

Appendix

Table A1 Latent class model selection, boys (n=5011)

Number of Classes	# of parameters	BIC	Entropy	LMR p value	LL	C1	C2	C3	C4	C5	C6	C7
2	35	59224.10	0.87	0.00	-29518.57	21.7%	78.3%					
3	53	57613.21	0.78	0.01	-28665.05	11.0%	28.2%	60.8%				
4	71	57059.26	0.80	0.00	-28340.00	6.3%	23.3%	9.9%	60.6%			
5	89	56925.77	<i>0.79</i>	<i>0.03</i>	-28225.18	9.3%	3.2%	6.3%	23.3%	58.0%		
6	107	56813.87	0.78	0.09	-28121.15	1.8%	6.7%	11.5%	56.0%	2.9%	21.1%	
7	125	56785.24	0.78	0.66	-28058.76	9.4%	7.3%	2.8%	25.0%	1.4%	52.2%	1.9%

Note: Italics indicate chosen model. Class order may differ from corresponding figure.

Fig. 2 Latent class model results, boys (n= 5011)

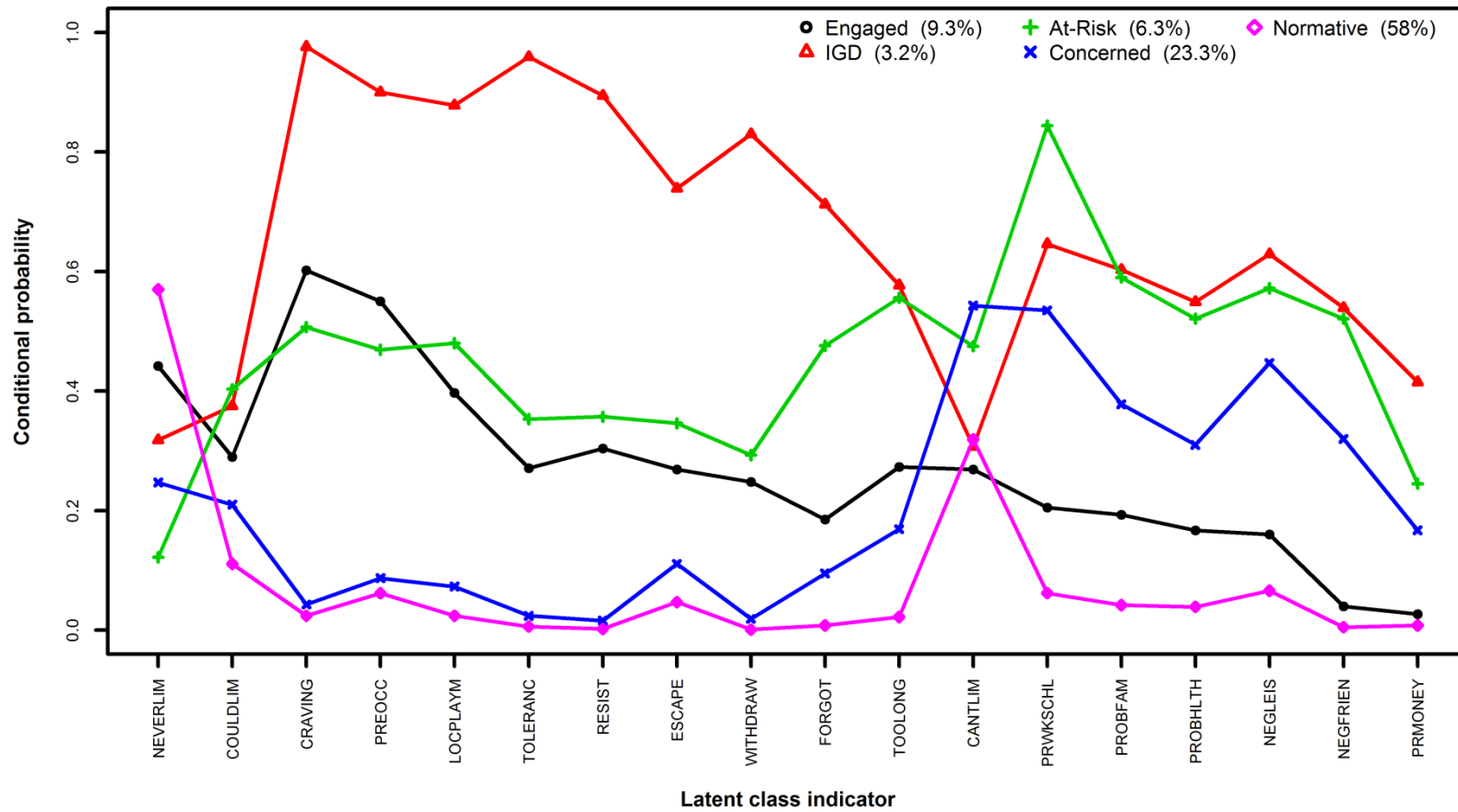


Table A2 Latent class model selection, girls (n=2751)

Number of Classes	# of parameters	BIC	Entropy	LMR p value	LL	C1	C2	C3	C4	C5	C6	C7
2	35	23423.85	0.82	0.00	-11628.93	23.9%	76.1%					
3	53	22787.10	0.84	0.00	-11267.88	25.1%	3.9%	71.0%				
4	71	22692.73	<i>0.79</i>	<i>0.03</i>	<i>-11178.01</i>	3.5%	4.6%	<i>62.4%</i>	<i>29.5%</i>			
5	89	22674.86	0.82	0.30	-11126.39	1.9%	2.2%	62.8%	4.5%	28.5%		
6	107	22687.37	0.80	0.54	-11089.97	1.8%	2.0%	6.9%	22.4%	62.9%	4.0%	
7	125	22710.30	0.75	0.77	-11058.75	1.9%	60.8%	1.8%	4.3%	9.9%	7.8%	13.5%

Note: Italics indicate chosen model. Class order may differ from corresponding figure.

Fig. 3 Latent class model results, girls (n=2751)

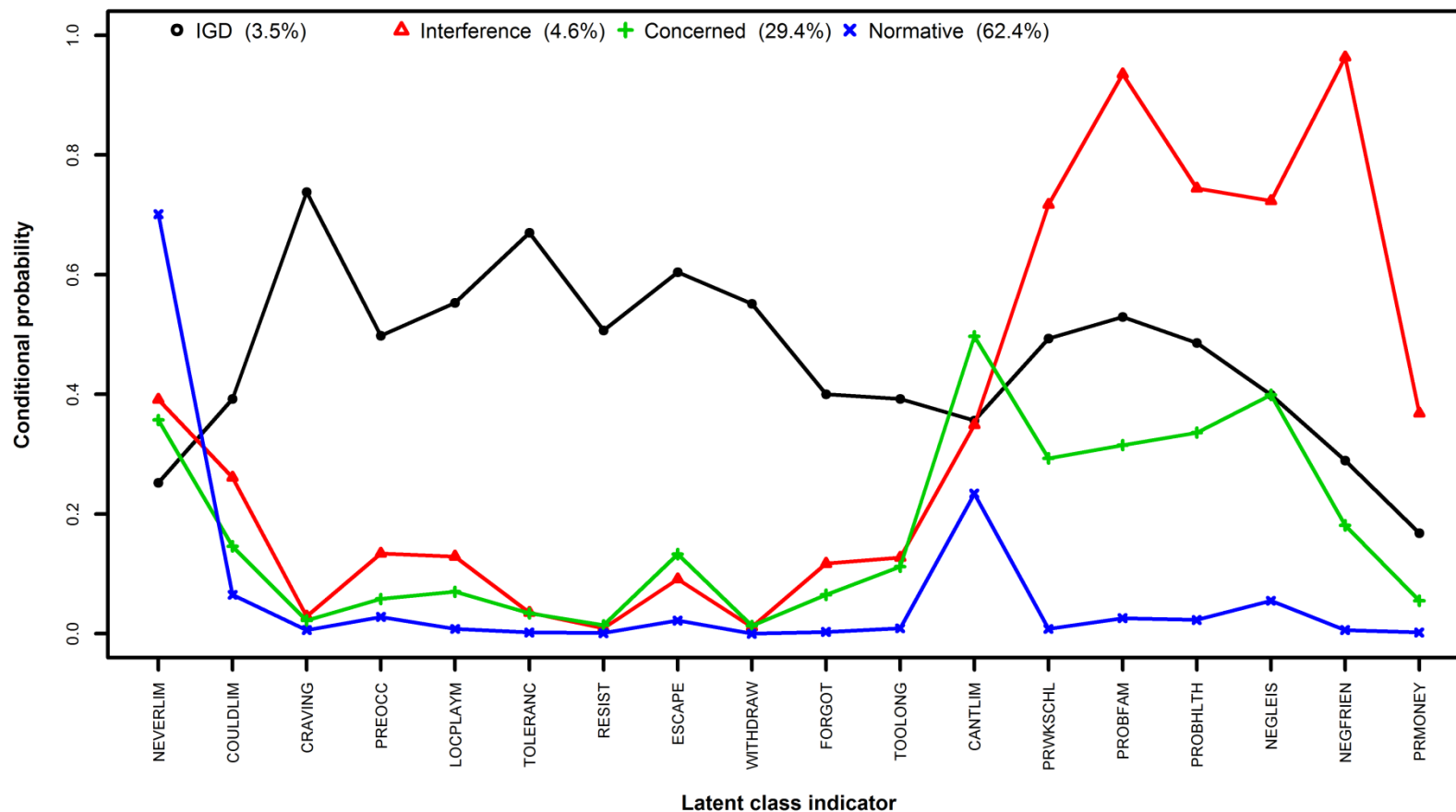


Fig. 4 (reproduced from main paper) Latent class model results (n=7865)

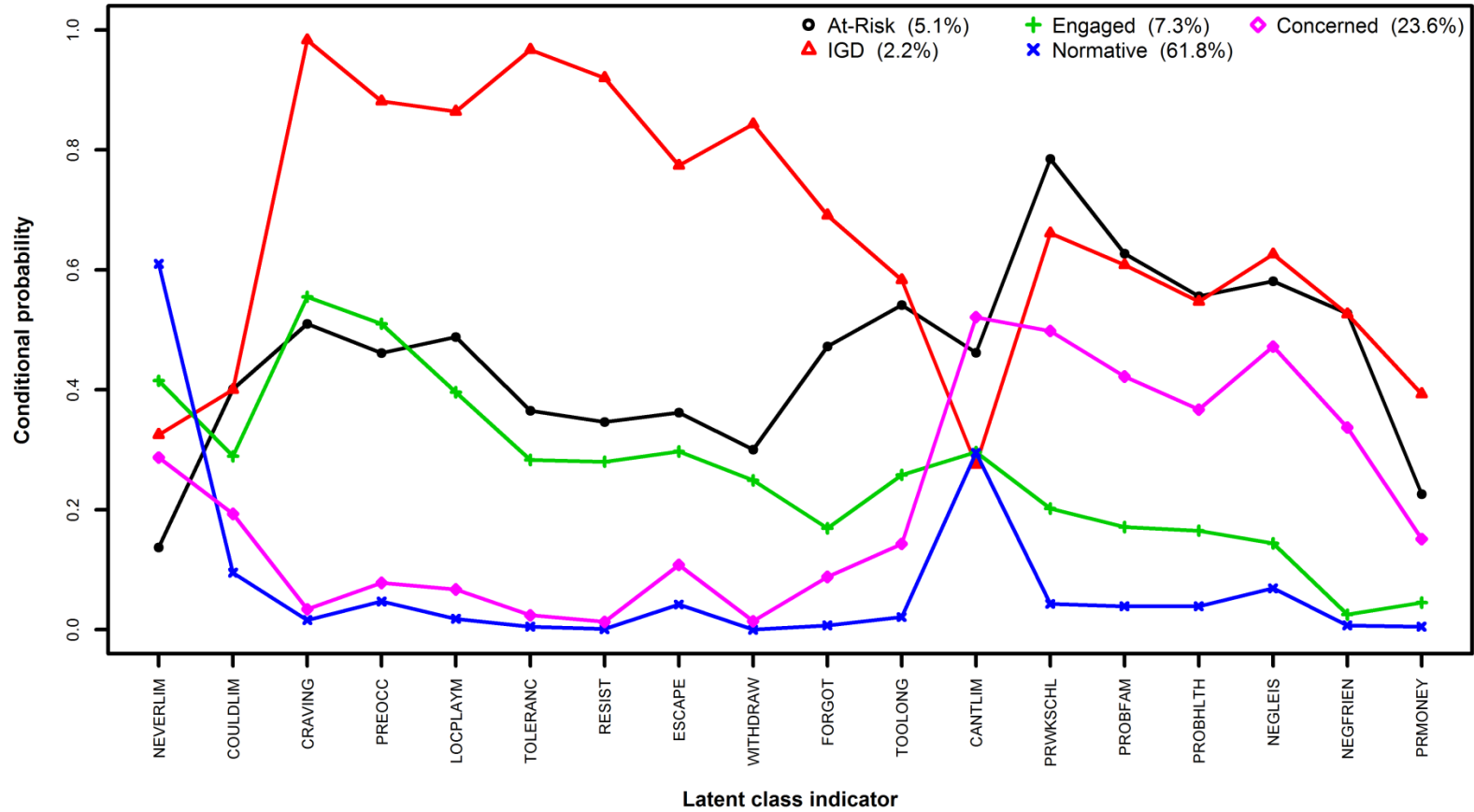


Table A5 Latent class model selection for regression subsample (n=5985)

Number of Classes	# of parameters	BIC	Entropy	LMR p value	LL	C1	C2	C3	C4	C5	C6	C7
2	35	64164.07	0.84	0.00	-31985.45	77.5%	22.5%					
3	53	62211.09	0.80	0.00	-30959.28	9.8%	64.8%	25.4%				
4	71	<i>61764.34</i>	<i>0.82</i>	<i>0.00</i>	<i>-30686.24</i>	<i>63.5%</i>	<i>24.0%</i>	<i>7.6%</i>	<i>4.9%</i>			
5	89	61668.78	0.74	0.18	-30588.78	8.0%	6.9%	53.0%	28.0%	4.2%		
6	107	61590.54	0.80	0.50	-30499.99	1.9%	56.2%	2.1%	5.8%	28.4%	5.6%	
7	125	61525.85	0.79	0.18	-30417.97	1.2%	2.0%	2.2%	7.6%	5.7%	26.0%	55.2%

Note: Italics indicate chosen model. Class order may differ from corresponding figure.

Fig. 5 Latent class model results, regression subsample (n=5985)

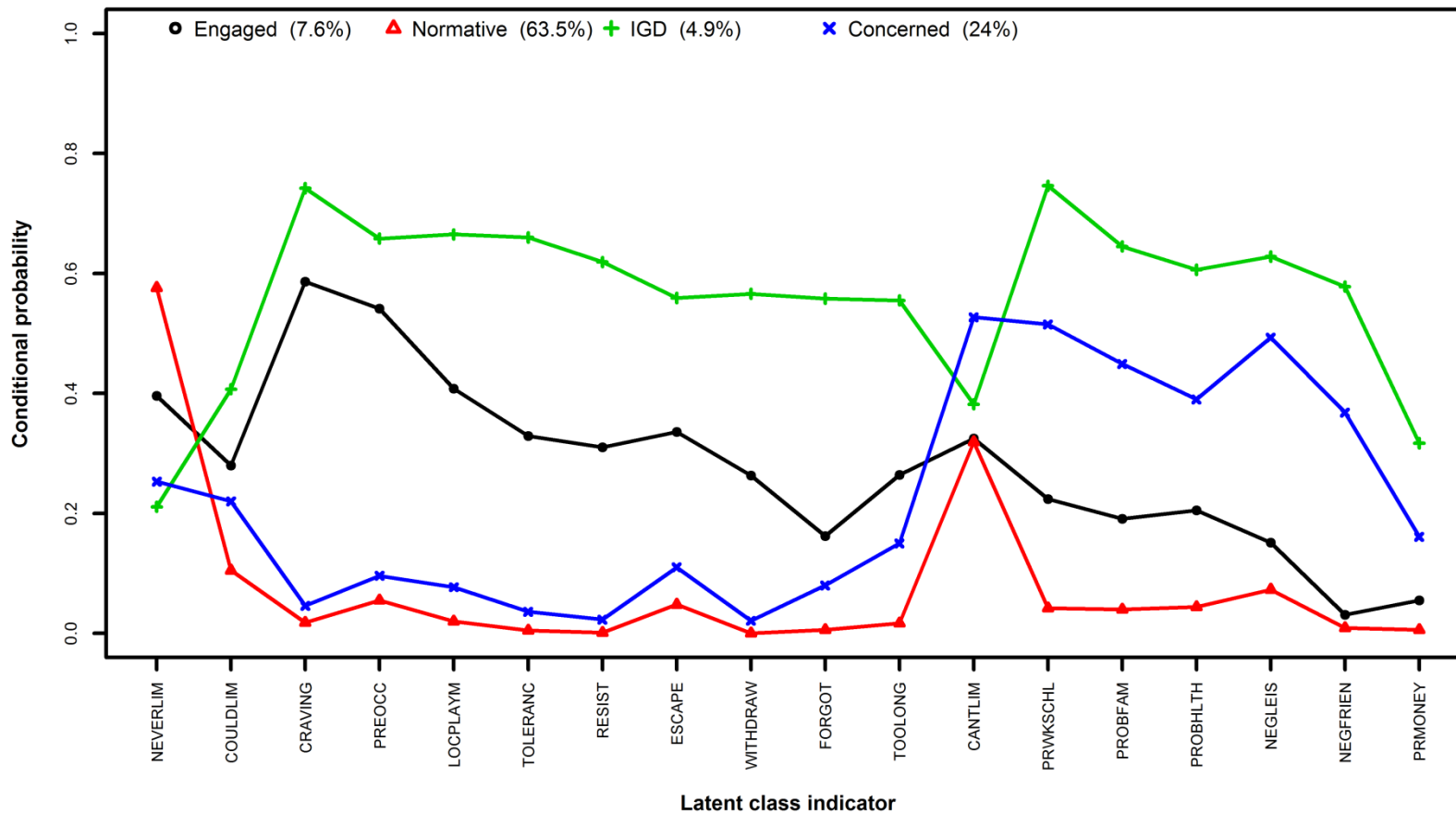


Table A7 Results of validity testing of latent classes for main sample and regression subsample, combined and stratified by sex

Class size	IGD						At-Risk					
	Primary LCA sample			Regression subsample			Primary LCA sample			Regression subsample		
	Main	Boys	Girls	Sub	Sub Boys	Sub Girls	Main	Boys	Girls	Sub	Sub Boys	Sub Girls
	2.2%	3.2%	3.5%	4.9%	5.9%	4.1%	5.1%	6.3%	3.5%			
<i>Variable</i>												
Age	15.73	15.75	15.85	15.8	15.8	15.79	15.78	15.77	-	-	-	-
Sex	0.89	-	-	0.84	-	-	0.86	-	-	-	-	-
AICAS	17.65	17.78	10.62	13.56	14.21	10.02	10.06	10.1	-	-	-	-
IAT	54.71	54.56	47.68	49.41	48.91	48.07	44.45	42.8	-	-	-	-

Table A7 (continued) Results of validity testing of latent classes for main sample and regression subsample, combined and stratified by sex

Class size	Engaged						Interference					
	Primary LCA sample			Regression subsample			Primary LCA sample			Regression subsample		
	Main	Boys	Girls	Sub	Sub Boys	Sub Girls	Main	Boys	Girls	Sub	Sub Boys	Sub Girls
	7.3%	9.3%		7.6%	9.9%	-	-	-	4.6%	-	-	-
<i>Variable</i>												
Age	15.73	15.72	-	15.75	15.73	-	-	-	15.87	-	-	-
Sex	0.88	-	-	0.89	-	-	-	-	-	-	-	-
AICAS	7.57	7.78	-	7.85	8.19	-	-	-	4.38	-	-	-
IAT	32.77	32.52	-	33.6	33.19	-	-	-	37.41	-	-	-

Table A7 (continued) Results of validity testing of latent classes for main sample and regression subsample, combined and stratified by sex

Variable	Concerned						Normative					
	Primary LCA sample			Regression subsample			Primary LCA sample			Regression subsample		
	Main	Boys	Girls	Sub	Sub Boys	Sub Girls	Main	Boys	Girls	Sub	Sub Boys	Sub Girls
Class size	23.6%	23.3%	29.4%	24.0%	23.3%	25.7%	61.8%	58.0%	62.4%	63.5%	60.9%	70.2%
Age	15.83	15.82	15.81	15.86	15.86	15.87	15.69	15.68	15.71	15.71	15.7	15.72
Sex	0.63	-	-	0.62	-	-	0.60	-	-	0.6	-	-
AICAS	3.20	3.52	2.45	3.5	3.95	2.97	0.87	1.23	0.25	0.93	1.32	0.45
IAT	29.87	29.74	29.28	30.68	30.56	31.51	17.08	16.11	17.7	17.46	16.61	19.02

Notes: This table compares average values for selected variables between boys and girls in both the main sample (n=7865) and the regression subsample (n=5985). Values for the country variable are not shown. More information about the class structure and sizes of those classes can be found elsewhere in the Appendix. Hyphen indicates that this class does not exist or the variable is not applicable to the class. Established cut-off scores for AICAS are 13.5-27=IGD and 7-13=At-Risk [29]. For the IAT, scores of 40-69 indicate “frequent problems” while scores of 70-100 indicate “significant problems”. In the primary sample and the regression subsample, all classes differed on scores on the AICAS and IAT.

Table A8 Latent class regression on demographic predictors in regression subsample (n=5985)

	Engaged, 7.6%			IGD, 4.9%			Concerned, 24.0%		
	Est.	S.E.	p-value	Est.	S.E.	p-value	Est.	S.E.	p-value
Age	0.15	0.09	0.10	0.15	0.13	0.27	0.25	0.07	0.00*
Sex	1.72	0.20	0.00*	1.27	0.20	0.00*	0.13	0.07	0.08

Note: Estimates are regression coefficients for comparison of a given class to the Normative class. * Results are significant at Bonferroni-corrected p-value p=0.008). Country predicted membership in the IGD and Concerned classes only (data not shown).

Table A9. Mean values on Youth Self-Report scales and subscales by class in regression subsample (n=5985)

	Engaged Mean(SE)	Normative Mean(SE)	IGD Mean(SE)	Concerned Mean(SE)	Overall χ^2 †
YSR Score					
<i>Competencies</i>					
Total competence	17.84(0.37)*	18.63(0.20)	15.68(0.39)	16.56(0.22)	110.81
Academics	2.17(0.04)*	2.24(0.01)	1.90 (0.05)	2.07(0.02)	92.46
Activities	7.42(0.25)	8.33(0.12)	6.56(0.26)	7.36(0.14)	84.55
Social competence	8.25(0.16)*	8.05(0.09)‡	7.22(0.18)	7.14(0.10)	90.13
<i>Problems</i>					
Total problems	37.95(1.62)	28.24(0.48)	65.63(2.58)	49.06(0.80)	782.74
Externalizing	13.57(0.60)	9.22(0.17)	22.71(0.83)	16.02(0.29)	623.46
Internalizing	10.01(0.59)	8.26(0.14)	19.33(0.96)	14.10(0.29)	482.23
<i>Subscales</i>					
Aggression	7.65(0.34)	5.59(0.10)	13.34(0.51)	9.64(0.17)	595.35
Anxiety/Depression	4.41(0.31)*	3.71(0.07)	8.6(0.45)	6.40(0.15)	401.16
Attention	6.04(0.23)	4.41(0.07)	8.13(0.25)	6.67(0.10)	506.42
Rule-breaking	5.93(0.30)	3.69(0.08)	9.26(0.39)	6.31(0.15)	383.17
Social problems	3.46(0.21)	2.36(0.05)	5.97(0.32)	4.34(0.10)	462.02
Somatic problems	2.52(0.18)*	2.16(0.05)	5.04(0.36)	3.59(0.12)	189.93
Thought problems	4.26(0.24)	2.56(0.06)	6.32(0.34)	4.49(0.13)	361.49
Withdrawal	3.13(0.21)	2.42(0.06)	5.85(0.27)	4.23(0.10)	473.00

Note: Mean values calculated using the BCH procedure in Mplus. Higher scores indicate better psychosocial well-being on competencies scales but worse psychosocial wellbeing on problem-related scales. The Academic subscale has a limited range (0-3) by design. The overall chi-square test assesses whether significant differences in means exist between classes as a group. †All group difference chi-square tests were significant at

*Bonferroni-corrected p-value of 0.008. * Class mean was not significantly different from Normative class using Bonferroni-corrected p-value.
‡Normative class does not demonstrate the best well-being but is not significantly different from the Engaged class.*