SOME DIMENSIONS OF A MODEL FOR SMOKING BEHAVIOR CHANGE

Daniel Horn, Ph.D., F.A.P.H.A., and Selwyn Waingrow, B.S.

THERE are four dimensions, not necessarily mutually exclusive, that we propose as essential to consider in the construction of any comprehensive model of smoking behavior change. They are:

1. The motivation for change.
2. The perception of the threat.
3. The development and use of alternative psychological mechanisms.
4. Factors facilitating or inhibiting continuing reinforcement.

The following is a discussion of each of these dimensions in turn.

1. The Motivation for Change

In the light of current knowledge of the effects of cigarette smoking on death and disability, we have a tendency to think of health as the only factor in determining whether or not an individual tries to give up smoking. Certainly there are at least four other broad classes of reasons which contribute to, precipitate, or may even be primary in providing the motivation for this attempt at behavior change:

a. The Exemplar Role—The parent who will give up cigarettes in order to set a good example for his children, the teacher who does so for his students, the physician who gives up smoking because it puts him in a better position to influence his patients in this direction are cases in point. Even here the health factor may be basic to the desire to influence the other person's behavior.

b. Economics—It is not very difficult to calculate the direct cost of cigarettes; and this is not trivial for many people, particularly as the practice of escalating taxes on cigarettes continues. For some, a cigarette burn in a favorite dress, a comfortable chair, or on the surface of a handsome table represents an economic loss that precipitates the action of giving up smoking. But, again, the threat of death or disability to economic security may serve as an even more powerful motivation.

c. Esthetics—If you have ever closed off a living room after a party, without clearing away cigarette butts and airing the room, the aroma of several hundred dead cigarettes the morning after is one experience that, in order to extinguish the shock to one's esthetic sensibilities, apparently requires a great deal of exposure to television commercials shot in great open spaces by a babbling brook or cool waterfall. On the positive side, the sentient pleasures of good health as reflected in the common experience that "food tastes better, the air smells sweeter," can make health a part of this underlying motivation for change.

d. Mastery—The recognition that one is unable to control the habit of smoking that sometimes accompanies unsuccessful attempts to give up smoking can be an ego-shattering experience. For some individuals this inability to exert intellectual control is more threatening than the danger of death and disability which led to the attempt to give up smoking in the first place.

Nevertheless, it is the information on the effects on health of cigarette smoking—the scientific information that was accumulated over the last 15 years and was analyzed and summarized so effectively in the Surgeon General's Report in 1964—the scientific information that continues to pour forth from the ongoing research in this field—that makes the problem of giving up smoking somewhat different from what it was in the past. This brings us to the second dimension to be considered.

2. The Perception of the Threat

Whatever the stated reasons for anyone's trying to give up smoking at the present time, it would be difficult to ignore the health threat component. However, a number of questions need to be raised regarding this component. For example, how is the threat perceived? What are the conditions that are necessary or sufficient for different individuals to adopt self-protective behavior in the face of the threat?

One suggestion, for example, emerging from studies of giving up smoking is that the cessation of smoking might best be considered *not* as a single event in time but rather as a process that continues over a period of time and requires greater or lesser continuing expenditures of effort. Leaning heavily on the Hochbaum behavior model,[1] developed originally to provide a theoretical base underlying participation in a mass x-ray screening program, later modified by Hochbaum,[2] Rosenstock, et al.,[3] and still in the process of refinement, we suggest that there are at least four necessary conditions for engaging in self-protective health behavior in general (what is usually classified as preventive medicine) and that their applicability to the specific problem of attempting to quit cigarette smoking is as a part of the dimension we called "the perception of the threat." These conditions are:

a. An awareness of the threat.
b. The acceptance of the importance of the threat.
c. The relevance of the threat.
d. The susceptibility of the threat to intervention.

These conditions can be rephrased in the following more personal terms:

a. "*Is* there *really* a threat?"
b. "Is it *important enough* for me to *do anything* about it?"
c. "Is this threatening to *me*?"
d. "*Can* I *do anything* about it?"

Unfortunately, although all of these appear to be necessary conditions for self-protective action, the absence of any *one* can serve to inhibit action. Furthermore, even the presence of all four conditions does not insure successful action, since there are many facilitating or reinforcing conditions which contribute to a successful outcome and which we shall shortly discuss. At this point, however, let us look at each of these four aspects of the perception of the threat in relation to cigarette smoking.

First, an Awareness of the Threat

Certainly the Surgeon General's Report was an event that reached more people in this country than any other single event concerned with the problem of cigarette smoking and health. As a consequence, in a national survey of adults questioned in late 1964, 81 per cent of the public agreed that cigarette smoking is a health hazard, and even among continuing cigarette smokers, 70 per cent agreed. Although the same question had not, to our knowledge, been asked of a comparable group prior to the Surgeon General's Report, it seems certain that in earlier years the percentage agreeing would have been smaller. On the other hand, some of those who accepted the report's conclusions apparently acted on them and became "former cigarette smokers," so that the continuing smokers probably contain a concentration of those who rejected the findings. It would be interesting to study some of the factors which may determine whether or not the conclusion that smoking is a health hazard was actually accepted, and such an analysis is currently in progress.

Second, the Acceptance of the Importance of the Threat

A threat may be perceived as existing, but not of sufficient magnitude to warrant action, at least, if the action

entails some other negative effects. Almost as many people accept smoking as "enough of a health hazard for something to be done about it" as agree that it is a health hazard in the first place (76 per cent in the general population and 65 per cent among continuing cigarette smokers). This fact leads one to suspect that the two statements are not interpreted very differently, and that the real accomplishment of the Surgeon General's Report was to convey the necessity for remedial action.

One can protect against accepting the importance of the threat by denying the threat of a disease caused by smoking; for example, "So what if smoking causes heart attacks—that's the best way to go—poof, and it's over." Of course, this ignores the disability produced by nonfatal heart attacks and emphysema and the unpleasant course of terminal illness from lung cancer.

Another aspect of the importance of the threat refers to the place health occupies in the basic value system of the individual. One can hardly expect a person to expend a large amount of energy in overcoming the smoking habit or deny himself whatever pleasures he derives from smoking if health is unimportant to him. Of course, health can be considered important in and of itself, or can be important because it is necessary for the satisfaction of other values which are more important to the individual.

Third, the Relevance of the Threat

Unless the threat has personal meaning, it might just as well not exist. Here the ingenuity of the human mind can be challenged to produce the kind of thinking that accepts smoking as a health hazard, agrees that action is warranted, but denies that this applies to one's self.

For example, one can believe that one's own smoking is not at the danger level. "I don't inhale"; or, "It takes at least 40 cigarettes a day for at least 20 years to cause lung cancer, and I've only smoked 35 cigarettes a day for 18 years!"

One can deny the personal relevance of the threat because of a belief in personal immunity from the disease on genetic grounds. "I won't get lung cancer even if I smoke, because nobody in my family ever gets cancer."

One can deny relevance because of the lack of immediacy. "Sure, smoking causes all these things in old people, but I'm young and don't have to worry about that for another twenty years."

Calling such ways of thinking "rationalizations" does not diminish their power in enabling the smoker to deny the threat, and does not absolve us of the responsibility for understanding the dynamics behind these defense mechanisms and for developing technics to deal with them.

Fourth, the Susceptibility of the Threat to Intervention

Unless action against a threat is perceived as worth-while, the incentive to act is gone. The sources of the belief that action is hopeless can be quite varied. Whether one believes that action is hopeless because of magical concepts about the causes of disease; that one has no responsibility for ill health that occurs—it just happens; or because of a conviction that after years of smoking the damage has been done and the consequences inevitable, the educational implications are clear. There must be the conviction that action is worthwhile.

In addition, there must be the feeling that one is capable of taking the required action or that help in achieving that capability is available to him. In this connection, some smokers feel that they just cannot quit. Some have never even tried because of the strength of this conviction. Are they *really* incapable of stopping or is this merely some

form of self-fulfilling prophecy? Furthermore, how many of them would be encouraged to try to stop if they knew of the availability of some form of reliable and effective help?

These four aspects of the perception of the threat are viewed, then, as basic necessary conditions for engaging in preventive health behavior as exemplified by attempts at giving up smoking and form one dimension of a smoking behavior change model.

3. The Development and Use of Alternative Psychological Mechanisms

This dimension has already been discussed by Tomkins[4] in his presentation of the positive affect, negative affect, no affect (or habitual), and addictive forms of smoking behavior.

We mention it here in the context that whether or not attempts at giving up smoking succeed is partially dependent upon (a) the adequacy of the technics used to satisfy whatever psychological conditions are operative and (b) the ability to motivate people to apply the appropriate technics designed for them. This assumes that such psychological conditions are empirically definable and that specific and appropriate intervention technics have been or can be devised through systematic research to produce change. There has been, and is now ongoing, some research in these areas; but it would appear that quantitatively and qualitatively much more work needs to be done from both a theoretical and operational point of view.

That some smokers have obviously tried and discovered certain things for themselves is indicated by the following facts. In our already mentioned 1964 national study of adults, two-thirds of those who had ever been cigarette smokers reported that they had made at least one effort to quit in their lifetime. Effort is frequently rewarded with success, since of those who had ever tried to quit 38 per cent were not smoking at the time of the interview. This 38 per cent represents 31 per cent who had been off cigarettes for at least a year (so that one would expect most of them to continue off cigarettes), and 7 per cent who had been off less than a year (of whom an appreciable portion could be expected to return to smoking); the proportion of successes is probably in the neighborhood of one-third, representing one group at least that, happily, has no need to wait for further research. It is these "successes" that we are studying intensively, as well as the "failures" and the "never tried's."

4. Factors Facilitating or Inhibiting Continuing Reinforcement

What are the conditions which facilitate engaging in the self-protective behavior of trying to give up smoking, stimulate this behavior, and reinforce its continuation?

It was suggested earlier that the giving up of smoking is probably a process, not an event. If so, the primary role of *social forces* (including action by official and voluntary agencies, whether in the health field or not, and legislative bodies at various levels of government); of *interpersonal influences* (including the behavior and attitudes of family, friends, acquaintances, and people at work); and of activity by and exposure to the *mass media*, particularly television, is seen as facilitating or inhibiting the change process and modifying the strength of any health threat influence, and that these facilitators and inhibitors should be considered when constructing any model of behavior change.

It is further suggested that other facilitators or inhibitors in this model of

change are *the behavior and attitudes of certain key groups*, such as health workers in general and physicians in particular. Since health communications on the subject of smoking have probably been received by most people either through the mass media or by communication with other laymen, the validation of these communications in terms of behavior and advice by one's own physician or by prestigious sources of health information ought to be very important theoretically. Again, in our study, there is some evidence that the smokers, themselves, are quite cognizant of this aspect.

Another facilitating or inhibiting factor that warrants consideration for the change model is *the general level of acceptability of the behavior* that exists at a given time. The *current* general climate of acceptability of smoking is probably one of the strong counter-influences to those factors which would otherwise facilitate the cessation of smoking. Restrictions on the places and conditions in which smoking is permitted, and reduction in the influence of cigarette advertising might be two mechanisms for changing this climate.

However, acceptability, being a social phenomenon, *is* subject to social change. With the sharp reduction in physician smoking that has taken place in the past 15 years, the acceptability of smoking in physician groups diminished along with the shrinking clouds of smoke. A similar reduction in the general population might lead to the same kind of self-generating reinforcement, or "band-wagon effect." On a smaller scale, the same kind of process can take place within small social units such as families, circles of friends, clubs, or work groups.

Summary

Four dimensions of a model for smoking behavior change were considered. They are: (1) the motivation for change; (2) the perception of the threat; (3) the development and use of alternative psychological mechanisms; and, (4) factors facilitating or inhibiting continuing reinforcement. Under these headings, the following points, among others, were discussed.

There are a variety of reasons for individuals to consider giving up smoking and these, therefore, need to be considered in any model of smoking behavior change (the exemplar role, economics, esthetics, mastery); but, at the present time, health factors are either primary, because of the influence of new scientific evidence on the harmful effects of smoking, or they play an important role in decision-making, even when subsidiary to other reasons. The strength and nature of these reasons, including the health threat component, are important in determining whether or not attempts to give up smoking are continued and, therefore, are more likely to succeed.

Four different factors in the perception of smoking as a health threat are viewed as necessary conditions before attempts to change smoking behavior will be made: (1) an awareness of the threat; (2) the acceptance of the importance of the threat; (3) the relevance of the threat; and, (4) the susceptibility of the threat to intervention.

Success in behavior change is partially seen as a function of the adequacy of the methods used in giving up smoking to satisfy those psychological needs which were originally satisfied by the continuation of smoking.

Finally, success in behavior change is seen as a partial function of the presence of facilitators (or the absence of inhibitors) to encourage such action and to provide periodic or continuing reinforcement. Social forces, interpersonal influences, the mass media, the behavior and attitudes of key groups, and the general level of acceptability of the be-

havior are considered, as well as such entities as official and voluntary agencies, legislative bodies, television, health workers, physicians, the family, friends, acquaintances, people at work, friendship groups, and clubs. All of these were seen as facilitators or inhibitors of the change process in addition to serving as positive or negative modifiers of the influence the health threat plays in smoking behavior change.

REFERENCES

1. Hochbaum, G. M. Public Participation in Medical Screening Programs. PHS Publ. No. 572. Washington, D. C.: Gov. Ptg. Office, 1958.
2. ————. Behavior in Response to Health Threats. Paper presented at the Annual Meeting of the American Psychological Association, Chicago, Ill., 1960.
3. Rosenstock, I. M.; Hochbaum, G. M.; and Kegeles, S. S. Determinants of Health Behavior. White House Conference on Children and Youth, Washington, D. C., 1960.
4. Tomkins, S. S. A Psychological Model of Smoking Behavior. A.J.P.H. Part II. 56,12:17 (Dec.), 1966. (Based on a talk given at the Conference on Behavioral Aspects of Smoking, Beaver College, Glenside, Pa., 1965.)

Dr. Horn is director and Mr. Waingrow is special assistant, National Clearinghouse for Smoking and Health, U. S. Public Health Service, Washington, D. C.