



# Smoking Status among Asian American Adolescents: Findings from the 2004 National Youth Tobacco Survey

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THE UNIVERSITY OF MISSOURI SCHOOL OF SOCIAL WORK AND PUBLIC HEALTH PROGRAM  
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## Introduction

The Asian American youth is one of the fastest-growing groups in the U.S. In 2008, the Asian population in the U.S. was estimated to be 13.5 million, comprising 4.4% of the total population; of this number, 1.6 million are adolescents aged 10-19 years old (U. S. Census Bureau, 2009). The Asian population is expected to more than double to 9.3% of the total population by 2050 (U. S. Census Bureau, 2000).

Previous studies have contributed to designing smoking treatment and prevention strategies for adolescents. Research on adolescent smoking is important because the majority of adult smokers begin smoking during their teenage years (Havens & Hannan, 1996). Still, there are gaps in the literature about the relative effects of intrapersonal and interpersonal variables on different stages of cigarette smoking among Asian American adolescents.

### Research Questions

Using a nationally representative sample of Asian American adolescents, this study has two objectives: 1) to estimate prevalence of smoking status: nonsmoking, experimental smoking (smoked <100 in a lifetime, but not smoked in the last 30 days), and regular smoking (smoked >100 in a lifetime and smoked in the last 30 days); and 2) to examine the relative impacts of intrapersonal and interpersonal determinants on adolescent smoking status.

## Methods

To achieve the two research objectives, this study used the 2004 National Youth Tobacco Survey (NYTS) that was administered in 2003 to a national population of 27,933 students from 267 middle and high schools in grades 6-12. The response rates were 93% for schools and 88% for students. The school-based survey used a stratified, three-stage sampling method to produce a nationally representative sample of youths. Participants completed an anonymous, self-administered questionnaire (CDC, 2005).

This study focused on the subset of Asian American adolescents who answered questions on key variables such as lifetime cigarette use, past 30-day cigarette use, and multiple interpersonal and intrapersonal variables (N=1,290).

Instruments	Variables	Responses
Smoking status	Experimenting (vs. Nonsmoking)	Dichotomous
	Regular smoking (vs. nonsmoking)	Dichotomous
Intrapersonal variables	Experimenting (vs. Regular smoking)	Dichotomous
	Intention to smoke	4-point Likert scale
Interpersonal variables	Positive image of smoking	4-point Likert scale
	Parent monitoring	5-point Likert scale
	Family members' smoking	Dichotomous
	Number of close friends smoking	Continuous
Exposure to tobacco advertising	Number of days absent from school	Continuous
	Receptivity to tobacco marketing	4 items (movie, internet, newspaper and outdoor)
		6-point Likert scale for each
		Dichotomous

## Results

### Descriptive Information

	Male + Female (N=1,285)			Male (n=670)			Female (n=615)			Range
	M	SD	%	M	SD	%	M	SD	%	
<b>Intrapersonal variables</b>										
Age	14.4	2.0		14.4	2.0		14.3	2.0		9-21
Weekly income	2.9	2.2		3.0	2.2		2.8	2.2		0-8
Intention to smoke	0.4	0.8	0.5*	0.5*	0.9		0.4	0.8		0-3
Positive image of smoking	0.4	0.8	0.4***	0.8			0.3	0.7		0-3
<b>Interpersonal variables</b>										
Parent monitoring	1.2	1.2		1.3	1.2		1.2	1.2		0-4
Family members' smoking	0.6	1.2	35.4%	0.7	1.2	34.6%	0.5	1.1	36.3%	0-1
# of close friends smoking	0.6	0.9		0.6	0.9		0.5	1.0		0-4
# of days absent from school	0.6	0.9		0.6	0.9		0.7	1.0		0-4
Exposure to tobacco advertising	6.5	3.3		6.4	3.5		6.8*	3.1		0-14
Receptivity to tobacco marketing	0.6	0.8	0.7***	0.9			0.5	0.8		0-3

\*p < .05. \*\*p < .01. \*\*\*p < .001 between male and female youths

More than 10% of the youths reported that they would smoke a cigarette during the next year (12.6%) and had a positive image of smoking (11.2%). Significantly more male than female youths had intention to smoke (t=2.90, p=0.004) and a positive image (t=3.50, p<0.001). Approximately 16% have ever used something that has a tobacco company name on it, including a lighter, t-shirt, hat, etc. Male youths were significantly more likely to use them than female youths (t=4.26, p<0.001).

### Prevalence of Smoking Behavior

Cigarette smoking (%)	The 2004 NYTS Survey Grades 6-12	The 2002-2003 NSDUH Survey Aged 12-17		The 2006-2007 NSDUH Survey Aged 12-17	
		2002	2003	2006	2007
Lifetime cigarette use	27.1%	19.7%	17.7%	14.7%	12.6%
Male	31.2%***	-	-	-	-
Female	22.8%	-	-	-	-
12-month cigarette use	6.5%	10.0%	7.8%	11.0%	6.1%
Male	7.6%	-	-	-	-
Female	5.2%	-	-	-	-
30-day cigarette use	4.7%	4.8%	3.7%	5.2%	3.4%
Male	6.2%**	-	-	-	-
Female	3.1%	-	-	-	-

Note. 1. Results from the 2003 and 2007 National Survey on Drug Use and Health: National Findings (USDHHS, 2004 & 2008)  
\*p < .05. \*\*p < .01. \*\*\*p < .001 between male and female youths

More than one-fourth (27%) of Asian American youths from the 2004 NYTS smoked cigarettes in their life. The 12-month and 30-day prevalence rates were substantially lower than lifetime rates (6.5% and 4.7%, respectively). Compared to general adolescents from the 2003 National Survey on Drug and Health (NSDUH) subjects, Asian American adolescents had lower rates of cigarette smoking (Lifetime: 27% vs. 31%, 12-month: 6.5% vs. 19.0%, and 30-day: 4.7% vs. 12.2%).

Significantly more males than females reported lifetime cigarette use (31% vs. 23%, p<0.001) and 30-day cigarette use (6% vs. 3%, p=0.009). Compared to the NSDUH subjects, the NYTS subjects were higher for lifetime rate and lower for 12-month rate. Rates of 30-day cigarette use were similar between the two studies.

## Results

### Prevalence of Smoking Status

Cigarette smoking (N=1192)	Nonsmoking		Experimental smoking		Regular smoking	
	%	n	%	n	%	n
Both genders	80.0%	954	16.4%	196	3.5%	42
Male	39.4%	469	9.9%	118	2.8%	33
Female	40.7%	485	6.5%	78	0.8%	9

Mantel-Haenszel  $\chi^2=19.75$ ,  $df=1$ ,  $p < 0.0001$

About one in six (16%) of the youths experimented with cigarettes, and 3.5% smoked regularly. Specifically, male youths experimented significantly more with cigarettes and smoked cigarettes more regularly than female youths (Mantel-Haenszel  $\chi^2=19.75$ ,  $p < 0.001$ ).

### Intrapersonal and Interpersonal Predictors of Smoking Status

Predictors	Experimental Smoking (vs. Nonsmoking) (n=969)		Regular Smoking (vs. Experimental smoking) (n=853)		Regular Smoking (vs. Experimental smoking) (n=184)	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
<b>Intrapersonal variables</b>						
Higher age	1.12*	(1.00, 1.25)	2.17***	(1.41, 3.34)	2.76***	(1.48, 5.14)
Male (+1)	1.40	(0.94, 2.07)	7.23*	(1.36, 38.54)	2.17	(0.41, 11.46)
Weekly income	1.09	(0.99, 1.19)	1.27	(0.97, 1.66)	1.34	(0.92, 1.95)
Intention to smoke	1.59**	(1.20, 2.11)	6.47***	(3.24, 12.1)	6.94***	(3.04, 15.85)
Positive image of smoking	0.93	(0.71, 1.21)	0.77	(0.40, 1.48)	0.82	(0.41, 1.63)
<b>Interpersonal variables</b>						
Parent monitoring	1.06	(0.91, 1.25)	1.22	(0.77, 1.94)	1.35	(0.82, 2.23)
Family members' smoking	1.92**	(1.30, 2.85)	2.01	(0.57, 7.14)	1.68	(0.46, 6.17)
# of close friends' smoking	1.42***	(1.20, 1.69)	1.71*	(1.23, 2.38)	1.48	(0.91, 2.43)
# of days absent from school	1.29*	(1.05, 1.58)	1.57	(0.92, 2.66)	1.64	(0.89, 3.02)
Exposure to tobacco advertising	1.02	(0.95, 1.08)	0.84	(0.69, 1.03)	0.79*	(0.62, 0.99)
Receptivity to tobacco marketing	1.32*	(1.03, 1.70)	1.11	(0.86, 2.14)	0.73	(0.34, 1.50)
-2 log likelihood		711.2		80.30		68.36
Likelihood ratio $\chi^2$		124.0***		205.45***		107.75***
Nagelkerke's pseudo R <sup>2</sup>		0.12		0.21		0.44

As shown in Table 5, Model 1 explained 12% of the variance in adolescent experimental smoking. Compared to nonsmokers, experimenters were 1.1 times older, 1.6 times more likely to have intention to smoke, 1.9 times more likely to have family members who smoked cigarettes, 1.4 times more likely to have close friends who smoked, 1.3 times more likely to be absent from school, and 1.3 times more likely to use or wear a lighter, t-shirt, hat or sunglasses that has a tobacco company name.



## Results

Compared to nonsmokers in Model 2, regular smokers were 2.2 times older, 7.2 times more likely to be males, 6.5 times more likely to have intention to smoke, and 1.7 times more likely to have close friends who smoked. The model explained 21% of the variance in regular smoking behavior. Compared to experimenters, regular smokers were 2.8 times older, 6.9 times more likely to have intention to smoke, and 0.8 times less likely to be affected by tobacco advertising (Model 3). The model explained 44% of the variance. None of interaction terms were significant in the three models.

## Discussion

Although smoking rates among Asian American youths were lower than those among general adolescent populations, special attention should be paid to understanding their smoking behavior because Asian American smokers may initiate smoking later. In the 2003 NSDUH data, at ages 18-25 years, there were similar rates of lifetime cigarette use between Asian Americans and African Americans (55.8% vs. 52.4%), whereas, at ages 12-17 years, there were differences in the lifetime rate (24.3% vs. 17.7%) between the two groups. In addition, one study found that about half (48%) of Asian regular smokers started between ages 18 and 21, compared with 40% of African Americans, 38% of Hispanics, and 38% of Caucasians (Trinidad, Gilpin, Lee, & Pierce, 2004). In this regard, this study focused on examining the relative impacts of multiple intrapersonal and interpersonal variables on smoking status.

Similar to smoking cessation and prevention programs for non-Asian American youths, smoking cessation and prevention programs should focus on eliminating adolescents' smoking intentions. Further, prevention programs should be implemented before experimenting with cigarettes and before progressing to regular smoking.

In addition, programs should focus on educating adolescents about how to deal with family members' smoking, particularly for experimenters and close friends' smoking for both experimenters and regular smokers. Asian American youths respect elders and value parental acceptance. Hence, those youth with their parents and other family members (e.g., grandparents) who smoke may be likely to start smoking cigarettes. On the other hand, smoke-free homes may be protective against adolescent smoking initiation (Farkas, et al., 2000).

In this study, experimental smokers were more receptive to tobacco advertising than regular smokers. It may be important to provide information to youths who are experimenting with smoking cigarettes on how the tobacco industry has manipulated the public regarding positive characteristics with smoking through media (Perry, 1987).



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Previous studies have contributed to designing smoking treatment and prevention strategies for adolescents. Research on adolescent smoking is important because the majority of adult smokers begin smoking during their teenage years (Havens & Hannan, 1996). Still, there are gaps in the literature about the relative effects of intrapersonal and interpersonal variables on different stages of cigarette smoking among Asian American adolescents.

### Research Questions

Using a nationally representative sample of Asian American adolescents, this study has two objectives: 1) to estimate prevalence of smoking status: nonsmoking, experimental smoking (smoked <100 in a lifetime, but not smoked in the last 30 days), and regular smoking (smoked >100 in a lifetime and smoked in the last 30 days); and 2) to examine the relative impacts of intrapersonal and interpersonal determinants on adolescent smoking status.

## Methods

To achieve the two research objectives, this study used the 2004 National Youth Tobacco Survey (NYTS) that was administered in 2003 to a national population of 27,933 students from 267 middle and high schools in grades 6-12. The response rates were 93% for schools and 88% for students. The school-based survey used a stratified, three-stage sampling method to produce a nationally representative sample of youths. Participants completed an anonymous, self-administered questionnaire (CDC, 2005).

This study focused on the subset of Asian American adolescents who answered questions on key variables such as lifetime cigarette use, past 30-day cigarette use, and multiple interpersonal and intrapersonal variables (N=1,290).

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	Regular smoking (vs. nonsmoking)	Dichotomous
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Intrapersonal variables	Intention to smoke	4-point Likert scale
	Positive image of smoking	4-point Likert scale
Interpersonal variables	Parent monitoring	5-point Likert scale
	Family members' smoking	Dichotomous
	Number of close friends smoking	Continuous
	Number of days absent from school	5-point Likert scale
Exposure to tobacco advertising	Exposure to tobacco advertising	4 items (movie, internet, newspaper and outdoor)
	Receptivity to tobacco marketing	6-point Likert scale for each
		Dichotomous

## Results

### Descriptive Information

	Male + Female (N=1285)			Male (n=670)			Female (n=615)			Range
	M	SD	%	M	SD	%	M	SD	%	
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Age	14.4	2.0		14.4	2.0		14.3	2.0		9-21
Weekly income	2.9	2.2		3.0	2.2		2.8	2.2		0-8
Intention to smoke	0.4	0.8	0.5*	0.5*	0.9		0.4	0.8		0-3
Positive image of smoking	0.4	0.8	0.4***	0.4***	0.8		0.3	0.7		0-3
<b>Interpersonal variables</b>										
Parent monitoring	1.2	1.2		1.3	1.2		1.2	1.2		0-4
Family members' smoking	0.6	1.2	35.4%	0.7	1.2	34.6%	0.5	1.1	36.3%	0-1
# of close friends smoking	0.6	0.9		0.6	0.9		0.5	1.0		0-4
# of days absent from school	0.6	0.9		0.6	0.9		0.7	1.0		0-4
Exposure to tobacco advertising	6.5	3.3		6.4	3.5		6.8*	3.1		0-14
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\*p < .05. \*\*p < .01. \*\*\*p < .001 between male and female youths

More than 10% of the youths reported that they would smoke a cigarette during the next year (12.6%) and had a positive image of smoking (11.2%). Significantly more male than female youths had intention to smoke (t=2.90, p=0.004) and a positive image (t=3.50, p<0.001). Approximately 16% have ever used something that has a tobacco company name on it, including a lighter, t-shirt, hat, etc. Male youths were significantly more likely to use them than female youths (t=4.26, p<0.001).

### Prevalence of Smoking Behavior

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		2002	2003	2006	2007
Lifetime cigarette use	27.1%	19.7%	17.7%	14.7%	12.6%
Male	31.2%***	-	-	-	-
Female	22.8%	-	-	-	-
12-month cigarette use	6.5%	10.0%	7.8%	11.0%	6.1%
Male	7.6%	-	-	-	-
Female	5.2%	-	-	-	-
30-day cigarette use	4.7%	4.8%	3.7%	5.2%	3.4%
Male	6.2%***	-	-	-	-
Female	3.1%	-	-	-	-

Note. 1. Results from the 2003 and 2007 National Survey on Drug Use and Health: National Findings (USDHHS, 2004 & 2008)  
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Likelihood ratio $\chi^2$		124.0***		205.45***		107.75***
Nagelkerke's pseudo R <sup>2</sup>		0.12		0.21		0.44

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As shown in Table 5, **Model 1** explained 12% of the variance in adolescent experimental smoking. Compared to nonsmokers, experimenters were 1.1 times older, 1.6 times more likely to have intention to smoke, 1.9 times more likely to have family members who smoked cigarettes, 1.4 times more likely to have close friends who smoked, 1.3 times more likely to be absent from school, and 1.3 times more likely to use or wear a lighter, t-shirt, hat or sunglasses that has a tobacco company name.



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