

Supplemental Online Content

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This supplemental material has been provided by the authors to give readers additional information about their work.

eTable 1. Human Development Index (HDI) of Resident Province

Percentile of the HDI	HDI thresholds	Province
< 10th	<0.667	Guizhou, Qinghai, Xizang, and Yunnan
10th to 25th	(0.667, 0.708]	Anhui, Gansu, Guangxi, and Sichuan
25th to 50th	(0.708, 0.733]	Hainan, Hebei, Henan, Heilongjiang, Jiangxi, Ningxia, Shanxi, and Xinjiang
50th to 70th	(0.733, 0.754]	Fujian, Hubei, Hunan, Jilin, Inner-Mongolia, Shandong, Shannxi, and Chongqing
75th to 90th	(0.754, 0.784]	Guangdong, Jiangsu, Liaoning, and Zhejiang
> 90th	> 0.784	Beijing, Shanghai, and Tianjin

eTable 2. Comparison between origin sample and final sample.

Variables	Levels	Selected Sample (N = 398520)	Origin Sample (N = 414175)	P-value
		Mean ± SD/ N (%)	Mean ± SD/ N (%)	
Sex	Female	194460 (48.80%)	202023 (48.78%)	0.870
	Male	204060 (51.20%)	212152 (51.22%)	
Age, years	Continuous	13.78 ± 2.40	13.71 ± 2.41	< 0.001
Race	Other	30852 (7.74%)	32580 (7.87%)	0.037
	Han	367668 (92.26%)	381595 (92.13%)	
BMI	Continuous	21.06 ± 5.20	21.04 ± 5.24	0.238
Only one child	NO	290838 (72.98%)	302644 (73.07%)	0.352
	Yes	107682 (27.02%)	111531 (26.93%)	
Drinking	NO	300306 (75.36%)	313752 (75.75%)	< 0.001
	Yes	98214 (24.64%)	100423 (24.25%)	
Smoking	NO	371780 (93.29%)	386997 (93.44%)	0.008
	Yes	26740 (6.71%)	27178 (6.56%)	
Days of exercise, day(s)	≤ 2 per week	157296 (39.47%)	162284 (39.18%)	0.028
	3 - 4 per week	106500 (26.72%)	111091 (26.82%)	
	5 - 7 per week	134724 (33.81%)	140800 (34.00%)	
Subjective family SES	Continuous	6.06 ± 1.97	6.08 ± 1.98	< 0.001
Self-rated popularity in school	Continuous	6.49 ± 2.04	6.50 ± 2.04	0.012

Objective family SES	Continuous	0.01 ± 0.99	-0.00 ± 1.00	0.002
	High school and below	295409 (74.13%)	307172 (74.16%)	
Mother's education	Junior college	46334 (11.63%)	47741 (11.53%)	0.218
	Bachelor	46970 (11.79%)	48834 (11.79%)	
	Master and above	9807 (2.46%)	10428 (2.52%)	
	Very low HDI	23600 (5.92%)	25157 (6.07%)	
HDI of resident province	Low HDI	70610 (17.72%)	78127 (18.86%)	< 0.001
	Lower-middle HDI	84802 (21.28%)	87690 (21.17%)	
	Upper-middle HDI	142827 (35.84%)	144126 (34.80%)	
	High HDI	67655 (16.98%)	69730 (16.84%)	
	Very high HDI	9026 (2.26%)	9345 (2.26%)	
School type	Private	46077 (11.56%)	48498 (11.71%)	0.038
	Public	352443 (88.44%)	365677 (88.29%)	
Region of school	Rural	107166 (26.89%)	115920 (27.99%)	< 0.001
	Urban	291354 (73.11%)	298255 (72.01%)	

eTable 3. Details about the variables.

Variables	Levels	Type	Assessment	Note
Mental well-being	Continuous	Ratio	SWEMWBS	/
Sex	Female	Nominal	Self-reported	/
	Male			
Age, years	Continuous	Interval	Self-reported	/
Race	Other	Nominal	Self-reported	/
	Han			
BMI	Continuous	Ratio	Self-reported	Based on self-reported height and weight
Only one child	NO	Nominal	Self-reported	/
	Yes			
Drinking	NO	Nominal	Self-reported	“whether you drank during your life time’
	Yes			
Smoking	NO	Nominal	Self-reported	“whether you smoked during your life time’
	Yes			
Days of exercise, day(s)	≤ 2 per week	Ordinal	Self-reported	“how many days do you exercise more than 1 hour in a week”
	3 - 4 per week			
	5 - 7 per week			
Subjective family SES	Continuous	Interval	Self-reported	ranging from 0 to 10
Self-rated popularity in school	Continuous	Interval	Self-reported	ranging from 0 to 10
Objective family SES	Continuous	Ratio	Self-reported	produced with factor analysis based on computer ownership, car ownership, and the education level of the parents
Mother's education	High school and below	Ordinal	Self-reported	/
	Junior college			

HDI of resident province	Bachelor	Ordinal	Previous research based	assessed by the health, education and the income level of each province
	Master and above			
	Very low HDI			
	Low HDI			
	Lower-middle HDI			
	Upper-middle HDI			
School type	High HDI	Nominal	Self-reported	/
	Very high HDI			
Region of school	Private	Nominal	Self-reported	/
	Official			
Shopping institutions around school	Rural	Nominal	Self-reported	/
	Urban			
Exercise institutions around school	Continuous			
Traffic stations around school	Continuous			
Natural sceneries around school	Continuous	Interval	Calculated	obtained by Baidu map (a widely used guide application in China)
Tourist locations around school	Continuous			
Education institutions around school	Continuous			
Psychological activities held by school	None	Ordinal	Self-reported	i.e., psychological games
	1/year			
	≥ 1/semester			

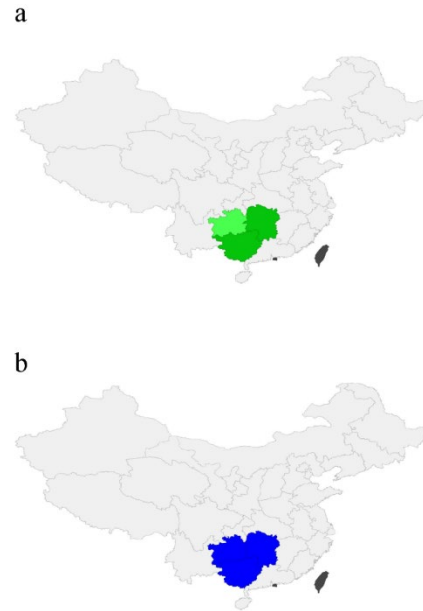
Psychological courses	None	Ordinal	Self-reported	i.e., knowledge about mental health
	1/two weeks for part of students			
	1/week for part of students			
	≥ 2/week for part of students			
	1/two weeks for all students			
Honors of school	1/week for all students	Ordinal	Self-reported	i.e., rewarded by the city government
	≥ 2/week for all students			
	None			
	Awarded in county level			
	Awarded in city level			
	Awarded in province level			
	Awarded in country level			

eTable 4. Group differences of mental well-being among variables.

Variables	Mean (SD)/ N (%)	P-value	Effect size (η^2/r^2)
Sex			
Female	194460 (48.80)		
Male	204060 (51.20)	< 0.001	0.013
Age, y	13.78 (2.40)	< 0.001	0.027
Race			
Other	30852 (7.74)		
Han	367668 (92.26)	< 0.001	0.001
BMI	21.06 (5.20)	< 0.001	0.003
Only one child			
NO	290838 (72.98)		
Yes	107682 (27.02)	< 0.001	0.006
Drinking			
NO	300306 (75.36)		
Yes	98214 (24.64)	< 0.001	0.032
Smoking			
NO	371780 (93.29)		
Yes	26740 (6.71)	< 0.001	0.016
Days of exercise, day(s)			
≤ 2 per week	157296 (39.47)		
3 - 4 per week	106500 (26.72)		
5 - 7 per week	134724 (33.81)	< 0.001	0.016
Subjective family SES	6.06 (1.97)	< 0.001	0.133
Self-rated popularity in school	6.49 (2.04)	< 0.001	0.214

Objective family SES	0.01 (0.99)	< 0.001	0.027
Mother's education			
High school and below	295409 (74.13)		
Junior college	46334 (11.63)	< 0.001	0.022
Bachelor	46970 (11.79)		
Master and above	9807 (2.46)		
HDI of resident province			
Low HDI	70610 (17.72)		
Lower-middle HDI	84802 (21.28)		
Upper-middle HDI	142827 (35.84)	< 0.001	0.006
High HDI	67655 (16.98)		
Very high HDI	9026 (2.26)		
Region of school			
Rural	107166 (26.89)	< 0.001	0.006
Urban	291354 (73.11)		
Shopping institutions around school	81.15 (19.98)	< 0.001	0.002
Exercise institutions around school	31.06 (28.28)	< 0.001	0.004
Traffic stations around school	84.76 (25.69)	< 0.001	0.002
Natural sceneries around school	10.43 (8.53)	< 0.001	0.001
Tourist locations around school	33.41 (32.56)	< 0.001	0.003
Education institutions around school	72.35 (31.99)	< 0.001	0.003
Psychological activities held by school			
None	39188 (9.83)	< 0.001	0.001
1/year	88663 (22.25)		

	≥ 1/semester	270669 (67.92)		
Psychological courses				
	None	46995 (11.79)		
	1/two weeks for part of students	94017 (23.59)		
	1/week for part of students	80523 (20.21)		
	≥ 2/week for part of students	24939 (6.26)	< 0.001	0.004
	1/two weeks for all students	96988 (24.34)		
	1/week for all students	41354 (10.38)		
	≥ 2/week for all students	13704 (3.44)		
Honors of school				
	None	54555 (13.69)		
	Awarded in county level	59572 (14.95)		
	Awarded in city level	104236 (26.16)	< 0.001	0.002
	Awarded in province level	127499 (31.99)		
	Awarded in country level	52658 (13.21)		



eFigure. Spatial auto-correlation for mean scores of mental well-being in China. a. The blank areas indicate no statistical significance, light green indicates p -value < 0.05 , green indicates p -value < 0.01 and the black indicates undefined due to data insufficient. b. The blank areas indicate no statistical significance, blue indicates Low-Low spatial aggregation and the black indicates undefined due to data insufficient.