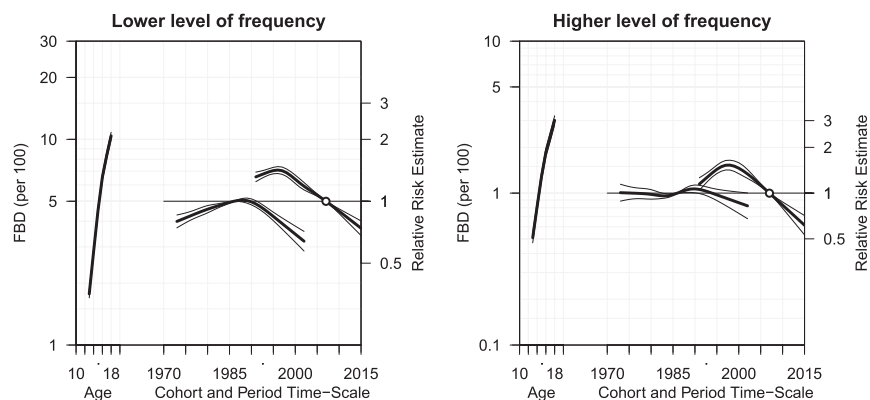


Supplemental Information



SUPPLEMENTAL FIGURE 6

APC sensitivity analyses on the probability of adolescents reporting FBD with alternative cut points: Lower level of frequency (≥ 1 binge in the last 2 weeks) and Higher level of frequency (≥ 6 binges in the last 2 weeks).



SUPPLEMENTAL FIGURE 7

APC sensitivity analysis on the probability of adolescents reporting occasional/heavy drinking (up to 1 binge in the last 2 weeks).

SUPPLEMENTAL TABLE 2 Model Fit Statistics for APC Analysis of Adolescent FBD, by Sex

Model Parameter	Change in Deviance (Degrees of Freedom)		
	All	Boy	Girl
Age	—	—	—
Age-drift	3019.3 (1)***	2451.8 (1)***	682.5 (1)***
Age-cohort	1581.0 (3)***	865.8 (3)***	794.6 (3)***
Age-period-cohort	56.9 (3)***	50.1 (3)***	22.8 (3)***
Age-period	-223.6 (-3)***	-176.6 (-3)***	-97.1 (-3)***
Age-drift	-1414.2.0 (-3)***	-739.2 (-3)***	-720.4 (-3)***

Numbers in the table indicate the change in deviance which is based on an iterative model building strategy. The model begins with an age effect and tests whether the model fit is significantly improved if drift is added as a parameter. Then, cohort and period-cohort are added as a parameter. After the full age-period-cohort parameterization, parameters are removed to determine whether the model fit significantly decreases. Positive parameters indicate that the model has improved, and negative parameters indicate that the model has worsened.

*** $P < .001$.

SUPPLEMENTAL TABLE 3 Model Fit Statistics for APC Analysis of Adolescent FBD, by Race/Ethnicity

Model Parameter	Change in Deviance (Degrees of Freedom)			
	African American	White	Hispanic	Others
Age	—	—	—	—
Age-drift	41.9 (1) ^{***}	2051.9 (1) ^{***}	505.9 (1) ^{***}	428.3 (1) ^{***}
Age-cohort	57.0 (3) ^{***}	1243.8 (3) ^{***}	225.6 (3) ^{***}	206.7 (3) ^{***}
Age-period-cohort	9.8 (3) [*]	79.3 (3) ^{***}	2.0 (3)	7.3 (3) [†]
Age-period	-32.3 (-3) ^{***}	-198.5 (-3) ^{***}	-65.6 (-3) ^{***}	-80.5 (-3) ^{***}
Age-drift	-34.5 (-3) ^{***}	-1124.6 (-3) ^{***}	-162.0 (-3) ^{***}	-133.6 (-3) ^{***}

† $P < .10$.* $P < .05$.*** $P < .001$.**SUPPLEMENTAL TABLE 4** Model Fit Statistics for APC Analysis of Adolescent FBD, by SES

Model Parameter	Change in Deviance (Degrees of Freedom)	
	Lower Parental Education: High School or Less	Higher Parental Education: College or More
Age	—	—
Age-drift	988.5 (1) ^{***}	1794.1 (1) ^{***}
Age-cohort	630.4 (3) ^{***}	813.4 (3) ^{***}
Age-period-cohort	38.0 (3) ^{***}	34.9 (3) ^{***}
Age-period	-56.7 (-3) ^{***}	-165.0 (-3) ^{***}
Age-drift	-611.7 (-3) ^{***}	-683.3 (-3) ^{***}

*** $P < .001$.**SUPPLEMENTAL TABLE 5** Model Fit Statistics for APC Analysis With Alternative Cut Points

Model parameter	Change in Deviance (Degrees of Freedom)	
	Lower Level of Frequency (≥ 1 Binges in the Last 2 Weeks)	Higher Level of Frequency (≥ 6 Binges in the Last 2 Weeks)
Age	—	—
Age-drift	2373.2 (1) ^{***}	894.6 (1) ^{***}
Age-cohort	1075.4 (3) ^{***}	416.9 (3) ^{***}
Age-period-cohort	53.4 (3) ^{***}	78.0 (3) ^{***}
Age-period	-68.6 (-3) ^{***}	-8.4 (-3) [*]
Age-drift	-1060.2 (-3) ^{***}	-486.5 (-3) ^{***}

* $P < .05$.*** $P < .001$.

SUPPLEMENTAL TABLE 6 Sensitivity Analyses on the Association Between Demographic Variables and Probability of FBD With Alternative Cut Points: Lower Level of Frequency

	Lower Level of Frequency (≥ 1 Binges in the Last 2 Weeks)					
	1991–1998	1999–2006	2007–2015	Interactions		
	<i>n</i> = 363 178	<i>n</i> = 339 799	<i>n</i> = 362 045	1991–1998 vs 1999–2006	1999–2006 vs 2007–2015	1991–1998 vs 2007–2015
Sex						
Boy	1	1	1			
Girl	0.50 (0.49–0.52)	0.57 (0.55–0.59)	0.65 (0.62–0.67)	***	***	***
Race						
White	1	1	1			
African American	0.42 (0.40–0.44)	0.41 (0.39–0.44)	0.56 (0.52–0.60)	N/S	***	***
Hispanic	1.02 (0.97–1.07)	0.96 (0.92–1.01)	0.96 (0.91–1.01)	N/S	N/S	N/S
Other	0.79 (0.76–0.83)	0.78 (0.75–0.82)	0.82 (0.78–0.86)	N/S	N/S	N/S
Parent education						
High school or less	1	1	1			
College more	0.82 (0.79–0.84)	0.80 (0.77–0.82)	0.77 (0.75–0.80)	N/S	N/S	*
Age, y						
13–14	1	1	1			
14–15	1.47 (1.37–1.58)	1.43 (1.32–1.55)	1.52 (1.36–1.69)	N/S	N/S	N/S
15–16	2.59 (2.42–2.77)	3.03 (2.81–3.26)	3.52 (3.18–3.89)	**	*	***
16–17	3.07 (2.87–3.28)	3.56 (3.31–3.83)	4.00 (3.62–4.41)	**	N/S	***
17–18	4.91 (4.61–5.23)	5.18 (4.82–5.56)	6.45 (5.85–7.11)	N/S	***	***
18–19	5.59 (5.24–5.96)	6.32 (5.88–6.78)	7.45 (6.77–8.20)	*	**	***

95% confidence intervals are in parentheses. N/S, not significant.

* $P < .05$.** $P < .01$.*** $P < .001$.**SUPPLEMENTAL TABLE 7** Sensitivity Analyses on the Association Between Demographic Variables and Probability of FBD With Alternative Cut Points: Higher Level of Frequency

	Higher Level of Frequency (≥ 6 Binges in the Last 2 Weeks)					
	1991–1998	1999–2006	2007–2015	Interactions		
	<i>n</i> = 363 178	<i>n</i> = 339 799	<i>n</i> = 362 045	1991–1998 vs 1999–2006	1999–2006 vs 2007–2015	1991–1998 vs 2007–2015
Sex						
Boy	1	1	1			
Girl	0.39 (0.38–0.41)	0.45 (0.42–0.47)	0.54 (0.51–0.58)	***	***	***
Race						
White	1	1	1			
African American	0.53 (0.48–0.59)	0.49 (0.44–0.55)	0.69 (0.61–0.77)	N/S	***	**
Hispanic	1.23 (1.14–1.32)	1.12 (1.04–1.21)	1.01 (0.92–1.10)	N/S	N/S	***
Other	0.98 (0.91–1.06)	0.98 (0.91–1.06)	0.99 (0.90–1.08)	N/S	N/S	N/S
Parent education						
High school or less	1	1	1	—	—	—
College or more	0.77 (0.73–0.80)	0.70 (0.66–0.73)	0.68 (0.64–0.72)	**	N/S	**
Age, y						
13–14	1	1	1	—	—	—
14–15	1.63 (1.43–1.86)	1.42 (1.24–1.64)	1.71 (1.40–2.08)	N/S	N/S	N/S
15–16	2.58 (2.28–2.93)	2.76 (2.42–3.15)	3.27 (2.72–3.93)	N/S	N/S	*
16–17	3.22 (2.85–3.64)	3.34 (2.94–3.79)	3.79 (3.16–4.53)	N/S	N/S	N/S
17–18	5.19 (4.62–5.84)	4.63 (4.08–5.24)	5.71 (4.78–6.82)	N/S	N/S	N/S
18–19	6.19 (5.51–6.95)	5.54 (4.90–6.27)	6.85 (5.75–8.16)	N/S	N/S	N/S

95% confidence intervals are in parentheses. N/S, not significant.

* $P < .05$.** $P < .01$.*** $P < .001$.

SUPPLEMENTAL TABLE 8 Model Fit Statistics for APC Analysis on Adolescent Occasional/Heavy Drinking

Model Parameter	Change in Deviance (Degrees of Freedom)
Age	—
Age-drift	8086.0 (1)***
Age-cohort	1209.0 (3)***
Age-period-cohort	1051.0 (3)***
Age-period	-1941.0 (-3)***
Age-drift	-320.0 (-3)***

*** $P < .001$.

SUPPLEMENTAL TABLE 9 ORs for Association Between Demographic Variables and Probability of Occasional/Heavy Drinking, by Time Periods

	1991–1998	1999–2006	2007–2015	Interactions		
	$n = 363\,178$	$n = 339\,799$	$n = 362\,045$	1991–1998 vs 1999–2006	1999–2006 vs 2007–2015	1991–1998 vs 2007–2015
Sex						
Boy	1	1	1			
Girl	1.00 (0.99–1.02)	1.07 (1.05–1.09)	1.07 (1.05–1.09)	***	N/S	***
Race						
White	1	1	1			
African American	0.60 (0.58–0.62)	0.60 (0.58–0.62)	0.70 (0.68–0.72)	N/S	***	***
Hispanic	0.96 (0.93–0.99)	0.99 (0.97–1.02)	0.96 (0.93–0.99)	N/S	N/S	N/S
Other	0.74 (0.72–0.76)	0.76 (0.74–0.78)	0.81 (0.78–0.83)	N/S	**	***
Parent education						
High school or less	1	1	1			
College or more	0.97 (0.95–0.99)	0.91 (0.89–0.93)	0.90 (0.88–0.91)	***	N/S	N/S
Age, y						
13–14	1	1	1			
14–15	1.19 (1.15–1.22)	1.25 (1.20–1.29)	1.25 (1.20–1.31)	*	N/S	*
15–16	1.85 (1.80–1.90)	2.28 (2.21–2.36)	2.63 (2.52–2.74)	***	***	***
16–17	1.95 (1.89–2.00)	2.48 (2.39–2.56)	2.91 (2.80–3.03)	***	***	***
17–18	2.72 (2.64–2.80)	3.66 (3.54–3.79)	4.86 (4.66–5.06)	***	***	***
18–19	2.89 (2.81–2.98)	3.91 (3.78–4.04)	5.38 (5.17–5.60)	***	***	***

95% confidence intervals are in parentheses. N/S, not significant.

* $P < .05$.

** $P < .01$.

*** $P < .001$.