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Positive and Negative Outcome Expectations of Smoking: Implications for Prevention[1]

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Background. **To inform the development of messages for tobacco prevention programs, we examined seven positive and five negative outcome expectations of smoking as risk factors for smoking uptake.**

Methods. **A cross-sectional, self-administered survey of 471 students in grades 6–12 who were never or experimental smokers was performed. Logistic regression was used to examine the relationship between outcome expectations and susceptibility to becoming a smoker in the future, a measure of intent and resistance to peer smoking.**

Results. **A total of 36.1% of the sample was susceptible to smoking. All positive outcome expectations showed a strong and significant association with susceptibility. Students were most likely to be susceptible if they believed they would enjoy smoking (OR = 29.4). Three of the five negative outcome expectations were significantly associated with susceptibility, but the strength of these associations was much lower than that observed for the positive expectations (OR = 0.5 to 0.6). A strong belief in the negative outcomes of smoking did not alter the association between susceptibility and positive outcome expectations.**

Conclusions. **These findings suggest that teaching adolescents and teens about the negative consequences of smoking is unlikely to change their intent to smoke. Preventive efforts should identify ways to address the positive expectations adolescents have about smoking, possibly by offering alternative means for achieving these outcomes.**

Key Words: **tobacco; smoking; attitudes; outcome expectations; risk factors for smoking; adolescents; youth tobacco use.**

INTRODUCTION

In the past decade, there has been a sharp increase in the number of tobacco prevention interventions for children and adolescents. Nonetheless, the prevalence of smoking among youths continues to rise [*1*]. One possible explanation for this is that we are not designing the most effective programs for tobacco prevention. To do this, we need a thorough understanding of the risk factors and how they interrelate at each stage of the smoking uptake process.

Over the past 2 decades, a substantial amount of research has examined factors that motivate young people to smoke. While there is some disagreement across studies [*2*], we now have a much greater awareness of the many psychosocial risk factors related to smoking behavior in youths. However, because smoking uptake is a process that happens over time and involves several stages [*3*], different risk factors may be more important depending on where a child is in the process [*4,5*]. Behavioral theory supports the role of attitudes as an influential factor early in the smoking uptake process [*6,7*].

Attitudes have been linked to tobacco use in cross-sectional [*8–10*] and longitudinal studies [*4,5,11–14*]. In general, there has been more support of positive attitudes as predictors of tobacco use than negative attitudes [*2,4,5*]. Unfortunately, it is difficult to compare the results of past studies for a number of reasons. First, many studies investigate only a few attitudinal factors and the ones examined differ from study to study [*8,9*]. Second, investigators often report a positive or negative association with a summary measure of attitudes, so it is not clear which ones may be the most

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influential [*8,11,14,15*]. Third, some studies report an association, but do not list the specific attitudes included in the survey [*4*]. Finally, attitudes are not always measured in the same way. For example, some studies investigate general attitudes about smoking [*13*], while others measure personal expectations [*5*] or specific utilities [*11*] of smoking. All of these issues make it especially difficult to translate the results into effective prevention strategies.

In this study we examined outcome expectations of smoking as risk factors in the early stages of smoking uptake. After a careful review of the literature, consultation with educators and tobacco researchers, and focus groups with adolescents, we identified 12 smoking-related attitudes that were most salient to adolescents. These included seven positive and five negative attitudes toward smoking. In the survey, we phrased all the attitudes as personal outcome expectations [*16*], rather than general attitudes about smoking, because we believed they would be more highly correlated with smoking uptake. For example, rather than asking students if they thought *some people* smoke to help them deal with stress, we asked them if they thought smoking would help *them* deal with problems or stress. By examining and reporting on each outcome expectation both individually and as part of a summary measure, we provide detailed information which can be used to formulate specific messages for smoking prevention. This study extends the current literature on risk factors for smoking by examining the association between outcome expectations of smoking and susceptibility to becoming a smoker, which is particularly relevant for programs that target children before they become regular smokers.

METHODS

Survey Administration

Three schools in rural Vermont participated in the survey as part of a tobacco prevention program. Data presented are from the baseline survey, which was conducted in September 1996 by trained study personnel who were not associated with the schools. Students in grades 6 through 12 completed a self-administered questionnaire in a classroom or assembly setting. Teachers were present, but they remained at the front of the room and did not answer questions about the survey. Students were asked to put their name and personal information on a separate sheet of paper that was collected prior to completing the questionnaire. Personal identifiers were obtained so that the students could be followed longitudinally. Students were assured that their answers would be confidential and that their surveys would be stored separately from their names. Passive parental consent was obtained by mailing a letter of consent to all students' homes 2 weeks prior to the survey date. Only two parents refused to allow their children to participate and two additional students declined to participate on the day of the survey. The study was approved by the Dartmouth College Committee for the Protection of Human Subjects.

Carbon monoxide meters were used to measure the amount of carbon monoxide in students' breath. Although these meters can only accurately measure an increase in carbon monoxide due to smoking in the past 8 h, students were told that they could measure "past tobacco use" and were unaware of the time limitations of the test. In effect, use of the meters served as a bogus pipeline procedure, which has been shown in some studies to increase the validity of self-reported tobacco use [*17*]. Carbon monoxide readings were obtained from 85.6% of the sample; the remaining students either refused to provide a sample or were not able to provide one due to time limitations.

Student Sample

Completed questionnaires were obtained from 643 students, representing at least 86% of the students enrolled in each school. Fourteen percent ($N = 87$) of these students were smokers (lifetime use of >100 cigarettes) and were eliminated from the analysis. An additional 85 questionnaires were discarded because of missing or logically inconsistent data. Students omitted because of missing data were more likely to be male and have average or below average school performance. They did not differ from those included in the analysis in terms of susceptibility to smoking, smoking experience, family and peer smoking, receptivity to cigarette marketing, or grade in school. Results are presented for 471 students who were never or experimental smokers. Experimental smokers are defined as those who have smoked less than 100 cigarettes in their lifetime [*18*]. The age of students ranged from 10 to 18 years. Ninety-seven percent of the students were white. All students lived in lower income, rural areas.

Susceptibility

Susceptibility to smoking was used as the outcome measure. Prospective studies show that susceptible individuals are more likely to increase their consumption of cigarettes in the future [*19*]. Susceptibility to smoking was determined by responses to two 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?" Four response categories were offered, ranging from "definitely yes" to "definitely not." Any student who could not answer "definitely not" to both of these questions was considered susceptible. As such, susceptibility is a measure that reflects both intention to smoke in the near future and resistance to peer influence for tobacco use.

Outcome Expectations

The positive outcome expectations measured were "I think I would enjoy smoking," "I think smoking would give me something to do when I'm bored," "I think smoking would help me to deal with problems or stress," "I think smoking would help me to stay thin," "I think smoking would help me to feel more comfortable at parties," "I think smoking would be relaxing," and "I think smoking would make me look more mature." The negative outcome expectations were "I think smoking would make my teeth yellow," "I think smoking would make it harder for me to play sports," "If I started smoking regularly, I think it would be very hard for me to stop," "I think smoking would give me bad breath," and "I think smoking would be bad for my health." All but one of the negative outcome expectations focus on the short-term negative consequences of smoking because it is generally acknowledged that these may be more meaningful to teens than long-term health outcomes [*20,21*].

Students were asked to indicate whether they agreed or disagreed with each of the 12 statements by using a four-point Likert response scale, with responses ranging from "strongly agree" to "strongly disagree." Following the same logic proposed by Pierce et al. [*19*] for their measure of susceptibility, students' responses for each outcome expectation were collapsed into dichotomous variables. Responses for the positive outcome expectations were coded as 1 if students did *not* "strongly disagree" with the statement, indicating that they did not absolutely rule out the positive outcomes of smoking. Responses for the negative outcome expectations were coded as 1 if the student "strongly agreed" with the statement, indicating that they strongly believed in the negative consequences of smoking. The analysis was also performed using a cutoff between "agree" and "disagree" for each of the statements and the findings did not change.

Summary scores for both the positive and the negative expectations were created by summing the dichotomous variables, so that the values ranged from 0 to 7 for positive and 0 to 5 for negative expectations. Cronbach's alpha was 0.88 for the positive and 0.70 for the negative expectations, indicating good internal consistency for each of the measures.

Statistical Analysis

Logistic regression analysis was used to calculate crude and adjusted odds ratios for susceptibility. The adjusted models include controls for environmental exposure to smoking (minimal, family only, friends only, friends and family); grade; gender; school performance

TABLE 1

Student Characteristics and Susceptibility to Becoming a Smoker

Characteristic	*N*	% Susceptible	Crude OR	Adjusted OR[a] (95% CI)
Total	471	36.1		
Grade in school				
6	87	27.6	Reference	Reference
7	73	34.3	1.4	2.1 (1.0, 4.5)
8	68	39.7	1.7	1.3 (0.6, 2.9)
9	63	47.6	2.4	2.3 (1.0, 5.1)
10	65	33.9	1.3	0.5 (0.3, 1.2)
11	58	37.9	1.6	0.7 (0.3, 1.7)
12	57	35.1	1.4	0.7 (0.3, 1.7)
School performance				
Excellent	126	27.0	Reference	Reference
Good	247	39.3	1.8	1.4 (0.8, 2.3)
Average or below	98	39.8	1.8	1.5 (0.8, 2.9)
Sex				
Female	234	40.6	Reference	Reference
Male	237	31.7	0.7	0.6 (0.4, 0.9)
Environmental smoking				
Minimal	97	16.5	Reference	Reference
Family only	115	13.9	0.8	0.8 (0.4, 1.8)
Friends only	90	52.2	5.5	8.8 (4.1, 18.9)
Family and friends	169	53.9	5.9	7.0 (3.5, 14.1)
Receptive to cigarette promotional items				
No	289	30.1	Reference	Reference
Yes	182	45.6	2.0	1.6 (1.0, 2.5)

[a] Adjusted for all other variables.

(excellent, good, average or below); and receptivity to cigarette promotional items (owns or would use a cigarette promotional item). We modeled the summary measure by gender and smoking experience (never vs experimental) using interaction terms to determine whether the association between expectations and susceptibility was stronger for females or experimental smokers.

RESULTS

Overall, 36.1% of the sample was susceptible to smoking. Having friends or friends and family members who smoke and owning or being willing to use a cigarette promotional item were significantly associated with increased susceptibility to smoking (Table 1). Students in grades 7 and 9 were also significantly more likely to be susceptible than those in grade 6.

All of the positive outcome expectations were significantly associated with susceptibility; students who did not strongly disagree with the positive outcome expectations were much more likely to be susceptible to smoking than those who did (Table 2). The expectation most strongly associated with an increased risk of susceptibility was "I think I would enjoy smoking." (OR = 29.4; 95% CI 15.1, 57.6). In addition, students who did not strongly disagree that smoking would help them deal with problems or stress or that smoking would help them feel more comfortable at parties were at least 8 times more likely to be susceptible (OR = 8.6 and 10.4, respectively). Three of the five negative outcome expectations were significantly associated with susceptibility, but the strength of these associations was much lower than that observed for the positive outcome expectations (Table 2). Students who strongly agreed that smoking would make their teeth yellow, would give them bad breath, or would be bad for their health were half as likely to be susceptible compared to those who did not strongly agree with these statements (OR = 0.6, 0.6, and 0.5, respectively).

Almost half the students (48.4%) strongly disagreed with all of the positive outcome expectations, resulting in a score of "0" for the positive expectation measure (Table 3). Conversely, half of the students (50.9%) strongly agreed with 4 to 5 of the negative outcome expectations, as indicated by scores of 4 and 5 for this measure. As shown in Table 3, the odds of being susceptible increased incrementally with the number of positive outcome expectations, suggesting a dose response for this measure. This association between positive expectations and susceptibility was unaffected by the total number of negative expectations held by the students (Table 3). The number of negative expectations believed in by the students was not significantly related to a decreased risk of susceptibility. There was no significant interaction between the summary scores for positive and negative expectations and gender or smoking experience.

TABLE 2

Relationship between Positive and Negative Outcome Expectations and Susceptibility to Smoking (N = 471)

	Students who do not strongly disagree with positive outcomes			
Positive outcome expectations	*N*	% Susceptible	Crude OR	Adjusted OR[a] (95% CI)
I think I would enjoy smoking.	126	86.5	29.9	29.4 (15.1, 57.6)
I think smoking would give me something to do when I'm bored.	103	73.2	8.1	7.2 (4.1, 12.6)
I think smoking would help me to deal with problems or stress.	97	77.3	10.0	8.6 (4.7, 15.6)
I think smoking would help me to stay thin.	121	58.7	3.6	4.2 (2.5, 6.9)
I think smoking would help me to feel more comfortable at parties.	171	69.0	10.6	10.4 (6.3, 17.3)
I think smoking would be relaxing.	146	66.4	6.8	7.4 (4.4, 12.3)
I think smoking would make me look more mature.	115	69.6	6.8	6.8 (3.9, 11.7)
	Students who strongly agree with negative outcomes			
Negative outcome expectations	*N*	% Susceptible	Crude OR	Adjusted OR[a] (95% CI)
I think smoking would make my teeth yellow.	265	30.6	0.6	0.6 (0.4, 0.9)
I think smoking would make it harder for me to play sports.	355	33.5	0.6	0.6 (0.4, 1.0)
If I started smoking regularly, I think it would be very hard for me to stop.	219	32.0	0.7	0.7 (0.5, 1.1)
I think smoking would give me bad breath.	295	32.5	0.7	0.6 (0.4, 0.9)
I think smoking would be bad for my health.	366	32.0	0.5	0.5 (0.3, 0.8)

[a] Odds ratios are adjusted for grade, school performance, sex, exposure to environmental smoking, and receptivity to cigarette promotional items.

TABLE 3

Association between Number of Positive and Negative Outcome Expectations and Susceptibility

Number of expectations	*N*	% Susceptible	Crude OR	Adjusted OR[a] (95% CI)
Positive				
0	228	11.8	Reference	Reference
1	56	30.4	3.3	5.0 (2.2, 11.2)
2	32	34.4	3.9	5.0 (1.9, 13.0)
3	36	58.3	10.4	10.1 (4.1, 25.1)
4	35	65.7	14.3	18.1 (7.1, 49.3)
5	26	88.5	57.1	47.1 (11.9, 186.1)
6	20	80.0	29.8	21.5 (5.6, 82.4)
7	38	84.2	39.7	39.5 (12.9, 120.8)
Negative				
0	34	55.9	Reference	Reference
1	51	43.1	0.6	0.7 (0.2, 2.7)
2	72	40.3	0.5	0.7 (0.2, 2.6)
3	74	41.9	0.6	0.7 (0.2, 2.4)
4	117	29.9	0.3	0.6 (0.2, 2.0)
5	123	27.6	0.3	0.8 (0.3, 2.7)

[a] Odds ratios are adjusted for grade, school performance, sex, exposure to environmental smoking, and receptivity to cigarette promotional items.

DISCUSSION

This study demonstrates that positive outcome expectations of smoking are much more highly associated with susceptibility to smoking than negative expectations. This finding is consistent with results of other studies examining attitudes toward smoking, in which negative attitudes or knowledge of negative consequences of smoking did not predict smoking behavior [*4,5,22*]. Our study extends this finding by demonstrating that negative outcome expectations are not strongly associated with susceptibility, a predictor of smoking uptake. Importantly, the association between positive outcome expectations and susceptibility is not affected by a strong belief in any number of the negative outcome expectations of smoking.

These findings have important implications for prevention. They suggest that teaching adolescents and teens about the negative consequences of smoking is unlikely to change their intent to smoke. Nonetheless, teaching negative consequences and knowledge of health effects is frequently recommended as a way to prevent tobacco use [*21,23,24*] and these messages continue to be the focus of many tobacco prevention programs. For example, the "CDC facts" for offering tobacco prevention in schools include all of the negative outcomes we studied [*23*]. This emphasis on knowledge and belief of negative outcomes of smoking in the prevention literature seems inconsistent with the limited evidence supporting an association between negative attitudes and smoking uptake in the research literature [*2*].

In contrast, there is a marked lack of discussion about how to deal with the positive outcome expectations that are influencing tobacco uptake among youths. Even when investigators demonstrate that positive attitudes are associated with an increased risk of tobacco use, they sometimes fail to address this in discussing the implications of their findings for tobacco prevention [*9*]. Others have suggested that prevention programs target attitudes and beliefs about smoking, yet they do not specify the attitudes on which we should focus [*4*]. One possible explanation for this is the belief that behavior change precedes attitudinal change [*9,15*]. However, our data and other longitudinal studies [*4,5,11,12,14*] suggest that this is not the case. Another reason might be the belief that we cannot easily modify or even address the positive outcomes of smoking in prevention programs. Perhaps the most probable reason that we focus on the negative consequences of smoking is because these are what motivate us to try and prevent it. The primary reason that we discourage smoking is because it has so many adverse health outcomes. Therefore, we continue to view smoking as a "health decision" [*13*] even though the data suggest that health and other negative consequences of smoking are not particularly relevant to adolescents.

Recognizing that long-term health outcomes (our primary motivation for prevention) may not be a major deterrent among adolescents, tobacco prevention programs have emphasized short-term negative consequences that might be more meaningful to youths [*21*]. Unfortunately, our findings suggest that these are not any more salient to adolescents with respect to their decision to smoke. It is clear that we need to take a closer look at the psychosocial risk factors influencing smoking uptake and find a way to translate them into prevention programs for youths.

The first step is to gain a better understanding of adolescents' positive outcome expectations of smoking and the contexts in which they are most influential. Adolescence is a time when many children are beginning to look toward more adult behaviors for enjoyment. In addition, many have not yet developed effective strategies for dealing with stress or feeling comfortable with themselves among their peers. Therefore, it is not surprising that the positive expectations most strongly associated with increased susceptibility to smoking pertain to enjoyment, stress, and parties. By exploring alternative means for achieving these outcomes we may be able to have a greater impact on youth smoking.

It is also imperative for us to examine how adolescents develop positive outcome expectations about smoking. The positive expectations measured in this study were adopted from questions used in the California Tobacco Survey to measure receptivity to tobacco advertising [*25*]. In fact, each one of the expectations represents a message that is commonly portrayed in

tobacco advertisements. Research has shown that tobacco advertising increases the risk of smoking uptake among youths [*26*,*27*]. Perceived positive values of smoking have also been linked with brand awareness [*13*]. It is plausible that the effect of tobacco advertising on smoking uptake is mediated through the development of positive outcome expectations toward smoking.

Almost all participants in this study were white and lived in rural communities where the prevalence of smoking is high. While this is an important population for tobacco prevention interventions, the generalizability of our findings may be limited by the lack of diversity [*28*]. A second limitation is that this was a cross-sectional study. We demonstrated that positive outcome expectations are strongly associated with susceptibility, an established predictor of later tobacco use. Chassin and Presson [*4*] assert that looking at associations between predictors and intentions in cross-sectional studies is a time-efficient way to generate hypotheses about smoking initiation. However, longitudinal studies are necessary to determine how well each outcome expectation predicts movement in the smoking uptake process. In the meantime, we urge tobacco prevention researchers to carefully evaluate the messages they are using in prevention programs. Rather than focusing on the negative outcomes of smoking, we may have more success reducing tobacco use among adolescents by helping them achieve the same positive outcomes they expect from smoking in other ways.

REFERENCES

1. Bachman J, Johnston L, O'Malley P. Monitoring the future: questionnaire responses from the nation's high school seniors, 1991–1995. Institute for Social Research, University of Michigan; 1996.
2. Conrad K, Flay B, Hill D. Why children start smoking cigarettes: predictors of onset. Br J Add 1992;87:1711–24.
3. Flay B. Youth tobacco use: risks, patterns, and control. In: Slade J, Orleans C, editors. Nicotine addiction: principles and management. New York: Oxford Univ. Press; 1993.
4. Chassin L, Presson C. Predicting the onset of cigarette smoking in adolescents: a longitudinal study. J Appl Soc Psych 1984;14: 224–43.
5. Collins L, Sussman S, Mestel-Rauch J, et al. Psychosocial predictors of young adolescent cigarette smoking: a sixteen-month, three-wave longitudinal study. J Appl Psych 1987;17:554–73.
6. Ajzen I, Fishbein M. The prediction of behavior from attitudinal and normative variables. J Exp Soc Psych 1970;6:466–87.
7. Ajzen I, Fishbein M. Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice–Hall; 1980.
8. Meier K. Tobacco truths: the impact of role models on children's attitudes toward smoking. Health Educ Q 1991;18:173–82.
9. Lo S, Blaze-Temple D, Binns C, Ovenden C. Adolescent cigarette consumption: the influence of attitudes and peer drug use. Int J Addict 1993;28:1515–30.
10. Hirschman R, Leventhal H, Glynn K. The development of smoking behavior: conceptualization and supportive cross-sectional survey data. J Appl Soc Psych 1984;14:184–206.
11. Bauman K, Fisher L, Bryan E, Chenoweth R. Antecedents, subjective expected utility, and behavior: a panel study of adolescent cigarette smoking. Addict Behav 1984;9:121–36.
12. Hunter S, Croft J, Vizelberg I, Berenson G. Psychosocial influences on cigarette smoking among youth in a southern community: the Bogalusa Heart Study. MMWR 1987;36:17S–9S.
13. Charlton A, Blair V. Predicting the onset of smoking in boys and girls. Soc Sci Med 1989;29:813–8.
14. Krohn M, Massey J, Skinner W, Lauer R. Social bonding theory and adolescent cigarette smoking: a longitudinal analysis. J Hlth Soc Behav 1983;24:337–49.
15. Krohn M, Naughton M, Lauer R. Adolescent cigarette use: the relationship between attitudes and behavior. MMWR 1987;36: 25S–33S.
16. Glanz K, Lewis F, Rimer B. Health behavior and health education. San Francisco: Jossey-Bass, Inc.; 1997.
17. Evans R, Hansen W, Mittlemark M. Increasing the validity of self-reports of smoking behavior in children. J Appl Psych 1977; 62:521–3.
18. Kovar M, Poe G. The National Health Interview Survey Design, 1973–84, and Procedures, 1975–83. U.S. Dept. of Health and Human Services, Public Health Service, National Center for Health Statistics; 1985.
19. Pierce J, Choi W, Gilpin E, Farkas A, Merritt R. Validation of susceptibility as a predictor of which adolescents take up smoking in the United States. Health Psych 1996;15:355–61.
20. USDHHS. Preventing tobacco use among young people: a report of the Surgeon General. Atlanta, GA: Office on Smoking and Health, Centers for Disease Control; 1994.
21. Glynn T. Essential elements of school-based smoking prevention programs. J Sch Health 1989;59:181–7.
22. Gerber R, Newman I. Predicting future smoking of adolescent and experimental smokers. J Youth Adolesc 1989;18:191–201.
23. CDC. Guidelines for school health programs to prevent tobacco use and addiction. MMWR 1994;43:1–18.
24. Payne-Epps R, Manley M. Clinical interventions to prevent tobacco use by children and adolescents. Supplement to: How to help your patients stop smoking: a National Cancer Institute manual for physicians: U.S. Dept. of Health and Human Services, Public Health Service, National Institutes of Health.
25. Pierce J, Farkas A, Evans N, et al. Tobacco use in California 1992. A Focus on preventing uptake in adolescents. California Dept. of Health Services; 1993.
26. Pierce J, Choi W, Gilpin E, Farkas A, Berry C. Tobacco industry promotion of cigarettes and adolescent smoking. JAMA 1998; 279:511–5.
27. Sargent J, Dalton M, Beach M, Bernhardt A, Pullin D, Stevens M. Cigarette promotional items in public schools. Arch Pediatr Adolesc Med 1997;151:1189–96.
28. Sussman S, Dent C, Flay B, Hansen W, Johnson C. Psychosocial predictors of cigarette smoking onset by white, black, Hispanic and Asian adolescents in southern California. MMWR 1987;36: 11S–6S.