

Supplementary Tables

Item Drift in the Youth Self-Report: Analysis of suicidal ideation and self-harm items as examples

The editable workbook version of these tables is provided as Supplementary Dataset S1.xlsx.

Supplementary Table S1. Anchored item parameters

scale	item	a	b1	b2
withdrawn	ysr42	1.292	0.576	2.453
withdrawn	ysr65	1.148	1.057	3.322
withdrawn	ysr69	1.832	-0.184	1.339
withdrawn	ysr75	1.394	0.089	1.735
withdrawn	ysr102	1.105	0.524	2.861
withdrawn	ysr103	2.146	0.595	1.903
withdrawn	ysr111	0.613	0.795	4.701
somatic	ysr51	1.69	1.069	2.492
somatic	ysr54	1.16	-0.286	1.978
somatic	ysr56a	1.737	1.297	2.497
somatic	ysr56b	1.895	0.153	1.785
somatic	ysr56c	2.029	1.049	2.357
somatic	ysr56d	1.094	1.931	3.074
somatic	ysr56e	0.913	1.609	3.507
somatic	ysr56f	1.881	0.572	2.081
somatic	ysr56g	1.708	1.736	3.058
somatic	ysr56h	1.285	2.558	3.255
anxious_depressed	ysr12	1.902	0.457	1.806
anxious_depressed	ysr14	1.447	0.625	2.154
anxious_depressed	ysr31	1.497	0.757	2.277
anxious_depressed	ysr32	0.865	0.292	2.632
anxious_depressed	ysr33	1.832	0.985	2.146
anxious_depressed	ysr34	1.506	1.207	2.694
anxious_depressed	ysr35	2.459	0.625	1.88
anxious_depressed	ysr45	1.309	-0.364	1.727
anxious_depressed	ysr50	1.777	0.941	2.387
anxious_depressed	ysr52	1.626	0.709	2.227
anxious_depressed	ysr71	1.748	0.469	2.087
anxious_depressed	ysr89	1.028	-0.004	2.387
anxious_depressed	ysr103	2.562	0.563	1.777
anxious_depressed	ysr112	2.013	-0.302	1.218
anxious_depressed	ysr18	1.81	1.681	2.661
anxious_depressed	ysr91	1.786	1.477	2.507
social_problems	ysr1	0.831	1.053	4.129
social_problems	ysr11	0.709	0.575	3.92
social_problems	ysr25	1.74	1.132	2.31
social_problems	ysr38	1.83	0.921	2.167
social_problems	ysr48	2.544	0.947	2.138
social_problems	ysr62	1.136	1.471	3.271
social_problems	ysr64	0.844	1.693	4.208
social_problems	ysr111	0.509	0.919	5.539
thought_problems	ysr9	1.257	1.015	2.103

scale	item	a	b1	b2
thought_problems	ysr40	1.681	1.735	2.507
thought_problems	ysr66	1.365	1.324	2.457
thought_problems	ysr70	1.85	1.548	2.233
thought_problems	ysr84	2.501	1.087	2.038
thought_problems	ysr85	2.167	0.983	2.091
thought_problems	ysr83	1.015	1.336	2.972
attention_problems	ysr1	0.937	0.967	3.747
attention_problems	ysr8	1.469	-0.075	1.815
attention_problems	ysr10	0.967	-0.047	2.253
attention_problems	ysr13	1.555	0.724	2.301
attention_problems	ysr17	1.004	-1.408	0.824
attention_problems	ysr41	1.174	-0.155	2.585
attention_problems	ysr45	1.235	-0.382	1.788
attention_problems	ysr61	0.736	-0.104	3.194
attention_problems	ysr62	1.256	1.388	3.056
attention_problems	ysr80	0.235	-7.743	0.948
rule_breaking	ysr26	0.685	0.459	3.534
rule_breaking	ysr39	1.469	0.622	2.237
rule_breaking	ysr43	1.375	0.063	2.601
rule_breaking	ysr63	0.748	-0.257	2.559
rule_breaking	ysr67	1.992	2.129	3.127
rule_breaking	ysr72	1.698	1.615	2.605
rule_breaking	ysr81	2.118	2.205	3.053
rule_breaking	ysr82	2.519	2.06	2.772
rule_breaking	ysr90	1.545	-0.618	1.38
rule_breaking	ysr101	1.881	1.064	2.486
rule_breaking	ysr105	1.994	1.239	2.28
aggressive	ysr3	1.284	-1.104	1.679
aggressive	ysr7	0.945	0.846	4.239
aggressive	ysr16	0.886	1.754	3.902
aggressive	ysr19	0.933	0.571	3.15
aggressive	ysr20	1.545	1.542	2.978
aggressive	ysr21	1.665	1.921	3.186
aggressive	ysr23	1.291	0.712	2.994
aggressive	ysr27	1.012	0.202	2.572
aggressive	ysr37	1.448	1.597	2.956
aggressive	ysr57	1.735	1.356	2.904
aggressive	ysr68	1.792	0.231	1.822
aggressive	ysr74	1.276	0.839	2.938
aggressive	ysr86	0.997	-1.395	1.264
aggressive	ysr87	1.151	-0.299	1.759
aggressive	ysr93	1.154	-0.459	1.637
aggressive	ysr94	1.916	0.581	2.169
aggressive	ysr95	1.819	-0.07	1.444

scale	item	a	b1	b2
aggressive	ysr97	2.06	1.515	2.592
aggressive	ysr104	1.811	0.748	2.181

Note. Item discrimination (a) and threshold (b1, b2) parameters from anchored multiple-group graded response models.

Supplementary Table S2. Freely estimated item parameters

item	group	scale	a	b1	b2
ysr42	2000	withdrawn	1.196	0.801	2.82
ysr65	2000	withdrawn	1.062	1.296	3.614
ysr69	2000	withdrawn	1.691	-0.139	1.541
ysr75	2000	withdrawn	1.408	0.226	1.984
ysr102	2000	withdrawn	0.977	0.479	3.169
ysr103	2000	withdrawn	2.266	0.668	2.087
ysr111	2000	withdrawn	0.578	0.987	4.933
ysr42	2011	withdrawn	1.305	0.419	2.063
ysr65	2011	withdrawn	1.618	0.499	2.81
ysr69	2011	withdrawn	1.673	-0.185	1.583
ysr75	2011	withdrawn	0.896	-0.221	2.326
ysr102	2011	withdrawn	2.089	0.4	1.98
ysr103	2011	withdrawn	2.111	0.39	1.726
ysr111	2011	withdrawn	0.557	1.039	4.56
ysr42	2013	withdrawn	1.342	0.533	2.475
ysr65	2013	withdrawn	0.901	1.164	3.983
ysr69	2013	withdrawn	2.243	-0.263	1.147
ysr75	2013	withdrawn	1.398	-0.104	1.482
ysr102	2013	withdrawn	1.182	0.553	2.599
ysr103	2013	withdrawn	2.184	0.459	1.658
ysr111	2013	withdrawn	0.656	0.689	4.879
ysr42	2018	withdrawn	1.374	0.14	1.953
ysr65	2018	withdrawn	1.393	0.687	2.697
ysr69	2018	withdrawn	1.936	-0.254	0.99
ysr75	2018	withdrawn	1.396	-0.105	1.315
ysr102	2018	withdrawn	1.47	0.608	2.387
ysr103	2018	withdrawn	1.972	0.526	1.665
ysr111	2018	withdrawn	0.665	0.373	4.315
ysr51	2000	somatic	1.724	1.172	2.712
ysr54	2000	somatic	1.184	-0.222	2.186
ysr56a	2000	somatic	1.705	1.454	2.745
ysr56b	2000	somatic	1.711	0.052	1.957
ysr56c	2000	somatic	1.723	1.042	2.621
ysr56d	2000	somatic	0.995	2.266	3.412
ysr56e	2000	somatic	0.938	1.686	3.66
ysr56f	2000	somatic	1.787	0.623	2.344
ysr56g	2000	somatic	1.525	1.783	3.338
ysr56h	2000	somatic	1.471	2.397	2.912
ysr51	2011	somatic	1.777	0.763	2.051
ysr54	2011	somatic	1.229	-0.274	1.847
ysr56a	2011	somatic	2.332	0.756	1.727
ysr56b	2011	somatic	2.492	0.123	1.363

item	group	scale	a	b1	b2
ysr56c	2011	somatic	2.934	0.875	1.748
ysr56d	2011	somatic	1.663	1.16	2.059
ysr56e	2011	somatic	1.046	0.855	3
ysr56f	2011	somatic	2.172	0.421	1.729
ysr56g	2011	somatic	2.496	1.139	2.337
ysr56h	2011	somatic	1.99	1.419	1.943
ysr51	2013	somatic	1.383	1.032	3.08
ysr54	2013	somatic	1.216	-0.665	1.498
ysr56a	2013	somatic	2.152	1.134	2.256
ysr56b	2013	somatic	1.982	0.201	1.684
ysr56c	2013	somatic	2.967	1.018	1.996
ysr56d	2013	somatic	0.732	2.425	4.5
ysr56e	2013	somatic	0.556	2.095	5.779
ysr56f	2013	somatic	2.218	0.378	1.691
ysr56g	2013	somatic	2.305	1.627	2.626
ysr56h	2013	somatic	0.514	5.157	7.046
ysr51	2018	somatic	1.806	0.919	1.973
ysr54	2018	somatic	1.066	-0.229	1.821
ysr56a	2018	somatic	1.561	1.17	2.324
ysr56b	2018	somatic	2.31	0.399	1.575
ysr56c	2018	somatic	2.719	1.141	2.086
ysr56d	2018	somatic	1.393	1.462	2.423
ysr56e	2018	somatic	1.031	1.503	2.697
ysr56f	2018	somatic	1.858	0.631	1.88
ysr56g	2018	somatic	1.992	1.835	2.739
ysr56h	2018	somatic	1.272	2.769	3.825
ysr12	2000	anxious_depressed	1.721	0.542	1.921
ysr14	2000	anxious_depressed	1.254	0.706	2.607
ysr31	2000	anxious_depressed	1.494	0.937	2.485
ysr32	2000	anxious_depressed	0.945	0.32	2.559
ysr33	2000	anxious_depressed	1.678	1.078	2.345
ysr34	2000	anxious_depressed	1.622	1.227	2.635
ysr35	2000	anxious_depressed	2.179	0.728	2.262
ysr45	2000	anxious_depressed	1.39	-0.451	1.607
ysr50	2000	anxious_depressed	1.951	0.955	2.323
ysr52	2000	anxious_depressed	1.549	0.898	2.52
ysr71	2000	anxious_depressed	1.782	0.547	2.22
ysr89	2000	anxious_depressed	1.033	-0.011	2.481
ysr103	2000	anxious_depressed	2.425	0.648	2.018
ysr112	2000	anxious_depressed	2.007	-0.309	1.338
ysr18	2000	anxious_depressed	1.581	1.997	3.189
ysr91	2000	anxious_depressed	1.71	1.737	2.867
ysr12	2011	anxious_depressed	2.051	0.233	1.582
ysr14	2011	anxious_depressed	1.453	0.503	1.987

item	group	scale	a	b1	b2
ysr31	2011	anxious_depressed	1.529	0.672	1.967
ysr32	2011	anxious_depressed	1.036	0.266	2.505
ysr33	2011	anxious_depressed	1.649	0.845	1.893
ysr34	2011	anxious_depressed	1.588	0.952	2.103
ysr35	2011	anxious_depressed	2.708	0.367	1.727
ysr45	2011	anxious_depressed	1.559	-0.113	1.67
ysr50	2011	anxious_depressed	2.129	0.621	1.839
ysr52	2011	anxious_depressed	1.449	0.591	2.445
ysr71	2011	anxious_depressed	1.401	0.485	2.507
ysr89	2011	anxious_depressed	1.008	-0.029	2.449
ysr103	2011	anxious_depressed	2.262	0.392	1.642
ysr112	2011	anxious_depressed	1.796	-0.352	1.452
ysr18	2011	anxious_depressed	1.712	1.422	2.215
ysr91	2011	anxious_depressed	1.186	1.488	2.602
ysr12	2013	anxious_depressed	2.122	0.485	1.713
ysr14	2013	anxious_depressed	1.977	0.654	1.719
ysr31	2013	anxious_depressed	1.506	0.5	2.031
ysr32	2013	anxious_depressed	0.645	-0.014	2.873
ysr33	2013	anxious_depressed	2.029	0.953	1.96
ysr34	2013	anxious_depressed	1.336	1.318	2.863
ysr35	2013	anxious_depressed	2.704	0.485	1.603
ysr45	2013	anxious_depressed	1.548	-0.277	1.535
ysr50	2013	anxious_depressed	1.74	0.898	2.48
ysr52	2013	anxious_depressed	1.589	0.47	2.073
ysr71	2013	anxious_depressed	1.798	0.344	1.974
ysr89	2013	anxious_depressed	0.936	-0.065	2.628
ysr103	2013	anxious_depressed	2.97	0.437	1.501
ysr112	2013	anxious_depressed	2.376	-0.375	0.918
ysr18	2013	anxious_depressed	2.196	1.403	2.223
ysr91	2013	anxious_depressed	2.336	1.167	2.186
ysr12	2018	anxious_depressed	2.316	0.289	1.643
ysr14	2018	anxious_depressed	1.66	0.478	1.658
ysr31	2018	anxious_depressed	1.447	0.487	2.072
ysr32	2018	anxious_depressed	0.808	0.369	2.691
ysr33	2018	anxious_depressed	2.205	0.834	1.895
ysr34	2018	anxious_depressed	1.386	1.119	2.866
ysr35	2018	anxious_depressed	2.92	0.557	1.44
ysr45	2018	anxious_depressed	1.111	-0.19	2.119
ysr50	2018	anxious_depressed	1.465	0.999	2.612
ysr52	2018	anxious_depressed	1.808	0.448	1.763
ysr71	2018	anxious_depressed	1.674	0.337	1.809
ysr89	2018	anxious_depressed	1.092	0.062	2.008
ysr103	2018	anxious_depressed	2.654	0.485	1.512
ysr112	2018	anxious_depressed	1.932	-0.21	1.062

item	group	scale	a	b1	b2
ysr18	2018	anxious_depressed	2.041	1.365	2.246
ysr91	2018	anxious_depressed	1.768	1.156	2.13
ysr1	2000	social_problems	0.964	1.199	3.878
ysr11	2000	social_problems	0.728	0.662	3.652
ysr25	2000	social_problems	1.771	1.22	2.289
ysr38	2000	social_problems	1.975	0.876	2.019
ysr48	2000	social_problems	2.513	1.047	2.202
ysr62	2000	social_problems	1.36	1.73	3.298
ysr64	2000	social_problems	0.866	1.77	4.22
ysr111	2000	social_problems	0.456	1.196	6.095
ysr1	2011	social_problems	0.5	1.065	5.559
ysr11	2011	social_problems	0.752	0.706	3.956
ysr25	2011	social_problems	2.286	0.745	1.837
ysr38	2011	social_problems	1.994	0.705	1.824
ysr48	2011	social_problems	2.288	0.718	1.937
ysr62	2011	social_problems	1.011	1.354	3.588
ysr64	2011	social_problems	0.726	1.539	4.141
ysr111	2011	social_problems	0.443	1.248	5.613
ysr1	2013	social_problems	0.723	0.816	4.368
ysr11	2013	social_problems	0.678	0.459	4.073
ysr25	2013	social_problems	1.788	1.019	2.321
ysr38	2013	social_problems	2.014	0.851	2.259
ysr48	2013	social_problems	3.066	0.811	2.118
ysr62	2013	social_problems	1.302	0.966	2.644
ysr64	2013	social_problems	0.796	1.907	4.784
ysr111	2013	social_problems	0.661	0.688	4.838
ysr1	2018	social_problems	0.604	0.789	5.092
ysr11	2018	social_problems	0.661	0.357	4.785
ysr25	2018	social_problems	1.472	1.103	2.59
ysr38	2018	social_problems	1.555	1.125	2.602
ysr48	2018	social_problems	2.355	0.838	2.079
ysr62	2018	social_problems	0.756	1.052	3.676
ysr64	2018	social_problems	0.832	1.423	3.986
ysr111	2018	social_problems	0.562	0.422	5.003
ysr9	2000	thought_problems	1.166	1.397	2.539
ysr40	2000	thought_problems	1.416	2.22	3.05
ysr66	2000	thought_problems	1.24	1.811	2.921
ysr70	2000	thought_problems	1.512	2.097	2.931
ysr84	2000	thought_problems	2.445	1.285	2.242
ysr85	2000	thought_problems	2.151	1.106	2.254
ysr83	2000	thought_problems	1.101	1.235	2.841
ysr9	2011	thought_problems	1.607	0.485	1.746
ysr40	2011	thought_problems	1.972	1.12	1.688
ysr66	2011	thought_problems	1.684	0.877	2.249

item	group	scale	a	b1	b2
ysr70	2011	thought_problems	1.957	0.97	1.787
ysr84	2011	thought_problems	3.266	0.62	1.816
ysr85	2011	thought_problems	2.128	0.679	1.958
ysr83	2011	thought_problems	1.687	0.854	1.87
ysr9	2013	thought_problems	1.228	0.678	1.635
ysr40	2013	thought_problems	1.513	1.684	2.526
ysr66	2013	thought_problems	1.451	0.963	2.1
ysr70	2013	thought_problems	1.811	1.407	1.975
ysr84	2013	thought_problems	2.672	0.783	1.81
ysr85	2013	thought_problems	2.913	0.742	1.726
ysr83	2013	thought_problems	1.081	1.333	2.97
ysr9	2018	thought_problems	1.093	0.639	1.943
ysr40	2018	thought_problems	1.774	1.327	2.211
ysr66	2018	thought_problems	1.175	0.842	2.23
ysr70	2018	thought_problems	1.985	1.066	1.759
ysr84	2018	thought_problems	2.412	0.942	1.8
ysr85	2018	thought_problems	2.097	0.879	1.914
ysr83	2018	thought_problems	0.874	1.611	3.254
ysr1	2000	attention_problems	1.068	1.112	3.573
ysr8	2000	attention_problems	1.532	0.07	1.926
ysr10	2000	attention_problems	1.011	-0.049	2.155
ysr13	2000	attention_problems	1.535	0.865	2.461
ysr17	2000	attention_problems	1.028	-1.236	1.003
ysr41	2000	attention_problems	1.171	0.037	2.847
ysr45	2000	attention_problems	1.25	-0.485	1.709
ysr61	2000	attention_problems	0.72	-0.046	3.227
ysr62	2000	attention_problems	1.33	1.756	3.355
ysr80	2000	attention_problems	0.352	-5.077	0.834
ysr1	2011	attention_problems	0.981	0.658	3.221
ysr8	2011	attention_problems	1.511	-0.208	1.639
ysr10	2011	attention_problems	1.117	-0.316	1.698
ysr13	2011	attention_problems	1.381	0.517	2.418
ysr17	2011	attention_problems	0.935	-1.382	0.953
ysr41	2011	attention_problems	1.727	-0.07	2.011
ysr45	2011	attention_problems	1.56	-0.114	1.681
ysr61	2011	attention_problems	0.788	0.298	2.909
ysr62	2011	attention_problems	1.588	1.041	2.654
ysr80	2011	attention_problems	0.335	-4.568	1.448
ysr1	2013	attention_problems	0.811	0.758	3.974
ysr8	2013	attention_problems	1.474	-0.135	1.587
ysr10	2013	attention_problems	0.822	0.263	2.827
ysr13	2013	attention_problems	1.763	0.61	2.1
ysr17	2013	attention_problems	0.736	-2.32	0.692
ysr41	2013	attention_problems	1.121	-0.663	2.37

item	group	scale	a	b1	b2
ysr45	2013	attention_problems	1.725	-0.274	1.463
ysr61	2013	attention_problems	0.782	-0.316	2.935
ysr62	2013	attention_problems	1.196	1.016	2.793
ysr80	2013	attention_problems	0.039	-60.68	-1.062
ysr1	2018	attention_problems	0.587	0.818	5.22
ysr8	2018	attention_problems	1.193	-0.474	1.822
ysr10	2018	attention_problems	0.993	-0.136	2.244
ysr13	2018	attention_problems	1.489	0.484	2.074
ysr17	2018	attention_problems	1.058	-1.577	0.45
ysr41	2018	attention_problems	0.992	-0.461	2.496
ysr45	2018	attention_problems	1.291	-0.179	1.915
ysr61	2018	attention_problems	0.759	-0.231	3.28
ysr62	2018	attention_problems	1.021	0.859	2.91
ysr80	2018	attention_problems	-0.011	162.07	-14.16
ysr26	2000	rule_breaking	0.581	0.622	4.179
ysr39	2000	rule_breaking	1.505	0.787	2.382
ysr43	2000	rule_breaking	1.396	0.148	2.826
ysr63	2000	rule_breaking	0.689	-0.201	2.742
ysr67	2000	rule_breaking	1.735	2.576	3.532
ysr72	2000	rule_breaking	1.44	2.094	3.118
ysr81	2000	rule_breaking	2.674	2.188	3.003
ysr82	2000	rule_breaking	2.462	2.172	2.911
ysr90	2000	rule_breaking	1.758	-0.353	1.712
ysr101	2000	rule_breaking	2.004	0.99	2.383
ysr105	2000	rule_breaking	2.219	1.155	2.256
ysr26	2011	rule_breaking	1.42	0.317	2.385
ysr39	2011	rule_breaking	1.835	0.206	1.68
ysr43	2011	rule_breaking	1.67	0.09	2.071
ysr63	2011	rule_breaking	1.113	-0.201	2.06
ysr67	2011	rule_breaking	2.158	1.471	2.47
ysr72	2011	rule_breaking	2.552	0.92	1.83
ysr81	2011	rule_breaking	2.261	1.192	2.008
ysr82	2011	rule_breaking	2.79	1.428	1.974
ysr90	2011	rule_breaking	1.078	-0.866	0.93
ysr101	2011	rule_breaking	1.534	0.666	2.561
ysr105	2011	rule_breaking	1.871	0.662	2.161
ysr26	2013	rule_breaking	0.691	0.474	3.562
ysr39	2013	rule_breaking	1.267	0.285	2.098
ysr43	2013	rule_breaking	1.341	-0.182	2.239
ysr63	2013	rule_breaking	0.822	-0.423	2.271
ysr67	2013	rule_breaking	1.996	2.104	3.087
ysr72	2013	rule_breaking	2.203	1.307	2.206
ysr81	2013	rule_breaking	1.511	2.791	4.187
ysr82	2013	rule_breaking	3.013	2.01	2.672

item	group	scale	a	b1	b2
ysr90	2013	rule_breaking	1.869	-1.037	0.809
ysr101	2013	rule_breaking	2.095	0.963	2.451
ysr105	2013	rule_breaking	2.43	1.138	1.944
ysr26	2018	rule_breaking	0.805	0.173	2.771
ysr39	2018	rule_breaking	1.221	0.545	2.379
ysr43	2018	rule_breaking	1.143	-0.034	2.698
ysr63	2018	rule_breaking	0.8	-0.309	2.423
ysr67	2018	rule_breaking	2.327	1.673	2.818
ysr72	2018	rule_breaking	1.677	1.215	2.337
ysr81	2018	rule_breaking	1.528	2.486	3.43
ysr82	2018	rule_breaking	2.32	2.058	2.893
ysr90	2018	rule_breaking	1.203	-1.186	1.057
ysr101	2018	rule_breaking	2.191	1.321	2.414
ysr105	2018	rule_breaking	1.724	1.687	2.407
ysr3	2000	aggressive	1.328	-1.08	1.667
ysr7	2000	aggressive	1.02	1.018	4.294
ysr16	2000	aggressive	0.944	1.979	3.936
ysr19	2000	aggressive	0.907	0.858	3.52
ysr20	2000	aggressive	1.505	1.767	3.218
ysr21	2000	aggressive	1.535	2.119	3.498
ysr23	2000	aggressive	1.228	0.709	3.004
ysr27	2000	aggressive	1.082	0.304	2.693
ysr37	2000	aggressive	1.404	1.637	3.114
ysr57	2000	aggressive	1.803	1.444	3.133
ysr68	2000	aggressive	1.81	0.117	1.834
ysr74	2000	aggressive	1.464	1.013	2.98
ysr86	2000	aggressive	1.101	-1.131	1.378
ysr87	2000	aggressive	1.221	-0.274	1.828
ysr93	2000	aggressive	1.369	-0.277	1.698
ysr94	2000	aggressive	1.954	0.546	2.243
ysr95	2000	aggressive	1.815	-0.098	1.524
ysr97	2000	aggressive	2.217	1.589	2.749
ysr104	2000	aggressive	1.907	0.715	2.213
ysr3	2011	aggressive	1.019	-1.566	1.889
ysr7	2011	aggressive	0.932	0.827	3.993
ysr16	2011	aggressive	0.951	1.204	3.785
ysr19	2011	aggressive	1.43	0.286	1.753
ysr20	2011	aggressive	1.947	1.068	2.283
ysr21	2011	aggressive	2.609	1.174	2.174
ysr23	2011	aggressive	1.856	0.601	2.372
ysr27	2011	aggressive	0.981	0.141	3.435
ysr37	2011	aggressive	1.686	1.264	2.055
ysr57	2011	aggressive	3.18	0.898	1.968
ysr68	2011	aggressive	2.112	0.328	1.683

item	group	scale	a	b1	b2
ysr74	2011	aggressive	1.516	0.745	2.489
ysr86	2011	aggressive	0.638	-1.848	1.677
ysr87	2011	aggressive	1.328	-0.391	1.453
ysr93	2011	aggressive	0.989	-0.716	1.755
ysr94	2011	aggressive	2.296	0.361	1.735
ysr95	2011	aggressive	2.332	-0.072	1.098
ysr97	2011	aggressive	2.167	1.158	1.92
ysr104	2011	aggressive	2.196	0.54	1.876
ysr3	2013	aggressive	1.342	-1.534	1.403
ysr7	2013	aggressive	0.715	0.633	4.664
ysr16	2013	aggressive	0.807	1.831	4.281
ysr19	2013	aggressive	0.806	0.256	3.084
ysr20	2013	aggressive	1.564	1.625	3.14
ysr21	2013	aggressive	1.469	2.049	3.411
ysr23	2013	aggressive	1.118	0.528	3.583
ysr27	2013	aggressive	0.829	0.231	2.854
ysr37	2013	aggressive	1.374	1.678	2.742
ysr57	2013	aggressive	1.222	1.263	3.148
ysr68	2013	aggressive	2.033	0.201	1.602
ysr74	2013	aggressive	1.031	0.572	3.173
ysr86	2013	aggressive	1.072	-1.722	0.917
ysr87	2013	aggressive	1.224	-0.271	1.631
ysr93	2013	aggressive	0.957	-0.916	1.535
ysr94	2013	aggressive	1.45	0.65	2.391
ysr95	2013	aggressive	2.098	-0.26	1.27
ysr97	2013	aggressive	1.835	1.385	2.549
ysr104	2013	aggressive	1.916	0.716	1.94
ysr3	2018	aggressive	1.293	-0.801	1.796
ysr7	2018	aggressive	0.876	0.489	4.236
ysr16	2018	aggressive	0.781	1.264	3.709
ysr19	2018	aggressive	0.909	0.122	3.049
ysr20	2018	aggressive	1.591	1.107	2.572
ysr21	2018	aggressive	1.78	1.757	2.929
ysr23	2018	aggressive	1.518	0.852	2.833
ysr27	2018	aggressive	1.004	-0.107	1.992
ysr37	2018	aggressive	1.551	1.548	3.087
ysr57	2018	aggressive	1.587	1.398	2.821
ysr68	2018	aggressive	1.933	0.539	1.789
ysr74	2018	aggressive	1.029	0.455	2.873
ysr86	2018	aggressive	0.769	-2.109	1.116
ysr87	2018	aggressive	0.941	-0.367	1.711
ysr93	2018	aggressive	0.839	-0.79	1.529
ysr94	2018	aggressive	2.106	0.712	1.996
ysr95	2018	aggressive	1.673	0.144	1.421

item	group	scale	a	b1	b2
ysr97	2018	aggressive	1.679	1.561	2.672
ysr104	2018	aggressive	1.459	0.956	2.383

Note. Item discrimination (a) and threshold (b1, b2) parameters estimated separately by survey wave from freely estimated multiple-group graded response models.

Supplementary Table S3. Measurement invariance tests

YSR scale	$\Delta\chi^2$	Δdf	p
Withdrawn/Depressed	252.68	63	< .001
Somatic Complaints	411.40	90	< .001
Anxious/Depressed	481.73	144	< .001
Social Problems	331.60	72	< .001
Thought Problems	352.51	63	< .001
Attention Problems	473.68	90	< .001
Rule-Breaking Behavior	684.82	99	< .001
Aggressive Behavior	948.20	171	< .001

Note. Likelihood-ratio tests comparing fully invariant and freely estimated multiple-group graded response models for each YSR syndrome scale.

Supplementary Table S4. Model fit statistics

Scale	Invariant AIC	Free AIC	Invariant BIC	Free BIC	Invariant LogLik	Free LogLik	$\Delta\chi^2$	Δdf	p
Withdrawn/Depressed	43086.02	42959.34	43267.47	43684.85	-21495.01	-21353.67	252.68	63	< .001
Somatic Complaints	43158.56	42927.16	43415.86	44443.93	-21516.28	-21299.58	411.40	90	< .001
Anxious/Depressed	82453.65	82259.92	82868.04	85298.15	-41162.82	-40877.96	481.73	144	< .001
Social Problems	41057.90	40870.30	41264.66	42052.47	-20481.95	-20278.15	331.60	72	< .001
Thought Problems	29514.97	29288.46	29696.25	30421.37	-14709.49	-14613.23	352.51	63	< .001
Attention Problems	66266.85	65973.17	66524.82	67557.73	-33070.43	-32896.59	473.68	90	< .001
Rule-Breaking Behavior	48940.19	48453.36	49225.37	50045.50	-24404.09	-24127.68	684.82	99	< .001
Aggressive Behavior	99570.33	98964.13	99934.56	101391.47	-49724.17	-49311.07	948.20	171	< .001

Note. AIC, BIC, log-likelihood, and likelihood-ratio statistics for invariant and freely estimated models.

Supplementary Table S5. Age-restricted sample composition

Cohort	N	Mean age	SD	Min	Max
2000	1196	14.57	1.09	13	16
2011	199	15.98	0.12	15	16
2013	488	14.65	0.93	13	16
2018	825	13.83	0.86	13	16
Total	2708	—	—	13	16

Note. Sample size and age distribution in the age-restricted robustness analysis including participants aged 13-16 years.

Supplementary Table S6. Probability-gradient magnitudes for statistically significant items

Scale	Item	FDR-adjusted p	Max gradient magnitude
Social Problems	ysr62	.005	0.161
Anxious/Depressed	ysr34	.008	0.069
Anxious/Depressed	ysr35	.015	0.221
Aggressive Behavior	ysr93	.015	0.152
Social Problems	ysr11	.015	0.021
Attention Problems	ysr1	.016	0.115
Aggressive Behavior	ysr97	.016	0.142
Aggressive Behavior	ysr19	.016	0.061
Rule-Breaking Behavior	ysr81	.016	0.355
Attention Problems	ysr62	.016	0.146
Thought Problems	ysr9	.016	0.105
Thought Problems	ysr66	.016	0.145
Anxious/Depressed	ysr14	.016	0.131
Thought Problems	ysr40	.017	0.221
Rule-Breaking Behavior	ysr67	.017	0.334
Aggressive Behavior	ysr27	.017	0.052
Anxious/Depressed	ysr91	.019	0.191
Rule-Breaking Behavior	ysr90	.025	0.226
Anxious/Depressed	ysr12	.030	0.166
Withdrawn/Depressed	ysr42	.034	0.106
Aggressive Behavior	ysr16	.034	0.064
Anxious/Depressed	ysr71	.034	0.071
Aggressive Behavior	ysr74	.036	0.140
Anxious/Depressed	ysr52	.037	0.136
Anxious/Depressed	ysr33	.048	0.149
Anxious/Depressed	ysr50	.048	0.109

Note. Items showing statistically significant temporal drift after Benjamini-Hochberg FDR correction. Maximum gradient magnitude is the largest absolute severity-specific temporal probability gradient.

Supplementary Table S7. Latent mean contrasts relative to the 2000 cohort

Scale	Cohort	$\Delta\theta$	SE	z	p
Withdrawn/Depressed	2011	0.158	0.062	2.54	.011
Withdrawn/Depressed	2013	0.144	0.041	3.47	< .001
Withdrawn/Depressed	2018	0.206	0.036	5.76	< .001
Somatic Complaints	2011	0.166	0.071	2.33	.020
Somatic Complaints	2013	0.084	0.042	2.02	.043
Somatic Complaints	2018	-0.017	0.036	0.48	.630
Anxious/Depressed	2011	0.171	0.069	2.48	.013
Anxious/Depressed	2013	0.130	0.046	2.82	.005
Anxious/Depressed	2018	0.141	0.039	3.63	< .001
Social Problems	2011	0.221	0.061	3.62	< .001
Social Problems	2013	0.129	0.039	3.33	< .001
Social Problems	2018	0.195	0.031	6.29	< .001
Thought Problems	2011	0.348	0.066	5.31	< .001
Thought Problems	2013	0.254	0.040	6.31	< .001
Thought Problems	2018	0.303	0.033	9.26	< .001
Attention Problems	2011	0.284	0.067	4.24	< .001
Attention Problems	2013	0.215	0.043	4.99	< .001
Attention Problems	2018	0.223	0.034	6.56	< .001
Rule-Breaking Behavior	2011	0.288	0.071	4.06	< .001
Rule-Breaking Behavior	2013	0.218	0.045	4.84	< .001
Rule-Breaking Behavior	2018	0.213	0.037	5.81	< .001
Aggressive Behavior	2011	0.170	0.061	2.79	.005
Aggressive Behavior	2013	0.112	0.039	2.88	.004
Aggressive Behavior	2018	0.122	0.031	3.94	< .001

Note. Model-based latent mean differences relative to the 2000 reference cohort. ?? indicates the latent mean difference; SE is the standard error.

Supplementary Table S8. ANCOVA checks on individual EAP latent trait scores

Scale	Term	N	df	F	p	FDR-adjusted p	partial eta squared
Withdrawn/Depressed	Survey wave	3883	3	12.09	< .001	< .001	.009
Withdrawn/Depressed	Age	3883	1	50.83	< .001	< .001	.013
Withdrawn/Depressed	Residence	3883	1	0.55	.458	.500	.000
Somatic Complaints	Survey wave	3803	3	3.02	.029	.046	.002
Somatic Complaints	Age	3803	1	2.60	.107	.143	.001
Somatic Complaints	Residence	3803	1	1.83	.177	.212	.000
Anxious/Depressed	Survey wave	3882	3	6.38	< .001	< .001	.005
Anxious/Depressed	Age	3882	1	38.05	< .001	< .001	.010
Anxious/Depressed	Residence	3882	1	0.00	.957	.957	.000
Social Problems	Survey wave	3870	3	11.97	< .001	< .001	.009
Social Problems	Age	3870	1	13.08	< .001	< .001	.003
Social Problems	Residence	3870	1	0.37	.545	.568	.000
Thought Problems	Survey wave	3857	3	31.56	< .001	< .001	.024
Thought Problems	Age	3857	1	21.93	< .001	< .001	.006
Thought Problems	Residence	3857	1	2.88	.090	.127	.001
Attention Problems	Survey wave	3891	3	19.19	< .001	< .001	.015
Attention Problems	Age	3891	1	54.40	< .001	< .001	.014
Attention Problems	Residence	3891	1	0.96	.326	.373	.000
Rule-Breaking Behavior	Survey wave	3890	3	19.21	< .001	< .001	.015
Rule-Breaking Behavior	Age	3890	1	267.82	< .001	< .001	.065
Rule-Breaking Behavior	Residence	3890	1	2.91	.088	.127	.001
Aggressive Behavior	Survey wave	3887	3	6.60	< .001	< .001	.005
Aggressive Behavior	Age	3887	1	50.03	< .001	< .001	.013
Aggressive Behavior	Residence	3887	1	2.38	.123	.156	.001

Note. ANCOVA models used individual expected a posteriori (EAP) latent trait scores from anchored multiple-group graded response models as descriptive outcomes. Survey wave was entered as a categorical predictor, with age and residence as covariates. p values were adjusted across all ANCOVA terms using the Benjamini-Hochberg false discovery rate procedure.