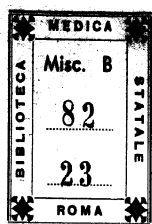


TEEN-AGE SMOKING PATTERNS

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Daniel Horn, Ph.D

Just within the last three years there has been a surge of interest in teen-age smoking. Studies in this area have been started both here and abroad and a few of these have now been reported in the literature. To review this subject I have 9 questions to ask — and at least some partial answers to suggest.

1. Why are we interested in teen-age smoking?
2. Does cigarette smoking cause lung cancer?
3. Have people accepted this relationship?
4. Are people agreed that teen-age smoking should be reduced?
5. How many teen-agers smoke and when do they take it up?
6. What sort of smoking do they do?
7. Why do teen-agers smoke?
8. What can be done about teen-age smoking?
9. How about adult smoking? Is it worth trying to reduce it?

1. Why Are We Interested in Teen-Age Smoking?



For a number of years most states have required that a certain amount of time in the school curriculum be devoted to teaching about the use of tobacco. Usually this is thrown together in a teaching unit on alcohol, narcotics, and tobacco. Most of the health text books in general use still say the same things that were said 10, 15, or 20 years ago. But in the case of tobacco, something new has taken place. It is only within the last decade that the problem of lung cancer has impressed itself on most of us and that a wide variety of studies has implicated cigarette smoking as a primary cause of lung cancer. Reasoning runs something like this: if cigarette smoking causes lung cancer, perhaps it is too late to do anything about our own smoking --

perhaps it is too hard for adults to break the habit. But if we can persuade children not to take it up - this may be feasible; this may be the eventual solution to the lung cancer problem. Hence the interest in teen-age smoking. A basic theme of cancer control is Early Detection; our interest in smoking represents a desire to detect lung cancer before it is even there -- in other words to prevent it from occurring in the first place.

2. Does Cigarette Smoking Cause Lung Cancer?

There is such an extensive literature on this subject, almost all of it published within the past 10 years, that one could hardly do justice to it in an hour, much less within a few minutes.

The essential features of the evidence are these: lung cancer has grown from a relatively uncommon disease to one of the most common forms of cancer. Even in the last 30 years the number of deaths from lung cancer in the U. S. has gone from 2,500 to 36,000; for example, the State of Illinois this year or the State of New Jersey within a few years will have almost as many deaths reported from lung cancer in one year alone as were recorded in the entire U. S. in 1930. Although a part of this increase undoubtedly reflects better diagnosis, the major portion of the increase must reflect a tremendous rise in the incidence of the disease. First, numerous studies in many countries showed that lung cancer patients included more smokers than did comparable control groups. Then three long-term follow up studies in the U. S. and England showed that among men who smoke the lung cancer rate is high -- among those who do not smoke, it is negligible; furthermore,

one or more of these studies showed that this relationship is primarily with cigarette smoking rather than with pipe or cigar smoking; that the effect is more-or-less proportional to the quantity of cigarettes smoked, but is appreciable even in light smokers; that ex-smokers show a sharply reduced rate over those who continue to smoke cigarettes; and that the relationship is equally marked in both urban and rural dwellers, although rates may be slightly lower among those who live in the country, suggesting that air pollution may be a minor factor. Other types of studies have shown that tar collected from cigarettes can cause cancer when applied to the skin of a mouse. More recent studies have shown that histological changes varying from reparative functioning to suspiciously precancerous lesions or carcinoma -in-situ occur in the lungs of smokers in much greater frequency than in the lungs of non-smokers studied at autopsy, and that these changes are correlated with the quantity of cigarettes smoked. Physiological studies of the effect of both nicotine and tobacco smoke in reducing the protective efficiency of the cilia in removing foreign particles from the bronchial lining have given another important clue to the mechanisms that may be involved. It is difficult to see how anyone can study the evidence and arrive at any conclusion other than that cigarette smoking is the major cause of lung cancer.

3. Have People Accepted This Relationship?

To a large degree yes, although certainly not completely.

Review committees of scientists and physicians have studied the

evidence in both the U. S. and England and have in each case concluded unanimously that the case is proved "beyond reasonable doubt". Surgeon-General Burney's recent report represents the position of the U. S. Public Health Service in accepting this relationship. Among thoracic surgeons and cancer research scientists even as of 1955 only 2 or 3% denied the relationship. About 60% accepted it and the remainder were still uncertain. More recently a sample of practising physicians shows that 2 out of 3 accept the relationship, 1 in 5 tends to reject it and 1 in 7 is still on the fence. In the general public, about 3 out of 5 accept the relationship and among teen-agers, 2 out of 3 accept it, with only 1 in 40 rejecting it. The results of scientific studies reported in the public press have helped produce these results despite the barrage of advertising and counter-claims of the tobacco industry.

4. Are People Agreed That Teenage Smoking Should Be Reduced?

This proposition produces a surprising degree of unanimity. A study of Massachusetts physicians in 1959 showed 93% agreeing that teen-agers should be warned about cigarette smoking. Of those dissenting, a number did so only from the feeling that the efforts would be ineffective rather than from opposition to the aims of such a program.

In the general public this proposition also meets with strong majority approval. What is especially interesting is that this approval is voiced equally by both smokers and non-smokers. Smokers, in general, show more opposition

to accepting the relationship between smoking and lung cancer, and tend to disapprove of educational campaigns against smoking carried out among adults. But even smokers approve an educational effort among teenagers. Perhaps this is an admission of an underlying conviction of the hazards of smoking, or perhaps it is simply a reaction of "go ahead and do what you can among the youngsters, so long as you leave me alone."

What, then, do we know about teen-age smoking?

5. How Many Teen-Agers Smoke And When Do They Take It Up?

Most of the figures I shall quote about teen-age smoking come from a June, 1959 national survey of high school students conducted for the American Cancer Society by a private youth survey organization, although many of the relationships first were identified in our study of smoking in the Portland, Oregon high schools which took place during the school year 1958-59.

At the end of the last school year 1 high school student in 3 was a regular cigarette smoker. Most of these smoked every day, but we included the few who smoke one or two days a week if they did so with regularity. More boys than girls smoke, 38% against 29%. There is an increase from 21% smokers at the end of the Freshman year to 44% at the end of the Senior year.

Since previous experience indicates that one can expect about 60% of these youngsters to become smokers eventually, we estimate that 10%

of those who are going to become smokers develop the habit with some degree of regularity before the teens -- about 65% develop it during their high school years -- and the remaining 25% take up smoking after high school. Somewhere around 10% of those not smoking regularly become regular smokers each school year. It is clear that the junior high school and senior high school years are crucial years in the development of the smoking habit.

6. What Sort Of Smoking Do Teen-Agers Do?

At a time when approximately 50% of cigarettes sold were filter tipped, at least 80% of high school girls and 56% of high school boys who smoked were using only filter tips, and others used them part of the time. This may reflect a high level of concern with the health hazards of smoking and an attempt to protect themselves -- or it may merely be a sign of the success of the tobacco industry in keying their filter-tip advertising to the desires of the teen-age market.

Solitary smoking is rather uncommon, (about 5%), smoking only in groups somewhat more common (about 16%). Most high school smokers engage in smoking both when alone and when in groups.

By adult standards teen-age smoking is light. About only 1 in 6 of those who smoke regularly consumes a pack or more a day and these are largely concentrated in the Senior class. After all, it probably takes well over 20 hours and \$1.50 a week to consume a pack of cigarettes every day, and restrictions on smoking in the school, near school grounds, or at home limit the time available for smoking.

7. Why Do Teen-Agers Smoke?

To answer this question we must first ask who are the teen-agers who smoke and how do they differ from the ones who do not smoke? The direct question "Why do you smoke" is a most unrewarding question that can be asked, for it usually leads to stereotyped responses.

In our Portland study we found that first, and most important, is whether or not the parents smoke. Smoking by older siblings is frequently part of this pattern. In any event, what seems to be important is that smoking is accepted by the family as a normal and expected form of behavior. As such, smoking by the younger members of the family is part of growing up. This factor accounts for from one-third to one-half of the smoking in the Portland study.

Second, is a syndrome of intercorrelated measures that seem to have in common the failure to achieve peer-group status or satisfactions. Smoking is high among those who have fallen behind their age-equals in school, do not participate in extracurricular activities, and are taking the scholastically less demanding course of school work. This group -- a minority in the school population -- has not achieved satisfaction from its peer-group relationships, at least as defined this way. It may well be that in this group smoking is a compensatory form of behavior, a symptom of other problems of emotional health. This factor accounts for about one-quarter of the smoking in the Portland series.

Third, is the finding that there was more smoking in the Catholic

schools than in the public schools of Portland. Several hypotheses to explain this finding have been suggested, but, unfortunately we do not have the data to answer this question. However, in collecting information on parental attitudes towards smoking it becomes clear that roughly ten per cent of all high school smokers smoke despite parental prohibitions against smoking -- these being parental attitudes as reported by the students. More girls than boys show this kind of rebellious smoking and there is somewhat more defiance against paternal prohibitions than against maternal prohibitions.

In validating these findings in the Nationwide survey we found that when both parents smoke 40% of the students smoke, if one parent smokes this drops to 33%, and if neither parent smokes, it drops to 23%. What is most revealing is that if one or both parents has given up smoking, with neither parent smoking currently the rate of student smoking drops down to about the same level as among children whose parents have never smoked. Even when one parent gives up smoking and the other continues, the rate among the children is substantially below that in families where both parents continue to smoke.

Smoking by an older brother or sister is equally striking. Among those who have at least one older sibling and have at least one older sibling who smokes, 44% smoke in high school. If none of their older siblings smoke the rate is cut in half -- 22% smoke.

As part of our studies we developed a brief 5-item test of attitudes towards smoking. This was highly correlated with smoking behavior. Among the 13% holding the most favorable attitudes towards smoking 3 out of 5 smoked; among the 4% holding the most unfavorable attitudes, only 1 out of 9 smoked.

I have already mentioned parental attitudes towards their children's smoking. Strong disapproval, or even outright forbidding of smoking results in much less smoking than does approval, indifference, or even mild disapproval.

The whole constellation of family smoking practices, family attitudes towards smoking, and student attitudes towards smoking is probably the most crucial factor in determining smoking by a high school student. In addition, satisfactions obtained in accepted peer-group relationships militate against the taking up of smoking.

8. What Can Be Done About Teen-Age Smoking?

In our experiments in the Portland Schools we found that it was in fact possible to reduce the rate of taking up smoking during the school year. We tested 5 different approaches to presenting information on the hazards of cigarette smoking.

Essentially, the theme of the most successful approach was this: "You've heard a lot of arguments about smoking cigarettes, but there is something new to be said on the subject. Scientists have recently found out

that the smoking of cigarettes causes lung cancer. This is something that was not formerly known, now there is not much doubt. There is some of the evidence... Think about it before you decide whether or not to smoke."

As such the appeal is a logical one to the intelligence of our youth, and it met with an excellent response. True, there were many who did not respond. But so far the evidence suggests that this approach was most effective among those who smoked as part of a family pattern and not for the more individual patterns of compensatory smoking or rebellious smoking.

The extent of the response, namely the reduction over a period of months in the rate of recruitment of new smokers from 13.0% to 7.7% in the boys, and from 6.4% to 2.1% in the girls may seem small. Yet, carried on cumulatively for a period of 4 years it would mean that about 20% of our high school students that would otherwise become regular smokers by graduation time would not do so.

But we need more than a one-shot program and more than one organization waging the educational battle. At the moment our only long-term solution to the menace of lung cancer is to reduce cigarette smoking.

9. How About Adult Smoking? Is It Worth Trying To Reduce It?

Even if every teen-ager in the country stopped smoking tomorrow -- never to take it up again, it would be at least 30 years before it would begin to have any appreciable effect on the lung cancer death rate. How about the adult smokers who are dying of lung cancer this year -- nearly 100 a day in

the U. S. — perhaps double that figure 10 years from now?

Many are pessimistic about the prospects of affecting adult smoking — I am not. If 30,000,000 people can switch to filters in 5 years, largely because of concern about health; if one fourth of physicians who were smoking cigarettes 5 years ago have quit; why cannot large numbers of adults be motivated to modify their smoking to ways that make it less dangerous? Especially now that we have another motive to add to self-preservation, that is, that one's own children's smoking is largely dependent on the example we set, and the attitudes we express. In fact, a vigorous educational campaign to reduce teen-age smoking may carry with it the even more valuable dividend of influencing the behavior of the parents from whom this habit was learned by the children.

The point is that cigarette smoking is a health hazard — the more you smoke, the greater the hazard. Any action that reduces smoking or exposure to the harmful ingredients in the smoke, whatever they are, has a good chance of reducing the risk.

If enough people, both young people and adults recognize this, perhaps the dire predictions of the growth of the lung cancer problem will never come to pass. Our task is to see that this recognition takes place.

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