.003	0.018	0.001	
7 factor model	3	33	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.005	0.000	
no model selected									0.109	0.053	0.366	0.344	
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>													
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	
3 factor model	33	1,000	0.434	0.434	0.000	0.000	0.000	0.000	0.566	1.000	1.000	0.291	
4 factor model	24	680	0.069	0.047	0.000	0.000	0.000	0.000	0.251	0.000	0.000	0.426	
5 factor model	16	351	0.006	0.002	0.000	0.000	0.000	0.000	0.031	0.000	0.000	0.113	
6 factor model	9	172	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000	0.004	
7 factor model	3	105	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	
no model selected									0.125	0.000	0.000	0.166	
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>													
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	
2 factor model	43	1,000	1.000	1.000	0.998	0.998	0.855	0.855	0.000	0.002	0.145	0.000	
3 factor model	33	1,000	0.618	0.618	0.000	0.000	0.000	0.000	0.382	0.998	0.855	0.161	
4 factor model	24	734	0.128	0.094	0.000	0.000	0.000	0.000	0.365	0.000	0.000	0.444	
5 factor model	16	386	0.010	0.004	0.000	0.000	0.000	0.000	0.060	0.000	0.000	0.161	
6 factor model	9	185	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.000	0.000	0.016	
7 factor model	3	105	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	
no model selected									0.172	0.000	0.000	0.218	
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>													
1 factor model	54	999	1.000	0.999	0.999	0.998	1.000	0.999	0.000	0.001	0.000	0.000	
2 factor model	43	1,000	1.000	1.000	0.329	0.329	0.445	0.445	0.000	0.670	0.555	0.000	
3 factor model	33	1,000	0.181	0.181	0.000	0.000	0.000	0.000	0.819	0.329	0.445	0.481	
4 factor model	24	633	0.013	0.008	0.000	0.000	0.000	0.000	0.118	0.000	0.000	0.403	
5 factor model	16	312	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.054	
6 factor model	9	145	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	
7 factor model	3	80	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	
no model selected									0.052	0.000	0.000	0.062	
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>													
1 factor model	54	1,000	1.000	1.000	0.010	0.010	0.070	0.070	0.000	0.990	0.930	0.000	
2 factor model	43	999	0.888	0.887	0.000	0.000	0.000	0.000	0.112	0.010	0.070	0.008	
3 factor model	33	959	0.181	0.174	0.000	0.000	0.000	0.000	0.678	0.000	0.000	0.507	
4 factor model	24	562	0.014	0.008	0.000	0.000	0.000	0.000	0.097	0.000	0.000	0.330	
5 factor model	16	265	0.004	0.001	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.031	
6 factor model	9	140	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.003	
7 factor model	3	107	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.000	0.000	
no model selected									0.091	0.000	0.000	0.121	

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 1.5. Model convergence and model rejection and selection rates for ML analysis with polychoric correlations of four response categories

DF	NC	Model rejection rates						Model selection rates				
		Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		Chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	SRMSR (cut = 0.04)	Diff. test ( $\alpha = 0.05$ )	
		NR/NC	NR/NT	NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	NS/NT	
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	999	0.974	0.973	0.963	0.962	0.126	0.126	0.026	0.037	0.873	0.009
4 factor model	24	739	0.792	0.585	0.802	0.593	0.000	0.000	0.134	0.117	0.092	0.082
5 factor model	16	535	0.361	0.193	0.452	0.242	0.000	0.000	0.231	0.189	0.014	0.179
6 factor model	9	486	0.107	0.052	0.228	0.111	0.000	0.000	0.209	0.175	0.008	0.134
7 factor model	3	328	0.030	0.010	0.155	0.051	0.000	0.000	0.082	0.080	0.002	0.024
no model selected									0.318	0.402	0.011	0.572
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	999	1.000	0.999	1.000	0.999	1.000	0.999	0.000	0.000	0.000	0.000
3 factor model	33	994	0.959	0.953	0.941	0.935	0.105	0.104	0.041	0.059	0.890	0.019
4 factor model	24	680	0.729	0.496	0.741	0.504	0.003	0.002	0.151	0.131	0.071	0.109
5 factor model	16	492	0.354	0.174	0.461	0.227	0.000	0.000	0.201	0.151	0.018	0.156
6 factor model	9	459	0.120	0.055	0.242	0.111	0.000	0.000	0.191	0.165	0.009	0.096
7 factor model	3	342	0.023	0.008	0.152	0.052	0.000	0.000	0.100	0.088	0.004	0.024
no model selected									0.316	0.406	0.008	0.596
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>												
1 factor model	54	996	1.000	0.996	1.000	0.996	1.000	0.996	0.000	0.000	0.000	0.000
2 factor model	43	994	0.999	0.993	0.999	0.993	1.000	0.994	0.001	0.001	0.000	0.000
3 factor model	33	976	0.806	0.787	0.770	0.752	0.823	0.803	0.188	0.223	0.173	0.081
4 factor model	24	699	0.399	0.279	0.423	0.296	0.117	0.082	0.272	0.227	0.485	0.264
5 factor model	16	574	0.139	0.080	0.206	0.118	0.000	0.000	0.203	0.176	0.160	0.184
6 factor model	9	485	0.027	0.013	0.066	0.032	0.000	0.000	0.122	0.120	0.070	0.071
7 factor model	3	358	0.008	0.003	0.059	0.021	0.000	0.000	0.053	0.057	0.033	0.007
no model selected									0.161	0.196	0.079	0.393
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>												
1 factor model	54	1,000	0.999	0.999	0.996	0.996	1.000	1.000	0.001	0.004	0.000	0.000
2 factor model	43	952	0.962	0.916	0.917	0.873	0.997	0.949	0.035	0.075	0.003	0.012
3 factor model	33	852	0.660	0.562	0.602	0.513	0.701	0.597	0.262	0.273	0.254	0.153
4 factor model	24	625	0.291	0.182	0.307	0.192	0.070	0.044	0.233	0.186	0.410	0.216
5 factor model	16	528	0.080	0.042	0.117	0.062	0.006	0.003	0.170	0.150	0.145	0.149
6 factor model	9	469	0.021	0.010	0.066	0.031	0.000	0.000	0.100	0.080	0.062	0.044
7 factor model	3	337	0.018	0.006	0.050	0.017	0.000	0.000	0.043	0.044	0.031	0.005
no model selected									0.156	0.188	0.095	0.421
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	998	0.999	0.997	0.519	0.518	0.000	0.000	0.001	0.480	0.998	0.000
4 factor model	24	948	0.977	0.926	0.169	0.160	0.000	0.000	0.021	0.340	0.002	0.007
5 factor model	16	887	0.723	0.641	0.021	0.019	0.000	0.000	0.227	0.139	0.000	0.096
6 factor model	9	853	0.158	0.135	0.006	0.005	0.000	0.000	0.497	0.030	0.000	0.485
7 factor model	3	727	0.026	0.019	0.010	0.007	0.000	0.000	0.143	0.002	0.000	0.184
no model selected									0.111	0.009	0.000	0.228
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	998	0.999	0.997	0.519	0.518	0.000	0.000	0.001	0.480	0.998	0.000
4 factor model	24	933	0.976	0.911	0.167	0.156	0.000	0.000	0.021	0.334	0.002	0.006
5 factor model	16	885	0.716	0.634	0.023	0.020	0.000	0.000	0.232	0.143	0.000	0.097
6 factor model	9	851	0.156	0.133	0.006	0.005	0.000	0.000	0.494	0.032	0.000	0.484
7 factor model	3	741	0.023	0.017	0.004	0.003	0.000	0.000	0.143	0.004	0.000	0.183
no model selected									0.109	0.007	0.000	0.230
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.972	0.972	0.031	0.031	0.000	0.000	0.028	0.969	1.000	0.008
4 factor model	24	937	0.723	0.677	0.003	0.003	0.000	0.000	0.233	0.025	0.000	0.086
5 factor model	16	872	0.257	0.224	0.000	0.000	0.000	0.000	0.403	0.006	0.000	0.347
6 factor model	9	820	0.026	0.021	0.000	0.000	0.000	0.000	0.231	0.000	0.000	0.346
7 factor model	3	734	0.007	0.005	0.000	0.000	0.000	0.000	0.056	0.000	0.000	0.032
no model selected									0.049	0.000	0.000	0.181
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	0.851	0.851	0.511	0.511	0.000	0.149	0.489	0.000
3 factor model	33	999	0.965	0.964	0.033	0.033	0.000	0.000	0.035	0.818	0.511	0.008
4 factor model	24	927	0.731	0.678	0.005	0.005	0.000	0.000	0.217	0.027	0.000	0.094
5 factor model	16	861	0.232	0.200	0.000	0.000	0.000	0.000	0.433	0.003	0.000	0.330
6 factor model	9	791	0.044	0.035	0.000	0.000	0.000	0.000	0.196	0.002	0.000	0.319
7 factor model	3	700	0.006	0.004	0.001	0.001	0.000	0.000	0.059	0.001	0.000	0.047
no model selected									0.060	0.000	0.000	0.202

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 1.6. Model convergence and model rejection and selection rates for ML analysis with polychoric correlations of three response categories

DF	Convergence NC	Model rejection rates						Model selection rates				
		Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		Chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	SRMSR (cut = 0.04)	Diff. test ( $\alpha = 0.05$ )	
		NR/NC	NR/NT	NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	NS/NT	
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	999	0.998	0.997	0.998	0.997	0.451	0.451	0.002	0.002	0.548	0.000
4 factor model	24	623	0.950	0.592	0.957	0.596	0.022	0.014	0.029	0.025	0.262	0.019
5 factor model	16	466	0.663	0.309	0.736	0.343	0.000	0.000	0.135	0.105	0.062	0.073
6 factor model	9	401	0.312	0.125	0.491	0.197	0.000	0.000	0.190	0.137	0.034	0.116
7 factor model	3	258	0.112	0.029	0.310	0.080	0.000	0.000	0.097	0.075	0.013	0.033
no model selected									0.547	0.656	0.081	0.759
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	995	1.000	0.995	1.000	0.995	1.000	0.995	0.000	0.000	0.000	0.000
3 factor model	33	983	0.998	0.981	0.997	0.980	0.390	0.383	0.002	0.003	0.600	0.001
4 factor model	24	629	0.935	0.588	0.938	0.590	0.017	0.011	0.040	0.037	0.226	0.013
5 factor model	16	433	0.640	0.277	0.707	0.306	0.000	0.000	0.123	0.095	0.059	0.088
6 factor model	9	412	0.265	0.109	0.432	0.178	0.000	0.000	0.204	0.146	0.033	0.093
7 factor model	3	268	0.071	0.019	0.287	0.077	0.000	0.000	0.109	0.082	0.011	0.029
no model selected									0.522	0.637	0.071	0.776
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>												
1 factor model	54	988	1.000	0.988	1.000	0.988	1.000	0.988	0.000	0.000	0.000	0.000
2 factor model	43	961	1.000	0.961	1.000	0.961	1.000	0.961	0.000	0.000	0.000	0.000
3 factor model	33	918	0.943	0.866	0.923	0.847	0.941	0.864	0.052	0.071	0.054	0.021
4 factor model	24	665	0.665	0.442	0.678	0.451	0.308	0.205	0.178	0.158	0.418	0.132
5 factor model	16	465	0.310	0.144	0.428	0.199	0.004	0.002	0.192	0.140	0.218	0.151
6 factor model	9	439	0.077	0.034	0.198	0.087	0.000	0.000	0.195	0.171	0.116	0.095
7 factor model	3	304	0.033	0.010	0.204	0.062	0.000	0.000	0.093	0.076	0.047	0.017
no model selected									0.290	0.384	0.147	0.584
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	913	0.991	0.905	0.981	0.896	1.000	0.913	0.008	0.017	0.000	0.002
3 factor model	33	751	0.896	0.673	0.866	0.650	0.904	0.679	0.072	0.086	0.072	0.037
4 factor model	24	582	0.605	0.352	0.619	0.360	0.249	0.145	0.171	0.147	0.388	0.107
5 factor model	16	489	0.276	0.135	0.370	0.181	0.002	0.001	0.198	0.154	0.213	0.142
6 factor model	9	442	0.113	0.050	0.229	0.101	0.000	0.000	0.156	0.131	0.117	0.081
7 factor model	3	308	0.036	0.011	0.133	0.041	0.000	0.000	0.083	0.068	0.053	0.015
no model selected									0.312	0.397	0.157	0.616
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	1.000	1.000	0.779	0.779	0.000	0.000	0.000	0.221	1.000	0.000
4 factor model	24	899	0.990	0.890	0.425	0.382	0.000	0.000	0.009	0.318	0.000	0.001
5 factor model	16	817	0.846	0.691	0.108	0.088	0.000	0.000	0.117	0.267	0.000	0.059
6 factor model	9	755	0.311	0.235	0.020	0.015	0.000	0.000	0.415	0.114	0.000	0.320
7 factor model	3	628	0.059	0.037	0.030	0.019	0.000	0.000	0.202	0.029	0.000	0.212
no model selected									0.257	0.051	0.000	0.408
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	1.000	1.000	0.779	0.779	0.000	0.000	0.000	0.221	1.000	0.000
4 factor model	24	905	0.990	0.896	0.423	0.383	0.000	0.000	0.009	0.320	0.000	0.001
5 factor model	16	809	0.844	0.683	0.105	0.085	0.000	0.000	0.117	0.267	0.000	0.059
6 factor model	9	765	0.314	0.240	0.020	0.015	0.000	0.000	0.416	0.117	0.000	0.325
7 factor model	3	633	0.062	0.039	0.025	0.016	0.000	0.000	0.208	0.028	0.000	0.209
no model selected									0.250	0.047	0.000	0.406
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	999	0.990	0.989	0.161	0.161	0.000	0.000	0.010	0.838	0.999	0.003
4 factor model	24	890	0.864	0.769	0.028	0.025	0.000	0.000	0.111	0.122	0.001	0.040
5 factor model	16	831	0.458	0.381	0.005	0.004	0.000	0.000	0.339	0.027	0.000	0.232
6 factor model	9	773	0.084	0.065	0.000	0.000	0.000	0.000	0.324	0.007	0.000	0.355
7 factor model	3	660	0.020	0.013	0.002	0.001	0.000	0.000	0.096	0.003	0.000	0.080
no model selected									0.120	0.003	0.000	0.290
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	0.918	0.918	0.640	0.640	0.000	0.082	0.360	0.000
3 factor model	33	999	0.991	0.990	0.126	0.126	0.000	0.000	0.009	0.791	0.640	0.002
4 factor model	24	903	0.844	0.762	0.020	0.018	0.000	0.000	0.132	0.094	0.000	0.053
5 factor model	16	808	0.403	0.326	0.004	0.003	0.000	0.000	0.358	0.021	0.000	0.250
6 factor model	9	732	0.087	0.064	0.001	0.001	0.000	0.000	0.280	0.005	0.000	0.318
7 factor model	3	630	0.013	0.008	0.003	0.002	0.000	0.000	0.096	0.002	0.000	0.071
no model selected									0.125	0.005	0.000	0.306

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 1.7. Model convergence and model rejection and selection rates for ML analysis with polychoric correlations of two response categories

Convergence		Model rejection rates						Model selection rates				
DF	NC	Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		Chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	SRMSR (cut = 0.04)	Diff. test ( $\alpha = 0.05$ )	
		NR/NC	NR/NT	NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	NS/NT	
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>												
1 factor model	54	971	1.000	0.971	1.000	0.971	1.000	0.971	0.000	0.000	0.000	0.000
2 factor model	43	938	1.000	0.938	1.000	0.938	1.000	0.938	0.000	0.000	0.000	0.000
3 factor model	33	877	1.000	0.877	1.000	0.877	0.981	0.860	0.000	0.000	0.017	0.000
4 factor model	24	333	1.000	0.333	1.000	0.333	0.646	0.215	0.000	0.000	0.111	0.000
5 factor model	16	198	0.990	0.196	0.990	0.196	0.162	0.032	0.002	0.002	0.110	0.002
6 factor model	9	167	0.922	0.154	0.982	0.164	0.006	0.001	0.012	0.002	0.103	0.005
7 factor model	3	74	0.486	0.036	0.743	0.055	0.000	0.000	0.035	0.018	0.031	0.014
no model selected									0.951	0.978	0.628	0.979
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>												
1 factor model	54	987	1.000	0.987	1.000	0.987	1.000	0.987	0.000	0.000	0.000	0.000
2 factor model	43	901	1.000	0.901	1.000	0.901	1.000	0.901	0.000	0.000	0.000	0.000
3 factor model	33	702	1.000	0.702	1.000	0.702	0.989	0.694	0.000	0.000	0.008	0.000
4 factor model	24	329	1.000	0.329	1.000	0.329	0.581	0.191	0.000	0.000	0.133	0.000
5 factor model	16	170	0.988	0.168	0.994	0.169	0.082	0.014	0.002	0.001	0.107	0.001
6 factor model	9	148	0.872	0.129	0.912	0.135	0.000	0.000	0.018	0.012	0.088	0.005
7 factor model	3	63	0.349	0.022	0.667	0.042	0.000	0.000	0.033	0.015	0.022	0.009
no model selected									0.947	0.972	0.642	0.985
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>												
1 factor model	54	913	1.000	0.913	1.000	0.913	1.000	0.913	0.000	0.000	0.000	0.000
2 factor model	43	785	1.000	0.785	1.000	0.785	1.000	0.785	0.000	0.000	0.000	0.000
3 factor model	33	627	1.000	0.627	1.000	0.627	1.000	0.627	0.000	0.000	0.000	0.000
4 factor model	24	408	0.995	0.406	0.995	0.406	0.907	0.370	0.002	0.002	0.038	0.002
5 factor model	16	323	0.879	0.284	0.935	0.302	0.266	0.086	0.038	0.021	0.212	0.016
6 factor model	9	286	0.636	0.182	0.748	0.214	0.003	0.001	0.084	0.062	0.186	0.040
7 factor model	3	175	0.251	0.044	0.611	0.107	0.000	0.000	0.089	0.039	0.066	0.036
no model selected									0.787	0.876	0.498	0.906
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>												
1 factor model	54	999	1.000	0.999	1.000	0.999	1.000	0.999	0.000	0.000	0.000	0.000
2 factor model	43	727	1.000	0.727	1.000	0.727	1.000	0.727	0.000	0.000	0.000	0.000
3 factor model	33	494	0.998	0.493	0.998	0.493	1.000	0.494	0.001	0.001	0.000	0.001
4 factor model	24	369	0.986	0.364	0.986	0.364	0.840	0.310	0.005	0.005	0.059	0.003
5 factor model	16	317	0.861	0.273	0.905	0.287	0.271	0.086	0.043	0.029	0.205	0.011
6 factor model	9	283	0.523	0.148	0.664	0.188	0.014	0.004	0.109	0.076	0.18	0.044
7 factor model	3	179	0.285	0.051	0.547	0.098	0.000	0.000	0.082	0.05	0.07	0.022
no model selected									0.760	0.839	0.486	0.919
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	999	1.000	0.999	0.994	0.993	0.000	0.000	0.000	0.006	0.999	0.000
4 factor model	24	759	1.000	0.759	0.925	0.702	0.000	0.000	0.000	0.053	0.001	0.000
5 factor model	16	626	0.992	0.621	0.679	0.425	0.000	0.000	0.005	0.152	0.000	0.002
6 factor model	9	574	0.815	0.468	0.334	0.192	0.000	0.000	0.102	0.240	0.000	0.062
7 factor model	3	430	0.281	0.121	0.170	0.073	0.000	0.000	0.248	0.132	0.000	0.172
no model selected									0.645	0.417	0.000	0.764
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	999	1.000	0.999	0.994	0.993	0.000	0.000	0.000	0.006	0.999	0.000
4 factor model	24	768	1.000	0.768	0.924	0.710	0.000	0.000	0.000	0.054	0.001	0.000
5 factor model	16	637	0.991	0.631	0.672	0.428	0.000	0.000	0.006	0.160	0.000	0.003
6 factor model	9	571	0.813	0.464	0.336	0.192	0.000	0.000	0.102	0.230	0.000	0.058
7 factor model	3	428	0.276	0.118	0.164	0.070	0.000	0.000	0.247	0.130	0.000	0.174
no model selected									0.645	0.420	0.000	0.765
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	999	1.000	0.999	0.839	0.838	0.039	0.039	0.000	0.161	0.960	0.000
4 factor model	24	802	0.998	0.800	0.522	0.419	0.000	0.000	0.002	0.247	0.027	0.001
5 factor model	16	711	0.878	0.624	0.205	0.146	0.000	0.000	0.085	0.243	0.006	0.036
6 factor model	9	616	0.453	0.279	0.080	0.049	0.000	0.000	0.271	0.140	0.004	0.204
7 factor model	3	515	0.091	0.047	0.035	0.018	0.000	0.000	0.242	0.061	0.000	0.176
no model selected									0.400	0.148	0.003	0.583
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	993	1.000	0.993	0.991	0.984	0.903	0.897	0.000	0.009	0.096	0.000
3 factor model	33	983	0.999	0.982	0.772	0.759	0.018	0.018	0.001	0.215	0.872	0.000
4 factor model	24	806	0.991	0.800	0.403	0.325	0.000	0.000	0.006	0.287	0.024	0.003
5 factor model	16	681	0.844	0.579	0.147	0.101	0.000	0.000	0.102	0.195	0.004	0.050
6 factor model	9	525	0.433	0.267	0.054	0.033	0.000	0.000	0.258	0.115	0.002	0.202
7 factor model	3	244	0.099	0.048	0.039	0.019	0.000	0.000	0.198	0.041	0.001	0.144
no model selected									0.435	0.138	0.001	0.601

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 1.8. Model convergence and model rejection and selection rates for MLR analysis of four response categories

DF	Convergence NC	Model rejection rates						Model selection rates				
		Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	SRMSR (cut = 0.04)	Diff. test ( $\alpha = 0.05$ )	
		NR/NC	NR/NT	NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	NS/NT	
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	996	1.000	0.996	1.000	0.996	1.000	0.996	0.000	0.000	0.000	0.000
3 factor model	33	999	0.250	0.250	0.199	0.199	0.000	0.000	0.749	0.800	0.999	0.649
4 factor model	24	501	0.130	0.065	0.140	0.070	0.000	0.000	0.078	0.054	0.001	0.162
5 factor model	16	187	0.080	0.015	0.112	0.021	0.000	0.000	0.015	0.012	0.000	0.011
6 factor model	9	62	0.048	0.003	0.065	0.004	0.000	0.000	0.002	0.000	0.000	0.002
7 factor model	3	31	0.032	0.001	0.097	0.003	0.000	0.000	0.006	0.004	0.000	0.000
no model selected									0.150	0.130	0.000	0.176
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	960	0.999	0.959	0.996	0.956	0.998	0.958	0.001	0.004	0.002	0.000
3 factor model	33	924	0.316	0.292	0.252	0.233	0.001	0.001	0.631	0.687	0.921	0.532
4 factor model	24	453	0.152	0.069	0.157	0.071	0.000	0.000	0.105	0.080	0.035	0.152
5 factor model	16	163	0.080	0.013	0.104	0.017	0.000	0.000	0.022	0.017	0.005	0.023
6 factor model	9	61	0.082	0.005	0.148	0.009	0.000	0.000	0.003	0.001	0.000	0.003
7 factor model	3	38	0.026	0.001	0.026	0.001	0.000	0.000	0.004	0.004	0.003	0.002
no model selected									0.234	0.207	0.034	0.288
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>												
1 factor model	54	997	1.000	0.997	0.996	0.993	1.000	0.997	0.000	0.004	0.000	0.000
2 factor model	43	963	0.938	0.903	0.884	0.851	0.999	0.962	0.060	0.110	0.001	0.016
3 factor model	33	923	0.261	0.241	0.208	0.192	0.087	0.080	0.629	0.626	0.842	0.590
4 factor model	24	358	0.112	0.040	0.115	0.041	0.000	0.000	0.065	0.049	0.044	0.113
5 factor model	16	123	0.049	0.006	0.065	0.008	0.000	0.000	0.019	0.015	0.008	0.010
6 factor model	9	40	0.125	0.005	0.125	0.005	0.000	0.000	0.004	0.004	0.004	0.000
7 factor model	3	21	0.095	0.002	0.095	0.002	0.000	0.000	0.002	0.002	0.001	0.000
no model selected									0.221	0.190	0.100	0.271
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	0.339	0.339	0.617	0.617	0.000	0.661	0.383	0.000
2 factor model	43	956	0.996	0.952	0.113	0.108	0.000	0.000	0.004	0.240	0.593	0.236
3 factor model	33	905	0.493	0.446	0.004	0.004	0.000	0.000	0.455	0.063	0.005	0.226
4 factor model	24	575	0.259	0.149	0.002	0.001	0.000	0.000	0.169	0.022	0.010	0.031
5 factor model	16	294	0.150	0.044	0.000	0.000	0.000	0.000	0.064	0.003	0.001	0.007
6 factor model	9	108	0.037	0.004	0.000	0.000	0.000	0.000	0.024	0.002	0.001	0.000
7 factor model	3	68	0.059	0.004	0.029	0.002	0.000	0.000	0.011	0.001	0.000	0.000
no model selected									0.273	0.008	0.007	0.500
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	990	1.000	0.990	1.000	0.990	1.000	0.990	0.000	0.000	0.000	0.000
3 factor model	33	994	0.873	0.868	0.001	0.001	0.000	0.000	0.126	0.993	0.994	0.082
4 factor model	24	787	0.565	0.445	0.004	0.003	0.000	0.000	0.245	0.002	0.002	0.222
5 factor model	16	467	0.263	0.123	0.000	0.000	0.000	0.000	0.161	0.001	0.001	0.143
6 factor model	9	268	0.067	0.018	0.011	0.003	0.000	0.000	0.090	0.000	0.000	0.057
7 factor model	3	121	0.008	0.001	0.008	0.001	0.000	0.000	0.021	0.000	0.000	0.004
no model selected									0.357	0.004	0.003	0.492
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	960	1.000	0.960	1.000	0.960	1.000	0.960	0.000	0.000	0.000	0.000
3 factor model	33	816	0.918	0.749	0.002	0.002	0.000	0.000	0.067	0.814	0.816	0.044
4 factor model	24	810	0.674	0.546	0.009	0.007	0.000	0.000	0.221	0.150	0.154	0.128
5 factor model	16	547	0.344	0.188	0.013	0.007	0.000	0.000	0.198	0.006	0.007	0.200
6 factor model	9	317	0.126	0.040	0.013	0.004	0.000	0.000	0.101	0.004	0.000	0.074
7 factor model	3	112	0.018	0.002	0.018	0.002	0.000	0.000	0.029	0.004	0.003	0.006
no model selected									0.384	0.022	0.020	0.548
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	999	1.000	0.999	1.000	0.999	1.000	0.999	0.000	0.000	0.000	0.000
2 factor model	43	996	1.000	0.996	1.000	0.996	1.000	0.996	0.000	0.000	0.000	0.000
3 factor model	33	997	0.516	0.514	0.000	0.000	0.000	0.000	0.483	0.997	0.997	0.355
4 factor model	24	668	0.251	0.168	0.001	0.001	0.000	0.000	0.207	0.002	0.003	0.276
5 factor model	16	334	0.132	0.044	0.003	0.001	0.000	0.000	0.058	0.000	0.000	0.074
6 factor model	9	174	0.069	0.012	0.017	0.003	0.000	0.000	0.019	0.000	0.000	0.005
7 factor model	3	96	0.031	0.003	0.021	0.002	0.000	0.000	0.010	0.001	0.000	0.002
no model selected									0.223	0.000	0.000	0.288
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	0.696	0.696	0.815	0.815	0.000	0.304	0.185	0.000
2 factor model	43	933	1.000	0.933	0.228	0.213	0.000	0.000	0.000	0.451	0.759	0.000
3 factor model	33	889	0.598	0.532	0.002	0.002	0.000	0.000	0.357	0.165	0.009	0.277
4 factor model	24	615	0.294	0.181	0.007	0.004	0.000	0.000	0.235	0.058	0.035	0.212
5 factor model	16	309	0.152	0.047	0.000	0.000	0.000	0.000	0.071	0.002	0.002	0.077
6 factor model	9	175	0.069	0.012	0.006	0.001	0.000	0.000	0.036	0.004	0.001	0.014
7 factor model	3	81	0.012	0.001	0.012	0.001	0.000	0.000	0.013	0.000	0.000	0.003
no model selected									0.288	0.016	0.009	0.417

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected; data sets that yielded invalid results (i.e. decreasing chi-square values with increasing numbers of factors) were excluded from analysis.



Table 1.9. Model convergence and model rejection and selection rates for MLR analysis of three response categories

DF	NC	Convergence		Model rejection rates				Model selection rates					
				Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	SRMSR (cut = 0.04)	Diff. test ( $\alpha = 0.05$ )
		NR/NC	NR/NT	NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	NS/NT		
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>													
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	995	1.000	0.995	1.000	0.995	1.000	0.995	1.000	0.000	0.000	0.000	0.000
3 factor model	33	994	0.209	0.208	0.166	0.165	0.000	0.000	0.786	0.829	0.994	0.682	
4 factor model	24	472	0.123	0.058	0.127	0.060	0.000	0.000	0.061	0.041	0.005	0.145	
5 factor model	16	194	0.077	0.015	0.108	0.021	0.000	0.000	0.015	0.008	0.000	0.008	
6 factor model	9	72	0.014	0.001	0.042	0.003	0.000	0.000	0.006	0.007	0.000	0.004	
7 factor model	3	32	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	
no model selected									0.130	0.113	0.001	0.161	
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>													
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	958	0.994	0.952	0.986	0.945	0.995	0.953	0.006	0.013	0.005	0.001	
3 factor model	33	932	0.292	0.272	0.234	0.218	0.001	0.001	0.654	0.701	0.926	0.571	
4 factor model	24	433	0.127	0.055	0.129	0.056	0.000	0.000	0.099	0.084	0.031	0.141	
5 factor model	16	144	0.111	0.016	0.153	0.022	0.000	0.000	0.013	0.009	0.003	0.011	
6 factor model	9	72	0.042	0.003	0.069	0.005	0.000	0.000	0.013	0.010	0.003	0.001	
7 factor model	3	25	0.040	0.001	0.040	0.001	0.000	0.000	0.004	0.004	0.001	0.000	
no model selected									0.211	0.179	0.031	0.275	
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>													
1 factor model	54	996	0.999	0.995	0.989	0.985	1.000	0.996	0.001	0.011	0.000	0.000	
2 factor model	43	956	0.878	0.839	0.790	0.755	0.998	0.954	0.116	0.190	0.002	0.036	
3 factor model	33	869	0.241	0.209	0.196	0.170	0.077	0.067	0.560	0.521	0.801	0.561	
4 factor model	24	345	0.096	0.033	0.101	0.035	0.000	0.000	0.062	0.047	0.050	0.101	
5 factor model	16	117	0.051	0.006	0.111	0.013	0.000	0.000	0.017	0.011	0.011	0.005	
6 factor model	9	52	0.019	0.001	0.038	0.002	0.000	0.000	0.004	0.002	0.001	0.001	
7 factor model	3	18	0.056	0.001	0.056	0.001	0.000	0.000	0.002	0.002	0.001	0.000	
no model selected									0.238	0.216	0.134	0.296	
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>													
1 factor model	54	1,000	0.748	0.748	0.519	0.519	1.000	1.000	0.252	0.481	0.000	0.000	
2 factor model	43	807	0.414	0.334	0.294	0.237	0.823	0.664	0.290	0.207	0.143	0.270	
3 factor model	33	516	0.202	0.104	0.161	0.083	0.037	0.019	0.128	0.087	0.422	0.154	
4 factor model	24	224	0.098	0.022	0.098	0.022	0.000	0.000	0.040	0.022	0.057	0.028	
5 factor model	16	98	0.061	0.006	0.092	0.009	0.000	0.000	0.016	0.006	0.020	0.003	
6 factor model	9	31	0.032	0.001	0.032	0.001	0.000	0.000	0.002	0.003	0.005	0.002	
7 factor model	3	17	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.005	0.000	
no model selected									0.271	0.194	0.348	0.543	
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>													
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	
2 factor model	43	991	1.000	0.991	1.000	0.991	1.000	0.991	0.000	0.000	0.000	0.000	
3 factor model	33	998	0.742	0.741	0.001	0.001	0.000	0.000	0.257	0.997	0.998	0.185	
4 factor model	24	715	0.428	0.306	0.001	0.001	0.000	0.000	0.237	0.003	0.002	0.231	
5 factor model	16	422	0.209	0.088	0.002	0.001	0.000	0.000	0.100	0.000	0.000	0.101	
6 factor model	9	210	0.067	0.014	0.010	0.002	0.000	0.000	0.051	0.000	0.000	0.026	
7 factor model	3	110	0.009	0.001	0.009	0.001	0.000	0.000	0.020	0.000	0.000	0.004	
no model selected									0.335	0.000	0.000	0.453	
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>													
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	
2 factor model	43	932	1.000	0.932	1.000	0.932	1.000	0.932	0.000	0.000	0.000	0.000	
3 factor model	33	777	0.817	0.635	0.000	0.000	0.000	0.000	0.142	0.777	0.777	0.086	
4 factor model	24	759	0.515	0.391	0.009	0.007	0.000	0.000	0.269	0.182	0.187	0.183	
5 factor model	16	462	0.245	0.113	0.009	0.004	0.000	0.000	0.146	0.005	0.005	0.146	
6 factor model	9	245	0.094	0.023	0.008	0.002	0.000	0.000	0.062	0.004	0.003	0.036	
7 factor model	3	106	0.028	0.003	0.009	0.001	0.000	0.000	0.018	0.001	0.001	0.003	
no model selected									0.363	0.031	0.027	0.546	
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>													
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000	
2 factor model	43	993	1.000	0.993	0.996	0.989	0.996	0.989	0.000	0.004	0.004	0.000	
3 factor model	33	989	0.422	0.417	0.000	0.000	0.000	0.000	0.572	0.985	0.985	0.435	
4 factor model	24	668	0.216	0.144	0.000	0.000	0.000	0.000	0.158	0.009	0.009	0.241	
5 factor model	16	341	0.123	0.042	0.003	0.001	0.000	0.000	0.057	0.000	0.000	0.053	
6 factor model	9	167	0.030	0.005	0.000	0.000	0.000	0.000	0.018	0.000	0.000	0.014	
7 factor model	3	91	0.022	0.002	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.001	
no model selected									0.188	0.002	0.002	0.256	
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>													
1 factor model	54	1,000	1.000	1.000	0.339	0.339	0.617	0.617	0.000	0.661	0.383	0.000	
2 factor model	43	956	0.996	0.952	0.113	0.108	0.000	0.000	0.004	0.240	0.593	0.000	
3 factor model	33	905	0.493	0.446	0.004	0.004	0.000	0.000	0.455	0.063	0.005	0.350	
4 factor model	24	575	0.259	0.149	0.002	0.001	0.000	0.000	0.169	0.022	0.010	0.203	
5 factor model	16	294	0.150	0.044	0.000	0.000	0.000	0.000	0.064	0.003	0.001	0.056	
6 factor model	9	108	0.037	0.004	0.000	0.000	0.000	0.000	0.024	0.002	0.001	0.009	
7 factor model	3	68	0.059	0.004	0.029	0.002	0.000	0.000	0.011	0.001	0.000	0.000	
no model selected									0.273	0.008	0.007	0.382	

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected; data sets that yielded invalid results (i.e. decreasing chi-square values with increasing numbers of factors) were excluded from analysis.

Table 1.10. Model convergence and model rejection and selection rates for WLS analysis of four response categories

DF	Convergence		Model rejection rates				Model selection rates		
	NC	NR/NC	Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	Diff. test ( $\alpha = 0.05$ )
			NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>									
1 factor model	54	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
3 factor model	33	1,000	0.424	0.424	0.357	0.357	0.576	0.643	0.320
4 factor model	24	537	0.329	0.322	0.045	0.024	0.183	0.144	0.404
5 factor model	16	212	0.000	0.000	0.000	0.000	0.017	0.017	0.039
6 factor model	9	57	0.000	0.000	0.000	0.000	0.005	0.004	0.000
7 factor model	3	25	0.000	0.000	0.000	0.000	0.002	0.001	0.000
no model selected							0.217	0.191	0.237
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>									
1 factor model	54	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
2 factor model	43	993	0.989	0.982	0.973	0.966	0.011	0.027	0.000
3 factor model	33	979	0.329	0.322	0.267	0.261	0.646	0.691	0.409
4 factor model	24	492	0.026	0.013	0.026	0.013	0.123	0.096	0.346
5 factor model	16	180	0.000	0.000	0.006	0.001	0.014	0.012	0.023
6 factor model	9	60	0.000	0.000	0.000	0.000	0.003	0.002	0.000
7 factor model	3	30	0.000	0.000	0.000	0.000	0.004	0.004	0.000
no model selected							0.199	0.168	0.222
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>									
1 factor model	54	993	1.000	0.993	1.000	0.993	0.000	0.000	0.000
2 factor model	43	966	0.942	0.910	0.890	0.860	0.056	0.106	0.004
3 factor model	33	911	0.295	0.269	0.236	0.215	0.590	0.594	0.435
4 factor model	24	411	0.022	0.009	0.027	0.011	0.101	0.073	0.279
5 factor model	16	142	0.000	0.000	0.000	0.000	0.011	0.010	0.019
6 factor model	9	53	0.000	0.000	0.000	0.000	0.002	0.002	0.001
7 factor model	3	26	0.000	0.000	0.000	0.000	0.002	0.003	0.000
no model selected							0.238	0.212	0.262
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>									
1 factor model	54	999	0.993	0.992	0.963	0.962	0.007	0.037	0.000
2 factor model	43	879	0.696	0.612	0.536	0.471	0.261	0.375	0.087
3 factor model	33	626	0.161	0.101	0.126	0.079	0.330	0.251	0.379
4 factor model	24	291	0.014	0.004	0.017	0.005	0.066	0.053	0.134
5 factor model	16	115	0.000	0.000	0.000	0.000	0.012	0.010	0.007
6 factor model	9	53	0.000	0.000	0.000	0.000	0.004	0.002	0.000
7 factor model	3	15	0.000	0.000	0.000	0.000	0.003	0.002	0.000
no model selected							0.317	0.270	0.393
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>									
1 factor model	54	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
3 factor model	33	1,000	0.866	0.866	0.000	0.000	0.134	1.000	0.025
4 factor model	24	832	0.362	0.301	0.000	0.000	0.411	0.000	0.299
5 factor model	16	540	0.028	0.015	0.000	0.000	0.187	0.000	0.310
6 factor model	9	299	0.007	0.002	0.000	0.000	0.029	0.000	0.084
7 factor model	3	140	0.000	0.000	0.000	0.000	0.014	0.000	0.000
no model selected							0.225	0.000	0.282
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>									
1 factor model	54	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
3 factor model	33	1,000	0.867	0.867	0.000	0.000	0.133	1.000	0.039
4 factor model	24	825	0.333	0.275	0.000	0.000	0.440	0.000	0.291
5 factor model	16	561	0.025	0.014	0.000	0.000	0.193	0.000	0.328
6 factor model	9	322	0.003	0.001	0.000	0.000	0.039	0.000	0.083
7 factor model	3	151	0.000	0.000	0.000	0.000	0.011	0.000	0.000
no model selected							0.184	0.000	0.259
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>									
1 factor model	54	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	0.976	0.976	0.000	0.024	0.000
3 factor model	33	1,000	0.512	0.512	0.000	0.000	0.488	0.976	0.202
4 factor model	24	692	0.105	0.073	0.000	0.000	0.268	0.000	0.414
5 factor model	16	396	0.003	0.001	0.000	0.000	0.058	0.000	0.156
6 factor model	9	200	0.000	0.000	0.000	0.000	0.016	0.000	0.013
7 factor model	3	133	0.000	0.000	0.000	0.000	0.007	0.000	0.000
no model selected							0.163	0.000	0.215
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>									
1 factor model	54	1,000	1.000	1.000	0.469	0.469	0.000	0.531	0.000
2 factor model	43	1,000	0.998	0.998	0.007	0.007	0.002	0.462	0.000
3 factor model	33	999	0.501	0.500	0.000	0.000	0.497	0.007	0.239
4 factor model	24	640	0.095	0.061	0.000	0.000	0.246	0.000	0.382
5 factor model	16	357	0.003	0.001	0.000	0.000	0.041	0.000	0.138
6 factor model	9	175	0.000	0.000	0.000	0.000	0.014	0.000	0.008
7 factor model	3	115	0.000	0.000	0.000	0.000	0.005	0.000	0.000
no model selected							0.195	0.000	0.233

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 1.11. Model convergence and model rejection and selection rates for WLS analysis of three response categories

DF	Convergence		Model rejection rates				Model selection rates		
	NC	NR/NC	Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	Diff. test ( $\alpha = 0.05$ )
			NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>									
1 factor model	54	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
2 factor model	43	993	1.000	0.993	1.000	0.993	0.000	0.000	0.000
3 factor model	33	994	0.385	0.383	0.313	0.311	0.611	0.683	0.400
4 factor model	24	428	0.026	0.011	0.028	0.012	0.119	0.092	0.312
5 factor model	16	160	0.000	0.000	0.000	0.000	0.009	0.008	0.016
6 factor model	9	44	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7 factor model	3	15	0.000	0.000	0.000	0.000	0.000	0.000	0.000
no model selected							0.261	0.217	0.272
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>									
1 factor model	54	999	1.000	0.999	1.000	0.999	0.000	0.000	0.000
2 factor model	43	987	0.974	0.961	0.938	0.926	0.026	0.061	0.000
3 factor model	33	952	0.295	0.281	0.231	0.220	0.645	0.671	0.443
4 factor model	24	443	0.016	0.007	0.023	0.010	0.100	0.079	0.300
5 factor model	16	139	0.000	0.000	0.000	0.000	0.004	0.003	0.017
6 factor model	9	36	0.000	0.000	0.000	0.000	0.002	0.001	0.000
7 factor model	3	14	0.000	0.000	0.000	0.000	0.000	0.000	0.000
no model selected							0.223	0.185	0.240
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>									
1 factor model	54	993	1.000	0.980	1.000	0.980	0.000	0.000	0.000
2 factor model	43	966	0.916	0.852	0.828	0.770	0.078	0.160	0.008
3 factor model	33	911	0.248	0.206	0.194	0.161	0.556	0.529	0.434
4 factor model	24	411	0.032	0.011	0.032	0.011	0.069	0.053	0.223
5 factor model	16	142	0.000	0.000	0.000	0.000	0.015	0.012	0.011
6 factor model	9	53	0.000	0.000	0.000	0.000	0.002	0.001	0.000
7 factor model	3	26	0.000	0.000	0.000	0.000	0.000	0.000	0.000
no model selected							0.280	0.245	0.324
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>									
1 factor model	54	1,000	0.974	0.974	0.929	0.929	0.026	0.071	0.000
2 factor model	43	825	0.615	0.507	0.463	0.382	0.294	0.380	0.129
3 factor model	33	541	0.120	0.065	0.087	0.047	0.264	0.203	0.321
4 factor model	24	257	0.004	0.001	0.004	0.001	0.035	0.027	0.113
5 factor model	16	109	0.000	0.000	0.000	0.000	0.015	0.011	0.005
6 factor model	9	30	0.000	0.000	0.000	0.000	0.004	0.003	0.000
7 factor model	3	16	0.000	0.000	0.000	0.000	0.003	0.001	0.000
no model selected							0.359	0.304	0.432
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>									
1 factor model	54	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
3 factor model	33	999	0.738	0.737	0.000	0.000	0.262	0.999	0.091
4 factor model	24	751	0.233	0.175	0.000	0.000	0.376	0.001	0.366
5 factor model	16	449	0.013	0.006	0.000	0.000	0.101	0.000	0.222
6 factor model	9	229	0.000	0.000	0.000	0.000	0.027	0.000	0.033
7 factor model	3	128	0.000	0.000	0.000	0.000	0.006	0.000	0.001
no model selected							0.228	0.000	0.287
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>									
1 factor model	54	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	0.999	0.999	0.000	0.001	0.000
3 factor model	33	1,000	0.706	0.706	0.000	0.000	0.294	0.999	0.107
4 factor model	24	745	0.211	0.157	0.000	0.000	0.369	0.000	0.363
5 factor model	16	464	0.019	0.009	0.000	0.000	0.096	0.000	0.231
6 factor model	9	239	0.000	0.000	0.000	0.000	0.019	0.000	0.030
7 factor model	3	113	0.000	0.000	0.000	0.000	0.007	0.000	0.000
no model selected							0.215	0.000	0.269
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>									
1 factor model	54	1,000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	0.805	0.805	0.000	0.195	0.000
3 factor model	33	1,000	0.411	0.411	0.000	0.000	0.589	0.805	0.281
4 factor model	24	678	0.056	0.038	0.000	0.000	0.225	0.000	0.429
5 factor model	16	380	0.005	0.002	0.000	0.000	0.036	0.000	0.108
6 factor model	9	198	0.000	0.000	0.000	0.000	0.008	0.000	0.010
7 factor model	3	128	0.000	0.000	0.000	0.000	0.004	0.000	0.000
no model selected							0.138	0.000	0.172
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>									
1 factor model	54	1,000	1.000	1.000	0.182	0.182	0.000	0.818	0.000
2 factor model	43	999	0.992	0.991	0.000	0.000	0.008	0.181	0.000
3 factor model	33	988	0.373	0.369	0.000	0.000	0.611	0.000	0.343
4 factor model	24	604	0.060	0.036	0.000	0.000	0.180	0.001	0.381
5 factor model	16	300	0.000	0.000	0.000	0.000	0.032	0.000	0.083
6 factor model	9	143	0.000	0.000	0.000	0.000	0.009	0.000	0.002
7 factor model	3	94	0.000	0.000	0.000	0.000	0.008	0.000	0.000
no model selected							0.152	0.000	0.191

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 1.12. Model convergence and model rejection and selection rates for WLS analysis of two response categories

	Convergence		Model rejection rates				Model selection rates		
	DF	NC	Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	Diff. test ( $\alpha = 0.05$ )
			NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>									
1 factor model	54	956	1.000	0.956	1.000	0.956	0.000	0.000	0.000
2 factor model	43	912	0.998	0.910	0.997	0.909	0.002	0.003	0.000
3 factor model	33	873	0.292	0.255	0.249	0.217	0.616	0.653	0.481
4 factor model	24	238	0.013	0.003	0.013	0.003	0.045	0.036	0.153
5 factor model	16	59	0.000	0.000	0.000	0.000	0.006	0.005	0.000
6 factor model	9	5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7 factor model	3	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000
no model selected							0.331	0.303	0.366
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>									
1 factor model	54	965	0.999	0.964	0.996	0.961	0.001	0.004	0.000
2 factor model	43	814	0.840	0.684	0.740	0.602	0.129	0.210	0.022
3 factor model	33	631	0.165	0.104	0.106	0.067	0.419	0.392	0.405
4 factor model	24	202	0.005	0.001	0.005	0.001	0.042	0.035	0.095
5 factor model	16	50	0.000	0.000	0.020	0.001	0.008	0.007	0.002
6 factor model	9	5	0.000	0.000	0.000	0.000	0.001	0.000	0.000
7 factor model	3	3	0.000	0.000	0.000	0.000	0.002	0.001	0.000
no model selected							0.398	0.351	0.476
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>									
1 factor model	54	912	0.995	0.907	0.977	0.891	0.005	0.021	0.000
2 factor model	43	771	0.750	0.578	0.613	0.473	0.190	0.281	0.050
3 factor model	33	559	0.143	0.080	0.106	0.059	0.331	0.277	0.357
4 factor model	24	195	0.010	0.002	0.010	0.002	0.038	0.027	0.087
5 factor model	16	67	0.000	0.000	0.000	0.000	0.010	0.008	0.001
6 factor model	9	15	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7 factor model	3	4	0.000	0.000	0.000	0.000	0.000	0.000	0.000
no model selected							0.426	0.386	0.505
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>									
1 factor model	54	987	0.921	0.909	0.850	0.839	0.078	0.148	0.000
2 factor model	43	688	0.478	0.329	0.346	0.238	0.304	0.343	0.197
3 factor model	33	370	0.065	0.024	0.046	0.017	0.136	0.101	0.237
4 factor model	24	118	0.008	0.001	0.008	0.001	0.019	0.016	0.033
5 factor model	16	37	0.000	0.000	0.000	0.000	0.007	0.006	0.000
6 factor model	9	8	0.000	0.000	0.000	0.000	0.001	0.001	0.000
7 factor model	3	6	0.000	0.000	0.000	0.000	0.002	0.000	0.000
no model selected							0.453	0.385	0.533
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>									
1 factor model	54	1000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
2 factor model	43	1000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
3 factor model	33	1000	0.409	0.409	0.000	0.000	0.591	1.000	0.314
4 factor model	24	591	0.052	0.031	0.000	0.000	0.188	0.000	0.391
5 factor model	16	280	0.000	0.000	0.000	0.000	0.025	0.000	0.083
6 factor model	9	92	0.000	0.000	0.000	0.000	0.005	0.000	0.000
7 factor model	3	66	0.000	0.000	0.000	0.000	0.004	0.000	0.000
no model selected							0.187	0.000	0.212
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>									
1 factor model	54	1000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
2 factor model	43	1000	1.000	1.000	0.470	0.470	0.000	0.530	0.000
3 factor model	33	999	0.379	0.379	0.000	0.000	0.620	0.470	0.324
4 factor model	24	611	0.054	0.033	0.000	0.000	0.169	0.000	0.400
5 factor model	16	270	0.004	0.001	0.000	0.000	0.029	0.000	0.070
6 factor model	9	95	0.000	0.000	0.000	0.000	0.007	0.000	0.003
7 factor model	3	52	0.000	0.000	0.000	0.000	0.000	0.000	0.000
no model selected							0.175	0.000	0.203
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>									
1 factor model	54	1000	1.000	1.000	0.965	0.965	0.000	0.035	0.000
2 factor model	43	1000	1.000	1.000	0.070	0.070	0.000	0.895	0.000
3 factor model	33	1000	0.243	0.243	0.000	0.000	0.757	0.070	0.480
4 factor model	24	562	0.028	0.016	0.000	0.000	0.113	0.000	0.348
5 factor model	16	244	0.000	0.000	0.000	0.000	0.011	0.000	0.044
6 factor model	9	100	0.000	0.000	0.000	0.000	0.002	0.000	0.000
7 factor model	3	87	0.000	0.000	0.000	0.000	0.003	0.000	0.000
no model selected							0.114	0.000	0.128
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>									
1 factor model	54	1000	1.000	1.000	0.004	0.004	0.000	0.996	0.000
2 factor model	43	984	0.842	0.829	0.000	0.000	0.155	0.004	0.008
3 factor model	33	929	0.181	0.168	0.000	0.000	0.614	0.000	0.528
4 factor model	24	473	0.017	0.008	0.000	0.000	0.065	0.000	0.270
5 factor model	16	219	0.000	0.000	0.000	0.000	0.012	0.000	0.016
6 factor model	9	95	0.000	0.000	0.000	0.000	0.004	0.000	0.000
7 factor model	3	78	0.000	0.000	0.000	0.000	0.003	0.000	0.000
no model selected							0.147	0.000	0.178

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 1.13. Model convergence and model rejection and selection rates for WLSMV analysis of four response categories

DF	Convergence		Model rejection rates						Model selection rates			
	NC	NR/NC	Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	SRMSR (cut = 0.04)	Diff. test ( $\alpha = 0.05$ )
			NR/NT	NR/NT	NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	NS/NT
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.118	0.118	0.081	0.081	0.006	0.006	0.899	0.930	0.958	0.634
4 factor model	24	652	0.005	0.003	0.006	0.004	0.000	0.000	0.053	0.034	0.020	0.302
5 factor model	16	284	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.006	0.003	0.024
6 factor model	9	88	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.001	0.000
7 factor model	3	38	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000
no model selected									0.039	0.028	0.018	0.040
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	0.999	0.999	0.999	0.999	1.000	1.000	0.001	0.001	0.000	0.000
3 factor model	33	998	0.107	0.107	0.071	0.071	0.008	0.008	0.890	0.926	0.990	0.669
4 factor model	24	614	0.007	0.004	0.008	0.005	0.000	0.000	0.063	0.045	0.006	0.262
5 factor model	16	264	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.005	0.000	0.020
6 factor model	9	85	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000
7 factor model	3	37	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
no model selected									0.036	0.023	0.004	0.049
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>												
1 factor model	54	1,000	0.999	0.999	0.998	0.998	1.000	1.000	0.001	0.002	0.000	0.000
2 factor model	43	1,000	0.936	0.936	0.871	0.871	1.000	1.000	0.063	0.127	0.000	0.006
3 factor model	33	996	0.063	0.063	0.037	0.037	0.275	0.274	0.870	0.831	0.722	0.731
4 factor model	24	558	0.005	0.003	0.009	0.005	0.000	0.000	0.031	0.016	0.160	0.210
5 factor model	16	246	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.005	0.020	0.018
6 factor model	9	72	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.004	0.000
7 factor model	3	36	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.003	0.000
no model selected									0.026	0.018	0.091	0.035
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>												
1 factor model	54	1,000	0.815	0.815	0.622	0.622	1.000	1.000	0.185	0.378	0.000	0.000
2 factor model	43	970	0.287	0.278	0.164	0.159	0.960	0.931	0.522	0.454	0.039	0.282
3 factor model	33	837	0.031	0.026	0.022	0.018	0.165	0.138	0.229	0.133	0.674	0.531
4 factor model	24	474	0.002	0.001	0.004	0.002	0.000	0.000	0.019	0.009	0.086	0.094
5 factor model	16	192	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.002	0.020	0.003
6 factor model	9	86	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.001
7 factor model	3	30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000
no model selected									0.042	0.024	0.172	0.089
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.816	0.816	0.000	0.000	0.214	0.214	0.184	1.000	0.786	0.048
4 factor model	24	900	0.332	0.299	0.000	0.000	0.000	0.000	0.435	0.000	0.202	0.328
5 factor model	16	618	0.034	0.021	0.000	0.000	0.000	0.000	0.197	0.000	0.004	0.332
6 factor model	9	366	0.003	0.001	0.000	0.000	0.000	0.000	0.043	0.000	0.001	0.098
7 factor model	3	261	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.000	0.001
no model selected									0.121	0.000	0.007	0.193
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.829	0.829	0.000	0.000	0.344	0.344	0.171	1.000	0.656	0.066
4 factor model	24	873	0.355	0.310	0.000	0.000	0.003	0.003	0.423	0.000	0.304	0.274
5 factor model	16	647	0.039	0.025	0.000	0.000	0.000	0.000	0.241	0.000	0.019	0.355
6 factor model	9	396	0.000	0.000	0.000	0.000	0.000	0.000	0.041	0.000	0.004	0.116
7 factor model	3	268	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.005	0.001
no model selected									0.110	0.000	0.012	0.188
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.466	0.466	0.000	0.000	0.736	0.736	0.534	1.000	0.264	0.237
4 factor model	24	789	0.082	0.065	0.000	0.000	0.020	0.016	0.325	0.000	0.582	0.457
5 factor model	16	475	0.006	0.003	0.000	0.000	0.000	0.000	0.052	0.000	0.036	0.182
6 factor model	9	250	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.016	0.016
7 factor model	3	174	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.005	0.000
no model selected									0.078	0.000	0.097	0.108
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	0.817	0.817	1.000	1.000	0.000	0.183	0.000	0.000
2 factor model	43	1,000	1.000	1.000	0.099	0.099	1.000	1.000	0.000	0.718	0.000	0.000
3 factor model	33	1,000	0.451	0.451	0.000	0.000	0.746	0.746	0.549	0.099	0.254	0.281
4 factor model	24	741	0.097	0.072	0.000	0.000	0.034	0.025	0.282	0.000	0.538	0.403
5 factor model	16	439	0.007	0.003	0.000	0.000	0.000	0.000	0.051	0.000	0.053	0.163
6 factor model	9	213	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.009	0.018
7 factor model	3	169	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.014	0.000
no model selected									0.100	0.000	0.132	0.135

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 1.14. Model convergence and model rejection and selection rates for WLSMV analysis of three response categories

DF	Convergence		Model rejection rates						Model selection rates			
	NC	NR/NC	Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	SRMSR (cut = 0.04)	Diff. test ( $\alpha = 0.05$ )
			NR/NT	NR/NT	NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	NS/NT
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.101	0.101	0.070	0.070	0.042	0.042	0.899	0.930	0.958	0.710
4 factor model	24	575	0.005	0.003	0.007	0.004	0.000	0.000	0.053	0.034	0.020	0.236
5 factor model	16	219	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.006	0.003	0.006
6 factor model	9	62	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.001	0.001
7 factor model	3	28	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000
no model selected									0.039	0.028	0.018	0.047
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	999	0.993	0.992	0.988	0.987	1.000	0.999	0.007	0.012	0.000	0.000
3 factor model	33	999	0.092	0.092	0.070	0.070	0.064	0.064	0.900	0.917	0.935	0.739
4 factor model	24	542	0.011	0.006	0.011	0.006	0.000	0.000	0.054	0.041	0.041	0.212
5 factor model	16	216	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.006	0.005	0.012
6 factor model	9	65	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000
7 factor model	3	21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
no model selected									0.030	0.023	0.018	0.037
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>												
1 factor model	54	1,000	0.998	0.998	0.995	0.995	1.000	1.000	0.002	0.005	0.000	0.000
2 factor model	43	998	0.850	0.848	0.728	0.727	1.000	0.998	0.148	0.266	0.000	0.018
3 factor model	33	972	0.040	0.039	0.024	0.023	0.437	0.425	0.794	0.693	0.547	0.781
4 factor model	24	501	0.004	0.002	0.004	0.002	0.002	0.001	0.027	0.020	0.230	0.159
5 factor model	16	184	0.000	0.000	0.005	0.001	0.000	0.000	0.003	0.001	0.025	0.005
6 factor model	9	66	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000
7 factor model	3	22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000
no model selected									0.026	0.015	0.195	0.037
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>												
1 factor model	54	1,000	0.702	0.702	0.470	0.470	1.000	1.000	0.298	0.530	0.000	0.000
2 factor model	43	953	0.193	0.184	0.106	0.101	0.977	0.931	0.496	0.356	0.022	0.374
3 factor model	33	764	0.014	0.011	0.008	0.006	0.302	0.231	0.155	0.084	0.512	0.427
4 factor model	24	408	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.007	0.153	0.069
5 factor model	16	173	0.006	0.001	0.006	0.001	0.000	0.000	0.001	0.001	0.021	0.002
6 factor model	9	53	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.006	0.002
7 factor model	3	18	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.006	0.000
no model selected									0.034	0.020	0.280	0.126
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.651	0.651	0.000	0.000	0.416	0.416	0.349	1.000	0.584	0.133
4 factor model	24	818	0.197	0.161	0.000	0.000	0.000	0.000	0.380	0.000	0.343	0.382
5 factor model	16	534	0.017	0.009	0.000	0.000	0.000	0.000	0.116	0.000	0.019	0.263
6 factor model	9	297	0.000	0.000	0.000	0.000	0.000	0.000	0.027	0.000	0.008	0.043
7 factor model	3	208	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.003	0.001
no model selected									0.114	0.000	0.043	0.178
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.678	0.678	0.000	0.000	0.528	0.528	0.322	1.000	0.472	0.131
4 factor model	24	808	0.196	0.158	0.000	0.000	0.005	0.004	0.398	0.000	0.427	0.373
5 factor model	16	539	0.013	0.007	0.000	0.000	0.000	0.000	0.115	0.000	0.019	0.259
6 factor model	9	291	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.007	0.048
7 factor model	3	188	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.004	0.001
no model selected									0.137	0.000	0.071	0.188
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.349	0.349	0.000	0.000	0.829	0.829	0.651	1.000	0.171	0.309
4 factor model	24	757	0.055	0.042	0.000	0.000	0.078	0.059	0.232	0.000	0.572	0.442
5 factor model	16	434	0.002	0.001	0.000	0.000	0.000	0.000	0.041	0.000	0.070	0.146
6 factor model	9	207	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.020	0.008
7 factor model	3	144	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.012	0.000
no model selected									0.060	0.000	0.155	0.095
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	0.511	0.511	1.000	1.000	0.000	0.489	0.000	0.000
2 factor model	43	1,000	0.997	0.997	0.018	0.018	1.000	1.000	0.003	0.493	0.000	0.000
3 factor model	33	996	0.329	0.328	0.000	0.000	0.824	0.821	0.665	0.018	0.175	0.372
4 factor model	24	693	0.053	0.037	0.000	0.000	0.068	0.047	0.204	0.000	0.532	0.397
5 factor model	16	399	0.003	0.001	0.000	0.000	0.000	0.000	0.042	0.000	0.075	0.115
6 factor model	9	181	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.018	0.004
7 factor model	3	120	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.013	0.000
no model selected									0.072	0.000	0.187	0.112

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 1.15. Model convergence and model rejection and selection rates for WLSMV analysis of two response categories

DF	Convergence		Model rejection rates						Model selection rates			
	NC	NR/NC	Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		chi-sq ( $\alpha = 0.05$ )	RMSEA (cut = 0.05)	SRMSR (cut = 0.04)	Diff. test ( $\alpha = 0.05$ )
			NR/NT	NR/NT	NR/NC	NR/NT	NR/NC	NR/NT	NS/NT	NS/NT	NS/NT	NS/NT
<b>Condition 1: simple structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	997	1.000	0.997	1.000	0.997	1.000	0.997	0.000	0.000	0.000	0.000
3 factor model	33	991	0.065	0.064	0.040	0.040	0.284	0.281	0.927	0.951	0.710	0.816
4 factor model	24	389	0.000	0.000	0.000	0.000	0.000	0.000	0.025	0.017	0.118	0.131
5 factor model	16	92	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003
6 factor model	9	19	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000
7 factor model	3	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
no model selected									0.047	0.032	0.168	0.050
<b>Condition 2: complex structure / high factor loadings / sample size 200</b>												
1 factor model	54	1,000	0.998	0.998	0.994	0.994	1.000	1.000	0.002	0.006	0.000	0.000
2 factor model	43	989	0.865	0.855	0.753	0.745	0.999	0.988	0.132	0.238	0.001	0.023
3 factor model	33	934	0.047	0.044	0.029	0.027	0.317	0.296	0.767	0.682	0.637	0.794
4 factor model	24	331	0.003	0.001	0.003	0.001	0.000	0.000	0.019	0.013	0.103	0.090
5 factor model	16	90	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.009	0.003
6 factor model	9	11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000
7 factor model	3	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
no model selected									0.079	0.060	0.248	0.090
<b>Condition 3: simple structure / low factor loadings / sample size 200</b>												
1 factor model	54	991	0.913	0.905	0.795	0.788	1.000	0.991	0.086	0.203	0.000	0.000
2 factor model	43	946	0.452	0.428	0.281	0.266	1.000	0.946	0.437	0.487	0.000	0.171
3 factor model	33	833	0.030	0.025	0.018	0.015	0.696	0.580	0.383	0.243	0.253	0.636
4 factor model	24	357	0.000	0.000	0.000	0.000	0.014	0.005	0.010	0.009	0.254	0.082
5 factor model	16	115	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.000
6 factor model	9	24	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.003	0.000
7 factor model	3	6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000
no model selected									0.083	0.057	0.470	0.111
<b>Condition 4: complex structure / low factor loadings / sample size 200</b>												
1 factor model	54	1,000	0.413	0.413	0.200	0.200	1.000	1.000	0.587	0.800	0.000	0.000
2 factor model	43	869	0.055	0.048	0.023	0.020	0.991	0.861	0.310	0.161	0.008	0.459
3 factor model	33	575	0.009	0.005	0.005	0.003	0.501	0.288	0.037	0.015	0.280	0.226
4 factor model	24	253	0.000	0.000	0.000	0.000	0.016	0.004	0.012	0.004	0.136	0.010
5 factor model	16	74	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.026	0.001
6 factor model	9	22	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.007	0.000
7 factor model	3	5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000
no model selected									0.051	0.018	0.542	0.304
<b>Condition 5: simple structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
3 factor model	33	1,000	0.304	0.304	0.000	0.000	0.651	0.651	0.696	1.000	0.349	0.391
4 factor model	24	675	0.043	0.029	0.000	0.000	0.013	0.009	0.177	0.000	0.442	0.407
5 factor model	16	354	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.033	0.084
6 factor model	9	145	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.012	0.000
7 factor model	3	101	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.005	0.000
no model selected									0.099	0.000	0.159	0.118
<b>Condition 6: complex structure / high factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	0.999	0.999	1.000	1.000	0.000	0.001	0.000	0.000
3 factor model	33	1,000	0.315	0.315	0.000	0.000	0.702	0.702	0.685	0.999	0.298	0.388
4 factor model	24	682	0.038	0.026	0.000	0.000	0.025	0.017	0.187	0.000	0.466	0.405
5 factor model	16	341	0.006	0.002	0.000	0.000	0.000	0.000	0.023	0.000	0.035	0.085
6 factor model	9	132	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.013	0.001
7 factor model	3	96	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.005	0.001
no model selected									0.096	0.000	0.183	0.120
<b>Condition 7: simple structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
2 factor model	43	1,000	1.000	1.000	0.771	0.771	1.000	1.000	0.000	0.229	0.000	0.000
3 factor model	33	1,000	0.179	0.179	0.000	0.000	0.928	0.928	0.821	0.771	0.072	0.520
4 factor model	24	649	0.018	0.012	0.000	0.000	0.160	0.104	0.112	0.000	0.503	0.360
5 factor model	16	312	0.003	0.001	0.000	0.000	0.000	0.000	0.010	0.000	0.081	0.054
6 factor model	9	126	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.017	0.001
7 factor model	3	104	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.015	0.000
no model selected									0.052	0.000	0.312	0.065
<b>Condition 8: complex structure / low factor loadings / sample size 1,000</b>												
1 factor model	54	1,000	1.000	1.000	0.014	0.014	1.000	1.000	0.000	0.986	0.000	0.000
2 factor model	43	998	0.884	0.882	0.000	0.000	1.000	0.998	0.116	0.014	0.000	0.012
3 factor model	33	982	0.132	0.130	0.000	0.000	0.902	0.886	0.743	0.000	0.096	0.568
4 factor model	24	604	0.013	0.008	0.000	0.000	0.141	0.085	0.075	0.000	0.456	0.322
5 factor model	16	276	0.004	0.001	0.000	0.000	0.000	0.000	0.007	0.000	0.071	0.027
6 factor model	9	126	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.020	0.001
7 factor model	3	113	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.016	0.000
no model selected									0.056	0.000	0.341	0.070

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT is the total number of datasets (1,000); NS is the number of data sets with which the model is selected.

Table 2. Rejection rates according different estimation methods, various fit criteria and cutoff values, across all conditions with discrete responses

	Chi-square		RMSEA				SRMSR					
	$(\alpha = 0.05)$ $(\alpha = 0.10)$		$(cut = 0.03)$	$(cut = 0.04)$	$(cut = 0.05)$	$(cut = 0.06)$	$(cut = 0.02)$	$(cut = 0.03)$	$(cut = 0.04)$	$(cut = 0.05)$		
	NC	NC/NT	NR/NT	NR/NT	NR/NT	NR/NT	NR/NT	NR/NT	NR/NT	NR/NT		
<b>Series 1: Rejection rates for ML</b>												
Sample size 200												
Model 1	11,972	0.998	0.910	0.939	0.961	0.915	0.845	0.746	0.998	0.998	0.998	0.980
Model 2	11,385	0.949	0.701	0.750	0.809	0.730	0.640	0.536	0.949	0.949	0.907	0.655
Model 3	10,266	0.856	0.001	0.180	0.314	0.185	0.083	0.026	0.852	0.466	0.028	0.000
Model 4	4,949	0.412	0.000	0.015	0.047	0.024	0.006	0.001	0.275	0.011	0.000	0.000
Model 5	1,985	0.165	0.000	0.000	0.004	0.001	0.000	0.000	0.009	0.000	0.000	0.000
Model 6	814	0.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Model 7	391	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sample size 1,000												
Model 1	11,999	1.000	1.000	1.000	0.993	0.941	0.845	0.736	1.000	0.996	0.875	0.749
Model 2	11,996	1.000	0.990	0.994	0.936	0.818	0.697	0.627	0.999	0.844	0.691	0.498
Model 3	11,952	0.996	0.550	0.647	0.206	0.021	0.001	0.000	0.094	0.000	0.000	0.000
Model 4	8,666	0.722	0.137	0.204	0.036	0.002	0.000	0.000	0.000	0.000	0.000	0.000
Model 5	5,026	0.419	0.010	0.022	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Model 6	2,626	0.219	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Model 7	1,383	0.115	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Series 2: Rejection rates for WLS</b>												
Sample size 200												
Model 1	11,791	0.983	0.973	0.977	0.980	0.974	0.959	0.921	-	-	-	-
Model 2	10,758	0.897	0.777	0.815	0.848	0.803	0.716	0.586	-	-	-	-
Model 3	9,268	0.772	0.210	0.293	0.426	0.298	0.168	0.073	-	-	-	-
Model 4	3,960	0.330	0.007	0.017	0.050	0.024	0.008	0.002	-	-	-	-
Model 5	1,394	0.116	0.000	0.000	0.002	0.001	0.000	0.000	-	-	-	-
Model 6	408	0.034	0.000	0.000	0.000	0.000	0.000	0.000	-	-	-	-
Model 7	166	0.014	0.000	0.000	0.000	0.000	0.000	0.000	-	-	-	-
Sample size 1,000												
Model 1	12,000	1.000	1.000	1.000	0.990	0.923	0.802	0.694	-	-	-	-
Model 2	11,983	0.999	0.985	0.991	0.917	0.771	0.611	0.422	-	-	-	-
Model 3	11,914	0.993	0.514	0.621	0.156	0.010	0.000	0.000	-	-	-	-
Model 4	8,004	0.667	0.100	0.160	0.020	0.000	0.000	0.000	-	-	-	-
Model 5	4,460	0.372	0.004	0.013	0.001	0.000	0.000	0.000	-	-	-	-
Model 6	2,187	0.182	0.000	0.001	0.000	0.000	0.000	0.000	-	-	-	-
Model 7	1,285	0.107	0.000	0.000	0.000	0.000	0.000	0.000	-	-	-	-
<b>Series 3: Rejection rates for WLSMV</b>												
Sample size 200												
Model 1	11,991	0.999	0.903	0.935	0.959	0.910	0.839	0.749	0.999	0.999	0.999	0.991
Model 2	11,721	0.977	0.714	0.765	0.824	0.746	0.656	0.566	0.977	0.971	0.905	0.739
Model 3	10,899	0.908	0.058	0.115	0.246	0.119	0.038	0.007	0.653	0.219	0.021	0.001
Model 4	5,654	0.471	0.002	0.007	0.035	0.012	0.002	0.000	0.042	0.001	0.000	0.000
Model 5	2,149	0.179	0.000	0.000	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Model 6	653	0.054	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Model 7	246	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sample size 1,000												
Model 1	12,000	1.000	1.000	1.000	0.992	0.943	0.862	0.765	1.000	1.000	1.000	1.000
Model 2	11,998	1.000	0.990	0.994	0.938	0.841	0.741	0.677	1.000	1.000	1.000	0.998
Model 3	11,978	0.998	0.458	0.576	0.119	0.006	0.000	0.000	0.969	0.650	0.197	0.020
Model 4	8,989	0.749	0.102	0.164	0.018	0.000	0.000	0.000	0.297	0.031	0.001	0.000
Model 5	5,368	0.447	0.006	0.016	0.002	0.000	0.000	0.000	0.003	0.000	0.000	0.000
Model 6	2,730	0.228	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Model 7	1,946	0.162	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Series 4: Rejection rates for MLR</b>												
Sample size 200												
Model 1	7,999	0.999	0.943	0.963	0.979	0.947	0.891	0.814	0.999	0.999	0.999	0.988
Model 2	7,751	0.934	0.799	0.836	0.868	0.823	0.754	0.669	0.934	0.934	0.898	0.699
Model 3	7,365	0.843	0.213	0.302	0.441	0.306	0.170	0.077	0.838	0.404	0.024	0.000
Model 4	5,597	0.377	0.046	0.069	0.123	0.082	0.048	0.024	0.222	0.005	0.000	0.000
Model 5	3,176	0.140	0.010	0.016	0.032	0.023	0.015	0.008	0.005	0.000	0.000	0.000
Model 6	1,664	0.055	0.003	0.003	0.007	0.005	0.004	0.003	0.000	0.000	0.000	0.000
Model 7	785	0.025	0.001	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000
Sample size 1,000												
Model 1	7,993	1.000	1.000	1.000	1.000	0.990	0.879	0.758	1.000	1.000	0.929	0.752
Model 2	7,474	0.969	0.968	0.969	0.958	0.880	0.772	0.729	0.969	0.854	0.732	0.601
Model 3	6,741	0.921	0.613	0.696	0.256	0.029	0.001	0.000	0.097	0.000	0.000	0.000
Model 4	3,013	0.700	0.291	0.370	0.132	0.023	0.003	0.001	0.000	0.000	0.000	0.000
Model 5	1,122	0.397	0.086	0.116	0.055	0.014	0.002	0.000	0.000	0.000	0.000	0.000
Model 6	441	0.208	0.016	0.024	0.016	0.005	0.002	0.001	0.000	0.000	0.000	0.000
Model 7	200	0.098	0.002	0.003	0.003	0.002	0.001	0.001	0.000	0.000	0.000	0.000
<b>Series 5: Rejection rates for ML with polychoric correlations</b>												
Sample size 200												
Model 1	11,854	0.988	0.988	0.988	0.988	0.988	0.988	0.986	0.988	0.988	0.988	0.988
Model 2	11,165	0.930	0.927	0.928	0.930	0.928	0.922	0.906	0.930	0.930	0.930	0.920
Model 3	10,172	0.848	0.791	0.811	0.831	0.812	0.778	0.719	0.848	0.815	0.557	0.277
Model 4	6,681	0.557	0.412	0.449	0.496	0.465	0.418	0.357	0.547	0.348	0.132	0.041
Model 5	4,990	0.416	0.190	0.225	0.289	0.257	0.219	0.176	0.286	0.085	0.019	0.002
Model 6	4,477	0.373	0.088	0.113	0.182	0.157	0.129	0.104	0.072	0.008	0.001	0.000
Model 7	2,994	0.250	0.021	0.034	0.078	0.069	0.059	0.046	0.003	0.000	0.000	0.000
Sample size 1,000												
Model 1	12,000	0.000	1.000	1.000	1.000	1.000	1.000	0.993	1.000	1.000	1.000	0.986
Model 2	11,993	0.001	0.999	0.999	0.999	0.999	0.979	0.883	0.999	0.999	0.921	0.771
Model 3	11,973	0.002	0.991	0.994	0.948	0.793	0.544	0.303	0.814	0.156	0.005	0.000
Model 4	10,478	0.127	0.803	0.829	0.710	0.497	0.274	0.133	0.263	0.008	0.000	0.000
Model 5	9,430	0.214	0.520	0.582	0.433	0.241	0.110	0.050	0.017	0.000	0.000	0.000
Model 6	8,717	0.274	0.201	0.267	0.196	0.096	0.042	0.016	0.000	0.000	0.000	0.000
Model 7	7,309	0.391	0.040	0.063	0.077	0.040	0.019	0.008	0.000	0.000	0.000	0.000

Notes: NC is the number of analyses with convergence; NR is the number of data sets with which the model is rejected; NT contains 12,000 datasets with the ML, WLS, WLSMV, and ML with polychoric correlations estimation method, and model rejection rates are calculated over 4 conditions x 3 response scale types; NT contains 8,000 datasets with the MLR method, and model rejection rates are calculated over 4 conditions x 2 response scale types; with MLR, data sets that yielded invalid results (i.e. decreasing chi-square values with increasing numbers of factors) were excluded from analysis (4.5%).



Table 3. Selection rates according different estimation methods, various fit criteria and cutoff values, across all conditions with discrete responses

	Chi-square		RMSEA				SRMSR				Difference Test	
	$(\alpha = 0.05)$ $(\alpha = 0.10)$		$(cut = 0.03)$	$(cut = 0.04)$	$(cut = 0.05)$	$(cut = 0.06)$	$(cut = 0.02)$	$(cut = 0.03)$	$(cut = 0.04)$	$(cut = 0.05)$	$(\alpha = 0.05)$	$(\alpha = 0.10)$
	NS/NT	NS/NT	NS/NT	NS/NT	NS/NT	NS/NT	NS/NT	NS/NT	NS/NT	NS/NT	NS/NT	
<b>Series 1: Selection rates for ML</b>												
Sample size 200												
Model 1	0.087	0.017	0.036	0.083	0.153	0.252	0.000	0.000	0.000	0.017	0.000	0.000
Model 2	0.177	0.282	0.112	0.152	0.183	0.199	0.000	0.000	0.042	0.282	0.101	0.091
Model 3	0.560	0.644	0.446	0.513	0.539	0.505	0.004	0.389	0.801	0.644	0.530	0.493
Model 4	0.056	0.007	0.109	0.072	0.041	0.013	0.136	0.210	0.027	0.007	0.193	0.186
Model 5	0.009	0.003	0.024	0.015	0.006	0.002	0.111	0.031	0.007	0.003	0.016	0.016
Model 6	0.003	0.001	0.008	0.005	0.002	0.001	0.030	0.011	0.003	0.001	0.001	0.001
Model 7	0.002	0.000	0.006	0.003	0.001	0.000	0.013	0.006	0.001	0.000	0.000	0.000
No model	0.106	0.046	0.259	0.158	0.075	0.029	0.707	0.353	0.118	0.046	0.159	0.213
Sample size 1,000												
Model 1	0.000	0.000	0.007	0.059	0.155	0.264	0.000	0.004	0.125	0.251	0.000	0.000
Model 2	0.010	0.006	0.057	0.123	0.148	0.108	0.001	0.152	0.183	0.251	0.014	0.013
Model 3	0.436	0.343	0.728	0.797	0.697	0.627	0.902	0.844	0.692	0.498	0.236	0.206
Model 4	0.286	0.287	0.130	0.017	0.000	0.000	0.068	0.000	0.000	0.000	0.339	0.307
Model 5	0.095	0.123	0.027	0.002	0.000	0.000	0.005	0.000	0.000	0.000	0.176	0.170
Model 6	0.022	0.031	0.006	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.033	0.032
Model 7	0.009	0.013	0.003	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
No model	0.142	0.197	0.042	0.002	0.000	0.000	0.021	0.000	0.000	0.000	0.202	0.272
<b>Series 2: Selection rates for WLS</b>												
Sample size 200												
Model 1	0.010	0.005	0.003	0.008	0.023	0.062	-	-	-	-	0.000	0.000
Model 2	0.113	0.078	0.047	0.087	0.162	0.260	-	-	-	-	0.041	0.030
Model 3	0.477	0.420	0.312	0.407	0.474	0.472	-	-	-	-	0.385	0.336
Model 4	0.078	0.102	0.123	0.097	0.061	0.030	-	-	-	-	0.207	0.198
Model 5	0.011	0.014	0.023	0.015	0.009	0.004	-	-	-	-	0.012	0.012
Model 6	0.002	0.003	0.005	0.003	0.001	0.001	-	-	-	-	0.000	0.000
Model 7	0.002	0.002	0.003	0.002	0.001	0.000	-	-	-	-	0.000	0.000
No model	0.309	0.375	0.484	0.381	0.268	0.171	-	-	-	-	0.355	0.424
Sample size 1,000												
Model 1	0.000	0.000	0.010	0.077	0.198	0.306	-	-	-	-	0.000	0.000
Model 2	0.014	0.008	0.072	0.152	0.191	0.272	-	-	-	-	0.001	0.000
Model 3	0.466	0.364	0.759	0.760	0.611	0.422	-	-	-	-	0.248	0.211
Model 4	0.254	0.266	0.093	0.008	0.000	0.000	-	-	-	-	0.361	0.331
Model 5	0.068	0.095	0.016	0.001	0.000	0.000	-	-	-	-	0.149	0.144
Model 6	0.015	0.021	0.004	0.000	0.000	0.000	-	-	-	-	0.022	0.022
Model 7	0.006	0.010	0.001	0.000	0.000	0.000	-	-	-	-	0.000	0.000
No model	0.177	0.236	0.045	0.003	0.000	0.000	-	-	-	-	0.219	0.292
<b>Series 3: Selection rates for WLSMV</b>												
Sample size 200												
Model 1	0.097	0.065	0.040	0.089	0.160	0.250	0.000	0.000	0.000	0.009	0.000	0.000
Model 2	0.176	0.154	0.118	0.151	0.175	0.180	0.000	0.006	0.071	0.231	0.111	0.104
Model 3	0.644	0.633	0.550	0.613	0.610	0.555	0.255	0.684	0.832	0.719	0.638	0.612
Model 4	0.034	0.060	0.103	0.056	0.022	0.006	0.282	0.109	0.018	0.006	0.154	0.152
Model 5	0.004	0.008	0.020	0.009	0.003	0.001	0.043	0.013	0.004	0.001	0.008	0.008
Model 6	0.001	0.002	0.004	0.002	0.001	0.000	0.009	0.003	0.001	0.000	0.000	0.000
Model 7	0.000	0.001	0.002	0.001	0.000	0.000	0.003	0.001	0.000	0.000	0.000	0.000
No model	0.044	0.077	0.163	0.079	0.028	0.009	0.408	0.184	0.073	0.034	0.089	0.124
Sample size 1,000												
Model 1	0.000	0.000	0.008	0.057	0.138	0.236	0.000	0.000	0.000	0.000	0.000	0.000
Model 2	0.010	0.006	0.054	0.103	0.121	0.088	0.000	0.000	0.000	0.002	0.001	0.001
Model 3	0.531	0.417	0.819	0.835	0.741	0.677	0.029	0.348	0.801	0.976	0.287	0.253
Model 4	0.269	0.294	0.084	0.005	0.000	0.000	0.429	0.447	0.140	0.015	0.379	0.353
Model 5	0.076	0.107	0.015	0.000	0.000	0.000	0.181	0.043	0.011	0.001	0.172	0.168
Model 6	0.016	0.025	0.003	0.000	0.000	0.000	0.033	0.012	0.004	0.000	0.030	0.029
Model 7	0.007	0.012	0.002	0.000	0.000	0.000	0.023	0.008	0.002	0.000	0.000	0.000
No model	0.091	0.138	0.016	0.000	0.000	0.000	0.304	0.142	0.043	0.006	0.131	0.197
<b>Series 4: Selection rates for MLR</b>												
Sample size 200												
Model 1	0.056	0.036	0.021	0.052	0.108	0.185	0.000	0.000	0.000	0.011	0.000	0.000
Model 2	0.095	0.072	0.052	0.075	0.099	0.118	0.000	0.000	0.036	0.228	0.070	0.057
Model 3	0.540	0.480	0.361	0.466	0.548	0.569	0.005	0.439	0.798	0.681	0.496	0.435
Model 4	0.068	0.084	0.093	0.075	0.050	0.031	0.153	0.179	0.035	0.019	0.109	0.103
Model 5	0.016	0.020	0.026	0.019	0.011	0.007	0.094	0.027	0.008	0.004	0.010	0.010
Model 6	0.005	0.008	0.011	0.008	0.004	0.002	0.025	0.009	0.003	0.001	0.002	0.002
Model 7	0.003	0.004	0.006	0.004	0.002	0.002	0.011	0.004	0.002	0.001	0.000	0.000
No model	0.218	0.295	0.431	0.302	0.179	0.087	0.712	0.342	0.120	0.055	0.314	0.395
Sample size 1,000												
Model 1	0.000	0.000	0.000	0.010	0.121	0.242	0.000	0.000	0.071	0.248	0.000	0.000
Model 2	0.001	0.000	0.011	0.080	0.087	0.029	0.000	0.115	0.170	0.134	0.000	0.000
Model 3	0.307	0.224	0.654	0.804	0.724	0.675	0.824	0.809	0.698	0.569	0.227	0.175
Model 4	0.218	0.195	0.142	0.070	0.054	0.045	0.127	0.060	0.050	0.042	0.212	0.179
Model 5	0.107	0.121	0.040	0.007	0.002	0.002	0.009	0.003	0.002	0.002	0.106	0.097
Model 6	0.050	0.059	0.022	0.004	0.002	0.001	0.004	0.001	0.001	0.000	0.029	0.029
Model 7	0.016	0.023	0.008	0.002	0.001	0.001	0.002	0.001	0.001	0.001	0.003	0.003
No model	0.301	0.378	0.124	0.023	0.010	0.007	0.035	0.012	0.009	0.006	0.423	0.517
<b>Series 5: Selection rates for ML with polychoric correlations</b>												
Sample size 200												
Model 1	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000
Model 2	0.004	0.002	0.001	0.003	0.008	0.023	0.000	0.000	0.000	0.010	0.001	0.001
Model 3	0.054	0.035	0.016	0.034	0.063	0.107	0.000	0.032	0.291	0.562	0.027	0.019
Model 4	0.101	0.080	0.048	0.065	0.086	0.106	0.010	0.186	0.224	0.136	0.079	0.063
Model 5	0.128	0.117	0.084	0.093	0.101	0.100	0.122	0.204	0.127	0.070	0.096	0.083
Model 6	0.133	0.132	0.107	0.108	0.106	0.097	0.226	0.154	0.084	0.044	0.069	0.062
Model 7	0.075	0.078	0.071	0.066	0.058	0.051	0.113	0.061	0.032	0.016	0.020	0.017
No model	0.506	0.557	0.673	0.632	0.578	0.515	0.528	0.363	0.242	0.163	0.709	0.756
Sample size 1,000												
Model 1	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.014	0.000	0.000
Model 2	0.000	0.000	0.000	0.001	0.020	0.109	0.000	0.000	0.079	0.215	0.000	0.000
Model 3	0.007	0.004	0.050	0.204	0.434	0.579	0.184	0.841	0.915	0.770	0.002	0.001
Model 4	0.063	0.041	0.117	0.189	0.185	0.112	0.440	0.117	0.005	0.001	0.024	0.020
Model 5	0.202	0.163	0.204	0.204	0.135	0.069	0.238	0.022	0.001	0.000	0.130	0.114
Model 6	0.299	0.286	0.227	0.155	0.086	0.049	0.070	0.009	0.001	0.000	0.290	0.264
Model 7	0.162	0.185	0.119	0.072	0.036	0.019	0.024	0.003	0.000	0.000	0.140	0.130
No model	0.267	0.322	0.283	0.175	0.104	0.057	0.045	0.008	0.000	0.000	0.414	0.471

Table 4. Ordinal logistic regression analysis of model selection, for different estimation methods according to various fit criteria, across all conditions with discrete responses

Conditions	Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		SRMSR (cut = 0.04)		Diff. test ( $\alpha = 0.05$ )	
	$\beta$	OR	$\beta$	OR	$\beta$	OR	$\beta$	OR
<b>Ordinal logistic regression analysis of model selection through ML</b>								
High loadings	2.513	12.341	5.372	215.202	3.795	44.456	2.199	9.019
Simple structure	0.562	1.755	2.786	16.211	3.465	31.968	0.004	1.004
Large sample size	3.746	42.339	0.102	1.107	-3.366	0.035	2.773	16.009
3 response categories	1.158	3.185	1.584	4.873	1.427	4.167	2.217	9.181
4 response categories	1.590	4.903	2.135	8.459	1.694	5.441	1.067	2.906
Continuous responses	2.775	16.038	3.365	28.934	1.968	7.159	1.473	4.360
<b>Ordinal logistic regression analysis of model selection through WLS</b>								
High loadings	1.566	4.787	4.037	56.639	-	-	1.175	3.240
Simple structure	0.634	1.886	3.006	20.201	-	-	0.546	1.726
Large sample size	2.226	9.261	-1.729	0.177	-	-	1.993	7.336
3 response categories	1.249	3.488	1.604	4.973	-	-	1.156	3.178
4 response categories	1.816	6.145	2.205	9.073	-	-	1.621	5.059
<b>Ordinal logistic regression analysis of model selection through WLSMV</b>								
					WRMSR (cut = 0.50)			
					$\beta$	OR		
High loadings	2.287	9.845	1.959	7.092	-1.633	0.195	1.401	4.060
Simple structure	1.002	2.724	0.832	2.298	-0.032	0.969	0.570	1.769
Large sample size	3.722	41.341	3.388	29.615	2.304	10.009	2.961	19.313
3 response categories	1.362	3.902	1.252	3.498	-0.694	0.499	1.112	3.042
4 response categories	1.937	6.938	1.814	6.134	-1.318	0.268	1.647	5.191
<b>Series 4: Ordinal logistic regression analysis of model selection for MLR</b>								
					SRMSR (cut = 0.04)			
					$\beta$	OR		
High loadings	1.848	6.346	3.295	26.983	2.483	11.982	0.325	1.384
Simple structure	0.359	1.432	1.901	6.696	1.802	6.059	0.489	1.630
Large sample size	2.952	19.149	0.179	1.197	-1.300	0.273	0.334	1.397
4 response categories	0.414	1.513	0.383	1.467	0.127	1.136	0.076	1.079
<b>Series 5: Ordinal logistic regression analysis of model selection for ML with polychoric correlations</b>								
High loadings	1.469	4.345	2.109	8.242	-0.710	0.492	1.601	4.958
Simple structure	0.137	1.147	0.288	1.334	0.352	1.422	0.132	1.141
Large sample size	0.831	2.296	-2.827	0.059	-	-	-	-
3 response categories	-1.766	0.171	-2.424	0.089	-0.284	0.753	-1.982	0.138
4 response categories	-2.608	0.074	-3.452	0.032	-0.771	0.462	-2.732	0.065

Notes:  $\beta$  is the log odds ratio and OR is the ratio of odds of model selection in the particular condition over the odds in the condition of reference; the condition of reference has small factor loadings, complex structure, small sample size, and dichotomous response scales (or three-point response scales with MLR); with ML analysis of polychoric correlations, the sample size effect was omitted from analysis because the unbalanced design caused inconsistent results; with MLR, data sets that yielded invalid results (i.e. decreasing chi-square values with increasing numbers of factors) were excluded from analysis (4.5%); with ML estimation, the regression analysis is based on 32,000 data sets, with WLS and WLSMV on 24,000 data sets, and with MLR on 16,000 data sets.

Table 5. Ordinal logistic regression of model selection with the ML and WLSMV methods, across all conditions with dichotomous, three-point, and four-point response scales

conditions	Chi-square ( $\alpha = 0.05$ )		RMSEA (cut = 0.05)		Diff. test ( $\alpha = 0.05$ )	
	$\beta$	OR	$\beta$	OR	$\beta$	OR
ML estimation	0.291	1.338	-0.167	0.846	0.182	1.199
High loadings	2.476	11.895	6.178	481.942	1.695	5.447
Simple data structure	0.799	2.224	3.747	42.375	0.343	1.410
Large sample size	3.656	38.725	0.464	1.590	2.816	16.716
3 response categories	1.294	3.649	1.777	5.912	1.086	2.962
4 response categories	1.819	6.167	2.434	11.404	1.559	4.753

Notes:  $\beta$  is the log odds ratio and OR is the ratio of odds of model selection in the particular condition over the odds in the condition of reference; the condition of reference is small loadings, complex structure, small sample size, and dichotomous response scales, analyzed with the WLS method; for chi-square tests, odds ratios are calculated for 41,106 datasets: 13,796, 13,682, and 13,628 cases with dichotomous, three-point, and four-point responses respectively; for RMSEA indices, odds ratios are calculated for 45,960 datasets: 15,290, 15,342, and 15,328 cases with dichotomous, three-point, and four-point responses respectively; for chi-square difference tests, odds ratios are calculated for 38,070 datasets: 12,550, 12,810, and 12,710 cases with dichotomous, three-point, and four-point responses respectively.

Table 6. Proportions of non-convergence, calculated across all conditions with with three-point and four-point response scales

	Estimation methods				
	ML	MLR	WLSMV	Polychoric ML	WLS
Model 1	0.000	0.001	0.000	0.001	0.002
Model 2	0.018	0.048	0.005	0.012	0.027
Model 3	0.057	0.118	0.027	0.033	0.074
Model 4	0.408	0.462	0.331	0.214	0.439
Model 5	0.681	0.731	0.634	0.328	0.711
Model 6	0.840	0.868	0.826	0.379	0.864
Model 7	0.922	0.938	0.890	0.503	0.928

Notes: The total number of data sets in these conditions is 16,000.