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## SMOKING CESSATION AND SMOKERS' PERCEPTIONS OF THEIR ADDICTION

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Cigarette smokers' views of their own smoking and their attributions for why smokers generally often fail to quit were related to ratings of confidence in their own ability to quit, and their intention to do so. One year later, self-reports were obtained of whether the subjects had attempted to quit or reduce their consumption. The sample consisted of 141 smokers who had contacted a television company in response to an offer of free antismoking "kits." Path analyses were conducted on the total sample (19 subjects were lost due to missing data), and also on a restricted sample of 89 who had previously tried to stop smoking but relapsed. These indicated that cessation attempts were predictable from intention, that intention was predictable from confidence (expectancy of success), and that confidence was predictable from attributions in a manner consistent with Weiner's (1979) model of achievement motivation. Smokers' views of their own smoking, based on ratings of 20 self-descriptive items, were characterized in terms of two factors that also related to attributions—confidence and intention.

Psychological research on smoking cessation has emphasized the importance of two apparently divergent factors. The first relates to the addictive properties of nicotine, and to the tendency of smokers to adjust their patterns of smoking to maintain adequate levels of nicotine in their bloodstream (Krasnegor, 1979; Russell, 1976; Schachter *et al.*, 1977). Such evidence supports the view that smoking is comparable to other "dependence disorders" (Russell, 1971), and that physical de-

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pendence is the main obstacle to smoking cessation. The second relates to how strongly "motivated" smokers are to quit, and to their perception of their own behavior.

Indications of the importance of such motivational or cognitive factors appear in different forms, and with reference to different kinds of addictive behavior. Thus, Leventhal and Cleary (1980) discuss how smokers may interpret smoking-related experiences. Schachter (1982) points out that evaluations of clinic interventions aimed at changing smoking or dietary behavior may fail to take account of the self-selected nature of their samples. Such samples do not include those who are able and motivated to change their behavior without professional help. There is evidence, too, of the importance of motivational factors in studies of "spontaneous" recovery from opiate dependence (Robins, Davis, & Goodwin, 1974; Wille, 1981). In the context of alcoholism, Robinson (1972) discusses how therapists may demand "motivation" from their clients. This demand, he points out, relates uneasily to the notion of alcoholism as a "disease" (Jellinek, 1960) and to the classic conception of the "sick role" (Parsons, 1951), according to which it is the responsibility of medical professionals, not the patient, to effect a cure.

Although these factors appear divergent, they share common ground in relation to the question of how smokers estimate the extent to which they are addicted and unable to quit without difficulty. There are issues here of the extent to which smokers feel they need to be "cured" of their habit; how they make the self-attribution that they are addicted (Eiser, 1982; Eiser, Sutton, & Wober, 1977); and what the relationship of such self-perceptions is to motivation to try to quit. It is with these issues that this paper is concerned.

## METHOD

### SUBJECTS

Subjects were respondents to three postal questionnaires, of which the first two (A and B) were mailed simultaneously to a random sample drawn from a total of over 500,000 members of the general British public who had written in to the independent broadcasting company Granada Television, following a program in which the company offered free "kits" to anyone who wanted to give up smoking. A total of 20,000 people were sent Questionnaire A, and of these a subsample of 2000 at the same time received Questionnaire B. Response rates were low, possibly because the company could not in fact supply the promised

kits: only 2343 people responded to Questionnaire A, and 233 to Questionnaire B. A small follow-up on nonrespondents revealed no obvious bias in respondent characteristics. Approximately 12 months later, all respondents received a short follow-up questionnaire (C) to check on their smoking status. Of the 233 subjects who had completed Questionnaire B, 157 returned Questionnaire C. These included 60 males and 97 females. Their average age was 32.84 years, and they smoked on average 25.37 cigarettes per day.

## QUESTIONNAIRES

### Questionnaire A

Questionnaire A contained four printed pages of items concerning personal details, smoking history, habits, attitudes, and intentions. A more complete description is given in another paper (Eiser, van der Pligt, Raw, & Sutton, in press), where the findings from the larger sample (of 2343) are reported. For the purposes of this paper, the relevant items were those that recorded subjects' sex, age, cigarette consumption (usual daily number of cigarettes over the last year), and three cognitive variables: The first of these variables was confidence (i.e., expectancy for success), measured by the question, "If you tried to stop smoking altogether, how likely do you think you would be to succeed?" Responses were in terms of four categories, scored from 1 to 4: "very unlikely," "fairly unlikely," "fairly likely," or "very likely." The second cognitive variable was intention, measured by the question, "Do you intend to stop smoking in the near future?" Responses were in terms of four categories, scored from 1 to 4: "No, definitely," "No, probably," "Yes, probably," and "Yes, definitely." The third variable was attribution, measured by the question, "Why do you think so many smokers fail when they try to stop smoking?" Subjects were required to rank five possible reasons in terms of importance (1 = "most important"). These were as follows:

- a. Because it's just too difficult for them.
- b. Because they don't try hard enough.
- c. Because they don't know the best way to set about it.
- d. Because of the kind of people they are.
- e. Because of bad luck.

The scoring of this item was modeled mainly on the Weiner and Kukla (1970) attributional analysis of achievement motivation. Since very few subjects attached much importance to "bad luck," the last category (e) was treated separately. The other four categories were then

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combined to form two separate indices. The first index ("Stable") was calculated as the sum of the ranks for  $b + c - a - d$ . This was presumed to reflect the extent to which subjects attributed others' failure at giving up smoking to factors such as task difficulty (a) and personality (d), which could be seen as likely to remain stable over time, as opposed to effort (b) and knowledge (c), which could be seen as changeable. The second index ("Internal") was calculated on the rank scores as  $a + b - c - d$ , to reflect attributions of greater personal responsibility for failure. It should be noted that, in the context of this study, we treated "knowledge" (c) as "external." c/

#### Questionnaire B

Questionnaire B consisted of 20 statements introduced as "examples of the sort of thing smokers sometimes say about their smoking," each rated for personal applicability in terms of a 4-point scale. The text of these statements is given in another paper (Eiser & van der Pligt, in press), which reports the results of a principal-components analysis on 233 subjects, which yielded two factors accounting together for 27.8% of the variance. Factor 1, labeled "sick," was marked by heavier loadings on items identifying smoking as a "sickness" and reflecting concern with health consequences. Factor 2, labeled "hooked," was marked by items expressing a lack of confidence in one's ability and perhaps one's motivation to stop smoking (cf. Eiser & Gossop, 1979, who found similar results with drug addicts). From this analysis, a "sick" and a "hooked" factor score were derived for each subject.

#### Questionnaire C

For the purposes of this paper, we are concerned with just two questions asked at the 1-year follow-up. The first asked whether (since receiving the kit or newspaper from the television company) subjects had tried to stop smoking. Responses were "Yes, I've tried to stop"; "Yes, I've tried to cut down"; "No, I haven't tried to stop or to cut down." The second asked simply, "Are you still smoking?", responses being "Yes" or "No." (More details about smoking attitudes and behavior at the time of follow-up among the larger sample who had completed Questionnaire A are reported in Eiser *et al.*, in press.)

## RESULTS

Of the 157 subjects who returned all three questionnaires, the responses of 16 could not be satisfactorily matched across the three questionnaires. Of the remaining 141, 81 said, at follow-up, that they had

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tried to stop (of these, 16 claimed to be abstinent and 65 to be still smoking); 44 said that they had tried to cut down; and 16 said that they had tried neither to stop nor to cut down. We first compared the 16 abstinent subjects with the 65 "failures" and the 60 "nontriers" in terms of their mean "sick" and "hooked" factor scores. For "sick," the means were 3.05, 3.20, and 2.95, respectively; for "hooked," they were 3.96, 4.60, and 4.66. The only reliable difference was that between abstinent and other subjects on "hooked."

Next, we attempted to see how well subjects' attempts to stop or cut down could be predicted from the variables "sick," "hooked," "stable," "internal," confidence, and intention. In particular, we were concerned with whether the effects of these variables on behavior was in accordance with Weiner's (e.g., 1979) attributional approach to achievement motivation. Specifically, we predicted that previous failures at stopping smoking would lead individuals to develop a variety of attributional beliefs to account for why they (and other smokers) had failed to stop. These attributional beliefs should be reflected in the "stable" and "internal" scores. These attributional beliefs would then contribute to individuals' expectancy of success (confidence) in their current attempts to stop. However, not all attributional beliefs would have equal effects on confidence. According to Weiner, expectancy of future success or failure is determined primarily by the stability of attributions for previous success or failure. Attribution of previous failure to stable factors should lead to a lower expectancy of future success. However, an attribution to internal as opposed to external factors should not influence confidence. Confidence should then have a direct effect on intention, which in turn should directly affect behavior. Weiner's model does not allow such firm predictions to be made concerning the effects of "sick" and "hooked." However, we reasoned that these self-perceptions might contain both an expectancy component (so that their effect on intention would be mediated by confidence) and a value component—how much they valued giving up as opposed to continuing to smoke (in which case they might have a direct effect on intention).

To test these predictions, we submitted the data to path analysis (Duncan, 1966), using a three-category measure of behavior—namely, whether at the time of follow-up subjects reported having tried to stop (3), having tried to cut down (2), or neither (1). Because of the assumption that attributional beliefs might be instigated by previous failures at giving up smoking, we initially restricted our analysis to 89 subjects (with complete data on the relevant variables) who had responded affirmatively to a question (in Questionnaire A) asking, "Have you ever stopped smoking before?" Confining our attention to these "relapsed" smokers appeared desirable because of the ambiguous status (from the

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point of view of an attributional approach) of those individuals who declared they had never stopped before. For purposes of comparison, though, we repeated the analysis on 132 subjects (i.e., on the total sample after "listwise" exclusion of those with missing data on any of the relevant variables).

Figure 1 presents the standardized beta weights for the paths specified in our model, for both the restricted and (in parentheses) the total sample. The  $F$  values for the paths were as follows ( $df=1, 87$  for the restricted sample;  $df=1, 130$  for the total sample, following listwise deletion of missing values): "sick" with "internal," 4.20,  $p < .05$  (for total sample, 5.51,  $p < .02$ ); "stable" with "hooked," 8.50,  $p < .005$  (17.60,  $p < .001$ ); "sick" to confidence, 4.20,  $p < .05$  (2.21, n.s.); "internal" to confidence, 1.01, n.s. (0.44, n.s.); "stable" to confidence, 3.86,  $p < .06$  (4.55,  $p < .05$ ); "hooked" to confidence, 7.03,  $p < .01$  (15.49,  $p < .001$ ); "sick" to intention, 3.30,  $p < .1$  (17.08,  $p < .001$ ); "hooked" to intention, 1.78, n.s. (8.13,  $p < .01$ ); confidence to intention, 7.42,  $p < .01$  (8.44,  $p < .005$ ); and intention to behavior, 11.83,  $p < .001$  (13.50,  $p < .001$ ). The multiple  $R$  for the regression of "sick," "hooked," "stable," and "internal" on confidence was .45,  $F(4, 84) = 5.27$ ,  $p < .001$ ; for the total sample, it was .39,  $F(4, 127) = 5.80$ ,  $p < .001$ . The multiple  $R$  for the regression of the five antecedents on intention was .39,  $F(5, 83) = 3.68$ ,  $p < .01$ ; for the total sample, it was .48,  $F(5, 126) = 7.37$ ,  $p < .001$ . The multiple  $R$  for the prediction of behavior from all other variables, .41 (.34 for the total sample), did not significantly exceed the simple  $r$  between intention and behavior.

In view of the possibility that the relationships shown in these analyses depended upon antecedent variables not included in the model, we examined the zero-order correlations between all seven variables so far considered, together with sex, age, and cigarette consumption. These correlations, for both the total and restricted samples, are shown in Table 1. Listwise deletion of missing values reduced  $n$ 's to 84 for the restricted sample and to 126 for the total sample. Most worthy of note is that older subjects, and females, tended to have higher scores on "hooked" and also lower confidence scores.

When sex, age, and cigarette consumption were added to the multiple-regression analyses (to examine whether any of them contributed independently to the prediction of confidence, intention, and behavior over and above the other variables in our model), sex contributed to the prediction of behavior in the total sample,  $F(1, 124) = 5.91$ ,  $p < .02$ , and age made a marginal contribution to the prediction of intention in the restricted sample,  $F(1, 82) = 3.08$ ,  $p < .1$ . However, since these were the only effects of any note out of the 18 tested, it seems fair to conclude that the relationships shown in our model are not an artifact of these other subject characteristics.

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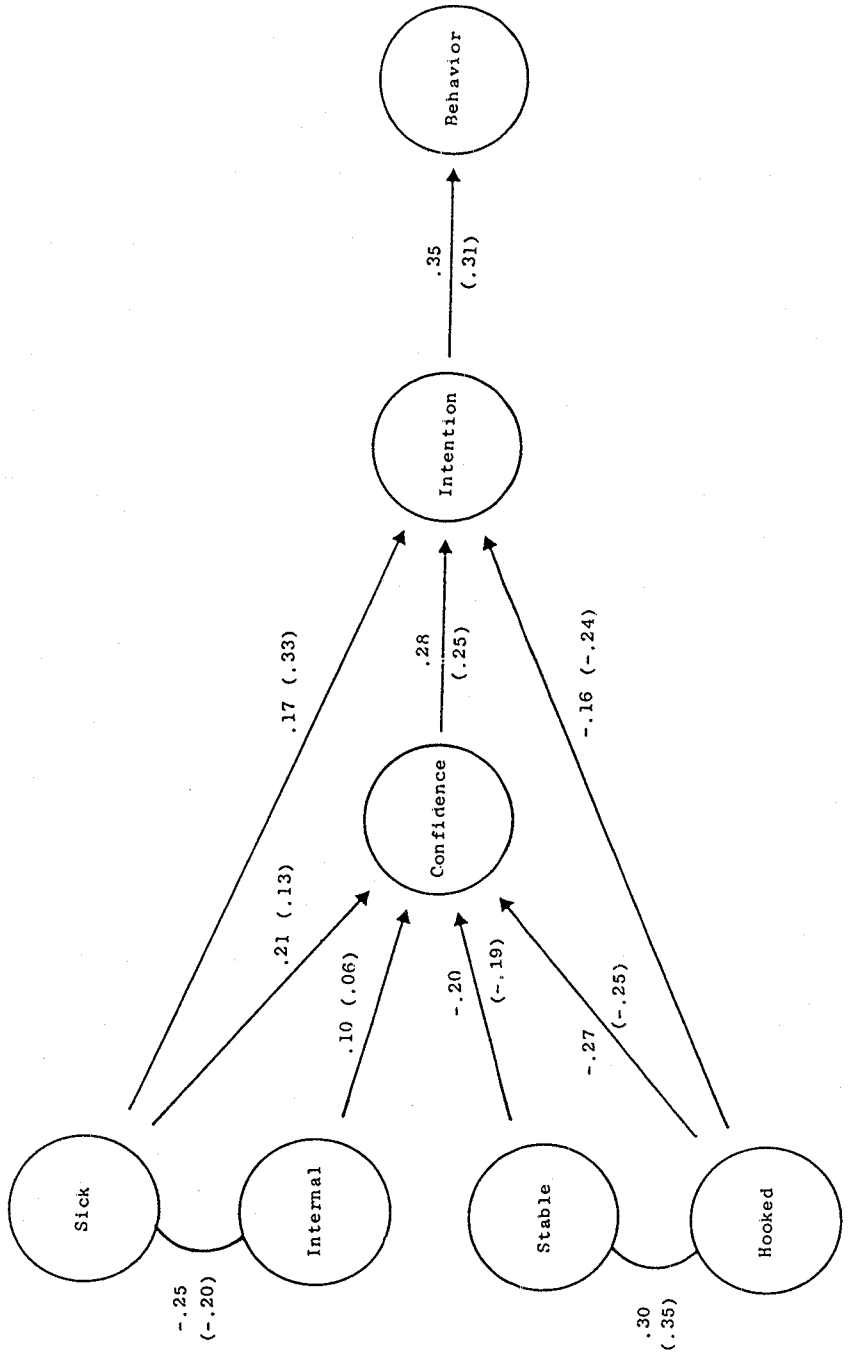


FIGURE 1  
 Path analysis to predict behavior reported at follow-up ("tried to stop" = 3, "tried to cut down" = 2, "neither" = 1). Numbers refer to standardized beta weights (1) for 89 smokers who had previously stopped but relapsed, and (2) (in parentheses) for the total sample ( $n = 132$ ).



TABLE 1  
Product-Moment Correlations, with Listwise Deletion of Missing Values

	SEX*	AGE	CIGS. PER DAY	"SICK"	"HOOKED"	"STABLE"	"INTERNAL"	CONFIDENCE	INTENTION	BEHAVIOR
Sex	—	.09	-.10	-.01	.24*	.13	-.05	-.16	-.01	-.20*
Age	.01	—	.10	-.08	.28*	.09	.06	-.18*	-.11	.05
Cigs. per day	-.19	.13	—	.11	.03	.04	-.12	-.11	-.00	.14
"Sick"	-.04	-.07	-.07	—	-.04	.00	-.16	.13	.35*	.09
"Hooked"	.29*	.33*	.02	.05	—	.34*	-.16	-.34*	-.31*	-.11
"Stable"	.15	.15	-.05	-.09	.28*	—	-.04	-.28*	-.14	.05
"Internal"	-.04	-.02	-.05	-.02	-.14	-.05	—	.06	-.07	-.04
Confidence	-.16	-.17	-.11	.22*	-.36*	-.31*	.06	—	.24*	.03
Intention	-.13	-.23*	-.13	.22*	-.22*	-.11	-.13	.28*	—	.32*
Behavior	-.14	-.03	.11	-.03	-.15	.09	-.03	.08	.37*	—

Note: Correlations below the diagonal are for 84 subjects who had tried to stop smoking previously; those above the diagonal are for the total sample of 126 subjects.

\*Sex was coded as 1 = male, 2 = female.

\*p < .05, two-tailed.

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## DISCUSSION

These results show that cognitive variables can have an important effect on cigarette smokers' attempts at cessation. Among these cognitive variables are smokers' views of their own addiction to cigarettes, and the attributions they make for failure at cessation. As predicted by Weiner's (1979) attributional model of achievement motivation, the attribution of (others') failure at cessation to stable factors contributed to less confidence in one's own ability to give up, which in turn led to a weaker intention to make such an attempt, which in turn was reflected in a lower likelihood of actually having made such an attempt at the 1-year follow-up. Again as predicted, attribution of failure to internal versus external factors had no effect on confidence, intention, or behavior.

The role of our derived variables "sick" and "hooked" is less easily predictable from Weiner's model. Nonetheless, "sick" was negatively related to "internal," and "hooked" was positively related to "stable." The "externality" implicit in the "sick" factor seems most recognizable in such heavily loading items as "I think of my smoking as a sickness which needs to be cured," and "I think that the government should do more to persuade people not to smoke." It is possible that this kind of acceptance of others' authority or expertise might underlie the positive link (significant only in the restricted sample) from "sick" to confidence, since the context of this study was one in which a kind of "expert" help was supposedly being offered. At the same time, other items loading heavily on "sick" (e.g., "I'm frightened about what smoking may be doing to me") suggest a negative evaluation of one's status as smoker. This may help explain the direct positive link from "sick" to intention (significant only in the total sample), since the implication would be that "sick" comprises not only expectancy but also value components.

A similar line of reasoning can be applied to the effects of "hooked." A number of items reflect a lack of confidence (e.g., "I'm not going to be able to give up smoking unless someone helps me") that helps explain the negative link from "hooked" to confidence. However, in addition to this expectancy component, there is also the implication of a more positive, or less negative, evaluation of one's own status as a smoker (e.g., "I resent other people telling me that I shouldn't smoke," "I find smoking helps me cope when I've got problems"). This more positive value component may underlie the direct negative link (significant only in the total sample) from "hooked" to intention.

It is difficult to say why the direct links from "sick" and "hooked" to intention should only have been significant in the total sample. How-

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ever, the purpose of the restricted sample was to focus on those subjects whose attributions, and hence expectations for success or failure, could be based on *direct* experience of their own attempts at cessation (see Fazio & Zanna, 1981, for a discussion of the importance of direct vs. indirect experience as a mediator of attitude-behavior consistency). For such subjects, it is reasonable to suppose that the expectancy component of the different measures may have been particularly powerful, and that it therefore could have partly masked the contribution of a value component that became more evident when subjects with less direct experience were included in the analysis.

We should point out that, in talking of "expectancy" and "value" components, we are not committing ourselves to the axioms of any formal expectancy-value theory. The point we are making is a more general one, consistent with much other research, that smokers' attempts at cessation reflect *decisions* that depend both on how much they *want* to give up and on how *likely* they think they are to succeed (cf. Eiser & Sutton, 1977; Sutton & Eiser, 1984). The present study shows that such decisions may be predicted from smokers' perceptions of their own behavior and their attributions for failed cessation attempts.

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