

Table S1. Characteristics of adolescents with and without the composite outcome of suicidal ideation and/or suicide planning during the past 12 months

Characteristics	Suicidal ideation and/or suicide planning during the past 12 months		P value
	Ever (n = 4,206)	Never (n = 13,875)	
Demographic Characteristics			
Survey year			< .0001
2012	1717 (40.82%)	4997 (36.01%)	
2014	1201 (28.55%)	4670 (33.66%)	
2016	1288 (30.62%)	4208 (30.33%)	
Urbanization level			< .0001
Urban area	869 (20.66%)	2696 (19.43%)	
City	983 (23.37%)	2834 (20.43%)	
Town	990 (23.54%)	3431 (24.73%)	
Rural area	1364 (32.43%)	4914 (35.42%)	
Grade			0.0253
Missing	40 (0.95%)	102 (0.74%)	
7th grade	1318 (31.34%)	4262 (30.72%)	
8th grade	1447 (34.40%)	4569 (32.93%)	
9th grade	1401 (33.31%)	4942 (35.62%)	
Age (years)			0.1639
Missing	3 (0.07%)	10 (0.07%)	
≤ 12 years	300 (7.13%)	919 (6.62%)	
13 years	1152 (27.39%)	3885 (28.00%)	

14 years	1503 (35.73%)	4791 (34.53%)	
15 years	1109 (26.37%)	3872 (27.91%)	
≥ 16 years	139 (3.30%)	398 (2.87%)	
Sex			< .0001
Missing	15 (0.36%)	26 (0.19%)	
Male	1896 (45.08%)	7504 (54.08%)	
Female	2295 (54.56%)	6345 (45.73%)	
Lifestyle Behaviors			
Physical activity (≥ 60 minutes/day, days/week)			< .0001
Missing	18 (0.43%)	53 (0.38%)	
0 days	569 (13.53%)	1373 (9.90%)	
1 to 3 days per week	1961 (46.62%)	6650 (47.93%)	
4 to 7 days per week	1658 (39.42%)	5799 (41.79%)	
Sedentary time on weekdays (hours/day)			< .0001
Missing	32 (0.76%)	59 (0.43%)	
Less than 1 hour per day	351 (8.35%)	1072 (7.73%)	
1 to 4 hours per day	1918 (45.60%)	7150 (51.53%)	
5 to 6 hours per day	717 (17.05%)	2318 (16.71%)	
7 or more hours per day	1188 (28.25%)	3276 (23.61%)	
Non-school screen time on school days (hours/day)			< .0001
Missing	25 (0.59%)	49 (0.35%)	
None	699 (16.62%)	2138 (15.41%)	

Less than 2 hours per day	2235 (53.14%)	8552 (61.64%)	
3 or more hours per day	1247 (29.65%)	3136 (22.60%)	
Dietary Behaviors			
Breakfast consumption (past 30 days)			< .0001
Missing	17 (0.40%)	58 (0.42%)	
Rarely or never	337 (8.01%)	486 (3.50%)	
Sometimes or often	1752 (41.65%)	4331 (31.21%)	
Always	2100 (49.93%)	9000 (64.86%)	
Vegetable intake (times/day, past 30 days)			< .0001
Missing	8 (0.19%)	17 (0.12%)	
Less than once per day	377 (8.96%)	807 (5.82%)	
1 to 2 times per day	2704 (64.29%)	8976 (64.69%)	
3 or more times per day	1117 (26.56%)	4075 (29.37%)	
Fruit intake (times/day, past 30 days)			< .0001
Missing	11 (0.26%)	13 (0.09%)	
Less than once per day	1602 (38.09%)	4132 (29.78%)	
1 to 2 times per day	2272 (54.02%)	8634 (62.23%)	
3 or more times per day	321 (7.63%)	1096 (7.90%)	
High-fat food intake (times/day, past 30 days)			< .0001
Missing	5 (0.12%)	5 (0.04%)	
Never	512 (12.17%)	1587 (11.44%)	
Less than once per day	2800 (66.57%)	9918 (71.48%)	

Once or more per day	889 (21.14%)	2365 (17.05%)	
Fast-food intake (days/week, past 7 days)			< .0001
Missing	10 (0.24%)	17 (0.12%)	
0 days	2689 (63.93%)	9451 (68.12%)	
1 day	1080 (25.68%)	3496 (25.20%)	
2 or more days per week	427 (10.15%)	911 (6.57%)	
Carbonated soft drink intake (times/day, past 30 days)			< .0001
Missing	7 (0.17%)	6 (0.04%)	
None	1220 (29.01%)	4363 (31.45%)	
Less than once per day	2316 (55.06%)	7819 (56.35%)	
Once or more per day	663 (15.76%)	1687 (12.16%)	
Sugary non-carbonated beverage intake (times/day, past 30 days)			< .0001
Missing	11 (0.26%)	8 (0.06%)	
None	335 (7.96%)	1189 (8.57%)	
Less than once per day	1962 (46.65%)	7390 (53.26%)	
Once or more per day	1898 (45.13%)	5288 (38.11%)	
Family-Peer Relationship Factors			
Parental understanding (past 30 days)			< .0001
Missing	33 (0.78%)	86 (0.62%)	
Never	1315 (31.26%)	2118 (15.26%)	
Rarely	1095 (26.03%)	2973 (21.43%)	
Sometimes	856 (20.35%)	3613 (26.04%)	

Often	430 (10.22%)	2509 (18.08%)	
Always	477 (11.34%)	2576 (18.57%)	
Parental monitoring (past 30 days)			< .0001
Missing	49 (1.17%)	112 (0.81%)	
Never	629 (14.95%)	956 (6.89%)	
Rarely	856 (20.35%)	1712 (12.34%)	
Sometimes	872 (20.73%)	2604 (18.77%)	
Often	813 (19.33%)	3495 (25.19%)	
Always	987 (23.47%)	4996 (36.01%)	
Parental intrusion of belongings (past 30 days)			< .0001
Missing	114 (2.71%)	333 (2.40%)	
Never	1289 (30.65%)	5278 (38.04%)	
Rarely	1113 (26.46%)	4336 (31.25%)	
Sometimes	850 (20.21%)	2470 (17.80%)	
Often	376 (8.94%)	737 (5.31%)	
Always	464 (11.03%)	721 (5.20%)	
Peer support at school (past 30 days)			< .0001
Missing	37 (0.88%)	98 (0.71%)	
Never	310 (7.37%)	499 (3.60%)	
Rarely	392 (9.32%)	753 (5.43%)	
Sometimes	867 (20.61%)	2506 (18.06%)	
Often	1191 (28.32%)	3976 (28.66%)	

Always	1409 (33.50%)	6043 (43.55%)
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The composite outcome was defined as reporting suicidal ideation and/or suicide planning during the past 12 months. Data are presented as n (%) for categorical variables and mean $\pm$ SD for continuous variables. P values were calculated using chi-square tests for categorical variables and independent-samples t tests for continuous variables. Missing responses are shown as a separate category where applicable.

Abbreviation: SD, standard deviation.

Table S2. Associations of demographic, lifestyle, dietary, and family-peer relationship factors with the composite outcome of suicidal ideation and/or suicide planning during the past 12 months

Variable	Univariate model OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
Demographic Characteristics				
Survey year				
2012	reference	reference	reference	reference
2014	0.748 (0.688 - 0.814)	0.768 (0.705 - 0.836)	0.779 (0.714 - 0.850)	0.800 (0.732 - 0.876)
2016	0.891 (0.820 - 0.968)	0.912 (0.838 - 0.992)	0.904 (0.828 - 0.987)	0.969 (0.885 - 1.061)
Urbanization level				
Urban area	reference	reference	reference	reference
City	1.076 (0.968 - 1.196)	1.064 (0.957 - 1.182)	1.099 (0.987 - 1.225)	1.129 (1.010 - 1.262)
Town	0.895 (0.807 - 0.993)	0.909 (0.818 - 1.009)	0.951 (0.854 - 1.059)	0.969 (0.868 - 1.082)
Rural area	0.861 (0.781 - 0.949)	0.896 (0.811 - 0.989)	0.898 (0.811 - 0.993)	0.898 (0.809 - 0.997)
Grade				
7th grade	reference	reference	reference	reference
8th grade	1.024 (0.940 - 1.116)	0.960 (0.858 - 1.075)	0.961 (0.856 - 1.077)	0.959 (0.852 - 1.078)
9th grade	0.917 (0.841 - 0.999)	0.806 (0.696 - 0.934)	0.836 (0.720 - 0.972)	0.850 (0.729 - 0.992)
Age (years)				
≤ 12 years	reference	reference	reference	reference

Variable	Univariate model OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
13 years	0.908 (0.785 - 1.051)	0.931 (0.802 - 1.081)	0.928 (0.797 - 1.081)	0.946 (0.809 - 1.108)
14 years	0.961 (0.833 - 1.108)	1.051 (0.885 - 1.249)	1.024 (0.860 - 1.220)	1.038 (0.867 - 1.243)
15 years	0.877 (0.758 - 1.016)	1.076 (0.882 - 1.313)	0.997 (0.815 - 1.221)	1.011 (0.821 - 1.245)
≥ 16 years	1.070 (0.848 - 1.351)	1.372 (1.046 - 1.800)	1.162 (0.881 - 1.534)	1.122 (0.844 - 1.493)
Sex				
Male	reference	reference	reference	reference
Female	1.432 (1.336 - 1.534)	1.426 (1.330 - 1.529)	1.495 (1.388 - 1.610)	1.602 (1.483 - 1.730)
Lifestyle Behaviors				
Physical activity (≥ 60 minutes/day, days/week)				
0 days	reference		reference	reference
1 to 3 days per week	0.711 (0.637 - 0.794)		0.780 (0.696 - 0.874)	0.874 (0.777 - 0.984)
4 to 7 days per week	0.690 (0.617 - 0.772)		0.831 (0.738 - 0.935)	0.959 (0.848 - 1.083)
Sedentary time on weekdays (hours/day)				
Less than 1 hour per day	reference		reference	reference
1 to 4 hours per day	0.819 (0.719 - 0.934)		0.848 (0.739 - 0.972)	0.929 (0.806 - 1.070)
5 to 6 hours per day	0.945 (0.816 - 1.094)		0.880 (0.754 - 1.028)	0.952 (0.811 - 1.118)
7 or more hours per day	1.108 (0.965 - 1.271)		0.993 (0.858 - 1.150)	1.034 (0.889 - 1.203)

Variable	Univariate model OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
Non-school screen time on school days (hours/day)				
None	reference		reference	reference
Less than 2 hours per day	0.799 (0.725 - 0.881)		0.835 (0.754 - 0.925)	0.862 (0.775 - 0.958)
3 or more hours per day	1.216 (1.092 - 1.355)		1.088 (0.966 - 1.225)	1.074 (0.951 - 1.214)
Dietary Behaviors				
Breakfast consumption (past 30 days)				
Rarely or never	reference		reference	reference
Sometimes or often	0.583 (0.502 - 0.678)		0.646 (0.554 - 0.754)	0.718 (0.612 - 0.842)
Always	0.336 (0.291 - 0.390)		0.418 (0.359 - 0.487)	0.538 (0.459 - 0.630)
Vegetable intake (times/day, past 30 days)				
Less than once per day	reference		reference	reference
1 to 2 times per day	0.645 (0.566 - 0.734)		0.830 (0.724 - 0.952)	0.946 (0.821 - 1.089)
3 or more times per day	0.587 (0.510 - 0.674)		0.817 (0.704 - 0.949)	0.943 (0.809 - 1.100)
Fruit intake (times/day, past 30 days)				
Less than once per day	reference		reference	reference
1 to 2 times per day	0.679 (0.630 - 0.731)		0.772 (0.714 - 0.836)	0.862 (0.795 - 0.935)
3 or more times per day	0.755 (0.659 - 0.866)		0.815 (0.703 - 0.944)	0.876 (0.752 - 1.020)

Variable	Univariate model OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
High-fat food intake (times/day, past 30 days)				
Never	reference		reference	reference
Less than once per day	0.875 (0.785 - 0.975)		0.853 (0.759 - 0.958)	0.879 (0.779 - 0.991)
Once or more per day	1.165 (1.027 - 1.322)		0.967 (0.841 - 1.113)	0.973 (0.843 - 1.124)
Fast-food intake (days/week, past 7 days)				
0 days	reference		reference	reference
1 day	1.086 (1.002 - 1.177)		1.024 (0.941 - 1.114)	1.042 (0.955 - 1.136)
2 or more days per week	1.648 (1.458 - 1.863)		1.355 (1.188 - 1.546)	1.317 (1.150 - 1.509)
Carbonated soft drink intake (times/day, past 30 days)				
None	reference		reference	reference
Less than once per day	1.059 (0.979 - 1.146)		1.075 (0.988 - 1.170)	1.081 (0.991 - 1.180)
Once or more per day	1.405 (1.259 - 1.569)		1.097 (0.968 - 1.243)	1.013 (0.891 - 1.153)
Sugary non-carbonated beverage intake (times/day, past 30 days)				
None	reference		reference	reference
Less than once per day	0.942 (0.827 - 1.074)		0.977 (0.849 - 1.125)	1.010 (0.873 - 1.167)
Once or more per day	1.274 (1.116 - 1.454)		1.133 (0.980 - 1.311)	1.110 (0.955 - 1.290)

Variable	Univariate model OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
Family-Peer Relationship Factors				
Parental understanding (past 30 days)				
Never	reference			reference
Rarely	0.593 (0.538 - 0.654)			0.694 (0.623 - 0.774)
Sometimes	0.382 (0.345 - 0.422)			0.530 (0.472 - 0.595)
Often	0.276 (0.244 - 0.312)			0.447 (0.389 - 0.513)
Always	0.298 (0.265 - 0.336)			0.544 (0.473 - 0.626)
Parental monitoring (past 30 days)				
Never	reference			reference
Rarely	0.760 (0.667 - 0.865)			0.988 (0.855 - 1.141)
Sometimes	0.509 (0.448 - 0.578)			0.809 (0.700 - 0.935)
Often	0.354 (0.312 - 0.401)			0.661 (0.570 - 0.767)
Always	0.300 (0.266 - 0.339)			0.596 (0.516 - 0.689)
Parental intrusion of belongings (past 30 days)				
Never	reference			reference
Rarely	1.051 (0.961 - 1.150)			1.106 (1.005 - 1.217)
Sometimes	1.409 (1.276 - 1.556)			1.349 (1.215 - 1.498)

Variable	Univariate model OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
Often	2.089 (1.819 - 2.399)			1.868 (1.614 - 2.162)
Always	2.635 (2.310 - 3.006)			2.098 (1.824 - 2.414)
Peer support at school (past 30 days)				
Never	reference			reference
Rarely	0.838 (0.695 - 1.010)			0.926 (0.758 - 1.131)
Sometimes	0.557 (0.474 - 0.654)			0.735 (0.617 - 0.877)
Often	0.482 (0.413 - 0.563)			0.684 (0.576 - 0.813)
Always	0.375 (0.322 - 0.437)			0.576 (0.486 - 0.683)

Abbreviations: CI, confidence interval; OR, odds ratio.

Model 1 was adjusted for demographic characteristics, including survey year, urbanization level, grade, age, and sex.

Model 2 was additionally adjusted for lifestyle and dietary behaviors.

Model 3 was further adjusted for family-peer relationship factors.

All ORs and 95% CIs were estimated using logistic regression models, with the composite outcome of suicidal ideation and/or suicide planning during the past 12 months as the dependent variable. Reference categories are indicated in the table. Physical activity was defined as at least 60 minutes per day. All family-peer relationship variables referred to experiences during the past 30 days.

Table S3. Sex-stratified associations of demographic, lifestyle, dietary, and family-peer relationship factors with the composite outcome of suicidal ideation and/or suicide planning during the past 12 months

Variable	Male OR (95% CI)	Female OR (95% CI)
Demographic Characteristics		
Survey year		
2012	reference	reference
2014	0.885 (0.778 - 1.007)	0.728 (0.641 - 0.828)
2016	1.018 (0.893 - 1.160)	0.936 (0.824 - 1.063)
Urbanization level		
Urban area	reference	reference
City	1.045 (0.890 - 1.226)	1.218 (1.041 - 1.425)
Town	0.867 (0.741 - 1.015)	1.079 (0.923 - 1.261)
Rural area	0.823 (0.710 - 0.953)	0.969 (0.834 - 1.125)
Grade		
7th grade	reference	reference
8th grade	1.052 (0.887 - 1.247)	0.890 (0.755 - 1.050)
9th grade	0.884 (0.706 - 1.108)	0.820 (0.661 - 1.016)
Age (years)		
≤ 12 years	reference	reference

Variable	Male OR (95% CI)	Female OR (95% CI)
13 years	0.898 (0.717 - 1.126)	1.011 (0.809 - 1.264)
14 years	0.882 (0.681 - 1.143)	1.242 (0.962 - 1.605)
15 years	0.948 (0.702 - 1.279)	1.116 (0.832 - 1.497)
≥ 16 years	1.023 (0.687 - 1.523)	1.281 (0.842 - 1.947)
Lifestyle Behaviors		
Physical activity (≥ 60 minutes/day, days/week)		
0 days	reference	reference
1 to 3 days per week	0.713 (0.595 - 0.855)	1.019 (0.869 - 1.193)
4 to 7 days per week	0.769 (0.643 - 0.920)	1.163 (0.980 - 1.381)
Sedentary time on weekdays (hours/day)		
Less than 1 hour per day	reference	reference
1 to 4 hours per day	0.884 (0.736 - 1.060)	1.021 (0.812 - 1.285)
5 to 6 hours per day	0.852 (0.685 - 1.059)	1.108 (0.864 - 1.422)
7 or more hours per day	1.005 (0.822 - 1.230)	1.124 (0.885 - 1.426)
Non-school screen time on school days (hours/day)		
None	reference	reference
Less than 2 hours per day	0.958 (0.818 - 1.123)	0.784 (0.679 - 0.905)
3 or more hours per day	1.174 (0.981 - 1.405)	0.973 (0.821 - 1.154)

Variable	Male OR (95% CI)	Female OR (95% CI)
Dietary Behaviors		
Breakfast consumption (past 30 days)		
Rarely or never	reference	reference
Sometimes or often	0.728 (0.582 - 0.909)	0.707 (0.559 - 0.895)
Always	0.564 (0.452 - 0.703)	0.512 (0.405 - 0.648)
Vegetable intake (times/day, past 30 days)		
Less than once per day	reference	reference
1 to 2 times per day	1.004 (0.830 - 1.215)	0.887 (0.715 - 1.101)
3 or more times per day	1.061 (0.861 - 1.307)	0.829 (0.656 - 1.048)
Fruit intake (times/day, past 30 days)		
Less than once per day	reference	reference
1 to 2 times per day	0.901 (0.802 - 1.013)	0.820 (0.732 - 0.920)
3 or more times per day	0.806 (0.650 - 0.998)	0.947 (0.757 - 1.184)
High-fat food intake (times/day, past 30 days)		
Never	reference	reference
Less than once per day	0.809 (0.679 - 0.963)	0.943 (0.797 - 1.116)
Once or more per day	0.919 (0.750 - 1.125)	1.030 (0.836 - 1.270)
Fast-food intake (days/week, past 7 days)		

Variable	Male OR (95% CI)	Female OR (95% CI)
0 days	reference	reference
1 day	1.002 (0.882 - 1.139)	1.081 (0.959 - 1.218)
2 or more days per week	1.225 (1.019 - 1.472)	1.398 (1.138 - 1.718)
Carbonated soft drink intake (times/day, past 30 days)		
None	reference	reference
Less than once per day	0.985 (0.863 - 1.124)	1.155 (1.027 - 1.298)
Once or more per day	0.972 (0.811 - 1.164)	1.038 (0.859 - 1.255)
Sugary non-carbonated beverage intake (times/day, past 30 days)		
None	reference	reference
Less than once per day	0.945 (0.767 - 1.164)	1.080 (0.881 - 1.324)
Once or more per day	1.006 (0.812 - 1.246)	1.209 (0.978 - 1.496)
Family-Peer Relationship Factors		
Parental understanding (past 30 days)		
Never	reference	reference
Rarely	0.773 (0.660 - 0.905)	0.633 (0.545 - 0.737)
Sometimes	0.586 (0.496 - 0.692)	0.490 (0.416 - 0.576)
Often	0.494 (0.405 - 0.604)	0.412 (0.338 - 0.501)
Always	0.635 (0.523 - 0.771)	0.470 (0.383 - 0.576)

Variable	Male OR (95% CI)	Female OR (95% CI)
Parental monitoring (past 30 days)		
Never	reference	reference
Rarely	1.037 (0.845 - 1.272)	0.927 (0.753 - 1.142)
Sometimes	0.803 (0.654 - 0.987)	0.786 (0.638 - 0.969)
Often	0.717 (0.582 - 0.884)	0.600 (0.484 - 0.745)
Always	0.660 (0.541 - 0.806)	0.527 (0.425 - 0.653)
Parental intrusion of belongings (past 30 days)		
Never	reference	reference
Rarely	1.180 (1.026 - 1.358)	1.036 (0.907 - 1.183)
Sometimes	1.323 (1.135 - 1.541)	1.380 (1.192 - 1.597)
Often	1.833 (1.485 - 2.263)	1.879 (1.529 - 2.309)
Always	1.790 (1.473 - 2.176)	2.511 (2.039 - 3.091)
Peer support at school (past 30 days)		
Never	reference	reference
Rarely	0.829 (0.644 - 1.068)	1.073 (0.763 - 1.510)
Sometimes	0.687 (0.551 - 0.856)	0.800 (0.590 - 1.085)
Often	0.635 (0.510 - 0.790)	0.727 (0.540 - 0.978)
Always	0.594 (0.479 - 0.738)	0.569 (0.425 - 0.761)

Abbreviations: CI, confidence interval; OR, odds ratio.

Odds ratios (ORs) and 95% confidence intervals (CIs) were estimated using sex-stratified multivariable logistic regression models for the composite outcome of suicidal ideation and/or suicide planning during the past 12 months. Models were adjusted for demographic characteristics, lifestyle behaviors, dietary behaviors, and family-peer relationship factors. Reference categories are shown in the table. Physical activity was defined as at least 60 minutes per day. All family-peer relationship variables referred to experiences during the past 30 days.

For the present analysis, data were obtained from the 2012, 2014, and 2016 waves of the Taiwan Youth Health Survey (TYHS). The initial sample comprised 18,330 junior high school students. A total of 249 participants were excluded because of missing data on the primary outcome or other key variables required for the analysis. Consequently, the final analytic sample consisted of 18,081 adolescents. The data retention rate across the three survey waves ranged from 98.56% to 98.72%.

Supplementary Table S4. Characteristics of included and excluded participants in the analytic sample (n = 18,330)

Variable	Included participants (n = 18,081)	Excluded participants (n = 249)	P value
Survey year			0.7251
2012	6714 (37.13%)	87 (34.94%)	
2014	5871 (32.47%)	86 (34.54%)	
2016	5496 (30.40%)	76 (30.52%)	
Urbanization level			0.0940
Urban area	3565 (19.72%)	57 (22.89%)	
City	3817 (21.11%)	60 (24.10%)	
Town	4421 (24.45%)	45 (18.07%)	
Rural area	6278 (34.72%)	87 (34.94%)	
Grade			0.0416
Missing	142 (0.79%)	5 (2.01%)	
7th grade	5580 (30.86%)	70 (28.11%)	
8th grade	6016 (33.27%)	96 (38.55%)	
9th grade	6343 (35.08%)	78 (31.33%)	
Age (years)			< .0001
Missing	13 (0.07%)	3 (1.20%)	
≤ 12 years	1219 (6.74%)	19 (7.63%)	
13 years	5037 (27.86%)	58 (23.29%)	
14 years	6294 (34.81%)	94 (37.75%)	
15 years	4981 (27.55%)	64 (25.70%)	
≥ 16 years	537 (2.97%)	11 (4.42%)	

Variable	Included participants (n = 18,081)	Excluded participants (n = 249)	P value
Sex			< .0001
Missing	41 (0.23%)	5 (2.01%)	
Male	9400 (51.99%)	145 (58.23%)	
Female	8640 (47.78%)	99 (39.76%)	
BMI (mean ± SD)	20.5 ± 3.8	21.0 ± 4.0	0.0694
Body image satisfaction			0.0001
Missing	77 (0.43%)	5 (2.01%)	
Very satisfied	1906 (10.54%)	26 (10.44%)	
Somewhat satisfied	6261 (34.63%)	73 (29.32%)	
Neutral	2183 (12.07%)	40 (16.06%)	
Not very satisfied	6193 (34.25%)	75 (30.12%)	
Very dissatisfied	1461 (8.08%)	30 (12.05%)	
Suicidal ideation			< .0001
Missing	0 (0.00%)	208 (83.53%)	
Ever	3835 (21.21%)	16 (6.43%)	
Never	14246 (78.79%)	25 (10.04%)	
Suicide planning			< .0001
Missing	0 (0.00%)	89 (35.74%)	
Ever	2364 (13.07%)	44 (17.67%)	
Never	15717 (86.93%)	116 (46.59%)	

Note. Data are presented as n (%) for categorical variables or mean ± SD for continuous variables. P values were derived from chi-square tests for categorical variables and independent-samples t tests for continuous variables. Excluded participants (n = 249) had missing data on the primary outcome or other key variables required for the analysis.

Abbreviation: SD, standard deviation.

Supplementary Table S1 compares the characteristics of participants included in the final analytic sample and those excluded because of missing data on the primary outcome or other key variables. Overall, the distribution of survey year did not differ significantly between the two groups (P

= 0.7251), and urbanization level also showed no statistically significant imbalance ($P = 0.0940$). In contrast, excluded participants showed small but statistically significant differences in grade ($P = 0.0416$), age ($P < 0.0001$), and sex ($P < 0.0001$), with a higher proportion of males and a slightly different age and grade composition. Mean BMI was similar between the two groups (20.5 ± 3.8 vs 21.0 ± 4.0 ; $P = 0.0694$). Excluded participants were also more likely to report lower body image satisfaction ($P = 0.0001$). Notably, the excluded group had a high proportion of missing responses for suicidal ideation (83.53%) and suicide planning (35.74%), consistent with the exclusion of participants with missing key outcome data (both $P < 0.0001$). These findings suggest that exclusions were largely driven by missing outcome information, whereas most baseline demographic characteristics were broadly comparable between included and excluded participants.

Supplementary Table S5. Characteristics of adolescents with and without the composite outcome of suicidal ideation and/or suicide planning during the past 12 months, stratified by sex

Variable	Male Ever (n = 1,896)	Male Never (n = 7,504)	P value	Female Ever (n = 2,295)	Female Never (n = 6,345)	P value
Demographic Characteristics						
Survey year			0.0084			< .0001
2012	736 (38.82%)	2688 (35.82%)		975 (42.48%)	2302 (36.28%)	
2014	577 (30.43%)	2549 (33.97%)		620 (27.02%)	2112 (33.29%)	
2016	583 (30.75%)	2267 (30.21%)		700 (30.50%)	1931 (30.43%)	
Urbanization level			0.0008			0.0522
Urban area	419 (22.10%)	1474 (19.64%)		449 (19.56%)	1216 (19.16%)	
City	415 (21.89%)	1441 (19.20%)		561 (24.44%)	1390 (21.91%)	
Town	429 (22.63%)	1829 (24.37%)		559 (24.36%)	1595 (25.14%)	
Rural area	633 (33.39%)	2760 (36.78%)		726 (31.63%)	2144 (33.79%)	
Grade			0.1498			0.1247
Missing	17 (0.90%)	41 (0.55%)		16 (0.70%)	48 (0.76%)	
7th grade	581 (30.64%)	2320 (30.92%)		731 (31.85%)	1935 (30.50%)	
8th grade	652 (34.39%)	2463 (32.82%)		793 (34.55%)	2101 (33.11%)	
9th grade	646 (34.07%)	2680 (35.71%)		755 (32.90%)	2261 (35.63%)	
Age (years)			0.7682			0.1042
Missing	1 (0.05%)	3 (0.04%)		0 (0.00%)	2 (0.03%)	
≤ 12 years	137 (7.23%)	501 (6.68%)		160 (6.97%)	413 (6.51%)	
13 years	510 (26.90%)	2067 (27.55%)		639 (27.84%)	1814 (28.59%)	
14 years	641 (33.81%)	2558 (34.09%)		860 (37.47%)	2225 (35.07%)	
15 years	534 (28.16%)	2130 (28.38%)		572 (24.92%)	1738 (27.39%)	
≥ 16 years	73 (3.85%)	245 (3.26%)		64 (2.79%)	153 (2.41%)	
Lifestyle Behaviors						
Physical activity (≥ 60 minutes/day, days/week)			< .0001			0.1474

Variable	Male Ever (n = 1,896)	Male Never (n = 7,504)	P value	Female Ever (n = 2,295)	Female Never (n = 6,345)	P value
Missing	9 (0.47%)	33 (0.44%)		9 (0.39%)	20 (0.32%)	
0 days	247 (13.03%)	583 (7.77%)		319 (13.90%)	787 (12.40%)	
1 to 3 days per week	717 (37.82%)	3064 (40.83%)		1238 (53.94%)	3575 (56.34%)	
4 to 7 days per week	923 (48.68%)	3824 (50.96%)		729 (31.76%)	1963 (30.94%)	
Sedentary time on weekdays (hours/day)			< .0001			0.0001
Missing	17 (0.90%)	37 (0.49%)		14 (0.61%)	21 (0.33%)	
Less than 1 hour per day	215 (11.34%)	710 (9.46%)		134 (5.84%)	357 (5.63%)	
1 to 4 hours per day	911 (48.05%)	4031 (53.72%)		1002 (43.66%)	3108 (48.98%)	
5 to 6 hours per day	278 (14.66%)	1165 (15.53%)		437 (19.04%)	1149 (18.11%)	
7 or more hours per day	475 (25.05%)	1561 (20.80%)		708 (30.85%)	1710 (26.95%)	
Non-school screen time on school days (hours/day)			< .0001			< .0001
Missing	13 (0.69%)	35 (0.47%)		12 (0.52%)	13 (0.20%)	
None	290 (15.30%)	1096 (14.61%)		409 (17.82%)	1034 (16.30%)	
Less than 2 hours per day	1011 (53.32%)	4554 (60.69%)		1217 (53.03%)	3983 (62.77%)	
3 or more hours per day	582 (30.70%)	1819 (24.24%)		657 (28.63%)	1315 (20.72%)	
Dietary Behaviors						
Breakfast consumption (past 30 days)			< .0001			< .0001
Missing	11 (0.58%)	44 (0.59%)		6 (0.26%)	14 (0.22%)	
Rarely or never	158 (8.33%)	289 (3.85%)		177 (7.71%)	194 (3.06%)	
Sometimes or often	734 (38.71%)	2288 (30.49%)		1011 (44.05%)	2037 (32.10%)	
Always	993 (52.37%)	4883 (65.07%)		1101 (47.97%)	4100 (64.62%)	
Vegetable intake (times/day, past 30 days)			< .0001			< .0001
Missing	3 (0.16%)	12 (0.16%)		4 (0.17%)	5 (0.08%)	
Less than once per day	193 (10.18%)	527 (7.02%)		181 (7.89%)	278 (4.38%)	
1 to 2 times per day	1160 (61.18%)	4696 (62.58%)		1537 (66.97%)	4264 (67.20%)	

Variable	Male Ever (n = 1,896)	Male Never (n = 7,504)	P value	Female Ever (n = 2,295)	Female Never (n = 6,345)	P value
3 or more times per day	540 (28.48%)	2269 (30.24%)	< .0001	573 (24.97%)	1798 (28.34%)	< .0001
Fruit intake (times/day, past 30 days)						
Missing	8 (0.42%)	8 (0.11%)		3 (0.13%)	5 (0.08%)	
Less than once per day	736 (38.82%)	2367 (31.54%)	< .0001	859 (37.43%)	1752 (27.61%)	< .0001
1 to 2 times per day	1000 (52.74%)	4468 (59.54%)		1269 (55.29%)	4155 (65.48%)	
3 or more times per day	152 (8.02%)	661 (8.81%)		164 (7.15%)	433 (6.82%)	
High-fat food intake (times/day, past 30 days)			< .0001			< .0001
Missing	1 (0.05%)	2 (0.03%)		2 (0.09%)	3 (0.05%)	
Never	236 (12.45%)	771 (10.27%)		273 (11.90%)	811 (12.78%)	
Less than once per day	1207 (63.66%)	5270 (70.23%)	0.0001	1590 (69.28%)	4634 (73.03%)	< .0001
Once or more per day	452 (23.84%)	1461 (19.47%)		430 (18.74%)	897 (14.14%)	
Fast-food intake (days/week, past 7 days)						
Missing	4 (0.21%)	10 (0.13%)	0.0002	5 (0.22%)	6 (0.09%)	< .0001
0 days	1231 (64.93%)	5052 (67.32%)		1451 (63.22%)	4384 (69.09%)	
1 day	452 (23.84%)	1853 (24.69%)		625 (27.23%)	1634 (25.75%)	
2 or more days per week	209 (11.02%)	589 (7.85%)	< .0001	214 (9.32%)	321 (5.06%)	< .0001
Carbonated soft drink intake (times/day, past 30 days)						
Missing	4 (0.21%)	5 (0.07%)		2 (0.09%)	1 (0.02%)	
None	476 (25.11%)	1906 (25.40%)	< .0001	741 (32.29%)	2452 (38.64%)	< .0001
Less than once per day	1068 (56.33%)	4495 (59.90%)		1243 (54.16%)	3309 (52.15%)	
Once or more per day	348 (18.35%)	1098 (14.63%)		309 (13.46%)	583 (9.19%)	
Sugary non-carbonated beverage intake (times/day, past 30 days)			< .0001			< .0001
Missing	5 (0.26%)	6 (0.08%)		5 (0.22%)	2 (0.03%)	
None	160 (8.44%)	590 (7.86%)		175 (7.63%)	597 (9.41%)	

Variable	Male Ever (n = 1,896)	Male Never (n = 7,504)	P value	Female Ever (n = 2,295)	Female Never (n = 6,345)	P value
Less than once per day	844 (44.51%)	3791 (50.52%)		1115 (48.58%)	3584 (56.49%)	
Once or more per day	887 (46.78%)	3117 (41.54%)		1000 (43.57%)	2162 (34.07%)	
Family-Peer Relationship Factors						
Parental understanding (past 30 days)			< .0001			< .0001
Missing	18 (0.95%)	54 (0.72%)		15 (0.65%)	31 (0.49%)	
Never	581 (30.64%)	1255 (16.72%)		731 (31.85%)	860 (13.55%)	
Rarely	465 (24.53%)	1545 (20.59%)		627 (27.32%)	1423 (22.43%)	
Sometimes	383 (20.20%)	1928 (25.69%)		471 (20.52%)	1679 (26.46%)	
Often	197 (10.39%)	1311 (17.47%)		229 (9.98%)	1192 (18.79%)	
Always	252 (13.29%)	1411 (18.80%)		222 (9.67%)	1160 (18.28%)	
Parental monitoring (past 30 days)			< .0001			< .0001
Missing	28 (1.48%)	75 (1.00%)		21 (0.92%)	35 (0.55%)	
Never	301 (15.88%)	600 (8.00%)		327 (14.25%)	354 (5.58%)	
Rarely	358 (18.88%)	918 (12.23%)		495 (21.57%)	792 (12.48%)	
Sometimes	360 (18.99%)	1425 (18.99%)		509 (22.18%)	1176 (18.53%)	
Often	361 (19.04%)	1823 (24.29%)		450 (19.61%)	1666 (26.26%)	
Always	488 (25.74%)	2663 (35.49%)		493 (21.48%)	2322 (36.60%)	
Parental intrusion of belongings (past 30 days)			< .0001			< .0001
Missing	56 (2.95%)	188 (2.51%)		56 (2.44%)	143 (2.25%)	
Never	600 (31.65%)	2822 (37.61%)		684 (29.80%)	2444 (38.52%)	
Rarely	499 (26.32%)	2259 (30.10%)		611 (26.62%)	2071 (32.64%)	
Sometimes	366 (19.30%)	1372 (18.28%)		484 (21.09%)	1093 (17.23%)	
Often	165 (8.70%)	410 (5.46%)		210 (9.15%)	327 (5.15%)	
Always	210 (11.08%)	453 (6.04%)		250 (10.89%)	267 (4.21%)	
Peer support at school (past 30 days)			< .0001			< .0001

Variable	Male Ever (n = 1,896)	Male Never (n = 7,504)	P value	Female Ever (n = 2,295)	Female Never (n = 6,345)	P value
Missing	20 (1.05%)	59 (0.79%)		17 (0.74%)	37 (0.58%)	
Never	199 (10.50%)	364 (4.85%)		109 (4.75%)	134 (2.11%)	
Rarely	200 (10.55%)	491 (6.54%)		191 (8.32%)	261 (4.11%)	
Sometimes	432 (22.78%)	1598 (21.30%)		433 (18.87%)	903 (14.23%)	
Often	496 (26.16%)	2195 (29.25%)		691 (30.11%)	1776 (27.99%)	
Always	549 (28.96%)	2797 (37.27%)		854 (37.21%)	3234 (50.97%)	

After stratification by sex, most associations between the composite outcome of suicidal ideation and/or suicide planning during the past 12 months and participant characteristics remained statistically significant in both boys and girls (Supplementary Table S2). In both strata, adolescents in the ever group generally showed less favorable lifestyle and psychosocial profiles than those in the never group, including longer sedentary time, greater non-school screen exposure, less regular breakfast consumption, lower fruit and vegetable intake, higher consumption of high-fat foods and sugary beverages, and less favorable family-peer relationship indicators.

Among boys, the ever and never groups differed significantly in survey year distribution ($P = 0.0084$) and urbanization level ($P = 0.0008$), whereas among girls, survey year also differed significantly ($P < 0.0001$) but the difference in urbanization level was more modest ($P = 0.0522$). Grade and age distributions did not differ significantly between the ever and never groups in either boys or girls.

Regarding lifestyle behaviors, lower physical activity was observed among boys with suicidal ideation and/or suicide planning ($P < 0.0001$), whereas the corresponding difference was not statistically significant among girls ($P = 0.1474$). In contrast, longer sedentary time on weekdays and greater non-school screen time on school days were observed in both boys and girls. Dietary differences were also generally consistent across strata, with adolescents in the ever group being less likely to report regular breakfast consumption and more likely to report frequent intake of fast food and sugar-sweetened beverages.

Differences in family and school social environments were pronounced in both boys and girls. Compared with the never group, the ever group more frequently reported lower parental understanding, lower parental monitoring, greater parental intrusion of belongings, and lower peer support at school. These descriptive patterns are consistent with the multivariable findings and support the relevance of both behavioral and interpersonal contexts in adolescent suicide-related vulnerability.