

Adolescents' Perceptions of the Costs and Benefits Associated with Cigarette Smoking: Sex Differences and Peer Influence

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This study explored the perceptions of young adolescents of the costs and benefits of cigarette smoking. These perceptions were examined as a function of the sex of the adolescent and peer smoking habits. The sample consisted of 155 White middle class male and female adolescents, aged 12 to 15. The results indicate that endorsement of particular costs and benefits was related to the respondent's sex and whether or not the respondent had friends who smoked. The girls seemed to view smoking as a sign of rebellion or autonomy, while the boys seemed to view smoking cigarettes as a social coping mechanism. The effect of having friends who smoke was always mediated by the sex of the adolescents. Boys who have friends who smoke have attitudes that appear more conducive to smoking than do boys with nonsmoking friends. This relationship did not hold for girls. The implications for smoking education and intervention are discussed.

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INTRODUCTION

Despite increased information concerning the associated health risks, adolescents continue to initiate cigarette smoking at an alarming rate. Further, a major change in the pattern of adolescent smoking has recently been documented. While the incidence of smoking in adolescent males has remained fairly constant over the past 10 years, the incidence of smoking in adolescent females has increased dramatically. Females are now smoking at a rate equivalent to that of males. The age of onset of cigarette smoking may also be lower than it has been in the past (Garell *et al.*, 1976; Surgeon General, 1979). These trends are especially significant because the evidence has indicated that persons who become habitual smokers during adolescence are likely to remain smokers. Conversely, individuals who have not smoked cigarettes by the age of 20 are unlikely to begin smoking (Hanley and Robinson, 1976). Adolescence thus seems to be an ideal time for intervention programs aimed at prevention of smoking behavior.

One of the single best predictors of adolescent cigarette smoking is peer smoking (Surgeon General, 1979; Williams, 1971). Other factors found to be associated with cigarette smoking in adolescence are having parents or siblings who smoke, media influence, and low academic achievement (Surgeon General, 1979). Personality factors or lack of knowledge of the health dangers do not seem to play a major role in the initiation of cigarette smoking. In fact, the level of awareness of the health effects of smoking in children and adolescents seems to be quite high. However, in spite of this knowledge, a significant number of adolescents take up smoking.

While it is clear that friends' smoking is strongly associated with adolescent smoking, it is not as clear what the nature of the influence is. It is assumed in most intervention studies that having friends who smoke leads to cigarette smoking in nonsmoking adolescents, although this causal relationship has not been clearly demonstrated. The direct pressure from peers to join them in smoking as well as the influence of peer modeling have been suggested as ways that peer smoking contributes to adolescent smoking. Intervention programs such as those of the group led by Evans in Houston have focused on giving adolescents strategies for coping with peer pressure, and nonsmoking peer models (Evans *et al.*, 1978). The moderate success of these programs suggests that modeling and peer pressure may be ways in which peer influence operates to promote smoking (McAlister *et al.* 1979; Surgeon General, 1979). Another way peer influence may operate, however, is through attitude change.

The Behavioral Intention Model (BIM) of Ajzen and Fishbein (1970) is a theoretical model that has shown promise in accounting for smoking behavior. In this model, intention to engage in a behavior is

viewed as the best predictor of the behavior. This intention is seen as a function of an attitudinal component and a normative component. The attitude component consists of the sum of the beliefs a person holds about the consequences of the behavior and the valuation of these consequences. It can be seen as an implicit cost-benefit analysis of engaging in the behavior, in this case, smoking. The normative component consists of the person's perceptions of what important others, such as peers and parents, think the person should do. This component is weighted by the motivation to comply with the expectations of these others. This model thus includes the peer pressure components discussed above as part of the normative component. The mathematical formulation of the model allows one to calculate the relative weights of the attitudinal and normative components for a given subject population. Preliminary work by one group (Sherman *et al.*, 1979) suggest that in a group of college students the attitudinal variables carried the most weight in predicting intention to smoke. College students, however, may be less susceptible to peer pressure than young adolescents.

It is also probable that normative pressures interact with the attitudinal component of the BIM. A recent paper by Smetana and Adler (1980) indicates that this occurs in decision making about abortion. That is, perceived normative pressures may effect a person's attitudes. Thus, adolescents with friends who smoke would be expected to have attitudes about smoking somewhat different and probably more favorable to smoking than those whose friends do not smoke. Such a finding in a cross-sectional study would not rule out the possibility that persons with attitudes favorable to smoking seek out persons who smoke for friends, but such a finding would provide the necessary first step for justifying a longitudinal study to examine this relationship in more depth.

The sex of the adolescent is also of interest in such a study, because cigarette smoking for many years was seen as a masculine behavior. Smoking by women was clearly disapproved of by a large segment of society. Although changes in women's roles have expanded the range of behavior acceptable for women, this past history makes it unlikely that males and females take up smoking for the same reasons. If, indeed, males and females do see different costs and benefits to smoking, this would imply that intervention programs need to be focused somewhat differently for each sex.

The purpose of the present study is to explore the differences that sex of the adolescent and having friends who smoke make in adolescent attitudes about smoking, specifically adolescent perceptions of the costs and benefits associated with cigarette smoking. The present study was completed within the context of a larger study designed to examine factors related to adolescent smoking.

METHOD

Subjects

The subjects were 155 white middle class boys ($N = 52$) and girls ($N = 103$) ranging in age from 12 to 15 years, attending a suburban Detroit summer camp. Subjects were administered the questionnaire involved in this study during their rest period.

Instrument

The measure was designed to assess the adolescents' perceptions of the costs and benefits associated with cigarette smoking. Reasons given by adolescents and adults for smoking or for not smoking were collected from the smoking literature. When duplications were omitted, there was 15 frequently cited benefits of smoking and 19 costs (see Table I).

Subjects were asked to indicate on a 4-point scale, ranging from very important to very unimportant, how important each item was for them in considering whether or not to smoke. They were asked to indicate whether or not they had ever smoked a cigarette, how much they smoked, and whether or not they intended to begin to smoke or continue smoking

Table I. Summary of Items from the Measure of Costs and Benefits Associated with Cigarette Smoking

Costs	Benefits
1. Costs too much	1. To have a good time
2. Looks like a show off	2. Not being different from the others
3. Bad breath	3. Relaxation
4. Against the law for kids to smoke	4. Feeling more grown up
5. Friends don't like smokers	5. Girls like boys who smoke
6. Shortness of breath	6. Something to do when nervous
7. Tastes bad	7. Feel like part of the gang
8. Causes cancer	8. Picks one up when feeling low
9. Against religion	9. Makes good times more special
10. Parents don't like it	10. Do what one wants
11. Gets one in trouble in school	11. Boys like girls who smoke
12. Can kill	12. Makes parents mad
13. Can't run as well	13. Sexy to smoke
14. Heart trouble	14. Makes one look tough
15. Won't be good at athletics	15. Makes one feel energetic
16. Don't look as good	
17. Get hooked	
18. Can't quit	
19. Boy/girl friend doesn't like it	

in the next year. They were also asked to indicate on a 5-point scale, (1 = none, 5 = all), what proportion of their friends smoked.

RESULTS

An initial analysis focused on the relationship between sex, smoking, intention to smoke, and having same-sex friends who smoked. This was done by means of a four-dimensional contingency table analysis (Everitt, 1977). The variables were defined as follows: For smoking behavior, two groups were defined—those who had smoked at some time and those who had never smoked. Intent to smoke was divided into two categories; those who intended not to smoke were grouped together, as opposed to those who intended to smoke or were not sure that they wouldn't begin smoking in the next year. Same-sex peer smoking behavior was categorized as follows: having no friends who smoke, having less than half your friends who smoke, and having more than half your same-sex friends who smoke cigarettes. This produced a sex (2) X smoking (2) X intent to smoke (2) X portion of same-sex friends who smoke (3) table for analysis. There were no significant three- or four-way interactions. There were several significant two-way interactions. These indicated that having friends who smoked was associated with intent to smoke ($\chi^2 = 10.92$; $p \leq 0.01$) and with smoking ($\chi^2 = 18.84$; $p \leq 0.0001$). As expected, present smoking behavior was associated with intent to smoke cigarettes in the next year, ($\chi^2 = 6.88$; $p \leq 0.01$). Sex of subject was not associated with present smoking, intending to smoke, or having friends who smoked.

In order to determine if the number of costs and benefits perceived was related to smoking or intent to smoke, two ANOVAs were run on the cost data and two on the benefits. Independent variables were sex and present smoking in the first analysis and sex and the intent to smoke in the second. Sex was included with both smoking and intent to smoke so that any interactions between the two variables could be examined. In each of the four analyses, the dependent variable was the number of costs or benefits considered important or very important by the adolescent. For present smoking, we found that those who smoked saw fewer costs of smoking as important than nonsmokers ($F(1, 156) = 6.924$, $p \leq 0.01$), but did not differ from nonsmokers in their perceptions of the benefits. For intent to smoke, those who were sure they would not begin to smoke in the next year saw fewer benefits ($F(1, 156) = 9.507$, $p \leq 0.002$) and more costs ($F(1, 156) = 4.096$, $p \leq .045$) than those who intended to smoke or were not sure if they would. There were no main effects or interactions involving sex.

We also wished to look at how the individual costs and benefits were perceived by the adolescents. Preliminary analysis indicated that smoking behavior was not related to score on the individual items. Therefore, multivariate analyses of variance were run separately for the cost items and the benefit items with factors of sex and number of same-sex friends who smoke. The multivariate test for sex and the interaction of sex and number of friends who smoked was significant for both costs and benefits. The results of the univariate tests for these two variables can be seen in Table II.

This analysis was employed to examine the study's two major questions. The first related to sex differences in endorsements of costs and benefits of smoking, and the second related to the relative influence of having friends who smoke on the adolescents' endorsement of these costs and benefits.

In the present sample, girls were more likely than boys to endorse the following benefits of smoking: "smoking shows you do what you want," "girls like boys who smoke," and "smoking makes your parents mad." Girls were also more likely than boys to endorse the following costs: "smoking hurts your ability to run." "smoking hurts athletic ability."

Sex and number of same-sex friends who smoked interacted for 6 of the variables. For the variables "gives you something to do when nervous" and "makes you feel part of the gang," boys agreed more and girls agreed less as a function of increasing numbers of friends who smoked. For the variables "smoking causes cancer," and "smoking can kill you," boys agreed less and girls agreed more as a function of increasing number

Table II. Results of Analysis of Variance on Perceived Costs and Benefits^a

Variables	Effect	<i>F</i>	<i>p</i>
Girls like boys who smoke	sex	4.842	0.030
Something to do when nervous	same-sex friends × sex	3.023	0.054
Feel part of the gang	same-sex friends × sex	3.166	0.047
Shows do what want	sex	4.642	0.034
Makes parents mad	sex	7.534	0.007
Against law	same-sex friends × sex	3.625	0.031
Friends dislike it	same-sex friends × sex	3.913	0.023
Causes cancer	same-sex friends × sex	3.105	0.050
Against religion	same-sex friends × sex	5.275	0.007
Can kill	same-sex friends × sex	4.627	0.012
Hurts running	sex	3.990	0.049
Hurts in athletics	sex	8.384	0.005
Gets hooked	same-sex friends × sex	3.314	0.041

^a Only significant results are presented ($p < 0.055$).

of friends who smoked. For the variables "smoking is against my religion" and "you can get hooked on smoking," boys agreed less when they had just a few friends who smoked and more when they had no friends who smoked or most of their friends smoked. For girls, the more friends they had who smoked, the more they agreed with these items.

DISCUSSION

Perceptions of costs and benefits associated with cigarette smoking as endorsed by the adolescents in this sample were related to both the sex of the adolescent and to whether or not she or he had friends who smoked. Girls saw health costs as being more important than did boys, and the girls perceived the benefits differently than the boys did. The girls may have found it easier to acknowledge the fact that smoking may hurt one's athletic ability than did the boys. Although times are changing, young adolescent boys are still more involved in sports than are girls, and acknowledging these costs may be more threatening to the former. The girls seem to view smoking as a sign of rebellion or perhaps independence and autonomy. It may be a signal to parents and others that the girl considers herself capable of making up her own mind about what she will do now. The boys seemed to view smoking cigarettes as a coping mechanism in social situations. This is concordant with the findings of the recent American Cancer Society (1979) study.

It is especially interesting that, in this sample, the effect of having friends who smoked was always mediated by the sex of the adolescent. Apparently boys who had friends who smoked displayed a tendency to minimize the costs of smoking. That is, the more friends who smoked that a boy had, the more he was apt to see the health cost of smoking (causes cancer, smoking can kill you) as unimportant. For two costs (against religion, get hooked) the relationship was an inverted U. Boys saw this as important when they had no friends or many friends who smoked. In general, then, boys who have friends who smoke have attitudes more conducive to smoking than boys with nonsmoking friends. Girls viewed all these costs as being more important, the more friends they had who smoked. Therefore, for the girls as well as for the boys, endorsed attitudes towards smoking were different when the subject had friends who smoked cigarettes. Thus these data suggest that one way peer smoking may influence adolescent smoking behavior is by influencing the adolescents' attitudes (i.e., their perceptions of the costs and benefits of smoking).

We found the adolescents' endorsement of costs and benefits of cigarette smoking to be associated with present smoking behavior, and intention to smoke cigarettes. Endorsement of particular costs and benefits

was related to the respondent's sex and whether or not he/she had friends who smoked. Even modest smoking behavior was associated with the decreased endorsement of costs associated with smoking. However, smoking behavior did not seem to affect the adolescent's perception of the number of associated benefits. Perhaps some experiences with cigarettes shows the adolescent that few actual short-term costs may be associated with the initiation of smoking. The light present smoking behavior, characteristic of this sample, was unlikely to cause many of the more long-term and serious consequences listed on the questionnaire. The fact that experimental smoking may lead to the reduction of the adolescent's perception of costs is a very important consideration for health educators.

Those who stated that they did not intend to smoke cigarettes endorsed fewer benefits of smoking and more costs than those who either intended to smoke or were not sure they would *not* be smoking during the next year. This indicates that subjects' attitudes are congruent with their intentions not to smoke, as would be expected from the Behavioral Intention Model. These findings taken together are supportive of the usefulness of the BIM as a model for investigating peer influence on adolescent smoking. Further studies including both the attitudinal and normative components of the model are needed. The studies should utilize a series of relatively homogenous subpopulations, since attitudes and perhaps the relative influence of the attitudinal and normative influences may well vary among subpopulations.

There are two major limitations to the present study. First, the study is cross-sectional and correlational. Thus, it cannot demonstrate a causal link between variables. However, as the assumption is made in much of the intervention research that peer smoking leads to subject smoking, attitude change is one plausible means by which that influence may be transmitted. Further studies using causal modeling are being planned to attempt to get a clearer idea of the causal direction.

Second, the sample for this study was a relatively small group of White middle class adolescents. Thus, the extent to which the results are generalizable must be considered. The fact that the frequency of smoking reported and the sex differences found were comparable to those reported in recent national surveys lends some support for the validity of the present findings. However, generalizing to groups very different from this one in terms of age, socioeconomic class, or race would probably not be appropriate. A related problem in interpreting the data from national surveys is that if subgroup data are not adequately collected and presented separately from the overall means, important differences between subgroups may be effectively obscured.

The results of the present study suggest tailoring antismoking messages and intervention techniques to the sex of the adolescent. Adolescent girls may need to be helped to find alternative safer means of

declaring their independence and autonomy. Adolescent boys may be most responsive to intervention messages and techniques that focus on alternatives to cigarette smoking for making oneself comfortable in social situations.

In summary, it seems likely that adolescents are not a homogenous group with respect to their attitudes toward cigarette smoking. The sex of the adolescent and the smoking status of his or her friends were both related to attitudes towards smoking. The present results also suggest that one of the ways by which peer influence may operate in influencing adolescent smoking behavior is by influencing the attitudes adolescents hold about the costs and benefits of smoking.

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