

PEDIATRICS[®]

Does Parental Disapproval of Smoking Prevent Adolescents From Becoming Established Smokers?

James D. Sargent and Madeline Dalton

Pediatrics 2001;108;1256-1262

DOI: 10.1542/peds.108.6.1256

This information is current as of January 30, 2006

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://www.pediatrics.org/cgi/content/full/108/6/1256>

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2001 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



Does Parental Disapproval of Smoking Prevent Adolescents From Becoming Established Smokers?

James D. Sargent, MD*‡§, and Madeline Dalton, PhD*§

ABSTRACT. *Objective.* To evaluate the hypothesis that adolescents are less likely to smoke if their parents voice strong disapproval of smoking.

Design and setting. Three-wave school-based cohort study of rural Vermont adolescents attending 3 K-12 schools. We evaluate cross-sectional and longitudinal associations between perceived parental disapproval of smoking and the adoption of smoking behavior.

Outcome measures. Students' perceptions of their parents' reaction to their own smoking was ascertained by asking the following question for mothers and fathers: "How do you think your mother (father) would react if you were smoking cigarettes and she (he) knew about it?" A response of "S/he would tell me to stop and be very upset" was considered to indicate strong parental disapproval. Outcome measures include a 6-level smoking index for cross-sectional analyses and, for a longitudinal analysis of 372 never smokers at baseline, being an established smoker (smoked ≥ 100 cigarettes lifetime and within the past 30 days) by survey 3.

Results. The study samples for the cross-sectional analyses were 662 (baseline), 758 (year 2), and 730 (year 3). Students were equally distributed across grade (4th-11th grades) and gender. At baseline, most (65.9%) adolescents perceived both parents as disapproving of smoking, with 110 (16.6) perceiving 1 parent as disapproving, and 116 (17.5%) perceiving neither parent as disapproving. Perceived disapproval of smoking was inversely associated with adolescent smoking, grade in school, parental and sibling smoking, friend smoking, and ownership of tobacco promotional items. After controlling for confounding influences, adolescents who perceived strong parental disapproval of their smoking were less than half as likely to have higher smoking index levels compared with those who did not perceive strong parental disapproval. In the longitudinal sample of baseline never smokers, those who perceived strong disapproval in both parents at baseline were less than half as likely to become established smokers (adjusted odds ratio 0.4 [0.1, 1.0]). Those who perceived their parents becoming more lenient over time were significantly more likely to progress to established smokers. In all analyses, the effect of parental disapproval of smoking was stronger and more robust than the effect of parent smoking. In addition, the effect of parent disapproval was as strong for parents who smoked as it was for nonsmoking parents. An interaction analysis suggests that the peer smoking

effect is attenuated when both parents strongly disapprove of smoking, suggesting that parent disapproval makes adolescents more resistant to the influence of peer smoking.

Conclusions. These findings contrast with the widespread notion that there is little parents can do to prevent their adolescents from becoming smokers. Instead, adolescents who perceive that both parents would respond negatively and be upset by their smoking are less likely to smoke. Interventions that enhance parental self-efficacy in conveying and enforcing no-smoking policies for their children could reduce adolescent smoking. *Pediatrics* 2001;108:1256-1262; adolescent smoking, parenting, prevention, cohort study, epidemiology.

Despite declines during the 1980s, the rate of smoking among adolescents has climbed steadily in the 1990s.¹ This fact begs a question: Have our prevention efforts been directed at the key modifiable mediators of adolescent smoking? Adolescent smoking prevention research has been heavily invested in school-based approaches that attempted to modify the effect of the peer social environment on smoking initiation.² These programs were based on a social-cognitive model of behavior³ and stressed modification of peer relationships by building resistance skills and teaching adolescents about peer and media effects.^{4,5} The results of school-based programs have been disappointing, first because their effects wane over time,^{6,7} and second because the programs have been difficult to disseminate.⁸

Just as adolescents may begin smoking by modeling the behavior of peers, they may also model the behavior of parents. In contrast to peer influence, intergenerational transmission of smoking within families could have a social-cognitive or a genetic cause.^{9,10} The effect of family smoking on smoking initiation is strongest for early-onset smoking,¹¹ and for its association with the first stages of the smoking uptake process. However, the effect of family smoking is weaker in older adolescents and in its ability to predict who will become an established smoker.¹²⁻¹⁴

Other spheres of family influence besides social modeling and genetic factors have received less attention with regard to smoking initiation. Farkas et al¹⁵ has shown that smoke-free homes protect adolescents from taking up smoking independent of parent smoking. Resnick et al¹⁶ reported a strong protective association between family connectedness (feelings of warmth, love, and caring from parents) and lower propensity to engage in risky behaviors,

From the Departments of *Pediatrics and ‡Community and Family Medicine, and the §Norris Cotton Cancer Center, Dartmouth Medical School, Hanover, New Hampshire.

Received for publication Aug 25, 2000; accepted Jun 21, 2001.

Address correspondence to James D. Sargent, MD, Pediatrics and Adolescent Medicine, Dartmouth-Hitchcock Medical Center, One Medical Center Dr, Lebanon, NH 03756. E-mail: james.d.sargent@hitchcock.org
PEDIATRICS (ISSN 0031 4005). Copyright © 2001 by the American Academy of Pediatrics.

including tobacco use. Others have shown that parental attitude toward smoking has an association with adolescent smoking.^{13,17} Recently, Bailey et al¹⁸ demonstrated that the effect of parent smoking was independent of the effect of other family characteristics, such as parents' awareness of their child's activities. Adolescent smoking has also been associated with parent-adolescent attachment, parents' strictness, parental supportiveness, parents' expectations for success, parental offers of cigarettes, openness of communication, and activities participated in together by parents and adolescents.^{13,19–22}

In this study, we evaluate adolescents' perceptions of parental response to their smoking, testing the hypothesis that those who perceive that parents would strongly disapprove of their smoking would be less likely to smoke over time.

METHODS

Survey Administration

As part of a tobacco prevention program, we conducted a longitudinal study of students in grades 4 through 11 at 3 rural Vermont schools. The baseline survey was conducted in September 1996, the second survey in September 1997, and the final survey in May 1998. Study personnel who were not associated with the schools administered the survey. The questionnaire was read aloud to students in grades 4 and 5 and self-administered for students in grades 6 through 11. To protect confidentiality, students were asked to put their name, grade, and birth date on a sheet of paper that was separated and collected before completing the questionnaire. A numeric code was used to link tear-off sheets with the appropriate questionnaire. A letter of notifying parents of the survey was mailed to the students' homes 2 weeks before the survey; parents who did not wish their child to participate were asked to notify the school and were excluded. The Dartmouth College Committee for the Protection of Human Subjects approved the study.

Outcome and Exposure Measures

The outcome measure for this study is a smoking index that combines measures of lifetime smoking experience with attitudinal susceptibility to smoking. This index is based on prospective studies that demonstrate that smoking experience²³ and susceptibility to smoking^{24,25} are predictors of becoming a smoker in the future. The index includes 6 categories: never-smoker, not susceptible; never-smoker, susceptible; puffer; experimenter, not current; experimenter, current; and regular smoker. Never-smokers are those who have never even puffed on a cigarette. Susceptibility to smoking is determined by the responses to 2 questions: "Do you think you will smoke a cigarette in the next 6 months?" and "Would you smoke a cigarette if your best friend offered you one?" Anyone who cannot definitely rule out smoking in the future by answering "definitely not" for both of these statements is considered to be susceptible. Puffers include those who have tried smoking, but have never smoked >1 whole cigarette. Experimenters are those who have smoked between 2 and 100 cigarettes in their lifetime. The experimenters are further classified into "current" or "not current" based on whether they have smoked in the past 30 days. Regular smokers are defined as those who have smoked >100 cigarettes in their lifetime. Lifetime use of >100 cigarettes is used to classify ever smokers in studies of adults and is used in the United States to define an individual who has been dependent on cigarettes in the past.²⁵

We hypothesized that student perceptions of their parent's reaction to their own smoking would influence their decisions to continue smoking. Students were asked 2 questions to explore these perceptions: "How do you think your father would react if you were smoking cigarettes and he knew about it?" and "How do you think your mother would react if you were smoking cigarettes and she knew about it?" Multiple choice responses for grades 6 to 11 included: S/he would tell me to stop and be very upset (category 1), S/he would tell me to stop, but not be too upset, S/he

would not tell me to stop, but would disapprove, S/he would have no reaction, Don't know how s/he would react, and Don't have a stepmother/father. The responses were simplified for students in grades 4 to 5 to accommodate their lower reading level. Only students who chose the strongest response were classified as perceiving strong disapproval by a parent; the other responses were collapsed into 1 category reflecting students who did not perceive that parent would have a strong negative reaction to their smoking. Because we asked about father's and mother's reaction, most students could be categorized into 3 groups: does not perceive strong disapproval from either parent, strong disapproval from 1, and strong disapproval from both parents.

In evaluating parental influence over time, we also looked also for changes in student perception of parent reaction to smoking. Students could perceive their parents as becoming more strict (as in the case where their response goes from 1 parent disapproved on 1 survey to both parents disapprove on the next survey). Alternatively, students could perceive their parents becoming more lenient or staying the same. Change in perceived parental response to smoking was evaluated from baseline to survey 2 and from survey 2 to survey 3.

Validity and Reliability

We used a bogus pipeline procedure, which has been shown to increase validity of self-reported tobacco use.²⁶ To evaluate test-retest reliability of the questions, we administered the same questionnaire twice to 114 students with a 3-week interval between the 2 surveys. Data from the 114 students were used to evaluate all variables except for parental education, which was evaluated in a smaller sample of 57 students. All variables reported here have a minimum kappa statistic of 0.70, which indicates very good reliability for these items²⁷; it was not necessary to exclude any variable because of an unacceptably low kappa. The main outcome variable, the smoking index, had a kappa of 0.96.

Student Sample

Completed questionnaires were obtained from 805, 827, and 769 students for baseline, year 2, and year 3, respectively, representing 86% of the students enrolled in grades 4 through 12 at the 3 schools. Of these, 663, 760, and 732 had complete data for all questions used in this analysis. For each survey, students who did not answer the parental influence question ($N = 33, 25, \text{ and } 13$, respectively) were more likely to be established smokers (approximately 30% for nonresponders vs 15% for responders). Some students did not complete all 3 surveys because they were absent for one of them, because they dropped out or transferred out of the school system during the survey period, or transferred into the school system subsequent to the baseline survey. Of the 663 students with complete data at baseline, complete follow-up surveys were obtained from 511 (77.0%). Students who were lost to follow-up were more likely to be male, in 11th grade at baseline, have average or below average grades, and have a higher exposure to friends and family who smoked. These students also were more likely to be smokers and to be receptive to cigarette promotions at baseline.

The final cohort for the longitudinal analysis consists of the 372 students in grades 4 to 11 who were never smokers at baseline and had complete follow-up information. The age of the students ranged from 8 to 17, with 98% between 9 and 16 years of age. Reflecting the racial composition of northern New England, 96% of the students were white. All students lived in a rural area.

Statistical Analysis

Before developing multivariate models, we examined the association between perceived parental disapproval of smoking and other factors known to be related to adolescent smoking. To determine statistical significance for categorical variables, we used χ^2 analysis and for comparison of means we used independent sample t tests or analysis of variance. We evaluated the association between parental disapproval of smoking and adolescent smoking in each of the 3 cross-sectional samples and in the longitudinal sample. In the 3 cross-sectional samples, we used multivariate proportional odds models with the smoking index as the dependent variable and parental disapproval of smoking as an independent variable, along with contemporaneous measures of other factors known to be associated with adolescent smoking, includ-

ing family and friends smoking, grade in school, gender, school performance (excellent, good, average, or below), and parental education (both, 1, or neither parent graduated from high school). A proportional odds model gives cumulative odds ratios, modeling the probability of being in any higher category on the smoking index given a baseline category. With an ordered dependent variable, these models have the advantage of retaining information that would be lost by combining the data into 2 arbitrary groups, as one does when using logistic regression. Parental disapproval of smoking was coded as a set of dichotomous variables, with neither parent perceived as strongly disapproving as the reference group compared with 1 or both parents disapproving. To test for effect modification, interaction terms were developed between parental disapproval of smoking and parent, peer, and sibling smoking.

For the longitudinal analysis, we began with students in grades 4 to 11 who were never smokers at baseline and evaluated the association between parental disapproval of smoking and the odds of progressing to established smokers by survey 3 using logistic regression analysis. Established smokers were those who had smoked ≥ 100 cigarettes in their lifetime and had smoked within the past 30 days. In addition to baseline measures of parental disapproval and other baseline covariates, the model included measures of change in parental disapproval of smoking as described above. We used STATA statistical software for the analysis (STATA Corporation, College Station, TX).

RESULTS

Description of the Cross-Sectional Samples

In all 3 cross-sectional samples, the students were distributed equally across grade, with approximately 10% to 12% of the sample in each grade (grades 4–12). The sample was also equally distributed by gender (49%–51% of the sample was male, depending on the survey). Seventy-four percent of the students reported both parents completing high school. Family and peer smoking were common: Only 20% of the adolescents had no exposure to peer or family smoking. Most adolescents (57.1%) were in the non-susceptible never-smoker category, with each of the other 4 categories capturing between 4% and 11% of the sample. The distribution was similar for baseline, year 2, and year 3 surveys.

Cross-Sectional Association Between Parental Disapproval of Smoking, Other Covariates, and Smoking Status

In the 3 cross-sectional samples, between 60% and 65% of students perceived that both parents would strongly disapprove of their smoking, and approximately 20% thought that neither parent would strongly disapprove. Associations between parental disapproval of smoking and other factors known to be associated with adolescent smoking are shown in Table 1. Parental disapproval of smoking was strongly associated with all covariates except gender, including grade in school, friend smoking, family smoking, ownership or willingness to use a cigarette promotional item, socioeconomic status, and school performance. In all cases, adolescents who were at higher risk for tobacco use for other reasons (had friends who smoked, poor school performance, etc) were less likely to perceive both parents as strongly objecting to their smoking.

Parental disapproval of smoking was also associated with smoking status ($P < .0001$ in all 3 cross-sectional samples). As illustrated in Fig 1, which presents results from the baseline survey, only 34% of students who did not perceive strong disapproval from either parent were nonsusceptible never smokers compared with 65% for students who perceived both parents as strongly disapproving. This contrasts with the weaker association between parental smoking and adolescent smoking ($P = .005$), depicted also in Fig 1.

In the 3 cross-sectional samples, adolescents who perceived both parents as strongly disapproving of smoking were less than half as likely to be at a higher level on the smoking index compared with the referent group (those who perceived neither parent as disapproving; Table 2). The effect size of strong parental disapproval was similar to that of sibling

TABLE 1. Cross-Sectional Association Between Parental Disapproval of Smoking and Other Independent Variables at Baseline

Characteristic	Parental Disapproval of Smoking (Row Percents)			P Value χ^2
	Neither Disapproves	One Disapproves	Both Disapprove	
N	116 (17.5)	110 (16.6)	436 (65.9)	
Grade mean (standard deviation)	8.9 (2.5)	8.9 (2.4)	7.5 (2.5)	*
Parent smoking				
Neither	40 (10.8)	45 (12.7)	219 (76.5)	.01
One	41 (22.0)	42 (19.1)	120 (58.9)	
Both	36 (23.1)	23 (14.7)	97 (62.2)	
Sibling smoking				
No	74 (14.4)	81 (15.7)	360 (69.9)	<.0001
Yes	43 (29.1)	29 (19.6)	76 (51.4)	
Friend smoking				
No	34 (10.2)	40 (12.1)	258 (77.7)	<.0001
Yes	83 (25.1)	70 (21.2)	178 (53.8)	
Ownership or willingness to use a cigarette promotional item				
No	53 (12.7)	57 (13.7)	306 (73.6)	<.0001
Yes	64 (25.9)	53 (21.5)	130 (52.6)	

* Both disapprove category significantly younger grade compared with other 2 ($P < .0001$, analysis of variance).

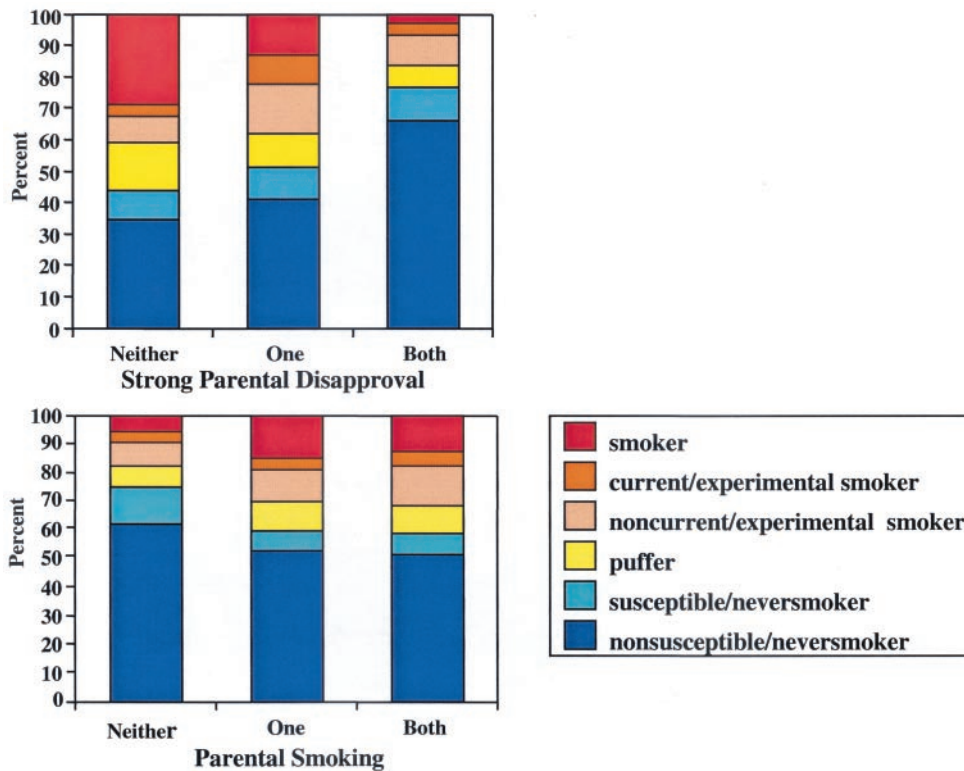


Fig 1. Student smoking status (percent within each category of the smoking index) by parent disapproval of smoking and parent smoking, first cross-sectional sample (N = 663).

TABLE 2. Cross-Sectional Association Between Parental Disapproval of Smoking and the Adjusted Odds of Being Higher on the Smoking Index, Controlling for Other Influences

Cross-Sectional Smoking Model	Adjusted Proportional Odds Ratios* (95% Confidence Interval)		
	Survey 1 Model	Survey 2 Model	Survey 3 Model
Parent strongly disapproves of smoking			
Neither disapproves	Reference	Reference	Reference
One disapproves	0.7 (0.5, 0.9)	1.0 (0.8, 1.3)	0.9 (0.6, 1.1)
Both disapprove	0.5 (0.3, 0.8)	0.4 (0.2, 0.6)	0.4 (0.3, 0.5)
Control variables†			
Parent smoking			
Neither	Reference	Reference	Reference
One	1.0 (0.8, 1.4)	0.8 (0.6, 1.2)	0.7 (0.5, 1.0)
Both	0.9 (0.7, 1.2)	0.8 (0.6, 1.1)	1.1 (0.9, 1.4)
Sibling smoking			
No	Reference	Reference	Reference
Yes	2.2 (1.5, 3.2)	2.1 (1.5, 22.9)	2.5 (2.3, 2.7)
Friend smoking			
No	Reference	Reference	Reference
Yes	8.0 (7.8, 8.2)	4.9 (3.9, 6.2)	4.1 (2.8, 6.1)
Sample size	663	760	732

* The proportional odds ratio is the likelihood of a participant being higher on the smoking uptake index compared with the reference group.

† All models also include controls for grade, gender, ownership or willingness to use a cigarette promotional item, perceived school performance, and parental education.

smoking, only in the opposite direction. Effects were weaker (and not statistically significant) for adolescents who perceived only 1 parent as disapproving. In contrast, parent smoking was not associated with adolescent smoking in any of these cross-sectional samples after controlling for other smoking risk factors. Other variables significantly associated with smoking were friend smoking, ownership or willingness to use a cigarette promotional item, poor school

performance, and gender (with females having higher levels of smoking for surveys 2 and 3).

Never-Smoker Cohort

A larger proportion of the 372 never-smokers were in grades 4 to 7 (64%) than in grades 8 to 11 (36%). At baseline, the majority of the cohort members (76.3%) perceived that both parents would strongly disap-

prove of smoking. By survey 2, 56 (15.1%) perceived that their parents had become more lenient, whereas 12.1% felt they had become more strict. Between surveys 2 and 3, 66 (17.7%) perceived that their parents had become more lenient, whereas 10.0% thought they had become more strict. By survey 3, 69 (14.4%) of the adolescents had become established smokers.

Longitudinal Association Between Parental Disapproval of Smoking and Progression to Established Smoker

Table 3 shows the association between parental disapproval of smoking and the odds of becoming an established smoker over time. Those who perceived both parents would disapprove of smoking at baseline were less than half as likely to progress to established smoking compared with those who did not hold these perceptions ($P = .05$). When only 1 parent strongly disapproved at baseline, or when adolescents perceived their parents becoming more strict over time, the effect was also protective but weaker ($P < .1$). Conversely, those who perceived their parents becoming more lenient were significantly more likely to be established smokers by survey 3. In addition, adolescents who owned or were willing to use cigarette promotional items were significantly more likely to become established smokers over the period of the study (adjusted odds ratio 2.5 [1.4, 4.7]). There was no significant effect of parent smoking or

sibling smoking at baseline on the odds of becoming an established smoker over time.

Effect Modification

We tested for effect modification between perceived disapproval of smoking and parental smoking, sibling smoking, or friend smoking. Interactions were tested in each of the 3 cross-sectional models and among baseline characteristics in the longitudinal model. There was no effect modification on parent smoking or sibling smoking. However, there was a tendency toward modification of the effect of friend smoking. This was especially evident in the third cross-sectional sample, where the proportional odds ratio for peer smoking was 9.3 when neither parent disapproved versus 2.1 when both parents strongly disapproved ($P < .0001$ for the interaction effect).

DISCUSSION

Parents often perceive that there is nothing they can do to prevent their child from becoming a smoker.²⁸ Researchers may have contributed to this perception by emphasizing the effects of peer smoking and peer socialization on the adoption of smoking. This study offers hope for parents by suggesting that they can decrease the chances that their children will smoke through communication of nonsmoking expectations consistently over time. This is true primarily when both parents strongly oppose smoking. The effect is not substantially confounded by other

TABLE 3. Effect of Parental Disapproval on the Odds of Becoming an Established Smoker by Survey 3 Among 372 Never-Smokers at Baseline

Predictor Variable	Established Smoker*	
	N (Percent Smokers)	Adjusted Odds Ratio (95% Confidence Interval)
Parent disapproves of smoking (at baseline)		
Neither disapproves	41 (26.8)	Reference
One disapproves	47 (21.3)	0.4 (0.1, 1.2)
Both disapprove	284 (19.4)	0.4 (0.1, 1.0)
Change in parental disapproval: (Surveys 1 → 2)		
No change	271 (18.1)	Reference
Becomes more lenient	56 (33.9)	2.3 (1.0, 5.4)
Becomes more strict	45 (17.8)	0.4 (0.1, 1.3)
Change in parental disapproval (Surveys 2 → 3)		
No change	269 (17.5)	Reference
Becomes more lenient	66 (28.8)	2.2 (1.1, 4.6)
Becomes more strict	37 (27.0)	1.0 (0.4, 2.9)
Control variables†		
Parent smoking (at baseline)		
Neither	204 (18.6)	Reference
One	99 (18.2)	0.8 (0.4, 1.7)
Both	69 (29.0)	1.8 (0.9, 3.7)
Sibling smoking (at baseline)		
No	321 (19.9)	Reference
Yes	51 (23.5)	1.0 (0.4, 2.1)
Friend smoking (at baseline)		
No	258 (17.4)	Reference
Yes	113 (27.2)	1.2 (0.6, 2.5)

* Established smokers are students who reported having smoked ≥ 100 cigarettes and had smoked within the past 30 days at survey 3.

† The logistic regression model also included controls for the following baseline variables: school, grade in school, school performance, parental education, ownership or willingness to use a cigarette promotional item, and susceptibility to smoking.

known predictors of adolescent smoking and the effect seems to persist over time. Moreover, the effectiveness of this type of communication remains strong even when parents smoke, and the data seem to suggest that parent expectations about smoking may be more important predictors of what their children do than parental smoking behavior.

This study complements a longitudinal study of 182 mother-adolescent pairs, in which Chassin and colleagues¹⁰ obtained data from mothers and their children, in which they evaluated the effects from the mother's and child's perspective of mother's support, mother's discipline, mother's discussion of smoking, and mother's punishment for smoking. The highest negative correlation between any of these factors and adolescent smoking was with the child's perception of mother's punishment for smoking ($r = -0.49, P < .001$). In addition, there was an interaction between children's perception of smoking-specific punishment and peer smoking, with attenuation of the peer-smoking effect in the context of strong expectations of parental punishment, consistent with the interaction reported in our study. The interaction analysis suggested that children who perceived that there would be punishment for their smoking were less likely to be influenced by peer smoking. Interestingly, in the Chassin study, there was little correlation between mother's perceptions of punishment for smoking and adolescent smoking ($-0.09, P = \text{not significant}$). It is possible that social desirability bias causes parents to overreport punishment for smoking, or that perhaps parents are not always clear in communicating their intent to punish to their children.

Our study adds to the study by Chassin by showing that, as adolescents perceive their parents to become more lenient over time, they become more likely to take up smoking. Alternatively the odds ratios suggest (at least for changes in surveys 1–2) that when parents are perceived as becoming stricter, adolescents tend to be protected from becoming smokers. This effect is much weaker, and is not present at all in surveys 2 to 3, suggesting it may be difficult for parents to become more strict after they have conveyed a message of leniency toward smoking to their adolescents. This finding supports the idea that parents can be trained to effectively communicate nonsmoking policies for their adolescents, and that adolescents will respond to this type of parental input if the message remains consistent over time.

This study is subject to several limitations. First, this is a sample of rural, white adolescents. It is not clear if this finding applies to other racial groups in other settings. However, it is worth noting here that parents of black children seem to have a higher sense of self-efficacy with regards to preventing smoking in their children, and black children have lower smoking.^{28,29} Second, because we did not survey parents, we have no direct information on them, and adolescents' perceptions of parental disapproval may not accurately reflect parental response to their smoking. Third, because adolescent smoking is a self-report behavior, there is no way to ascertain it

without some possibility of bias. If adolescents who perceived strong parent disapproval of smoking were more likely to falsely report nonsmoking status, that could account for the findings. Having experienced no recriminations by survey 3, however, we doubt that the adolescent in our study would have had much reason to hide their smoking behavior. If they falsely reported in year 1 because of concerns about parents and accurately reported in year 3, this would bias toward the null. Finally, although the longitudinal data are suggestive, we cannot be certain about directionality. The possibility exists that adolescents who smoke either wear down their parents' opposition to smoking or gain a more accurate perception of the strength of their parents' disapproval. In this case, the smoking would cause the altered perception of parental disapproval. In reality, both causal mechanisms are probably operating at the same time.

CONCLUSION

Adolescents who perceive that their parents would strongly disapprove of smoking are significantly less likely to smoke. This effect is seen primarily when both parents are consistent in their opposition to smoking. The effect is not substantially confounded by other known predictors of adolescent smoking, persists over time, and holds true for smoking and nonsmoking parents.

ACKNOWLEDGMENTS

This work was supported by National Cancer Institute Grants CA-67538 and CA-23108.

We thank Susan Martin for her assistance in preparing this manuscript.

REFERENCES

1. Bachman JG, Johnston LD, O'Malley PM. *Monitoring the Future: Questionnaire Responses From the Nation's High School Seniors 1996*. Ann Arbor, MI: Institute for Social Research, University of Michigan; 1996
2. Best JA, Thomson SJ, Santi SM, Smith EA, Brown KS. Preventing cigarette smoking among school children. *Annu Rev Public Health*. 1988;9: 161–201
3. Bandura A. *Social Foundations of Thought and Action*. Englewood Cliffs, NJ: Prentice Hall; 1986
4. Flay BR, D'Avernas JR, Best JA, Kersell MW, Ryan KB. Cigarette smoking: why young people do it and ways of preventing it. In: McGrath P, Firestone P, eds. *Pediatric and Adolescent Behavioral Medicine*. New York, NY: Springer-Verlag; 1983
5. Flay BR. Psychosocial approaches to smoking prevention: a review of findings. *Health Psychol*. 1985;4:449–488
6. Flay BR, Koepke D, Thompson SJ, Santi S, Best A, Brown SK. Six-year follow-up of the first Waterloo school smoking prevention trial. *Am J Pub Heal*. 1989;79:1371–1374
7. Murray DM, Davis-Hearn M, Goldman AI, Pirie P, Luepker RV. Four- and five-year follow-up results from four seventh-grade smoking prevention strategies. *J Behav Med*. 1983;11:207–218
8. Murray DM, Perry CL, Griffin G, et al. Results from a statewide approach to adolescent tobacco use prevention. *Prev Med*. 1992;21:449–472
9. Hughes JR. Genetics of smoking: a brief review. *Behav Ther*. 1986;17: 335–345
10. Chassin L, Presson CC, Todd M, Rose JS, Sherman SJ. Maternal socialization of adolescent smoking: the intergenerational transmission of parenting and smoking. *Dev Psychol*. 1998;34:1189–1201
11. Jackson C, Henriksen L. Do as I say: parent smoking, antismoking socialization, and smoking onset among children. *Addict Behav*. 1997;22: 107–114
12. Bauman KE, Foshee VA, Linzer MA, Koch GG. The effect of parental smoking classification on the association between parental and adolescent smoking. *Addict Behav*. 1990;15:413–422

13. Chassin L, Presson CC, Sherman SJ, Montello D, McGerw J. Changes in peer and parent influence during adolescence: longitudinal versus cross-sectional perspectives on smoking initiation. *Dev Psychol.* 1986;22:327-334
14. Conrad KM, Flay BR, Hill D. Why children start smoking cigarettes: predictors of onset. *Br J Addict.* 1992;87:1711-1724
15. Farkas AJ, Gilpin EA, White MM, Pierce JP. Association between household and workplace smoking restrictions and adolescent smoking. *JAMA.* 2000;284:717-722
16. Resnick MD, Bearman PS, Blum RW, et al. Protecting adolescents from harm: findings from the National Longitudinal Study on Adolescent Health. *JAMA.* 1997;278:823-832
17. Murray M, Swan AV, Johnson MRD, Bewley BR. Relation between parents' and children's smoking behavior and attitudes. *J Epidemiol Community Health.* 1985;39:169-174
18. Bailey SL, Ennett ST, Ringwalt CL. Potential mediators, moderators, or independent effects in the relationship between parents' former and current cigarette use and their children's cigarette use. *Addict Behav.* 1993;18:601-621
19. Skinner WF, Massey JL, Krohn MD, Lauer RM. Social influences and constraints on the initiation and cessation of adolescent tobacco use. *J Behav Med.* 1985;8:353-376
20. Reimers TM, Pomrhn PR, Becker SL, Lauer RM. Risk factors for adolescent cigarette smoking: the Muscatine Study. *Am J Dis Child.* 1990;144:1265-1272
21. Kandel DB. Parenting styles, drug use, and children's adjustment in families of young adults. *J Marriage Fam.* 1990;52:183-196
22. Kafka RR, London P. Communication in relationships and adolescent substance use: The influence of parents and friends. *Adolescence.* 1991;26:587-598
23. Jackson C. Cognitive susceptibility to smoking and initiation of smoking during childhood: a longitudinal study. *Prev Med.* 1998;27:129-134
24. Pierce JP, Choi WS, Gilpin EA, Farkas A, Merritt RK. Validation of susceptibility as a predictor of which adolescents take up smoking in the US. *Health Psychol.* 1996;15:355-361
25. Kovar MG, Poe GS. *The National Health Interview Survey Design, 1973-84 and Procedures: 1975-83.* Hyattsville, MD: US Department of Health and Human Services, Public Health Service, National Center for Health Statistics; 1985
26. Evans RI, Hansen WB, Mittelmark MB. Increasing the validity of self-reports of smoking behavior in children. *J Appl Psychol.* 1977;62:521-523
27. Landis JR, Koch GG. The measurement of observer agreement for categorical data. *Biometrics.* 1977;33:671-679
28. Clark PI, Scarisbrick-Hauser A, Gautam SP, Wirk SJ. Anti-tobacco socialization in homes of African-American and white parents, and smoking and nonsmoking parents. *J Adolesc Health.* 1999;24:329-339

STUDY FINDS MOST STATES LACK SYSTEM FOR MONITORING ASTHMA

“As the number of asthma cases in the United States rises sharply and researchers scramble to find the cause, newly released data from the Centers for Disease Control and Prevention shows that most states have no system to track the number of people with asthma or monitor what happens to them, and only a few states have any recent reports on the illness in their jurisdictions.

The data were reported in a study by Health Track, a new public health group based at Georgetown University in Washington and financed by the Pew Charitable Trusts. The study, which was recently made public, says 27 states have no asthma monitoring program, 30 states have no up-to-date information on asthma within their borders, and more than 40 states have no “ready access” to information on how many people get emergency care or whether patients have access to good treatment . . . Researchers have estimated that a national tracking and monitoring program for asthma would cost about \$25 million annually, said James O’Hara, executive director of Health Track. He said the cost of asthma to the national economy was about \$14.5 billion a year and rising . . .”

Hilts PJ. *New York Times.* May 3, 2000

Noted by JFL, MD

Does Parental Disapproval of Smoking Prevent Adolescents From Becoming Established Smokers?

James D. Sargent and Madeline Dalton

Pediatrics 2001;108;1256-1262

DOI: 10.1542/peds.108.6.1256

This information is current as of January 30, 2006

Updated Information & Services

including high-resolution figures, can be found at:
<http://www.pediatrics.org/cgi/content/full/108/6/1256>

Citations

This article has been cited by 15 HighWire-hosted articles:
<http://www.pediatrics.org/cgi/content/full/108/6/1256#otherarticles>

Post-Publication Peer Reviews (P³Rs)

3 P³Rs have been posted to this article:
<http://www.pediatrics.org/cgi/eletters/108/6/1256>

Subspecialty Collections

This article, along with others on similar topics, appears in the following collection(s):
Adolescent Medicine
http://www.pediatrics.org/cgi/collection/adolescent_medicine

Permissions & Licensing

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
<http://www.pediatrics.org/misc/Permissions.shtml>

Reprints

Information about ordering reprints can be found online:
<http://www.pediatrics.org/misc/reprints.shtml>

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

