Attitudes and Beliefs of Adolescent Experimental Smokers: A Smoking Prevention Perspective

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Abstract:

The study examined the relationships of smoking-related beliefs and attitudes and smoking status with a focus on experimental smoking. The sample included 9,774 adolescents who participated in the 1988-89 Teenage Attitudes and Practices Survey (TAPS). Adolescents were classified as being a regular smoker, experimental smoker, or nonsmoker. Results from logistic regressions and odds ratios suggest that attitude and belief variables can adequately predict smoking stages of adolescents as defined by the stage model of smoking acquisition. Consequently, if smoking interventions can reach those experimental smokers, there is an enhanced likelihood that such interventions will influence experimental smokers to adopt a behavior change towards returning to nonsmoking status.

Article:

Introduction

S moking prevention programs have given considerable attention to adolescent nonsmokers at the expense of developing effective interventions for adolescent regular smokers and experimenters (Chassin, Presson, Sherman, & Edwards, 1990; Glynn, 1989; Office of Educational Research and Improvement, Programs for the Improvement of Practice, 1991). This skewed focus of smoking prevention efforts towards adolescents is highlighted by the stage model of smoking acquisition, proposed in the early 80s. This model suggests that smoking has a complex developmental process composed of distinct stages (Flay, d'Advernas, Best, Kersell, & Ryan, 1983; Leventhal & Cleary, 1980). The process of becoming a regular smoker typically proceeds through five distinct behavioral stages beginning with preparation (never smoked), initiation (trying the first cigarette), experimentation (repeatedly trying cigarettes), habituation (becoming a regular smoker), and maintenance (addictive process) (Flay, d'Advernas, Best, Kersell, & Ryan, 1983; U.S. Department of Health and Human Services, 1994).

During the preparation stage, adolescents learn about smoking and begin to form attitudes and beliefs about its consequences and social acceptance. Preparation sometimes will lead to trying the first cigarette (initiation) which often takes place at the urging of peers or an elder sibling. Initiation may be followed by repeatedly trying cigarettes at which time the adolescent becomes an experimenter. If experimentation occurs often enough, the adolescent may acquire smoking as a habit (habituation stage) through which tolerance to the physiological effects of smoking occurs, leading to addiction to the cigarette (maintenance stage). Though usually the smoking process proceeds from one stage to the next, adolescents may remain in the same stage, or move back to the previous stage once they have initiated smoking. For example, after having tried the first cigarette, the adolescent may decide never to try another or may choose to experiment further.

Experimentation with smoking is a critical step to becoming a regular smoker (Leventhal & Cleary, 1980). And one of the best predictors of smoking onset is an individual's direct experience with smoking (Gordon, 1986). The transition from experimental smoking to habitual smoking usually takes 2 to 3 years (Leventhal & Cleary, 1980). As the stage model of smoking indicates, smoking interventions targeting the adolescent at the experimentation stage would be more effective than at more advanced stages (i.e., habituation and maintenance) when smoking has become a confirmed addictive behavior (Harken, 1987). Limited information is available

about the processes and factors involved in the transition from experimental smoking to becoming a regular smoker. Few studies have examined the social psychological factors of adolescent experimental smokers in comparison to their nonsmoking and regular smoking counterparts, especially with a national sample. Since attitudes and beliefs toward smoking are important psychological factors involved in adolescents' decisions about smoking, the present study examined the relationships of smoking-related attitudes and beliefs and smoking status with a focus on experimental smoking. A national sample of adolescents who participated in the 1988-89 Teenage Attitudes and Practices Survey (TAPS) was used for this study (Moss, Allen, Giovino, & Mills, 1992).

Method

Subjects

The TAPS was conducted by the National Center for Health Statistics, in collaboration with the Centers for Disease Control's Office on Smoking and Health, the National Cancer Institute, and the American Cancer Society. A national representative sample of 12,097 adolescents between the ages of 12 and 18 who resided in the 1988-89 National Household Interview Survey were surveyed. Of that number, 9,965, an 82% response rate, completed the interview. Based upon smoking status, adolescents were categorized as being a nonsmoker, experimenter, or regular smoker. Former smokers and adolescents with an unknown smoking status were excluded from this analysis, which counted for only a small percentage (1.9%) of the total sample. A final sample of 9,774 adolescents was included in the subsequent analysis.

Data Collection

The TAPS used computer assisted telephone interviewing (CATI) for the purpose of data collection. The TAPS also included a mail component to contact teens living in non-telephone households and teens with telephones who did not respond by the end of CATI interviewing. The interview obtained information on tobacco use, and smoking-related beliefs and attitudes (Moss, Allen, Giovino, & Mills, 1992.) In this paper, regular smokers were defined as those who were currently smoking, had smoked during at least 10 of the last 30 days and had smoked at least 100 cigarettes in their lives- Experimenters were defined as those who had smoked or tried a cigarette but had not smoked 100 cigarettes in their life time and had not smoked in the past 30 days. Nonsmokers were defined as those who had never smoked a cigarette, nor had ever tried or experimented with cigarettes.

Attitudes toward tobacco use were probed with questions such as whether respondents disliked being around people who smoked, whether they believed it was safe to smoke for only a year or two, whether they preferred to date people who did not smoke, whether they thought they could stop smoking anytime they wanted to, whether they thought their friends approved or disapproved of their smoking and whether they thought their parents would mind if they smoked when they were older. Respondents were also asked if they believed there was any harm in having an occasional cigarette, if they believed smoking helps people to relax, to keep down their weight, and to reduce boredom and stress.

Data Analysis

Three logistic regressions were used to compare the differences of attitudes and beliefs between 1) experimenters and nonsmokers; 2) experimenters and regular smokers; and 3) regular smokers and nonsmokers. Two significant demographic variables from the initial X^2 analysis (i.e., ethnicity and gender) were served as the control variables in these logistic regressions. In addition, the odds ratios and 95% confidence interval, as well as frequency and percentages, of each significant predictor were computed. An odds ratio is defined as the probability of an individual smoking if exposed to a risk factor (SAS Institute Inc., 1990), in this case a particular attitude or belief.

Result

The classification of adolescents' smoking status shows that 15.5% were regular smokers, 29.5% were experimenters, and 54.9% were nonsmokers.

With smoking status (experimentation versus nonsmoking) as the dependent variable and the 14 attitudes and beliefs as the independent variables, logistic regression identified 10 significant predictors ($p < .05$) (Table 1). Experimental smokers were more likely to believe than nonsmokers, that it's safe to smoke for only a year or two, there is no harm in having an occasional cigarette, smoking helps people relax and keep their weight down, and helps people feel more comfortable at parties and in other social situations. Experimental smokers were also more likely to disagree on "dislike being around smokers," "seeing someone smoking turns me off," and "rather date nonsmokers." They were more likely to agree on "when I'm older my parents won't mind if I smoke," "don't mind being around smokers" and "I could stop smoking anytime I wanted."

Table 1

Percentages and Odds Ratios(OR) of Significant Variables that Predicted Experimenters and Nonsmokers

Beliefs		Experimenters Rate (%)	OR (95% CI)
Safe to smoke for only a year or two	Yes No	52.7 34.1	2.2 (1.8, 2.7)
Any Harm in having an occasional cigarette	Yes No	30.1 44.8	0.5 (0.4, 0.6)
Cigarette smoking helps people relax	Yes No	47.8 31.6	2.0 (1.8, 2.2)
Smoking helps people feel more comfortable at parties and in other social situations	Yes No	44.6 28.7	2.0 (1.8, 2.2)
Smoking helps people keep their weight down	Yes No	42.8 32.6	1.6 (1.4, 1.8)
I strongly dislike being around people who are smoking[a]	Agree No opinion Disagree	30.3 46.7 44.3	0.5 (0.4, 0.6)
When I'm older my parents won't mind if I smoke	Agree No opinion Disagree	46.5 33.1 32.4	1.8 (1.6, 2.1)
I'd rather date people who don't smoke	Agree No opinion Disagree	33.1 51.3 46.8	0.5 (0.4, 0.7)
(If I started) I could stop smoking anytime I wanted	Agree No opinion Disagree	44.4 35.0 32.4	1.7 (1.5, 1.9)
I personally don't mind being around people who are smoking	Agree No opinion Disagree	45.3 38.3 29.2	2.0 (1.8, 2.2)

[a]The reference is the "disagree" response.

Table 1 presents the percentage and strength (odds ratio) of each significant predictor in differentiating experimental smokers from nonsmokers. For example, 52.7% of those who answered "Yes" to "It's safe to smoke for only a year or two" turned out to be experimental smokers (the rest 47.3% were nonsmokers), while 34.1 % of those who answered "No" to the same question were experimental smokers (the rest 65.9 % were nonsmokers). The odds ratio of 2.2 suggests that those who answered "Yes" were 2.2 times more likely than

those who answered "No" to be experimental smokers. The 95% confidence interval suggests that if we were to repeat the study, 95 out of 100 times the odds ratio would fall in the range of 1.8 to 2.7.

The same logistic regression was also performed with experimental versus regular smoking status as the dependent variables and all attitudes and beliefs as the independent variables. Nine variables were significant ($p < .05$) (Table 2). When the logistic regression was performed to differentiate between regular smokers and nonsmokers, twelve variables were significant ($p < -05$) (see Table 3)- In addition to ten significant variables presented in Table 1, two additional significant variables were identified and they are: "Cigarette smoking helps people reduce stress" and "Seeing smokers turns me off." The three significant logistic regressions described above attained a classification accuracy greater than 80%, which suggests that these attitude and belief variables can adequately predict smoking stages of adolescents as defined by the stage model of smoking acquisition.

Table 2
Percentages and Odds Ratios (OR) of Significant Variables that Predicted Experimenters and Regular Smokers

Beliefs		Regular Smoke Rate (%)	OR (95% CI)
Cigarette smoking helps people relax	Yes No	52.7 23.1	3.7 (3.2, 4.2)
Cigarette smoking helps people reduce stress	Yes No	56.0 26.5	3.6 (3.1, 4.1)
Smoking helps people keep their weight down	Yes No	45.8 31.5	1.8 (1.6, 2.1)
I strongly dislike being around people who are smoking[a]	Agree No opinion Disagree	13.6 41.8 62.4	0.09 (0.08, 0.11)
When I'm older my parents won't mind if I smoke	Agree No opinion Disagree	54.0 47.8 26.9	3.2 (2.8, 3.7)
Seeing smokers turns me off	Agree No opinion Disagree	14.7 44.0 63.8	0.1 (0.08, 0.011)
I'd rather date people who don't smoke	Agree No opinion Disagree	23.2 68.1 74.7	0.1 (0.08, 0.12)
(If I started) I could stop smoking anytime I wanted	Agree No opinion Disagree	55.1 29.3 27.8	3.2 (2.7, 3.7)
I personally don't mind being around people who are smoking	Agree No opinion Disagree	53.0 31.3 14.1	7.1 (5.9, 8.3)

[a]The reference is the "disagree" response.

Table 3
Percentages and Odds Ratios(OR) of Significant variables that Predicted Regular Smokers and Nonsmokers

Beliefs		Regular Smoke Rate (%)	OR (95% CI)
Safe to smoke for only a year or two	Yes No	66.3 18.4	9.1 (7.1, 11.1)
Any harm in having an occasional cigarette	Yes No	13.5 40.3	0.2 (0.1, 0.2)
Cigarette smoking helps people relax	Yes No	50.5 12.2	7.7 (6.7, 9.1)
Cigarette smoking helps people reduce stress	Yes No	52.4 14.7	6.7 (5.9, 7.7)
Smoking helps people feel more comfortable at parties and in other social situations	Yes No	35.8 13.9	3.4 (3.1, 4.0)
Smoking helps people keep their weight down	Yes No	38.7 18.2	2.9 (2.5, 3.3)
I strongly dislike being around people who are smoking[a]	Agree No opinion Disagree	6.4 38.7 56.9	0.05 (0.04,0.06)
When I'm older my parents won't mind if I smoke	Agree No opinion Disagree	50.6 15.0 31.2	5.9 (5.3, 7.1)
Seeing smokers turns me off	Agree No opinion Disagree	7.5 34.3 56.5	0.06 (0.05, 0.08)
I'd rather date people who don't smoke	Agree No opinion Disagree	13.0 69.1 72.2	0.06 (0.05, 0.07)

Table 3
Percentages and Odds Ratios(OR) of Significant variables that Predicted Regular Smokers and Nonsmokers

Beliefs		Regular Smoke Rate (%)	OR (95% CI)
(If I started) I could stop smoking anytime I wanted	Agree No opinion Disagree	49.5 18.2 15.5	5.6 (4.8, 6.3)
I personally don't mind being around people who are smoking	Agree No opinion Disagree	48.3 22.1 6.3	14.3 (12.5, 16.7)

[a]The reference is the "disagree" response.

Discussion

The goal of this study was to compare the differences of attitudes and beliefs among a national sample of adolescents who were nonsmokers, experimental smokers, or regular smokers. A particular focus of the study was to determine if experimental smokers appear to be at higher risk for becoming regular smokers on the basis of their attitudes and beliefs toward smoking. As the stage model of smoking acquisition indicates, experimentation is a critical step for adolescents in acquiring the smoking habit (Flay, d'Advernas, Best, Kersell, & Ryan, 1983; Leventhal & Cleary, 1980; Department of Health and Human Services, 1994). Therefore, smoking interventions with specific program components must be provided to adolescents at each stage of the smoking acquisition process. However, current smoking interventions have largely neglected experimental smokers (Gordon, 1986). If smoking-related attitudes and beliefs are different among adolescents in relation to smoking stages, this information may help smoking intervention personnel to develop more effective programs.

Experimental smokers were more likely than nonsmokers to believe that cigarette smoking helps people relax, keep their weight down, and helps people feel more comfortable in social situations. A larger proportion of experimenters were also more likely to disagree on "dislike being around smokers," and "rather date non-smokers." They were more likely to agree on "when I'm older my parents won't mind if I smoke," "don't mind being around smokers" and "I could stop smoking anytime I wanted."

When comparing regular smokers and nonsmokers, all the above mentioned significant variables remained, in addition to two other additional variables: "Cigarette smoking helps people reduce stress" and "Seeing smokers turns me off." Nine significant variables significantly differentiated experimental smokers from regular smokers (see Table 2). The significance and magnitude of the odds ratios in these three logistic regressions demonstrate a clear pattern that adolescents at different behavioral stages (i.e., nonsmoking, experimentation, and regular smoking) are different in the strength of their attitudes and beliefs toward smoking. These results confirm previous findings (Gordon, 1986). While experimental smokers perceived smoking behavior more positively in their attitudes and beliefs than nonsmokers, they were less positive than the regular smokers. Other researchers have found that direct experience with smoking is the single most significant predictor of regular smoking acquisition (Gordon, 1986). Yet, it is not known whether attitudes and beliefs towards smoking are deterrent factors against experimenters from adopting regular smoking behavior or against nonsmokers from trying the first cigarette. However, the literature and the stage model of smoking acquisition seem to suggest that the reinforcement of appropriate information about how smoking affects an individual's health with the emphasis on the interpretation of smoking sensations as being negative may lead to the development of negative attitudes toward smoking and help adolescents make preferred health decisions about smoking behavior (Gordon, 1986; Harken, 1987).

Since the majority of adolescents will experiment with smoking and since the modification of their smoking behavior may be easier to accomplish than reducing the incidence of an established behavior, experimental smoking should be the object of secondary prevention efforts. It is important to note that experimental smokers are characterized, though to a lesser degree than regular smokers, as possessing positive health beliefs and attitudes concerning smoking and smokers. The theory of cognitive dissonance suggests that when people engage in some behavior they do not believe in, it will produce a feeling of inconsistency termed cognitive dissonance and may motivate individuals to reduce this state of dissonance (Cooper, Jones, & Tuller, 1972). Findings from this study suggest that adolescents, in attempting to resolve the dissonance created by their smoking behavior, may modify their attitudes and beliefs to a more positive view of smoking instead of eliminating their smoking behavior. This rationale seems to be consistent with the previous literature (Botvin, Botvin, & Baker, 1983; Gordon, 1986). Perhaps, this is a result of the adolescent not having the skills or opportunities to find more desirable alternative behaviors (Botvin, Botvin, & Baker, 1983). If this is indeed the case, smoking prevention programs targeting experimental smokers might be successful by creating cognitive dissonance and exposing the individual to competing smoking-related attitudes and beliefs. In addition, programs could provide the adolescent with coping skills and alternative social environments that include positive ways to relax, manage stress, and control weight. These types of smoking prevention activities would

be conducive for nonsmokers to maintain nonsmoking behavior and for experimental smokers to rationalize information and justify behavioral change to that of nonsmoking.

To complement and reinforce these smoking prevention activities, tobacco control activities are used to target changes in the adolescent's social environment (U.S. Department of Health and Human Services, 1991). These social environment-centered efforts include obtaining increases in tobacco costs, initiating anti-tobacco media campaigns, seeking declines in public support for smoking, restricting minor access to tobacco products. The goal of these programs is to impact normative perceptions and atittudes toward smoking by removing incentives for smoking while concurrently providing disincentives. Therefore these initiatives will make it less likely for experimental adolescent smokers to proceed to regular adult smoking (U.S. Department of Health and Human Services, 1991).

In conclusion, findings from this study suggest a need for additional smoking control efforts to reduce adolescent smoking prevalence by preventing experimental smokers from transitioning into regular smokers. Since experimental smokers have had direct experience with smoking behavior, their attitudes and beliefs are likely to be different from nonsmokers. Adolescents with direct smoking experience are associated with more positive attitudes and beliefs toward smoking than nonsmokers. Consequently, if smoking interventions can be expanded to deliver persuasive messages in conjunction with coping skills aimed at attitudes and beliefs toward smoking for those experimental smokers, there is an enhanced likelihood that such interventions will influence experimental smokers to adopt a behavior change towards returning to nonsmoking status.

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