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Trying to Stop Smoking: Effects of Perceived Addiction, Attributions for Failure, and Expectancy of Success

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This paper reports the results of a postal questionnaire completed by 2343 smokers who had contacted a television company for help with stopping smoking. Of these, 1848 (78.9%) completed a follow-up questionnaire 1 year later. This indicated that 797 had tried to stop, 709 had tried to cut down, and 164 had become abstinent. Analyses show that the intention to try to stop smoking was dependent not only on the perceived health benefit, but also on the subjects' confidence that they would succeed if they tried to stop. As predicted by Weiner's [(1979). J. Educ. Psychol. *71: 3–25] model of achievement motivation, those who attributed other smokers' failures at quitting to stable factors had lower expectancies of success, as had those who saw themselves as more addicted. When the follow-up data are considered, reported attempts at quitting were strongly related to previously declared intentions, and reported abstinence was related to previous confidence (expectancy of success) and perceived addiction. There is no support for hypotheses concerning self–other differences in attribution, or defensive attribution, in*

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subjects' attributions for their own failures at cessation. Implications for antismoking interventions are discussed.

KEY WORDS: addiction; attribution; expectations; intentions; smoking.

INTRODUCTION

It is now widely acknowledged that cigarette smoking, for many people, is a form of addiction that shares many features in common with dependence on other drugs (Russell, 1971; Schachter *et al.*, 1977). Addicted cigarette smokers will not show the dramatic withdrawal effects more typical of heroin addicts or the loss of control of alcoholics, but there is no doubt that many can experience very great difficulty in breaking their habit. As with other addictions, the search for an easy cure, be it pharmacological or behavioral, has proved to be a false hope. The relapse rates for smokers following smoking cessation "treatment" closely resemble the discouraging picture for other addictions (Hunt and Matarazzo, 1973; Litman *et al.*, 1979; Raw, 1978).

Yet there is another view, which is that inferences from clinic samples are unduly pessimistic. As Schachter (1982) has pointed out, for every smoker who relapses after attending a smokers' withdrawal clinic, there may be many more who stop successfully through their own endeavors and, hence, do not enter the clinic statistics. This does not mean that stopping smoking is easy, but it does suggest that many ordinary individuals have resources that, if applied properly, are at least a match for those of professional helpers. Even professional help, moreover, depends for its effectiveness to a large extent on active collaboration and motivation from the client—a point eloquently made by Robinson (1972) in the context of treatment for alcoholism.

Such considerations point to a need for a clearer understanding of the psychological factors that underlie people's willingness to attempt to stop smoking, with or without help, and that contribute to differences in the success of such attempts. Among the factors, it appears that perceptions of the consequences of smoking may be an important, but not an all-important, factor. Very simply, one would expect that smokers who saw smoking as less beneficial and more damaging across a range of consequences would be more motivated to stop smoking—a relationship that fits in well with the precepts of expectancy-value models of decision making (e.g., Eiser and Sutton, 1977; Fishbein, 1982; Mausner and Platt, 1971; Sutton and Eiser, 1984). Such relationships support the view that smoking, though addictive, may still be under the control of cognitive decision-making processes.

This is not the whole story, however. Smokers *typically* seem to rate smoking as more damaging than beneficial and, thus, should, according to

a simple expectancy-value interpretation, try to stop smoking immediately; but many smokers do not try to stop, despite admitting the risks. It was this kind of finding that led McKennell and Thomas (1967) to their description of "dissonant" smokers who would like to stop but are too addicted to be able to do so. Other cognitive factors, however, may be identified before one falls back on addiction as a catch-all explanation. Fishbein (1982) argues that smoking, like many other behaviors, may often be maintained by "normative beliefs" about how one's behavior may be valued by others, at least as much as by "evaluative beliefs" about its consequences. Eiser and Sutton (1977) have argued that the decision facing the would-be quitter is not whether to smoke or quit but whether to smoke or *try* to quit. The perceived consequences of quitting will *not* be the same as those of trying to quit if the smoker thinks that any such attempt is unlikely to succeed. Confidence, or what Bandura (1977) would call "self-efficacy," is thus a crucial mediating variable.

This shifts the theoretical focus somewhat away from simple questions of attitudes and decisions toward factors that influence people's predictions of their own success at what is clearly seen as a difficult task and their subjective explanations for why they, as well as others, continue to smoke despite resolutions to the contrary.

Considerable attention has been paid by social psychologists to the topic of people's subjective explanations, or "attributions," for their own behavior and that of others (e.g., Kelly and Michela, 1980). From this work some generalizable conclusions have emerged concerning the relationship of attributions to behavior. The most important of these is the notion that different kinds of attributions can lead to different kinds of *expectancies.*

Probably the best-developed approach of this kind is Weiner's attributional analysis of achievement motivation (Weiner, 1979; Weiner and Kukla, 1970; Weiner *et al.,* 1979). According to Weiner, the motivation to undertake a difficult task is determined largely by the expectancy of success, which in turn is determined largely by the kind of attributions one makes for previous successes and failures. Weiner's theory has evolved and grown considerably in complexity over the past decade, particularly with regard to its consideration of the variety of attributions that people can make and the variety of distinct emotional reactions associated with different patterns of attributions. However, regarding the relationship of attributions to expectancy, the basic ideas can be summarized simply.

Attributions for success and failure can be roughly located on two different dimensions. One dimension represents the extent to which a success or failure is attributed to causes "internal" or "external" to the individual. For example, students may attribute their outcomes on a test, on the one hand, to their own effort or ability (internal) or, on the other hand, to the difficulty of the test or the whims of their teacher (external). This distinction is hypothe-

sized by Weiner to make a considerable difference in people's emotional reactions but *not* in their expectancies of future success or failure. The expectancy of success is hypothesized to depend primarily on the other attributional dimension—whether the causes are seen as stable (e.g., ability, difficulty) or unstable (e.g., effort, teacher's whims). The prediction is that confidence (expectancy of success) will be *higher* when previous success is attributed to stable causes and previous failure to unstable causes and *lower* when previous success is attributed to unstable causes and previous failure to stable causes.

Another attributional approach concerns the connotations of the concept of addiction itself. We have shown previously that many smokers are prepared to describe themselves as "addicts" and appear to use this label as an explanation for the difficulty they find in giving up smoking (Eiser, 1982; Eiser *et al.*, 1977, 1978a). We have argued also that the label may provide a kind of refuge from the behavioral imperatives implied by antismoking beliefs, amounting to a denial of free choice or capability and a resolution or avoidance of dissonance (Eiser, 1978). In other words, smokers who see themselves as addicts can claim the benefits of diminished responsibility for their behavior.

These considerations point to the importance of studying how attributions and cognitions relate to intentions and behavior among smokers who express a wish to give up smoking. This paper reports such a study. The sample is unusual and self-selected, but it is *not* a clinic sample. By and large, it consists of smokers who felt that they could do with some help in giving up smoking but who were also prepared to help themselves to some extent.

MAIN STUDY

Method

Subjects were 2343 respondents to a postal questionnaire distributed to 20,000 members of the general public who had written to the independent broadcasting company Granada Television requesting assistance with giving up smoking. This followed a television program (in October 1977) in which the company offered "free antismoking kits" to anybody wishing to give up smoking. The 20,000 names were drawn at random from the total of about a half-million requests received by the company. The low response rate may be explained partly by the company's almost total inability to satisfy these requests (see Eiser, 1982; Raw and van der Pligt, 1981). Apart from a few thousand who received kits, the remainder of the half-million were sent only a broadsheet "newspaper" containing fairly predictable exhortation and ad-

vice. A follow-up of nonresponders revealed no obviously damaging bias among respondents. Clearly, though, no claim is made that our respondents were "representative" of the general population of smokers who wish to give up.

The Questionnaire

All respondents were required to identify themselves by name and address so that they could be contacted again. They then reported their age, their sex, and the occupation of the "head of their household" in terms of nine categories.

There followed a number of items concerning current smoking. The one of these most relevant to the analyses reported here was a self-report of cigarette consumption ("Over the past year, how many cigarettes a day have you usually smoked?"). Other questions asked about pipe and cigar smoking, whether the respondent smoked filter-tipped, plain, or hand-rolled cigarettes, and for the full brand name of their usual cigarette.

Next there were a number of questions included because of their possible relationship to dependence on smoking. These were as follows.

(1) *Morning.* "In the morning do you usually smoke before your first cup of tea or coffee? Responses: Yes (scored as 2); No (1).

(2) *Irritable.* "Without smoking, would you become so irritable that your friends or family couldn't stand it?" Responses: Yes (2); No (1).

(3) *Inhale.* "How far do you usually take the smoke in?" Responses: Hold it in the mouth (1); Inhale into the chest (2); Don't know (3).

(4) *Enjoyment.* "How enjoyable is smoking for you?" Responses: Extremely (4); Fairly (3); Slightly (2); Not at all (1).

(5) *Withdrawal.* "How unpleasant do you find it if you can't smoke for an hour or two?" Responses: Same as for item 4.

(6) *Addiction.* "How addicted do you think you are to smoking?" Responses: Same as for item 4.

There next followed a number of items concerned broadly with beliefs relevant to stopping smoking. These were as follows.

(7) *Attribution.* Why do you think so many smokers fail when they try to give up smoking?" Subjects were required to rank five possible reasons in terms of importance (1 = most important).
   (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 derived from Weiner and Kukla's (1970) attributional analysis of achievement motivation. Since very few subjects attached much importance to "bad luck," category e was treated separately. The other four categories were 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 $a + c - b - d$, so as to reflect attributions of greater personal responsibility for failure. Note that we treat knowledge (c) as an external factor in this context. Each index could range from -6 to 6.

(8) *Ever Stop.* "Have you ever stopped smoking before?" Responses: Yes (2); No (1).

(9) *Abstinence* (for those answering yes to item 8). "What is the longest you have ever managed to stop for?" Response: open-ended, coded in terms of eight categories of from 1 to 3 days (1) to longer than 3 years (8).

(10) *Probability Difference.* "If you stopped smoking altogether, do you think *your* chances of getting lung cancer would be lower than if you continued to smoke?" Responses: About the same (1); A bit lower (2); Much lower (3).

(11) *Utility.* "How important is it to you to reduce your chances of getting lung cancer?" Responses: Not important (1); Fairly important (2); Extremely important (3).

(12) *Confidence.* "If you tried to stop smoking altogether, how likely do you think you would be to succeed?" Responses: Very unlikely (1); Fairly unlikely (2); Fairly likely (3); Very likely (4).

(13) *Intention.* "Do you intend to try to stop smoking in the near-future?" Responses: No, definitely not (1); No, probably not (2); Yes, probably (3); Yes, definitely (4).

(14) *Reasons.* "Why do you want to stop smoking?" Subjects were asked to tick any of the following that applied and to indicate which was the most important.
   (a) Because it's bad for my health.
   (b) Because it's too expensive.
   (c) Because it's a dirty habit.
   (d) Because it's not fair to other people.

The final item referred to a smoking typology test included in the broadsheet newspaper, designed to measure whether subjects' smoking motives could be characterized in terms of stimulation, handling, pleasurable relax-

ation, tension reduction, psychological addiction, or habit. Data relating to this item are not included in the analyses reported here.

Results

Means and Frequencies

Sample Characteristics. The mean age of the sample was 34.92 years (SD = 13.39 years). There were 979 males and 1343 females, 21 not recording their sex. The occupation of the head of the household was not recorded by 65 subjects. For the remainder, the distribution of responses was as follows: unskilled/semiskilled worker, 25.3%; skilled worker, 19.8%; foreman/supervisor, 8.3%; clerical, 7.1%; self-employed with employees, 4.4%; self-employed without employees, 4.2%; professional/managerial 19.2%; retired/widow/unemployed, 10.6%; and student, 1.2%.

Current Smoking. The mean daily cigarette consumption was 25.18 (SD = 10.65), after the exclusion of 45 subjects who left this item blank but including 27 who reported a zero consumption of cigarettes. There were 45 pipe smokers and 109 cigar smokers in the sample. Most cigarette smokers (91.9%) smoked filter-tipped cigarettes. Their usual brand was most frequently middle-tar (63.8%) and king size (49.2%)

Dependence. A total of 1118 (48.4% of those responding) said that they usually smoked before their first drink of the morning; 1539 (69%) said that, without smoking, they would be intolerably irritable; and the great majority (1849, or 80.6%) said that they usually inhaled. The distribution of responses to the Enjoyment, Withdrawal, and Addiction items is shown in Table I. These data make it clear that smoking for enjoyment and smoking to satisfy

Table I. Frequencies of Responses to the Enjoyment, Withdrawal, and Addiction Items

	Extremely	Fairly	Slightly	Not at all	*N*
Enjoyment					
"How enjoyable is smoking for you?"	907	1102	214	92	2315
Withdrawal					
"How unpleasant do you find it if you can't smoke for an hour or two?"	681	873	509	253	2316
Addiction					
"How addicted do you think you are to smoking?"	1410	738	139	25	2312

an addiction are *not* perceived by smokers as incompatible motives. While 92.9% rated themselves as extremely or fairly addicted, 86.8% rated smoking as extremely or fairly enjoyable.

Attribution. The mean scores were −0.75 for Stable (SD = 2.70) and −1.24 for Internal (SD = 2.58). Difficulty (a) was rated most important by 736 (34.6%), effort (b) by 652 (30.8%), knowledge (c) by 546 (25.8%), personality (d) by 175 (8.3%), and bad luck (e) by 24 (1.1%).

Previous Attempts. Most subjects (1725, or 74.5%) had stopped smoking in the past, but 14.9% had relapsed within 6 days on their most successful attempt, 43.0% within 4 weeks, 66.3% within 3 months, and 84% within a year. There were 117 (6.6%) whose longest abstinence was over 3 years. On the remaining items subjects as a whole expressed a strong motivation to stop but some doubts as to their ability to do so. On Probability Difference, roughly half (1154, or 50.2%) said that they thought their chances of lung cancer would be much lower if they stopped (compared with a bit lower, 31.9%, and about the same, 17.9%). On Utility, 1693 (73.2%) said that reducing their risk of lung cancer was extremely important (compared with fairly important, 21.9%, and not important, 4.9%). The measure of Intention showed a very skewed distribution (as would be expected from the way the sample was recruited). Only 22 (1.0%) said that they definitely did not intend to try to stop in the near-future, and 227 (9.8%) said that they probably did not; however, 1002 (43.4%) said that they probably would try to stop, and 1056 (45.7%) said that they definitely intended to try to stop.

Confidence. Confidence, on the other hand, showed a much more even distribution: 412 (17.9%) thought it very unlikely that they would succeed in stopping altogether if they tried, 777 (33.7%) fairly unlikely, 847 (36.7%) fairly likely, and 272 (11.8%) very likely.

Reasons. Reasons for stopping were clearly health related: 2023 (86.3%) checked category a, "bad for my health"; 1712 (73.1%) checked b, "too expensive"; 1167 (49.8%) checked c, "dirty habit"; and 881 (37.6%) checked d, "not fair on other people." Health was rated as the most important reason by 1498 (72.9%), and expense by 347 (16.9%).

Relationships with Cigarette Consumption

The relationship between cigarette consumption and other variables was examined after exclusion of the 74 subjects who left their cigarette consumption blank or declared it to be zero. Older subjects reported a somewhat higher consumption; the correlation with age was 0.093 ($P < 0.001$). The relationship with other variables was examined in a series of one-way analyses of variance, splitting subjects into groups on the basis of their responses on the other items and treating cigarette consumption as the dependent measure.

Males smoked, on average, 26.27 cigarettes per day, compared with 24.91 for females [$F(1,2254) = 9.53$, $P < 0.005$].

The occupational groups differed significantly overall [$F(8,2211) = 2.56$, $P < 0.01$]. There was an indication of an association between higher consumption and lower socioeconomic status, but this should be interpreted cautiously in view of the crudeness of the occupational-status measure. The means for the unskilled/semiskilled worker, skilled worker, and professional/managerial groups were 26.42, 25.73, and 24.58, respectively (and these were the three largest groups). However, lower means were obtained for the self-employed with employees (24.43) and the retired/widow/unemployed group (24.35).

There were clear associations between consumption and various measures of dependence. Those who smoked before their first morning drink smoked, on average, more than six cigarettes a day more than those who did not; the means were 28.97 and 22.12 [$F(1,2257) = 277.03$, $P < 0.001$]. Those who claimed to be irritable when not smoking smoked more than those who did not; the means were 27.02 and 21.95 [$F(1,2179) = 118.68$, $P < 0.001$]. The Inhale and Enjoyment measures showed a less clear relationship to consumption. However, Withdrawal and Addiction both showed large effects. The mean levels of consumption across the four response categories from "extremely" to "not at all" were 31.01, 24.97, 22.02, and 19.02 [$F(3,2257) = 134.93$, $P < 0.001$] for Withdrawal and 28.30, 21.86, 17.90, and 15.48 [$F(3,2254) = 109.39$, $P < 0.001$] for Addiction.

With regard to previous attempts at stopping, those who had stopped before smoked less than those who had not; the means were 25.01 and 26.75 [$F(1,2259) = 12.19$, $P < 0.001$]. Among those who had stopped, consumption showed a monotonic decline with length of abstinence from 1–3 days (27.14) to 7–12 months (22.52). However, the means for subjects showing the longest periods of abstinence showed a reverse trend [1–3 years, 24.21; over 3 years, 26.12; overall, $F(7,1731) = 3.87$, $P < 0.001$]. There was no significant effect for Probability Difference or Utility. Confidence showed a clear effect, with the means across the four response categories from "very unlikely" to "very likely" being 28.53, 26.04, 24.08, and 23.50 [$F(3,2247) = 21.32$, $P < 0.001$]. There were no differences in consumption as a function of Intention.

Relationships with Attributions

The product–moment correlations between the Stable and Internal indices and other variables are shown in Table II. In view of the limited number of response categories on most variables, the precise values should be interpreted with caution. Nonetheless, it can be seen that those subjects who

Table II. Correlations Between the Stable and Internal Indices and Other Variables

	Stable	Internal	*N*
Age	0.171***	−0.006	1952
Cigarette consumption	0.073***	−0.064**	2078
Enjoyment	0.135***	0.008	2096
Withdrawal	0.217***	−0.100***	2097
Addiction	0.233***	−0.107***	2095
Abstinence	−0.053*	0.033	1614
Probability Difference	−0.067**	0.011	2086
Utility	−0.045*	−0.089***	2093
Confidence	−0.266***	0.068**	2089
Intention	−0.119***	0.002	2089

*$P < 0.05$.
**$P < 0.01$.
***$P < 0.001$.

attributed (other) smokers' failure at giving up smoking to more stable factors tended to be older, smoked more heavily, reported more enjoyment from smoking but also more withdrawal, saw themselves as more addicted, had a lower expectancy of success at giving up themselves, and had a weaker intention to make such an attempt (all P's < 0.001). The relationships with the Internal index were weaker, but those making more internal attributions tended ($P < 0.001$) to report less withdrawal, see themselves as less addicted, and (curiously) attach less importance to reducing their chances of cancer.

Relationships with Perceived Addiction

To investigate the relationships between perceived addiction and other variables, a series of χ^2 tests was performed on 2×2 contingency tables formed by dichotomizing subjects into those responding "extremely" and those giving any other response on the Addiction item, then dichotomizing subjects' responses to other items as nearly as possible to a median split, as shown in Table III. As may be seen, greater perceived addiction was associated extremely strongly with feelings of withdrawal and irritability if deprived but also with a greater enjoyment of smoking. Those who saw themselves as more addicted tended to have far lower expectancies of success at giving up. They were more likely to smoke first thing in the morning, to have been abstinent for shorter periods, if at all, and to be female (all P's < 0.001). They were somewhat more likely to inhale ($P < 0.005$) and expressed slightly weaker intentions to stop ($P < 0.05$).

Table III. Relationships Between Perceived Addiction and Other Variables

	Extremely addicted	Not extremely addicted	$\chi^2(1)$
Sex			
Male	551	421	13.54***
Female	854	475	
Morning			
Yes	799	316	105.50***
No	603	585	
Irritable			
Yes	1153	63	522.10***
No	209	480	
Inhale			
Mouth	111	99	10.11**
Chest	1181	663	
Enjoyment			
Extremely	721	183	221.43***
Not extremely	684	718	
Withdrawal			
Extremely	634	46	421.47***
Not extremely	774	855	
Ever Stop			
Yes	1002	716	19.85***
No	404	184	
Abstinence			
Up to 4 weeks	499	263	26.34***
Longer	540	472	
Probability			
Same/bit lower	682	454	0.96
Much lower	714	437	
Utility			
Not/fairly	356	259	3.27
Extremely	1046	640	
Confidence			
Unlikely	919	264	291.84***
Likely	477	636	
Intention			
Probably or no	784	461	5.04*
Yes, definitely	613	437	

*$P < 0.05$.
**$P < 0.005$.
***$P < 0.001$.

FOLLOW-UP STUDY

Method

Approximately 12 months later, all respondents to the first questionnaire received a short follow-up questionnaire to determine their current smoking status. Responses were received from 1848 (78.9%) subjects, but of these, 19 could not be matched with the initial sample and were therefore discarded.

The questionnaire asked subjects the following.

(1) *Help.* If they had found the material sent by the television company helpful.
(2) *Tried.* If they (since receiving the material) had tried to stop (scored as 3), tried to cut down (2), or made no attempt (1).
(3) *Smoking.* If they were still smoking. Responses: Yes (1); No (2). Those still smoking were then asked item 4.
(4) *Consumption 2.* To state their current level of consumption of cigarettes per day (or pipes/cigars) and the full brand name of their current cigarette.
(5) *Abstinence 2.* If they had stopped, how long this had been for. Responses: 1–3 days (1); 4–6 days (2); 1–4 weeks (3); 1 month or more.
(6) *Attribution 2.* Subjects completed a modification of the attribution item in the first questionnaire, with the change that they were asked why *they* had failed to stop smoking. The response categories were changed accordingly (e.g., "Because it was too difficult for me").
(7) *Addiction 2.* This was an exact repeat of the Addiction item in the first questionnaire.
(8) *Intention 2.* If they intended to stop smoking again in the near-future. Responses: Same as before, i.e., four categories from No, definitely not (1), to Yes, definitely (4).

Finally, those who were no longer smoking were asked when they had stopped, whether stopping smoking had been easier or more difficult than they had expected (easier, 1; same, 2; more difficult, 3), and whether they thought they would "still be a nonsmoker a year from now" (response categories same as for Intention 2).

RESULTS

Help. Evaluations of the material sent by the television company were divided: 6.0% of the respondents found it "very helpful, 48.0% "fairly helpful," 30.2% "fairly unhelpful," and 15.8% "very unhelpful." One might imagine, though, that there would have been a higher proportion of negative evaluations among nonrespondents.

Tried. There were 154 who left this item blank and were excluded from relevant analyses. Of the remainder, 797 (48.2%) had tried to stop, 709 (42.8%) had tried to cut down, and 149 (9.0%) had tried to do neither.

Smoking. Sixty failed to respond, 1585 (90.6%) were still smoking, and 164 (9.4%) were abstinent.

Consumption 2. Those still smoking reported a mean daily cigarette consumption of 22.77 (SD = 12.95). This represented a significant drop of 1.93 from the same subjects' initial consumption level [$t(1584) = 6.49$, $P < 0.001$].

Abstinence 2. Of the 803 subjects who said that they had stopped but then relapsed, 380 (47.3%) had stayed abstinent for 3 days or less, 161 (20.0%) for 4–6 days, 143 (17.8%) for 1–4 weeks, and 119 (14.8%) for a month or more.

Attribution 2. Responses were coded to form two indices, Stable 2 and Internal 2, in the same way as in the initial questionnaire. Considering the 1104 subjects with completed data on both the Attribution and the Attribution 2 items, significant correlations were found between the way subjects had previously explained others' failure and their explanations of their own failure at stopping. For Stable vs Stable 2, $r = 0.363$ ($P < 0.001$); for Internal vs Internal 2, $r = 0.263$ ($P < 0.001$). There were significant differences between the responses to the two questionnaires. Self-attributions were more stable [means: Stable, -0.64; Stable 2, -0.14 ($t = 5.46$, $P < 0.001$)] and more internal [means: Internal, -1.32; Internal 2, 0.36 ($t = 17.59$, $P < 0.001$)]. Both comparisons were highly significant when analyzed nonparametrically by means of a Wilcoxon matched-pairs signed-ranks test (respectively, $z = 5.15$ and 15.78). Separate comparisons between Attribution and Attribution 2 were then performed on subjects' rank scores for each of the five response categories, by means of Wilcoxon tests. All five were highly significant. Self-attributions displayed less emphasis on difficulty ($z = 4.72$, $P < 0.001$), more on effort ($z = 8.81$, $P < 0.001$), less on knowledge ($z = 14.57$, $P < 0.001$), more on personality ($z = 9.54$, $P < 0.001$), and more on luck ($z = 4.18$, $P < 0.001$). Difficulty obtained the most important mean ranking (2.09) in attributions for others, whereas effort was the most important factor (2.05) in self-attributions.

Addiction 2. The responses to this item correlated highly with those to the corresponding item in the first questionnaire ($r = 0.555$, df = 1571, $P < 0.001$). There was no significant difference in the means [Addiction, 3.56; Addiction 2, 3.54 ($t = 1.42$, ns)]. Analyzed nonparametrically by means of a Wilcoxon test, the comparison remains nonsignificant ($z = 1.27$).

Intention 2. The scores were significantly correlated with those on the previous measure of intention ($r = 0.342$, df = 670, $P < 0.001$) but were significantly weaker [means: Intention, 3.51; Intention 2, 3.34 ($t = 6.59$, $P < 0.001$; by Wilcoxon, $z = 5.82$, $P < 0.001$)].

Considering the final items completed by the 164 who were abstinent, most (64.2%) said that they had found stopping easier than they expected, compared with 18.5% who said that they had found it more difficult. Most (62.2%) thought that they would definitely still be nonsmokers in a year's time, and a further 34.1% thought that they probably would be.

Comparisons Between Triers and Nontriers in Terms of the First Questionnaire

The data were then considered with the purpose of comparing the 797 "triers," who said that they had tried to stop, with the 858 "nontriers," who had tried only to cut down or who had made no attempt. Inspection of the data from the first questionnaire showed few items that discriminated triers from nontriers. On average, triers were slightly younger (31.63 vs 33.03 years) but not significantly so ($t = 1.84$, df $= 1653$, $P < 0.07$). There was no significant association with sex. There were no differences on measures of consumption or perceived dependence apart from a tendency for triers to be less likely to smoke first thing in the morning ($z = 2.60$, $P < 0.01$, by Mann–Whitney). Triers, however, were far more likely to have stopped for a period in the past ($z = 5.47$, $P < 0.001$, by Mann–Whitney), although the length of their abstinence did not discriminate. Triers showed higher Probability Difference ($z = 4.62$, $P < 0.001$, by Mann–Whitney) and Utility scores ($z = 2.83$, $P < 0.005$, by Mann–Whitney). Triers were also differentiated by a higher expectancy of success (Confidence) than nontriers [means, 2.43 vs 2.32 ($t = 2.47$, df $= 1638$, $P < 0.02$; $z = 2.44$, $P < 0.02$, by Mann–Whitney)] and by a stronger intention to stop [means, 3.53 vs 3.16 ($t = 11.34$, df $= 1642$, $P < 0.001$; $z = 11.36$, $P < 0.001$, by Mann–Whitney)]. In terms of Reasons for wanting to stop, triers were more likely to mention "bad for health" ($z = 2.36$, $P < 0.02$, by Mann-Whitney) and "not fair on other people" ($z = 2.31$, $P < 0.05$, by Mann-Whitney).

We next attempted, by means of a path analysis (Duncan, 1966), to see how well subjects' attempts to stop or cut down could be predicted in accordance with hypotheses derived from two theoretical traditions within social cognition. The expectancy-value tradition, exemplified particularly in the theory of reasoned action (Ajzen and Fishbein, 1980; Fishbein, 1982), assumes that the influence of beliefs and attitudes on behavior should be mediated by intention. Intention, in turn, should be influenced by evaluative beliefs about the consequences of the behavior, as well as by subjective norms concerning the social desirability of that behavior. Although our questionnaire contained no items corresponding to the subjective-norm component in the Fishbein model, the items Probability Difference and Utility might be regarded as indicative of subjects' evaluative beliefs about the consequences of stopping smoking (but obviously subjects may have had many other relevant beliefs that we failed to measure). We therefore predicted that Probability Difference and Utility would have a direct influence on Intention. However, as has been pointed out elsewhere (Eiser and Sutton, 1977; Sutton and Eiser, 1984), a crucial consideration in the application of expectancy-value concepts to the issue of smoking cessation is how probable smokers think it is that they will succeed in their attempt to stop. Therefore, Inten-

tion should also be directly influenced by Confidence, but the effect of Confidence on Behavior should be mediated by Intention.

The concept of expectancy is also the focus of Weiner's (Weiner and Kukla, 1970; Weiner *et al.*, 1979) attributional analysis of achievement motivation. This proposes that individuals form attributions for success and failure on the basis of observation of their own and others' attempts. The attribution of failure to stable factors (such as difficulty and personality) leads to a lower expectancy of success. However, it should make no difference in the expectancy of success (Confidence) whether failure is attributed to internal or external factors. We therefore predicted a negative effect of Stable (but not Internal) on Confidence but no direct effect on Intention or Behavior.

In view of the ambiguity of the predictions that would be made about those smokers who had never stopped for any time before (How well informed were their attributions and expectancies?), we confined our analysis to those subjects with complete data on the relevant variables who had indicated in the initial questionnaire that they had stopped for some time in the past ($N = 1102$). We used a three-way categorization of behavior (item, Tried) into those who had tried to stop (3), tried to cut down (2), or made no attempt (1).

Figure 1 represents the model specified by our hypotheses and shows the standardized beta weights obtained for the respective paths. No paths

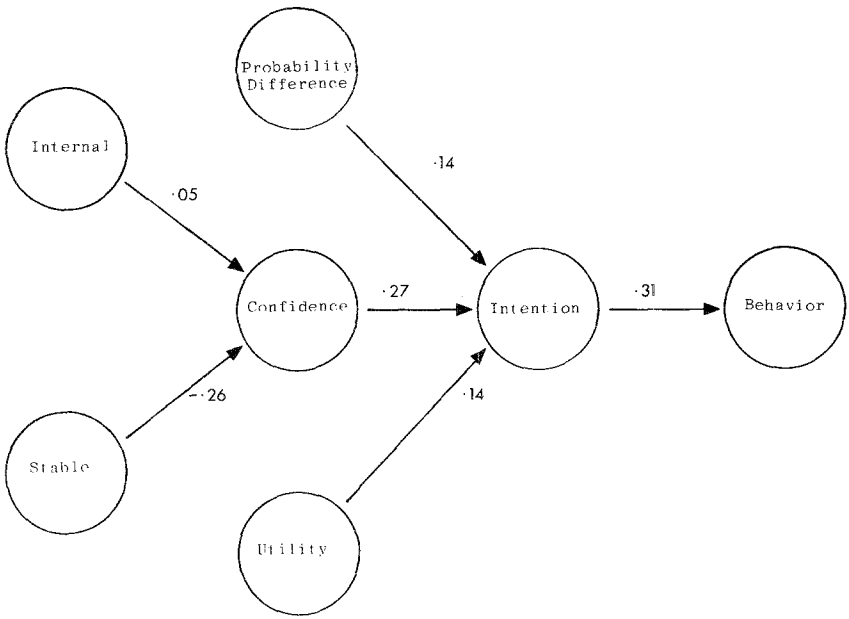

Fig. 1. Path analysis to predict behavior (attempts to stop or cut down) from antecedent variables, for 1102 smokers who had previously stopped but relapsed. Numbers refer to standardized beta weights.

other than those shown in the figure were significant. As predicted, Internal did not significantly affect Confidence [$F(1,1100) = 3.57$]. The F values for the other paths were all highly significant, as predicted: Stable to Confidence [$F(1,1100) = 82.52$, $P < 0.001$], Probability Difference to Intention [$F(1,1100) = 22.28$, $P < 0.001$], Confidence to Intention [$F(1,1100) = 88.53$, $P < 0.001$], Utility to Intention [$F(1,1100) = 20.93$, $P < 0.001$], and Intention to Behavior [$F(1,1100) = 118.19$, $P < 0.001$]. The regression of Confidence on Internal and Stable produced a multiple R of 0.27 [$F(2,1099) = 43.29$, $P < 0.001$], and the regression of Intention on Probability Difference, Confidence, and Utility produced a multiple R of 0.37 [$F(3,1098) = 57.15$, $P < 0.001$]. These data therefore provide substantial confirmation of our hypotheses.

Comparisons Between Triers and Nontriers at Follow-Up

The previous analyses have considered trying to stop as a dependent variable to be predicted from other measures. One may also ask, though, whether differences may be apparent between triers and nontriers in terms of their responses at the time of follow-up. It could be supposed that trying to stop but failing could influence attributions and other responses in a way that not trying at all would not. We therefore calculated difference scores to reflect changes from the initial questionnaire to the follow-up questionnaire on comparable items and examined whether these changes were different for triers and nontriers.

First, it is clear that those who tried to stop but failed at least managed to cut down more on their cigarette consumption than those who did not try to stop [on average, by 6.19 as opposed to 2.53 cigarettes per day ($t = 7.45$, df = 1637, $P < 0.001$)]. They also managed to achieve longer periods of abstinence before relapsing ($z = 5.93$, $P < 0.001$, by Mann–Whitney). Triers showed a slight decrease in self-attributed addiction, compared with no such decrease among nontriers (means, -0.05 vs 0.01 ($t = 2.02$, df = 1505, $P < 0.05$; $z = 2.15$, $P < 0.05$, by Mann–Whitney)]. However, in terms of Addiction 2, as opposed to the change scores, there was no difference between triers and nontriers. The Attribution 2 item showed various differences. Triers placed significantly more emphasis than nontriers on difficulty ($z = 2.86$, $P < 0.005$ by Mann-Whitney), less on effort ($z = 2.20$, $P < 0.05$), and more on luck ($z = 2.18$, $P < 0.05$). In terms of overall indices, triers made more stable self-attributions [means, 0.14 vs -0.27 ($t = 2.55$, df = 1140, $P < 0.02$; $z = 2.39$, $P < 0.02$, by Mann–Whitney)] but did not differ from nontriers in terms of internality.

Comparisons Between Abstainers and Relapsers

We next compared subjects who were abstinent at the time of the follow-up with those who had tried to stop but relapsed. Because we were not interested in comparing abstainers with those who had not tried to stop, and because of missing data, these analyses were performed on a restricted sample of 793, all of whom had tried to stop and 114 of whom were abstinent at the time of follow-up. Abstainers were somewhat lighter smokers to start with than relapsers [mean cigarette consumption, 22.56 vs 25.09 ($t = 2.27$, df = 791, $P < 0.05$)], experienced less irritability when deprived ($z = 3.81$, $P < 0.001$, by Mann–Whitney), experienced less withdrawal [means, 2.73 vs 2.92 ($t = 2.01$, df = 791, $P < 0.05$; $z = 2.16$, $P < 0.05$, by Mann–Whitney)], and saw themselves as less addicted [means, 3.35 vs 3.57 ($t = 3.34$, df = 784, $P < 0.001$; $z = 2.59$, $P < 0.01$, by Mann–Whitney)]. Abstainers were more likely to have stopped in the past ($z = 2.29$, $P < 0.05$, by Mann–Whitney) and, if so, for longer ($z = 5.85$, $P < 0.001$, by Mann–Whitney). They did not differ from relapsers in terms of either Probability Difference or Utility but had had greater Confidence [means, 2.70 vs 2.39 ($t = 3.38$, df = 782, $P < 0.001$; $z = 3.32$, $P < 0.001$, by Mann–Whitney)]. Their original intention to stop, however, was not significantly higher than that for relapsers. On the Attribution item, abstainers did not differ from relapsers in either their Stable or their Internal scores but had assigned less importance to difficulty ($z = 2.29$, $P < 0.05$, by Mann–Whitney). Abstainers did not differ from relapsers in their reasons for wanting to stop.

DISCUSSION

The results of this study provide strong evidence for the importance of social psychological variables in the prediction of smokers' intentions and behavior. The concepts of self-perception, attribution, and expectancy are of central importance within the literature on social cognition, but what has often been lacking is a demonstration that these can have long-term behavioral consequences. Similarly, while many studies have examined attitudinal correlates of smoking behavior, these correlations have often been ambiguous with regard to the direction of causality. We acknowledge the doubts that may be raised about our data in view of the circumstances in which we obtained our subjects, the low response rate, and our need to rely on self-reports. However, it is hardly an everyday occurrence for a half-million smokers, who want to quit, to come forward with names and addresses, and this special

occasion provided an opportunity to gather information of a rather special kind.

To summarize our findings by starting at the end, we found that smokers who were abstinent at follow-up were distinguishable from those who tried to quit but relapsed in terms of their responses to a number of items in a questionnaire administered about 1 year previously. Apart from smoking, on average, about 2.5 cigarettes per day less than failures before they tried to quit, abstainers reported fewer signs of dependence (withdrawal, irritability), described themselves as less addicted, and had a higher expectancy of success, all in the original questionnaire.

Moving one step back in the behavioral chain, whether subjects tried to stop or made no attempt was strongly related to their previously declared intentions to try to stop. Reduction of cancer risk (Probability Difference), Utility, and expectancy of success (Confidence) were also related to trying or not trying. These findings closely resemble those of Sutton and Eiser (1984) in an experimental study of the effects of fear-arousing communications on smoking intentions. Trying to stop smoking thus looks very much like a deliberate act to which familiar models of decision making may be applied with predictive success (Ajzen and Fishbein, 1982; Eiser and Sutton, 1977; Fishbein, 1982). The point made by Bentler and Speckart (1979) concerning the importance of previous behavior is reinforced, too, by our findings that previous abstinence predicted later attempts at cessation.

Subjects' answers to the Attribution question (asking why so many smokers failed in their attempts to quit) correspond well with the predictions derived from Weiner's (1979) attributional model of achievement motivation. As predicted, attribution of other smokers' failures to internal rather than external factors bore no significant relationship to subjects' expectancy that they themselves would succeed if they tried to stop. On the other hand, attribution of others' failure to stable as opposed to unstable factors was associated with a lower expectancy of success (and also a greater tendency to see oneself as addicted).

It is interesting to compare the attributions for others' failure with those that subjects later made for their *own* failure. Jones and Nisbett (1971) proposed that people tend to attribute others' behavior more to dispositional (internal) factors and their own behavior more to situational (external) factors. Eiser *et al.* (1978b) have suggested that these "self–other" differences may be relevant to the views of smoking held by smokers and nonsmokers respectively. Another set of predictions could be derived from the concept of "defensive attribution" (e.g., Shaver, 1970), according to which individuals may tend to offer explanations for negative events (for instance, their own failure) in order to deny personal responsibility.

Our data offer no support for either proposition. Self-attributions were more stable and internal than attributions about others. In particular, subjects emphasized knowledge less, and personality and effort more, in offering explanations for their own failure. The extent to which subjects saw themselves as addicted did not change significantly between the initial questionnaire and the follow-up. Despite ceiling effects, such a change might have been predicted if seeing oneself as addicted reflected merely a process of defensive attribution. Smokers who see themselves as addicts are pessimistic concerning their chances of giving up, but they do not necessarily seek defensive explanations for their failure or their addiction.

This study has a number of implications for smoking cessation. On numerical grounds alone, withdrawal clinics cannot be expected to make much impact on a public-health problem as enormous as that produced by cigarette smoking. However, it may be unduly defeatist to leave millions of reluctant smokers to their own devices. Although a proportion will succeed in stopping by themselves, there are still many more failures than successes.

The size of the public response to a simple offer of a "free antismoking kit" is a phenomenon in itself. At one level it testifies to the potential of television for triggering positive health behavior. At another level it shows how much many smokers feel they need help, even if they have never been near a withdrawal clinic. There is room for cynicism concerning the kind of "help" that would have been provided by the kits originally on offer (which included some unlicensed products of no proven effectiveness), and one may regard as misplaced the hope for purely technological or pharmacological solutions to what is primarily a behavioral problem. Even so, one should not dismiss lightly the possibility of exploiting the media for more widespread dissemination of appropriate advice and techniques.

In terms of how subjects viewed their smoking, the most striking findings are those relating to confidence, or expectancy of success at giving up. The initial sample split almost 50–50 into those who thought it was likely or unlikely that they would succeed, and responses to this item significantly distinguished abstainers from relapsers 1 year later. An important ingredient of any intervention may be to enable smokers to believe that *the situation has been changed* through new help, knowledge, or skills imparted to them, so that their previous failures are less relevant to their present expectations of success. The task is one not simply of devising clinically effective techniques of behavioral change, but of communicating these techniques with conviction to wider target populations, among whom a cognitive change may be needed if behavioral change is to be sustained. The possibility of such a cognitive change, however, will depend on wider environmental factors beyond the range of psychologically based interventions. If smokers regard

their environment as one that puts obstacles in the way of successful abstinence, their lack of confidence in their ability to quit may be neither unreasonable nor likely to be overcome by mere persuasion. Reliance on either clinics or the media for promotion of healthier behavior will be inadequate without a parallel public commitment to environmental change.

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