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Cigarette Smoking Attitudes and First Use among Third- through Sixth-Grade Students: The Bogalusa Heart Study

Kurt J. Greenlund, PhD, Carolyn C. Johnson, PhD, Larry S. Webber, PhD, and Gerald S. Berenson, MD

ABSTRACT

Objectives. This study examined cigarette smoking attitudes, peer and parental influence, and first use among children in southeastern Louisiana.

Methods. Data from 933 children in grades 3 through 6 in the Bogalusa Heart Study (1993 through 1994) were analyzed.

Results. Fifteen percent of the children had tried smoking. Of these, 40% first smoked with a family member, and 46% obtained their first cigarette from a family member or from home. Correlates of ever having smoked were race, sex, having a best friend or family member who smoked, and attitudes that smoking is disgusting and that nonsmokers get better grades.

Conclusions. Prevention programs should begin early and focus on family and peer influences as well as attitudes. (*Am J Public Health.* 1997;87:1345–1348)

Introduction

Child and adolescent smoking continues to be a major public health problem.[1,2] Numerous studies have examined attitudes and correlates of smoking experimentation and initiation among teenagers.[3–14] Few studies, however, have examined attitudes and correlates of smoking in preadolescence—before children regularly smoke, although some may have experimented.[15,16] Also, few studies have compared attitudes and correlates of smoking among White and Black preadolescent children. Such studies may identify adverse influences that can be targeted for prevention and positive influences (i.e., against smoking) that might be reinforced. Situations of first cigarette use, attitudes about smoking, and correlates of smoking were examined among a biracial cohort of third- through sixth-grade children in a southern community.

Methods

The Bogalusa Heart Study is a long-term investigation of the development of cardiovascular disease beginning in childhood in a semirural, biracial (two-thirds White, one-third Black) community in southeastern Louisiana. Data were collected by trained staff, and parental consent was obtained for examination, as described elsewhere.[17]

Private booths were used for answering a tobacco-use questionnaire, which was developed from a social-learning framework.[18,19] A tape recording of questions was provided for children in grades 3 through 6. Smoking status was categorized as follows:

1. Smoke at least one cigarette per week
2. Used to smoke at least one cigarette per week
3. Tried a few cigarettes but do not smoke now
4. Smoke less than one cigarette per week
5. Never tried cigarettes

For this report, the first four categories were combined to identify those who ever tried cigarettes.

In 1993 and 1994, third- through sixth-grade children completed a questionnaire assessing smoking attitudes/beliefs, family and peer smoking, and situations of first cigarette use (with whom, how obtained, age) (Tables 1 and 2). Of 989

The authors are with the Tulane Center for Cardiovascular Health, Tulane University School of Public Health and Tropical Medicine, New Orleans, La.

Requests for reprints should be sent to Gerald S. Berenson, MD, Tulane Center for Cardiovascular Health, Tulane University School of Public Health and Tropical Medicine, 1501 Canal St, 14th Floor, New Orleans, LA 70112-2824.

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TABLE 1—Situations of First Cigarette Use (%), Third- through Sixth-Grade Students: Bogalusa Heart Study, 1993 through 1994

Smoked first cigarette with whom? (n = 116)	
Someone in family	40.5
Someone own age	22.4
Alone	21.6
Someone older	15.5
How was first cigarette obtained? (n = 116)	
Given by another kid	36.2
Given by someone in family	28.4
Took from home	18.1
Picked up someone else's	10.3
Bought by self	6.9
Tried smoking before grade 3 (n = 115), grade now	
3rd grade	77.8
4th grade	36.4
5th grade	27.5
6th grade	26.1
Reasons for trying cigarettes (n = 133; multiple response)	
Curiosity	71.4
Because a family member smokes	45.9
Because friends do	19.5
Are at home and easy to get	18.8
Like holding cigarettes	18.0
Like the taste	13.5
To show off	13.5
To be like grown-ups	6.8
To be like people on television	6.8
To be like people in advertisements	3.8

students who completed the questionnaire, 960 were eligible to participate. Of these, 933 had complete data on smoking attitudes; they compose the study sample.

Attitudes, peer and family smoking, and situations for first cigarette use were analyzed. Chi-squared tests for differences by ethnicity, gender, school grade, cigarette use, parental education, and parental smoking status were conducted. Only statistically significant differences of $P \leq .01$ are reported.

Stepwise multiple linear regression was conducted to examine correlates of ever trying cigarettes. Independent variables were race, sex, grade, maternal education, access to cigarettes, best friend smokes, any family member smokes, and seven attitudes that were correlated with smoking status in bivariate analyses.

Results

Overall, 14.8% (135/913) of students reported ever trying cigarettes. Only 11 (1.2%) children regularly smoked at least once a week. More White than Black children tried smoking (20.3% vs 8.6%; $P = .0001$); no statistically significant gender difference was observed (17.3% vs 13.8%, $P = .14$). Overall, 7.4% currently used any tobacco product: cigarettes (1.2%), chewing tobacco (4.3%), snuff (2.2%), cigars (1.3%), or pipes (0.3%).

Table 1 shows situations for first cigarette use among those who ever smoked. Forty percent first tried cigarettes with a family member, and 46% obtained their first cigarette either from a family member or from home. Thirty-one percent reported first trying cigarettes before grade 3, ranging from 78% of those in grade 3 who ever smoked (who could only have tried smoking either in grade 3 or before) to 26% in grade 6. Curiosity was the main reason for having tried cigarettes, although 46% also tried cigarettes because a family member smoked.

Students generally agreed that smoking had adverse health, psychological, and social consequences (Table 2). Agreement about the adverse consequences of smoking was less prevalent among Black than White students. More differences were observed between Black and White girls than between Black and White boys. White children, however, were more likely to have a best friend or a sibling who smoked compared with Black children. Within ethnic groups, no statistically significant gender differences regarding smoking attitudes were observed.

Children who tried cigarettes had more adverse attitudes and beliefs about the effects of smoking compared with nonsmokers for about half of the items (Table 2). Likewise, children who ever smoked were more likely to have friends, parents, or siblings who smoked. Availability of cigarettes in the home was also greater among those who ever smoked.

Few differences in attitudes toward smoking by parental education or smoking status were observed at the .01 significance level (data not shown). Maternal education was inversely associated with maternal smoking ($P = .0001$), smoking by friends ($P \leq .01$), and whether a sister smoked ($P \leq .01$). Paternal education was negatively associated ($P = .0001$) with paternal and maternal smoking. Access to cigarettes was greater among those from families where either parent smoked compared with those where neither parent smoked ($P = .001$).

Black children had a lower likelihood of smoking than White children ($P = .0001$) in multivariate analyses (Table 3). Females had a slightly lower likelihood of smoking than males ($P = .011$). Having a best friend and any family member who smoked were strong positive correlates of having ever smoked. Two attitudes/beliefs were inversely correlated with having tried cigarettes: that smoking was disgusting and that nonsmokers get better grades than smokers.

Discussion

Smoking is a developmental phenomenon, and various factors may be influential at different times.[4] Prevention programs must take these factors into account.[20] In this study of third- through sixth-grade children, smoking was largely experimental. Experimentation was lower among Black than among White children, something that is also observed in older children.[2] The reasons for these differential rates are unclear.

Behaviors of role models, such as friends and parents, are considered major influences in the transition to regular smoking.[1,13,21] Studies among older children suggest that peer influence is a greater correlate of smoking than is family influence. While peer smoking was a strong correlate of smoking in this young cohort, the family was a major factor for initial experimental smoking, as seen in situations surrounding first cigarette use (Table 1). Further studies might distinguish whether associations of peer smoking are due to actual peer influence (i.e., peers influence nonsmokers to try cigarettes) or to peer selection and reinforcement (i.e., peers smoke because of similar interests and background).[21]

Few studies have examined ethnic differences in correlates of smoking in detail.[12,13] In a study of 12- through 14-year-olds,[12] smoking by friends was significantly related to smoking initiation among Whites but not Blacks. Among adults, health knowledge about smoking was generally lower among women, older people, those with low education, current smokers, and Blacks.[22] In this study, beliefs and attitudes about the adverse effects of smoking were less prevalent among Black than White children (Table 2). However, smoking by friends and family members was reportedly greater

TABLE 2—Smoking Attitudes among Third- through Sixth-Grade Students (n = 933), by Race and Gender: Bogalusa Heart Study, 1993 through 1994

		Males		Females		Smoking Status	
	Total (n = 933)	White (n = 278)	Black (n = 190)	White (n = 278)	Black (n = 187)	Never (n = 778)	Ever (n = 135)
Attitudes, % responding "true"							
Health beliefs							
Smoking causes cancer	96.8	98.6	96.3	97.8	93.1*	96.5	97.8
Smoking causes heart disease	94.2	94.6	95.3	96.0	89.8*	95.2	88.9*
Smoking hurts you only if you smoke too much	59.6	54.0	76.8*	48.6	66.8*	59.6	60.0
Smoking is okay as long as you don't inhale the smoke	18.2	17.3	22.6	11.2	25.7*	17.0	27.4*
Psychological effects							
Smoking makes people nervous and hard to get along with	77.2	82.7	72.6*	78.1	72.2	78.8	68.2*
Smoking helps people calm down when nervous or excited	23.5	20.9	35.3*	15.1	27.8*	22.6	28.9
When people are alone, they can smoke to feel better	14.7	15.1	21.1	8.6	16.6*	13.5	20.7
Social consequences							
Kids who do not smoke get better grades than kids who do	78.2	80.9	77.4	77.0	77.6	80.6	63.7*
Parents who smoke don't get angry if their kids smoke	19.7	17.3	24.7	18.7	19.8	21.3	11.9*
General attitudes							
Buying cigarettes is a waste of money	94.0	96.4	88.4*	95.3	94.1	94.1	93.3
Smoking is disgusting	90.4	89.6	86.3	93.9	90.4	92.2	81.5*
Smoking cigarettes is fun	4.6	5.1	5.8	1.8	7.6*	3.9	7.4
Smoking cigarettes is a grown-up thing to do	53.4	53.6	59.5	45.0	59.4*	54.4	48.2
If older people can smoke, then kids should be able to smoke	5.4	5.8	8.4	2.5	5.9	4.1	11.9*
If your friends smoke, you need to smoke too	1.4	1.1	1.1	1.1	2.7	1.3	2.2
Role models, % responding "yes" [a]							
Best friend smokes	7.6	11.6	4.8*	9.4	2.2*	4.9	23.9*
Most friends smoke	9.0	9.9	10.2	9.4	6.0	6.4	24.4*
Mother smokes	39.3	42.8	35.2	41.0	35.7	35.8	57.9*
Father smokes	47.0	50.4	39.4	46.8	49.7	45.3	57.4*
Brother smokes	15.1	19.9	12.2	18.4	7.5*	12.5	28.7*
Sister smokes	11.7	18.4	5.4*	16.6	3.8*	9.9	23.1*
Any family member smokes	60.5	63.7	55.3	62.2	58.3	56.9	80.0*
Access, % responding "yes"							
Cigarettes are available and easy to get at home	12.0	13.0	12.4	12.3	9.7	10.8	19.3*

[a]Owing to missing values and responses indicating "not applicable," sample sizes vary for these categories.
*Chi-squared test for differences, $P \leq .01$ between Whites and Blacks within gender groups, and between those who never smoked and those who smoked. No significant differences between males and females within ethnic groups.

among White than among Black children, suggesting a greater influence of role models on smoking among White children. Whether such ethnic differences are the result of cultural factors or shortcomings of public health programs is not known.

Most psychosocial models applied to smoking suggest that attitudes and beliefs about smoking predict intentions and uptake of smoking,[22,23] although causality cannot be assumed in cross-sectional analyses. In this study, beliefs about the adverse consequences of smoking were less prevalent among children who ever smoked than among those who never smoked, supporting observations of an earlier study among 8- through 17-year-olds[19] indicating that attitudes favorable to smoking were more prevalent among

TABLE 3—Odds Ratios[a] and 95% Confidence Intervals for Probability of Ever Having Smoked, Third- through Sixth-Grade Students: Bogalusa Heart Study, 1993 through 1994

Variable	Odds Ratio	95% Confidence Interval	*P*
Race (Black vs White)	0.38	0.23, 0.64	.0002
Sex (female vs male)	0.56	0.36, 0.87	.0106
Best friend smokes (yes vs no)	4.10	2.28, 7.40	.0001
Any family member smokes (yes vs no)	2.29	1.39, 3.75	.0011
Smoking is disgusting (true vs false)	0.46	0.25, 0.88	.0181
Nonsmokers get better grades (true vs false)	0.47	0.29, 0.75	.0015

[a]Based on stepwise multiple logistic regression. Not significant were school grade (grade 5–6 vs 3–4); maternal education (more than high school vs high school or less), availability in the home; the following attitudes: kids should be able to smoke if older people can; parents who smoke don't get angry; smoking makes people nervous; okay if do not inhale; causes heart disease; makes people feel better when alone. Sample size = 785.

regular smokers than among experimenters. In multivariate analyses, agreement that smoking is disgusting or that nonsmokers get better grades was associated with a lower probability of having ever tried smoking. Interestingly, these attitudes reflect social rather than health aspects; most students were aware of the health consequences of smoking. Health concerns may, however, be a significant factor among children interested in quitting smoking.[24] Intervention programs thus might focus on different stages of smoking[25] and their correlates for more effective prevention efforts.

Many health behaviors are established early,[14] and adverse lifestyles are difficult to change once they are adopted.[21] Smoking prevention programs should begin as early as possible, and those aimed at preadolescents should target family and peer influence as well as attitudes that reinforce smoking behaviors. □

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