

Does Tobacco Marketing Undermine the Influence of Recommended Parenting in Discouraging Adolescents from Smoking?

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Objective: The tobacco industry contends that parenting practices, not marketing practices, are critical to youth smoking. Our objective was to examine whether tobacco-industry marketing practices undermine the protective effect of recommended authoritative parenting against adolescent smoking.

Design and setting: Receptivity to tobacco advertising and promotions was assessed in 1996 from a representative sample of California adolescent never-smokers aged 12 to 14 years. A follow-up survey of 1641 of these adolescents was conducted in 1999 that included measures of the key components of authoritative parenting: parental responsiveness, monitoring, and limit setting.

Main outcome measure: Smoking initiation in adolescents.

Results: Adolescents in families with more-authoritative parents were half as likely to smoke by follow-up as adolescents in families with less-authoritative parents (20% vs 41%, $p < 0.0001$). In families with more-authoritative parents, adolescents who were highly receptive to tobacco-industry advertising and promotions were significantly more likely to smoke (odds ratio = 3.52, 95% confidence interval = 1.10–11.23), compared to those who were minimally receptive. This effect was not significant in adolescents in families with less-authoritative parents. The overall attributable risk (adjusted for exposure to peer smokers) of smoking from tobacco-industry advertising and promotions was 25%. However, an estimated 40% of adolescent smoking in families with more-authoritative parents was attributable to tobacco-industry advertising and promotions; this was five times the attributable risk seen in families with less-authoritative parents (8%).

Conclusion: The promotion of smoking by the tobacco industry appears to undermine the capability of authoritative parenting to prevent adolescents from starting to smoke.

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Introduction

There are now a number of studies with evidence that adolescent receptivity to tobacco marketing practices, such as nominating a favorite cigarette advertisement or being willing to use a promotional item, is associated with future smoking behav-

ior.^{1–9} The tobacco industry has disputed this evidence in a number of court cases^{10–12} and has conducted public relations campaigns focusing on industry efforts to prevent youth smoking^{13–17} as well as on the responsibility of parents to protect their children from influences promoting smoking.^{15–17} At the same time, the tobacco industry has significantly increased its cigarette promotions budget. Major increases were reported in incentives to merchants for product and advertising placement in stores as well as for retail-value-added incentives for purchase (such as 2-for-1 promotions). Tobacco-industry documents outline these as marketing strategies for enticing new smokers.¹⁸ The industry's emphasis on effective parenting to prevent smoking raises the question of whether parents who follow recommended parenting practices can prevent smok-

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ing in the face of the tobacco industry's marketing strategies.

Parenting has been studied in detail in the developmental psychology literature, and there is consensus on particular parenting practices that are conducive to successful socialization of children and adolescents.¹⁹⁻²¹ A binary classification is used on both parental responsiveness and demandingness measures to classify parenting.²¹⁻²⁴ A high score on both measures is labeled *authoritative* parenting. In a number of studies, authoritative parenting has been associated with a lower likelihood of adolescent substance use^{25,26} and smoking.^{27,28} An authoritative parent is characterized as affectionate and accepting of the adolescent: providing comfort and support when needed, being involved in the adolescent's social and academic development, and recognizing the adolescent's achievements. An important characteristic is the existence of clear bidirectional communication with the adolescent. An authoritative parent also encourages mature behavior while monitoring and supervising the adolescent. In this parenting pattern, independence is encouraged according to developmental maturity, and the parent is willing to confront nonsanctioned behavior with discipline, although the consequences are often negotiated. Since the concept of parental demandingness includes parental monitoring and limit-setting practices, it is expected that scores on these measures will diminish with age, as adolescents appropriately gain more independence.

In this study, we report on data from a 3-year follow-up survey of a population sample of 12- to 14-year-old California adolescents identified in 1996, in which parenting was assessed by the adolescent at follow-up. First of all, we sought to verify our previous finding that receptivity to cigarette advertising and promotion among young adolescent never-smokers predicts who will start smoking in the future. We used measures of parenting to divide this population sample of adolescents approximately equally between those with parents perceived by the adolescents as more authoritative compared to those with parents perceived as less authoritative. From previous studies,²⁷⁻²⁹ we expected that adolescents with more-authoritative parents would have lower smoking initiation rates. We tested the hypothesis implicit in the tobacco industry's public relations campaigns on youth smoking: Underage youth with *more-* compared to *less-*authoritative parents will be more resistant to social influences to smoke, including tobacco-industry advertising and promotional activities and best friends who smoke.

Methods

A random sample of 2518 California adolescent never-smokers aged 12 to 14 years was identified and interviewed as part of the 1996 California Tobacco Survey (CTS). In 1999,

separate funding was obtained, and a letter was sent to the original address announcing the purpose of the follow-up survey. This was followed by a telephone call to obtain active parental consent and set a time to re-interview the adolescent. A total of 2100 adolescents still lived at the same address or were traceable using the National Change of Address index and Tele-match reports. For this paper, we excluded 76 adolescents who did not attend school and were not asked a key parenting question. Thus, for this study, a completed follow-up interview was achieved for 79% of those located, or 68% of the original sample that were eligible. All surveys were administered in English or Spanish. Adolescents of African-American, Hispanic, and Asian-American families were less likely to be re-interviewed than those from non-Hispanic white families. In addition, adolescents with parents who smoked in 1996 were less likely to be re-interviewed in 1999, as were adolescents who reported in 1996 that their school performance was average or below. This pattern of nonresponse is consistent with other population longitudinal studies and is similar to the characteristics of nonresponse identified in previous California surveys. Some of these factors are known to be predictive of future smoking.³⁰

The adolescent surveys at baseline and follow-up included variables for exposure to smoking among family and peers, school performance, and demographic variables that have been previously described.¹⁻³

Smoking Measures

In both the 1996 and 1999 surveys, we asked adolescents: "Have you ever smoked a cigarette?" and "Have you ever tried or experimented with cigarette smoking, even a few puffs?" A negative response to both of these questions classified an adolescent as a *never-smoker*. We slightly modified the 1993 CTS response categories to the three questions that are accepted as defining susceptibility to smoke among never-smokers,^{1,2,31} so that an adolescent had to answer *definitely not* to all three questions in order to be considered a committed never-smoker.

Index of Receptivity to Tobacco-Industry Advertising and Promotions.

In the 1996 CTS, we made minor modifications to our receptivity index.¹⁻³ The questions on recall of advertising and the adolescents' affective reaction to the brand advertisement (having a favorite cigarette advertisement and willingness to use an item with an image of a tobacco brand) remained the same. However, we modified the question related to having an industry promotional item: "Some tobacco companies offer promotional items, such as clothing and bags, which have the company brand name or logo on them and which the public can buy or receive for free. In the past 12 months have you (1) exchanged coupons for an item with a tobacco brand name or logo on it? (2) received as a gift or for free, any item with a tobacco brand name or logo on it? (3) purchased any item with a tobacco brand name or logo on it?" We kept the four-level receptivity index, with the *minimum* level comprised of respondents who did not name a brand that was advertised, and the *low* level comprised of those who named a brand but did not have a favorite cigarette advertisement. A *high* level of receptivity required the adolescent to

Table 1. Authoritative parenting classification and correlates at baseline, adolescent never-smokers at baseline (*n*=1641)

1996 Correlates	Parenting classification, 1999 (%) ^a		<i>p</i>
	More authoritative (<i>n</i> =894)	Less authoritative (<i>n</i> =747)	
Family arguing			
Yes	46.0	54.0	<0.001
No	57.6	42.4	
Family nagging			
Yes	41.0	59.0	<0.001
No	60.1	39.9	
Talk to about serious problems			
Parent	57.1	42.8	<0.001
Other	47.0	53.0	

^aWeighted percentages adjusted for sampling design and nonresponse.

be willing to use an item with a brand image or to have obtained one. The *moderate* level was those adolescents who would not use an item with a brand image or logo, but who named a favorite cigarette advertisement.

Parenting Measures

We adapted survey items and followed the methodology of Maccoby and Martin²¹ and Jackson et al.,²⁷ asking adolescents about the parental figure who had the most say over his or her daily life (90% nominated their mother/stepmother). Adolescents were asked to indicate whether each of nine items was “just like my parent,” “a lot like my parent,” “sort of like my parent,” or “not like my parent.” Responses of “just like my parent” and “a lot like my parent” were combined into one category. Seven of these items were associated as a “responsiveness” construct in a factor analysis, and demonstrated satisfactory internal consistency (Cronbach’s alpha=0.78). The items were: “(S)he listens to what I have to say”; “(S)he makes rules without asking me what I think”; “(S)he is too busy to talk to me”; “(S)he helps me calm down when I am upset”; “(S)he likes me just the way I am”; “(S)he tells me when I do a good job”; “(S)he wants to hear about my problems.” Responses were scored so that the highest summed scores indicated highly responsive parents.

We also used six survey items from Steinberg et al.^{22–24} to ask adolescents about the level of monitoring provided by parents or guardians. Adolescents were asked two questions (how much their parents knew and tried to know) about each of three situations: (1) where they were after school, (2) where they were at night when they went out, and (3) what they did in their free time. Each situation was coded with three response categories: (1) parents know a lot, (2) parents try to know but know only a little, and (3) parents don’t try and don’t really know. We performed a factor analysis that showed these items to be a construct with satisfactory internal consistency (Cronbach’s alpha=0.70); we labeled it *monitoring*.

Again following Steinberg et al.,^{22–24} we measured parental limit setting by asking adolescents how many nights they went out for fun during the week, and to indicate their typical curfew time for nights out on weekends and on weekdays. These variables were recoded into a single variable indicating the number of potential evening hours that the adolescent went out during the week, beginning at 6 pm (potential

evening hours were from 6 pm to 1 am for 5 weekdays and 6 pm to 2 am for 2 weekend days).

Authoritative Parenting

Parental monitoring and limit setting varies with age as the parent cedes independence to the adolescent. To lessen the impact of age as a potential confounder, we made the authoritative parenting classification within each year of adolescent age. We standardized (mean=0, standard deviation=1) the scores for each of our measures of responsiveness, monitoring and limit setting, within each of the 3 years of age. We used a 75th percentile–distribution cutpoint for each measure for each age to obtain approximately half of the adolescents in the optimal score category on all three measures. We labeled this half of the population as having more-authoritative parenting.

We then compared the more-authoritative–less-authoritative classification with indicators of family functioning at both the baseline and the follow-up interviews. These variables included adolescent agreement with two statements (“I have a lot of arguments with my family” and “My family looks for things to nag me about”) and whether adolescents nominated parents in response to the questions, “If you had a serious problem, is there someone you could talk to or go to for help? Who is this?” Results presented in Table 1 show that more-authoritative parenting was strongly associated with better family functioning 3 years earlier on each of these measures. The strength of this association supports the construct validity of the hypothesis that the authoritative parenting classification is relatively stable over time.

Statistical Analysis

Sample weights for the 1999 respondents were derived to adjust for nonresponse and representativeness so that population estimates could be computed. First, the 1996 weights were ratio adjusted to the computed totals for all 1996 adolescent respondents (followed and not followed) according to gender, age, race/ethnicity, school performance, and smoking status (any in last 30 days). Next, these weights were further ratio adjusted to population totals for adolescent gender, age, race/ethnicity, state region, educational status of head of household, and parental status of head of household (whether father or someone else). The sources of the popu-

lation totals were the 1996 Current Population Survey for demographics, the 1996 U.S. Census estimates for counties/regions, and the 1996 CTS household screener totals for head-of-household status.

We derived variance estimates and 95% confidence intervals for these data using the standard jackknife procedure.³² To evaluate differences in the demographic distribution of adolescents, we performed modified, two-tailed, chi-square tests based on the jackknife technique.³³ Mean numbers of evening hours out per week by adolescent age were computed as a function of weighted totals. These analyses were conducted with the WesVar PC program.³⁴ Logistic regression was used to identify independent predictors of smoking by follow-up among adolescents who had never smoked at baseline. Demographic variables, measures of susceptibility to smoking, exposure to smokers, and the tobacco marketing receptivity index were the independent variables. Two-way interactions between the independent variables with adolescent age and gender were examined in preliminary analyses, but were not significant.

As parenting was measured at the follow-up survey, inclusion of it in a single multivariate model could be expected to lead to the underestimation of other baseline predictors. To avoid this, we present the results of separate logistic analyses for the more- and less-authoritative parenting groups.

Attributable risk³⁵ is a standard epidemiologic tool for estimating the proportionate excess risk associated with a risk factor. Previously, we estimated the attributable risk of progression toward future smoking that could be associated with receptivity to tobacco advertising and promotion from our 1993–1996 longitudinal study of California adolescents.¹ Using the same rationale as in the previous study, the formula used to calculate the attributable risk percentage for receptivity is $AR\% = 100[(I_e - I_o)/I_e]$ where I_e is the incidence rate of smoking by follow-up among never-smokers at baseline in the two higher categories of receptivity, and I_o is the incidence rate of smoking by follow-up among never-smokers at baseline in the two lower categories of receptivity. Following standard procedures,³⁵ we controlled for potential confounding by obtaining a weighted average of the attributable fraction within strata defined by exposure to friends who smoke, as this was the only other social variable that was significant in the model.

Results

Distribution of Authoritative Parenting

Using our methods and measures, we classified just over half (55%) of California adolescents as having more-authoritative parents. Adolescents with more-authoritative parents indicated that their parents were highly responsive on at least five of the seven items in the responsiveness scale. For example, 91% of adolescents in the more-authoritative parenting group, compared to 56% for the less-authoritative parenting group, characterized the parent most responsible for their daily lives as one who listens to what they have to say. Similarly, 92% and 70%, respectively, of adolescents in the two groups characterized this parent as someone who tells them when they do a good job.

Limit-setting practices and monitoring varied by the age of the adolescent. The comparative data (more- vs less-authoritative parenting) on the mean number of evening hours adolescents were allowed out were 10 hours versus 18 hours for 15-year-olds, 12 hours versus 20 hours for 16-year-olds, and 13 hours versus 20 hours for 17-year-olds. A total of 88% versus 59% of 15-year-olds, 85% versus 45% of 16-year-olds, and 78% versus 42% of 17-year-olds responded that their parents knew a lot about where they went at night.

In this study, there were differences in the percentages of adolescents with more-authoritative parents (Table 2). Hispanic adolescents (63%) appeared more likely and Asian/Pacific Islander adolescents less likely (47%) than non-Hispanic white (53%) and African-American adolescents (51%) to have more-authoritative parenting. Younger adolescents and girls were marginally more likely to be classified in the more-authoritative parenting group (Table 2).

The Effect of Authoritative Parenting on Exposure to Social Influences to Smoke

The two social influences to smoke that were important predictors in the model were exposure to friends who smoke and receptivity to tobacco-industry advertising and promotions. The prevalence of these two risk factors by parenting classification is presented in Figure 1. Adolescents with *more*-authoritative compared to *less*-authoritative parents were 60% less likely to have friends who smoked ($28.1 \pm 4.2\%$ vs $44.7 \pm 5.1\%$). However, being from a family with authoritative parents reduced the likelihood that an adolescent would be in the highest two categories of receptivity to tobacco-industry advertising and promotions by only 10% ($59.4 \pm 4.2\%$ vs $66.3 \pm 3.9\%$).

Smoking by Follow-up and Characteristics of the Study Population

Overall, approximately 30% of 12- to 14-year-old never-smokers had smoked by the 3-year follow-up survey. Adolescents in families with more-authoritative parents were half as likely to smoke by follow-up, as were adolescents in families with less-authoritative parents (20% vs 41%, $p < 0.001$). The rate of smoking by follow-up did not vary significantly by age, gender, race/ethnicity, perceived school performance, or educational attainment of the head of household. Being classified as susceptible to smoking at baseline approximately doubled the proportion of adolescents who smoked by follow-up (20% vs 36%, $p < 0.001$).

Smoking by Follow-up Among Never-Smokers with More-Authoritative Parents

Baseline predictors of which adolescents would smoke by follow-up are presented for the *more-authoritative*

Table 2. Demographic distribution of adolescent never-smokers at baseline by parenting classification at follow-up ($n=1641$)

Independent variable	Parenting classification, 1999 ^a		<i>p</i>
	More authoritative <i>n</i> (%)	Less authoritative <i>n</i> (%)	
Overall	894 (55.2)	747 (44.8)	
Gender			
Female	464 (57.8)	356 (42.2)	0.11
Male	430 (52.6)	391 (47.4)	
Age (years)			
15	339 (57.2)	263 (42.8)	0.06
16	322 (58.8)	235 (41.2)	
17	233 (49.1)	249 (50.9)	
Race/ethnicity			
Non Hispanic white	521 (52.7)	472 (47.3)	0.04
Hispanic	224 (62.7)	123 (37.3)	
African American	43 (51.2)	39 (48.8)	
Asian/Pacific Islander	76 (47.1)	83 (52.9)	
Other	30 (46.8)	30 (53.3)	
School performance			
Much better than average	274 (55.2)	211 (44.8)	0.16
Better than average	364 (59.1)	290 (40.9)	
Average or below average	256 (51.2)	246 (48.8)	
Educational level of head of household			
High school or less	206 (59.4)	148 (40.6)	0.21
Some college	276 (53.9)	244 (46.1)	
Bachelor's degree or more	412 (52.6)	355 (47.4)	

^aWeighted percentages adjusted for sampling design and nonresponse.

parenting group in Table 3, controlling for age, gender, race/ethnicity of the adolescent, as well as the adolescent's perceived school performance, and the educational level of the head of household. While 31% of these adolescents had family members who smoked, this variable was not a significant predictor of smoking by follow-up. More than a quarter of these adolescents were exposed to smokers in their peer group at baseline, and this was a significant predictor of smoking by

follow-up ($p=0.03$), increasing the probability of smoking by 65%. More than half of this group was assessed as susceptible to smoking at baseline, and these adolescents were almost twice as likely to have smoked by follow-up.

At baseline, receptivity to tobacco-industry advertising and promotions varied, with 11% of adolescents classified with minimal receptivity, 30% with low receptivity, 42% with moderate receptivity, and 18% with high receptivity. The odds of starting to smoke rose with each category of receptivity, with the highest category on the index having a statistically significant odds ratio of 3.5 for smoking by follow-up compared to those minimally receptive.

Smoking by Follow-up Among Never-Smokers with Less-Authoritative Parents

The logistic regression for the never-smokers classified as having parents who were *less authoritative* is presented in Table 4, again controlled for the same sociodemographic variables as in Table 3. At baseline, 37% of this sample reported that a family member smoked; however, as for the more-authoritative group, this was not a significant predictor of smoking by follow-up. A total of 45% had a best friend who smoked at baseline, which significantly increased the odds that the adolescent would smoke by 60%. Almost two thirds of this group was assessed as susceptible to smoking at baseline (20% higher than observed for the group with more-author-

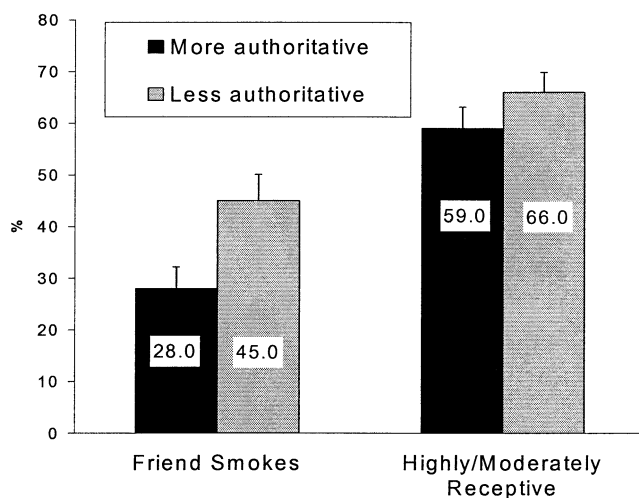


Figure 1. Differential effect of authoritative parenting on exposure to friend smoking and tobacco marketing receptivity ($n=1641$), 12- to 14-year-old California never-smokers at baseline.

Table 3. Logistic regression of predictors of smoking by 1999 among never-smokers in 1996 ($n=894$) with more-authoritative parents in 1999

Independent variables, 1996	Overall		Smoking by 1999	
	n (% ^a)	% ^a	Adjusted OR	(95% CI) ^a
Exposure to familial smoking				
No	636 (68.8)	18.8	1.00	—
Yes	258 (31.2)	23.5	1.07	(0.67–1.69)
Exposure to peer smoking				
No	637 (71.9)	16.2	1.00	—
Yes	257 (28.1)	29.3	1.65	(1.07–2.55)
Susceptibility to smoking				
No	440 (47.2)	13.2	1.00	—
Yes	454 (52.8)	25.9	1.91	(1.17–3.12)
Receptivity to tobacco advertising and promotions				
Minimal	94 (10.6)	8.4	1.00	—
Low	273 (29.9)	15.0	1.76	(0.65–4.80)
Moderate	384 (41.9)	22.0	2.32	(0.90–5.98)
High	143 (17.5)	30.2	3.52	(1.10–11.23)

^aWeighted percentages adjusted for sampling design and nonresponse. Odds ratios adjusted for age, gender, race or ethnicity, perceived school performance, educational level of the head of household, and all other variables in the table. CI, confidence interval; OR, odds ratio.

itative parents) and this significantly increased the odds of smoking by 74%.

At baseline, only 8% of this group was minimally receptive to tobacco-industry advertising and promotions, with 26% having low receptivity, 42% having moderate receptivity, and 24% having high receptivity. There was not a significant association between the level of receptivity and smoking by follow-up in this group with less-authoritative parenting.

Attributable Risk for Adolescent Smoking

The overall adjusted (for exposure to peer smokers) attributable risk (AR) for adolescent smoking among

this sample of never-smokers was estimated to be 25.2%. Among adolescents with more-authoritative parents, the AR of smoking from the influence of tobacco advertising and promotions was estimated to be 40.7%. This was approximately five times the AR of advertising and promotions observed with less-authoritative parenting (AR=8.2%).

Discussion

Marketing literature emphasizes the importance of advertising and promotion to build a future market for a product, with reference to a farming analogy: a seed

Table 4. Logistic regression of predictors of smoking by 1999 among never smokers in 1996 ($n=747$) with less-authoritative parents in 1999

Independent variable, 1996	Overall		Smoking in 1999	
	n (% ^a)	% ^a	Adjusted OR	(95% CI) ^a
Exposure to familial smoking				
No	491 (63.2)	36.0	1.00	—
Yes	256 (36.8)	49.4	1.44	(0.89–2.34)
Exposure to peer smoking				
No	437 (55.3)	34.1	1.00	—
Yes	310 (44.7)	46.1	1.60	(1.04–2.47)
Susceptibility to smoking				
No	292 (36.9)	30.0	1.00	—
Yes	455 (63.1)	47.3	1.74	(1.12–2.70)
Receptivity to tobacco advertising and promotions				
Minimal	51 (7.7)	33.5	1.00	—
Low	192 (26.0)	37.0	1.15	(0.38–3.46)
Moderate	339 (41.9)	39.6	1.16	(0.40–3.39)
High	165 (24.4)	49.7	1.38	(0.43–4.46)

^aWeighted percentages adjusted for sampling design and nonresponse. Odds ratios adjusted for age, gender, race or ethnicity, perceived school performance, educational level of the head of household, and all other variables in the table. CI, confidence interval; OR, odds ratio.

must be bought, planted, and nurtured before the crop can be reaped.³⁶ This study is consistent with previous work demonstrating that receptivity to tobacco-industry advertising and promotions is an important contributory factor in determining which adolescents will start to smoke. In the present study, the fraction of the population initiating smoking that was attributable to the influence of tobacco advertising and promotions was 25%. This is an underestimate of the true attributable fraction, as this analysis included adolescents who were susceptible to smoking at baseline; previous research has shown that tobacco-industry advertising and promotions influence adolescents who become susceptible to smoking.¹ The estimate of the AR from the committed never-smokers in the present study is likely to be consistent with the 34% estimated in our previous study.¹

This study verified that authoritative parenting reduces the risk of future smoking in adolescent never-smokers.²⁵⁻²⁸ The nature of authoritative parenting may be sufficient to explain this protective effect against smoking; however, part of the effect is undoubtedly indirect, as more-authoritative parenting is associated with a highly significant 60% reduction in exposure to best friends who smoked. Much smaller differences between the more-authoritative compared to the less-authoritative parenting groups were seen in the percentage of adolescents who were in the highest two categories of receptivity to tobacco advertising and promotions (10%) or in the proportion who were susceptible to smoking (20%).

In this study, there was no significant difference between the more- or less-authoritative parenting groups in transition to smoking among adolescents who had best friends who smoked at baseline, suggesting that parenting did not ameliorate the influence of best friends. However, there was a marked difference in the transition of adolescents who were receptive to tobacco advertising and promotions at baseline, contrary to the hypothesis implicit in the tobacco industry's public relations campaign. In the more-authoritative parenting group, the estimated transition rate to smoking increased with each level of receptivity. The moderate level of receptivity (having a favorite advertisement, but not having or willing to use an item with a brand image on it) appeared to double the rate of smoking compared to the minimal level, although with the sample size in this study it was not statistically significant. The highest level of receptivity (having or being willing to use an item with a brand image on it) increased the rate of transition to smoking by over threefold (statistically significant). Among adolescents with less-authoritative parenting, even the highest level of receptivity did not significantly increase transition to smoking. The population AR of tobacco advertising and promotions was 40% for adolescents with more-authoritative parents, which was five times the attribut-

able risk (8%) of tobacco advertising and promotions for adolescents with less-authoritative parents.

Thus, while approximately the same percentage of adolescents in each parenting group was receptive to tobacco-industry advertising and promotions, it was only the adolescents with more-authoritative parents who were strongly influenced by them to start smoking. This suggests that it is something about the message that is particularly influential for adolescents with more-authoritative parents. At the time of the baseline survey (1996), the Joe Camel campaign was still very active, and it was differentially favored by young adolescents.^{1,37} The marketing approach of this campaign is outlined in previously secret tobacco-industry documents.³⁸ The goal was to associate the brand with themes of "independence, coolness, fun, imagination, sex, reality-based success (such as a date, a good party), fantasy-based success, excitement (living to the limit, or at least imagining so), taking risks and living on the edge."³⁸ Adolescents with more-authoritative parents (compared to those with less-authoritative parents) have more limits regarding their time out and receive more monitoring from their parents. It is possible that the message themes of the Joe Camel campaign were, therefore, more novel, salient, and relevant to these adolescents. Models of persuasive communication specify these message themes as essential to maximizing the persuasive power of marketing messages.^{36,39} To the extent that adolescents with more-authoritative parents perceived these message attributes within the Joe Camel campaign, they would be more vulnerable to the persuasive effects of the campaign. Adolescents from less-authoritative parents are out much more and would likely feel much more independent. The marketing themes of tobacco-industry ads would therefore be less novel, salient, and relevant to these adolescents. They might, for example, have a lower need to project an image of independence using a cigarette brand. Such low message strength would curtail the responsiveness of these adolescents to tobacco-industry campaign themes. In summary, it is possible that adolescents whose parents strive to keep them from engaging in risk behaviors, such as smoking, comprise a high-yield market segment for the tobacco industry. If true, it would appear that cigarette advertising and promotion strategies are designed to undermine recommended parenting practices.

However, this does not mean that more-authoritative parents are powerless against such a marketing strategy. It is possible that parents have not realized the power of these marketing practices on their adolescents. Once they are aware of the effect, parents can actively discuss how marketing works and how adolescents can be on guard against its persuasive messages.

As in our previous research,¹ in this study parental smoking did not predict early progression toward smoking. This lack of effect was particularly true in more-

authoritative families. With less-authoritative parenting, there was not sufficient power to identify a 44% increase in the odds of initiating with parental smoking as statistically significant.

This study has some potential limitations. We categorized parents as more authoritative or less authoritative based on adolescent reports at the follow-up interview. A comparison of three indicators of family functioning at baseline showed strong associations with the parenting classification at follow-up, suggesting that the classification has stability over time. A further follow-up of this sample is planned, which will allow us to test whether more-authoritative parenting is related to progression to established smoking.

A limitation of the study was the loss to follow-up. We did not seek a commitment or contact information at baseline from respondents or their parents for a follow-up 3 years later. Rather, we obtained new funding and sought to locate and re-consent them at the time of the second survey. The comparison of respondents to nonrespondents indicated that those who were more likely to be smoking at follow-up were less likely to be followed. Further, it is likely that adolescents with more-authoritative parenting would be more represented in the follow-up sample. For these reasons, initiation by follow-up may be lower than if the entire baseline sample had been successfully re-interviewed. This would reduce the power to detect associations with smoking by follow-up rather than invalidate any positive findings. Another possible concern is that adolescents' reports are subjective and may not reflect the reality of their parents' parenting practices. However, some studies suggest that adolescent reports on parenting are more valid than parent reports.^{40,41} Regardless of validity concerns, it is likely that the adolescents' perception of parenting influences their behavior more than the parenting itself.⁴²

Phillip Morris advertised that the Master Settlement Agreement (MSA) of the states' attorney generals with the tobacco industry was meant to remove the influence to smoke on minors of industry marketing activities.^{13,14} Yet, the MSA appears to have had little effect on cigarette advertising in magazines.⁴³ Further, a recent California study showed that the average retail outlet had 17 tobacco ads, with half placed 3 feet high or lower (eye level of young children); another study showed that a quarter of all retail outlets offer cigarette products right next to candy displays.⁴⁴ Other studies have shown that almost three out of four adolescents shop at convenience stores at least once a week,⁴⁵ and they are more likely than adults to be influenced by convenience store promotions.⁴⁶ In the present study, it appears that retail-value-added items have a large demand-building influence on adolescents that circumvents the protective role of authoritative parenting. That tobacco-industry marketing activity is growing so rapidly in the area of incentives-to-merchants and re-

tail-value-added strategies must be a cause for concern to the public health community. These marketing actions directly contradict the much-publicized claim that the tobacco industry does not want kids to smoke.^{13,14}

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