

APHA 2015 Poster

Misperception of Peer Norms is Key to Predicting Adolescent  
Tobacco Use Across Diverse School Settings and Student Types

Jessica Perkins

Harvard T. H. Chan School of Public Health, Cambridge, MA,

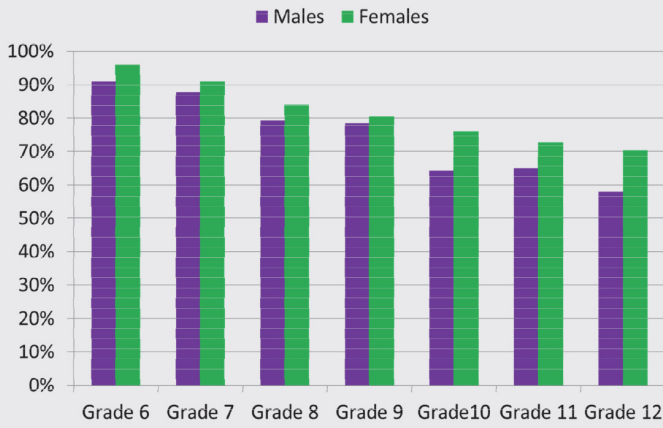
H. Wesley Perkins and David W. Craig

Hobart and William Smith Colleges, Geneva, NY

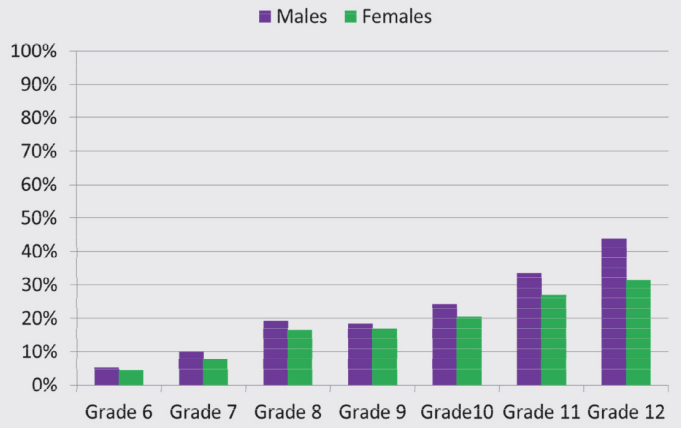


### 3. Tobacco Attitude and Use Prevalence

**Figure 1**  
Prevalence of Believing that Tobacco Use is Never Good in Grades 6 – 12 (N = 25,404)

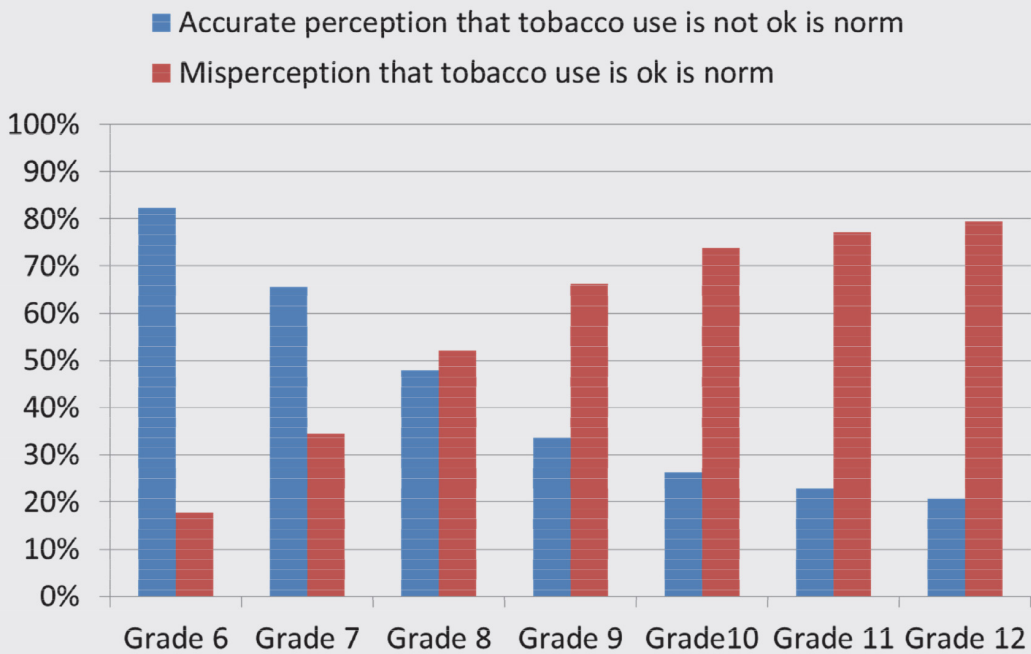


**Figure 2**  
Prevalence of Using Tobacco in Grades 6 – 12 (N = 25,404)

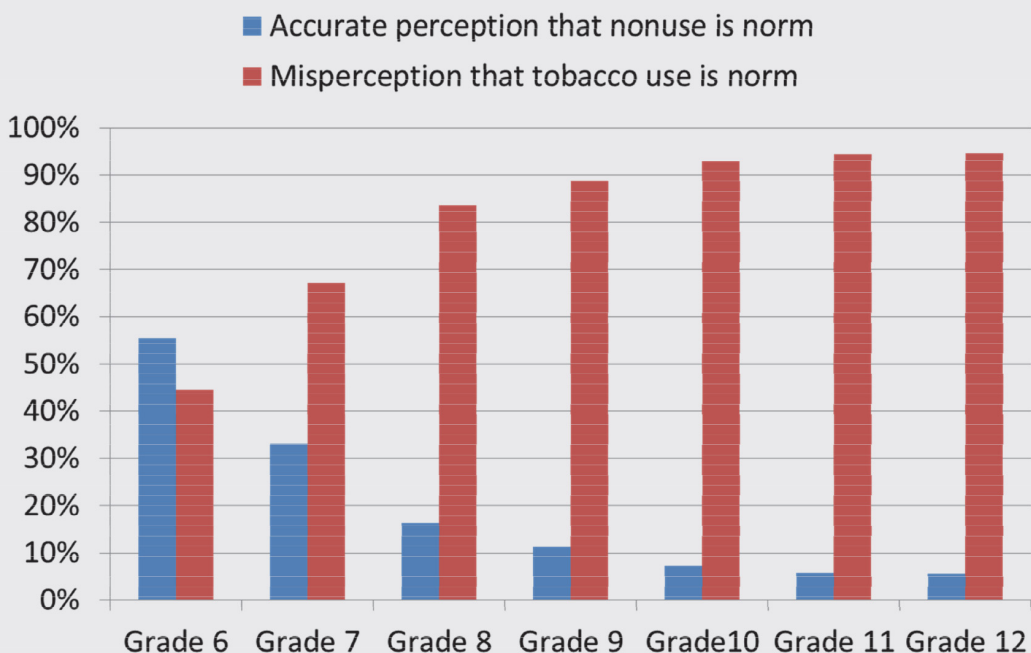


### 4. Perception of Peer Tobacco Attitude and Use Norms by Grade

**Figure 3**  
Accurate Perceptions and Misperceptions of the Tobacco Attitude Norm in Grades 6 – 12 (N = 25,594)



**Figure 4**  
Accurate Perceptions and Misperceptions of the Tobacco Nonuse Norm in Grades 6 – 12 (N = 26,142)



# 5. Misperception of the Tobacco Nonuse Norm by Grade, Nonuse Prevalence, School Size, Prevalence of Subsidized Lunch Participation, Gender, Race/Ethnicity

**Table 3. Misperception of tobacco nonuse norm for same-grade by grade and by high and moderate prevalence of nonuse**

Grade	N of students	Tobacco Non-Use Prevalence	Percent misperceiving actual norm of nonuse among same grade	Median level of misperceived use
6	N=2162	High	45%	1-2 times per year
		Moderate	-	-
7	N=2467	High	67%	once a month
		Moderate	-	-
8	N=1778 N=454	High	81%	once a month
		Moderate	96%	once a week
9	N=5223 N=959	High	88%	twice a month
		Moderate	95%	once a week
10	N=3807 N=1537	High	92%	twice a month
		Moderate	96%	once a week
11	N=1382 N=3130	High	90%	twice a month
		Moderate	96%	once a week
12	N=361 N=2882	High	82%	once a week
		Moderate	96%	once a week

Notes: High = 76-100% nonuse; Moderate = 51-75% nonuse. In 9 (of 216) school-grade cohorts (only 1 since 2005), tobacco use was normative. These 9 school-grade cohorts (representing 2% of students) were removed from the analysis of students' perceptions of school-grade cohort norms.

**Table 4. Misperception of same-grade tobacco nonuse norm by grade and size of school population**

Grade	N of students	Size of School	Percent misperceiving actual norm of nonuse among same grade	Median level of misperceived use
6	N=1284 N=878	Large	40%	1-2 times per year
		Small	52%	1-2 times per year
7	N=1227 N=1240	Large	65%	1-2 times per year
		Small	69%	once a month
8	N=1063 N=1169	Large	82%	once a month
		Small	85%	twice a month
9	N=3970 N=2212	Large	90%	twice a month
		Small	86%	twice a month
10	N=3402 N=1942	Large	94%	twice a month
		Small	90%	once a week
11	N=2732 N=1780	Large	95%	once a week
		Small	93%	once a week
12	N=1873 N=1370	Large	96%	once a week
		Small	92%	once a week

Notes: For grades 6-8 Large = 500+; for grades 9-12 Large = 1000+. In 9 (of 216) school-grade cohorts (only 1 since 2005), tobacco use was normative. These 9 school-grade cohorts (representing 2% of students) were removed from the analysis of students' perceptions of school-grade cohort norms.

**Table 5. Misperception of same-grade tobacco nonuse norm by grade and high and low school-wide prevalence of students with subsidized lunch**

Grade	N of students	Prevalence of subsidized school lunch	Percent misperceiving actual norm of nonuse among same grade	Median level of misperceived use
6	N=1584 n=578	High	51%	1-2 times per year
		Low	26%	1-2 times per year
7	N=1559 N=885	High	73%	once a month
		Low	58%	1-2 times per year
8	N=1361 N=842	High	84%	once a month
		Low	83%	once a month
9	N=2475 N=2941	High	93%	once a week
		Low	88%	twice a month
10	N=1925 N=2691	High	95%	once a week
		Low	93%	twice a month
11	N=1705 N=2170	High	96%	twice a week
		Low	94%	once a week
12	N=943 N=1676	High	97%	twice a week
		Low	95%	once a week

Notes: High = 25%+ of students; Low < 25% of students. In 9 (of 216) school-grade cohorts (only 1 since 2005), tobacco use was normative. These 9 school-grade cohorts (representing 2% of students) were removed from the analysis of students' perceptions of school-grade cohort norms.

**Table 6. Misperception of tobacco nonuse norm for same-grade by grade and gender\***

Grade	N of students	Gender	Percent misperceiving actual norm of nonuse among same grade	Median level of misperceived use
6	N=1062 N=1068	Males	44%	1-2 times per year
		Females	45%	1-2 times per year
7	N=1242 N=1183	Males	66%	1-2 times per year
		Females	68%	once a month
8	N=1053 N=1122	Males	81%	once a month
		Females	86%	once a month
9	N=2984 N=3084	Males	86%	twice a month
		Females	92%	twice a month
10	N=2572 N=2698	Males	91%	twice a month
		Females	95%	once a week
11	N=2201 N=2285	Males	93%	once a week
		Females	96%	once a week
12	N=1568 N=1652	Males	94%	once a week
		Females	95%	once a week

\* In 9 (of 216) school-grade cohorts (only 1 since 2005), tobacco use was normative. These 9 school-grade cohorts (representing 2% of students) were removed from the analysis of students' perceptions of school-grade cohort norms.

**Table 7. Misperception of tobacco nonuse norm for same-grade males and females, separately, by grade and gender\***

Grade	Gender	Misperceived same-grade male norm			Misperceived same-grade female norm		
		N of students	Percent misperceiving actual norm of nonuse	Median level of misperceived use	N of students	Percent misperceiving actual norm of nonuse	Median level of misperceived use
6	Males	N=1060	46%	1-2 times per year	N=1059	30%	1-2 times per year
	Females	N=1068	52%	1-2 times per year	N=1066	35%	1-2 times per year
7	Males	N=1236	67%	once a month	N=1234	47%	1-2 times per year
	Females	N=1182	72%	once a month	N=1179	55%	1-2 times per year
8	Males	N=1062	80%	once a month	N=1066	66%	once a month
	Females	N=1113	85%	once a month	N=1118	78%	once a month
9	Males	N=2909	86%	twice a month	N=2932	76%	once a month
	Females	N=3026	92%	once a week	N=3035	85%	twice a month
10	Males	N=2565	91%	once a week	N=2562	83%	twice a month
	Females	N=2685	95%	once a week	N=2689	90%	twice a month
11	Males	N=2155	93%	once a week	N=2158	86%	twice a month
	Females	N=2242	96%	once a week	N=2245	92%	once a week
12	Males	N=1184	94%	once a week+	N=1634	88%	once a week
	Females	N=1237	95%	once a week	N=1675	93%	once a week

\* In 19 (of 213) school-grade cohorts (only 3 since 2005), tobacco use was normative among males. These 19 school-grade cohorts (representing 6% of students) were removed from the analysis of students' perceptions of male school-grade cohort norms. In 11 (of 215) school-grade cohorts (only 1 since 2005), tobacco use was normative among females. These 11 school-grade cohorts (representing 2% of students) were removed from the analysis of students' perceptions of female school-grade cohort norms.

**Table 8. Misperception of tobacco use norm for same-grade students by race/ethnic identification\***

Race	N of students	Percent misperceiving actual norm of nonuse among same grade	Median level of misperceived use
White	6077	83%	twice a month
Black	378	81%	once a week
Hispanic / Latino	787	78%	twice a month
Asian	508	77%	once a month
American Indian/Alaskan Native	163	74%	once a week
Other	590	68%	twice a month

\*Data on students' racial/ethnic identification were collected only after 2005.

## 6. Multilevel Logistic Regression Models

**Table 9. Personally Believing Occasional or Regular Tobacco Use is Okay (vs. Never Okay) is Associated with Perceived and Actual Tobacco Use Attitudinal Norms Among Same-Grade Students**

		Males		Females	
		OR	95% CI	OR	95% CI
Perceived Attitudinal Norm	Perceived that same-grade students think that occasional or regular tobacco use is okay (vs. never a good thing)	4.3***	(3.8, 4.8)	3.9***	(3.3, 4.5)
Actual Attitudinal Norm	Occasional or regular tobacco use is thought to be okay by 26% to 50% of students in same-grade (vs. 0% to 25% of students in same-grade think it is ok)	1.6***	(1.4, 1.8)	1.6***	(1.4, 1.8)

Notes: Multilevel logistic regression model accounted for the clustering of students within schools and adjusted for individual characteristics including age, race/ethnicity, club participation, and having a job, as well as school characteristics including size of population, non-White percentage of the population, level of participation in subsidized lunch program, year of survey, rural location, and state.

\*\*\*p<.001

**Table 10. Using Tobacco (vs. Never Using Tobacco) is Associated with Perceived Tobacco Use Norm and Actual Tobacco Use Prevalence Among Same-Grade Students After Adjusting for Personal Attitude about Tobacco Use**

		Males				Females			
		Model 1		Model 2		Model 1		Model 2	
		OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Perceived Behavioral Norm for Same-Grade Students	Perceived occasional tobacco use (vs. perceived no tobacco use)	3.0***	(2.4, 3.7)	2.7***	(2.1, 3.4)	2.2***	(1.7, 2.9)	2.4***	(1.7, 3.3)
	Perceived regular tobacco use (vs. perceived no tobacco use)	5.1***	(4.1, 6.3)	3.8***	(3.0, 4.9)	4.1***	(3.1, 5.4)	3.2***	(2.4, 4.4)
Actual Prevalence of Behavior among Same-Grade Students	Moderate prevalence (26% to 50%) (vs. low prevalence (0% to 25%)) of tobacco use	1.6***	(1.4, 1.9)	1.5***	(1.3, 1.8)	1.6***	(1.5, 1.9)	1.6***	(1.3, 1.9)
Personal Attitude about Behavior	Personally believing that occasional or regular tobacco use is okay	--	--	17.6***	(15.6, 19.8)	--	--	18.4***	(16.2, 20.9)
Demographic Characteristics	Age 12-13 years (vs. age 10-11 years)	2.2**	(1.4, 3.6)	2.7**	(1.4, 5.3)	2.4**	(1.4, 4.1)	2.1*	(1.1, 4.1)
	Age 14-15 years (vs. age 10-11 years)	3.9***	(2.4, 6.4)	3.9***	(2.0, 7.7)	5.0***	(3.0, 8.5)	3.6***	(1.8, 7.0)
	Age 16-17 years (vs. age 10-11 years)	5.4***	(3.2, 9.0)	5.0***	(2.5, 10.1)	5.9***	(3.5, 10.2)	4.3***	(2.1, 8.5)
	Age 18+ years (vs. age 10-11 years)	7.5***	(4.4, 12.9)	7.1***	(7.1, 14.8)	5.9***	(3.3, 10.6)	5.0***	(2.4, 10.4)
	Black vs. (White)	1.1	(0.7, 1.6)	1.0	(0.6, 1.6)	0.7	(0.4, 1.2)	0.7	(0.3, 1.3)
	Hispanic/Latino vs. (White)	1.2	(0.9, 1.7)	1.7**	(1.2, 2.4)	1.4*	(1.0, 1.9)	1.6*	(1.1, 2.3)
	Asian vs. (White)	0.5*	(0.3, 0.9)	0.6	(0.4, 1.1)	0.6*	(0.3, 0.9)	0.7	(0.4, 1.3)
	OtherR vs. (White)	1.1	(0.8, 1.5)	1.2	(0.8, 1.9)	0.7	(0.5, 1.1)	0.8	(0.5, 1.3)
	Not in a Club vs. (In Club)	1.5***	(1.3, 1.7)	1.3***	(1.1, 1.6)	1.8***	(1.6, 2.1)	1.8***	(1.5, 2.0)
Has a Job vs. No Job	1.6***	(1.5, 1.8)	1.4***	(1.3, 1.7)	1.6***	(1.4, 1.8)	1.4***	(1.2, 1.6)	

Notes: Multilevel logistic regression model accounted for the clustering of students within school and adjusted for school characteristics including size of population, non-White percentage of the population, level of participation in subsidized lunch program, year of survey, rural location, and state.

\* p< .05; \*\*p<.01; \*\*\*p<.001

**Table 11. Using Tobacco (vs. Never Using Tobacco) is Associated with Perceived Tobacco Use Norm and Actual Tobacco Use Prevalence Among Same-Grade-Same-Gender Students and Same-Grade-Opposite-Gender Students, Separately, after Adjusting for Personal Attitude about Tobacco Use**

		Males				Females			
		Model 3		Model 4		Model 3		Model 4	
		OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Perceived Behavioral Norm for Same-Grade Students	Same-Gender <i>occasionally uses tobacco</i> (vs. <i>never use tobacco</i> )	3.6***	(2.8, 4.8)	--	--	2.8***	(2.1, 3.6)	--	--
	Same-Gender <i>regularly uses tobacco</i> (vs. <i>never uses tobacco</i> )	5.8***	(4.3, 7.6)	--	--	3.7***	(2.8, 4.8)	--	--
	Opposite-Gender <i>occasionally uses tobacco</i> (vs. <i>never use tobacco</i> )	--	--	1.7***	(1.5, 2.0)	--	--	2.5***	(1.8, 3.5)
	Opposite-Gender <i>regularly uses tobacco</i> (vs. <i>never uses tobacco</i> )	--	--	2.3***	(1.9, 2.7)	--	--	3.8***	(2.7, 5.3)
Actual Prevalence of Behavior among Same-Grade Students	Moderate prevalence (26% to 50%) (vs. low prevalence (0% to 25%)) of tobacco use among same-gender	1.6***	(1.3, 1.9)	--	--	1.8***	(1.5, 2.2)	--	--
	Moderate prevalence (26% to 50%) (vs. low prevalence (0% to 25%)) of tobacco use among opposite-gender	--	--	1.3***	(1.1, 1.6)	--	--	1.3*	(1.0, 1.5)
Personal Attitude about Behavior	Personally believing that occasional or regular tobacco use is okay	17.5***	(15.5, 19.7)	18.2***	(16.2, 20.5)	18.2***	(16.1, 20.79)	18.9***	(16.6, 21.5)

Notes: Multilevel logistic regression model accounted for the clustering of students within schools and adjusted for individual characteristics including age, race/ethnicity, club participation, and having a job, as well as school characteristics including size of population, non-White percentage of the population, level of participation in subsidized lunch program, year of survey, rural location, and state.

\* p< .05; \*\*\*p<.001