

Self-Exempting Beliefs about Smoking and Health: Differences between Smokers and Ex-Smokers

ABSTRACT

Objectives. The purpose of the present study was to examine the role of self-exempting or cognitive dissonance-reducing beliefs about smoking and health. Such beliefs may hold important implications for the content and targeting of health promotion campaigns.

Methods. A survey of smokers and ex-smokers was conducted in western Sydney, Australia. Six hypotheses were tested.

Results. The principal findings were (1) that 27.9% of smokers and 42.1% of ex-smokers agreed that smokers were more likely than non-smokers to get five smoking-related diseases; (2) that for 11 of 14 beliefs tested, more smokers than ex-smokers agreed to a statistically significant degree; (3) that the median number of such beliefs agreed to by smokers was five, compared with three for ex-smokers; (4) that for only 5 of 14 beliefs was agreement expressed by more precontemplative smokers than smokers contemplating or taking action to quit; (5) that more than one in four smokers, despite agreeing that smokers are more likely than non-smokers to get five diseases, nonetheless maintain a set of self-exempting beliefs.

Conclusions. Fewer smokers than ex-smokers accept that smoking causes disease, and smokers also maintain more self-exempting beliefs. Becoming an ex-smoker appears to involve shedding such beliefs in addition to accepting information about the diseases caused by smoking. (*Am J Public Health*. 1993;83:215-219)

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Introduction

Although smokers show less support for propositions about smoking and disease than do nonsmokers^{1,2} and report higher perceived personal immunity,³⁻⁶ there is nonetheless widespread acceptance among smokers that smoking is injurious to health. Might smokers mediate their acceptance of causal beliefs about smoking and disease through another set of false, misleading, or distracting beliefs about smoking that effectively serve to exempt them from personalizing these general acceptances? It may be that such self-exempting beliefs are more important to some smokers' attitudes about smoking than the more orthodox range of beliefs that have traditionally been the focus of reports in the literature.⁷

Self-exempting beliefs are probably best conceptualized as manifestations of a cognitive dissonance-reduction strategy⁸ developed when there is a perceived inconsistency between beliefs held and behaviors engaged in by a person. Few if any Australian smokers could have avoided considerable exposure to information designed to persuade them that their smoking was harmful.⁹ Such exposure, dissonance theory argues, creates an unpleasant tension, which may be partially relieved through recourse to various forms of denial. In explaining cognitive dissonance, Festinger wrote in 1957, "He [a smoker] might change his 'knowledge' about the effect of smoking. This sounds like a peculiar way to put it, but it expresses well what must happen. He might simply end up believing that smoking does not have any deleterious effects, or he might acquire so much 'knowledge' pointing to the good effects it has that the harmful aspects become negligible."⁸ In this paper we report on differences in self-exempting beliefs between

smokers and nonsmokers in an Australian sample from a low socioeconomic area.

Methods

Sample

A survey of current and former smokers aged 16 years and older living in the lowest ranked socioeconomic areas of western Sydney was conducted. (As in the United States, in Australia there is a marked inverse relationship between socioeconomic status and smoking.) Full details of the sampling procedure are available from the authors. Households containing smokers and ex-smokers received 745 precoded, self-administered, return postage-paid questionnaires. Respondents who returned the questionnaire were promised an instant lottery ticket potentially worth \$A50 000. Questions were included on beliefs about the consequences of smoking and 14 self-exempting beliefs. The latter were the 14 most prevalent beliefs derived from a pilot study¹⁰ inspired by casual remarks overheard from smokers. The statements were worded to reflect the way such beliefs had originally been expressed by those interviewed.

Hypotheses

Six hypotheses were tested:

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TABLE 1—Ex-Smoker:Smoker Relative Risks for Attributing Various Diseases to Cigarette Smoking

Disease or Symptom	Smokers Attributing		Ex-Smokers Attributing		Ex-Smokers:Smokers	
	No.	%	No.	%	Relative Risk	95% CI
Heart disease	190	58.1	91	79.1	0.73	0.64, 0.84*
Cough	257	79.8	105	89.0	0.90	0.82, 0.98*
Arthritis	33	10.7	15	14.0	0.76	0.43, 1.34 NS
Poor circulation	161	50.6	72	64.9	0.78	0.66, 0.93**
Bronchitis	191	59.7	80	71.4	0.84	0.72, 0.97*
Lung cancer	236	72.2	103	88.0	0.82	0.75, 0.90***
Stroke	151	46.9	67	59.8	0.78	0.65, 0.95*
Breathlessness	262	80.4	104	89.7	0.90	0.83, 0.97*

Note. NS = not significant. * $P < .05$; ** $P < .01$; *** $P < .001$.

1. That a significant proportion of smokers would agree that smokers were more likely than nonsmokers to develop five (smoking-related) diseases.

2. That more smokers than ex-smokers would hold each of the 14 self-exempting beliefs tested.

3. That smokers would maintain more self-exempting beliefs than would ex-smokers.

4. That proportionately more smokers at the precontemplative stage of smoking (i.e., those who are giving no thought to quitting) than smokers contemplating quitting or taking steps to quit would hold each self-exempting belief.

5. That precontemplative smokers would maintain more self-exempting beliefs than would smokers at later stages of change.

6. That a significant proportion of smokers who agreed that smoking caused the five named diseases would simultaneously maintain at least four self-exempting beliefs, and that the proportion of smokers doing this would be larger than the proportion of ex-smokers maintaining such beliefs.

Analytical Methods

Those who answered "Yes, and stopped completely" to the question "Have you ever tried to give up smoking altogether?" were classified as ex-smokers. Smokers were asked to indicate where they belonged on a three stages-of-change model of smoking (precontemplation, contemplation, and action stages).¹¹

The χ^2 statistic was used to assess associations between categorical variables. Factor analysis of responses to 14 self-exempting beliefs by three categories (all subjects, smokers, and ex-smokers) was conducted. Proportions, confidence

intervals, and relative risks were calculated for variables of interest. Confidence intervals (CIs) for medians¹² were calculated to test hypotheses 3 and 5.

Results

After two reminder letters, 471 questionnaires (63.2%) had been returned by 217 women, 251 men, and respondents whose sex was not indicated. Before the final response rate was determined, a subsample of nonrespondents were sent lottery tickets and a promise of another ticket on return of the questionnaire. This produced a 5.2-fold increase in returns for this subsample compared with those not sent lottery tickets.¹³

Beliefs about Smoking and Disease

All respondents were asked to indicate whether they agreed, disagreed, or were uncertain that people who smoked were more likely than nonsmokers to get five diseases (heart disease, poor circulation, bronchitis, lung cancer, and stroke) and two symptoms (cough and breathlessness). One disease with no known relationship to smoking—arthritis—was also included as a measure of any possible set response bias. The numbers of smokers and ex-smokers who agreed with each proposition are shown in Table 1. Consistently fewer smokers than ex-smokers agreed that smoking caused the five diseases and two symptoms; there were statistically significant differences in agreement with each item, ranging from 50% to 80% for smokers, compared with 65% to 90% for ex-smokers. In contrast, only 11% of smokers and 14% of ex-smokers thought that smoking caused arthritis.

As predicted in hypothesis 1, just over a quarter of smokers (27.9%; 95%

CI = 23.0%, 32.8%) and 42.1% of ex-smokers (95% CI = 33.3%, 50.9%) agreed that smokers were more likely than nonsmokers to get each of the five smoking-related diseases. For all of these diseases, there were statistically significant differences in the responses of smokers and ex-smokers. Arthritis was the only disease for which there was no meaningful or significant difference between smokers and ex-smokers, providing evidence against a set response bias.

The 14 self-exempting items were presented with five-point response scales ranging from "strongly agree" to "strongly disagree." "Strongly agree" and "agree" responses were combined in the analysis, as were "strongly disagree" and "disagree." Factor analyses identified no homogenous factors in the responses to the 14 items by all respondents, smokers, or ex-smokers. Table 2 shows that for 11 of the 14 statements, statistically significant differences ($P < .05$) occurred between smokers and ex-smokers; these differences were highly statistically significant ($P < .01$) for 9 statements. Hypothesis 2 was thus strongly supported.

Nearly half of the smokers in this study maintained five or more such self-exempting beliefs. The median number of such beliefs agreed to by smokers was 5 (95% CI = 5,6), compared with 3 (95% CI = 2,4) for ex-smokers. Thus, hypothesis 3 was also strongly supported.

Responses by ex-smokers who had quit smoking before 1980 were compared with responses of those who had quit after that year. For 11 of 14 self-exempting beliefs, a larger proportion of post-1980 than pre-1980 ex-smokers agreed, although in no case was the difference in proportions statistically significant.

Table 2 also shows the responses to the self-exempting beliefs by smokers at three different stages of change. When the responses of precontemplative smokers were compared with those of other smokers (in the contemplative and taking-action phases combined), statistically significantly larger proportions of precontemplative smokers expressed agreement for only three beliefs. Thus hypothesis 4 was not nearly as strongly confirmed as its parallel hypothesis (2), which compared the responses of smokers and ex-smokers.

Similarly, the median number of self-exempting beliefs adhered to by smokers at three stages of change was virtually identical at 5, with nonsignificant overlapping 95% confidence intervals (precontemplative 5,8; contemplative 5,6; taking action 4,6). Thus, with the exception of three be-

TABLE 2—Agreement with Self-Exempting Beliefs by Smokers at Three Stages of Change and by Ex-Smokers

	Smokers' Stages of Change										Smokers:Ex-Smokers	
	Precontem- plation		Contem- plating		Taking Action		Total Smokers		Ex- Smokers			
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	Relative Risk	(95% CI)
Most people who quit smoking put on weight	47	(78)	156	(83)	47	(77)	258	(80)	78	(66)	1.2	(1.1, 1.4)**
A lot of doctors smoke	41	(68)	105	(56)	37	(61)	191	(59)	58	(49)	1.2	(1.0, 1.5) NS
If you started smoking when you were young, the damage is already done	27	(45)	101	(54)	38	(62)	172	(53)	51	(43)	1.2	(1.0, 1.6) NS
The medical evidence that smoking causes cancer is not convincing	33	(55)	77	(41)	29	(48)	146	(45)	29	(24)	1.8	(1.3, 2.6)****
If smoking was really harmful, the government would ban tobacco advertising	26	(43)	81	(43)	26	(43)	136	(42)	37	(31)	1.3	(1.0, 1.8) NS
Most lung cancer is caused by air pollution, petrol fumes, etc.	32	(53)	70	(37)	29	(48)	135	(42)	22	(19)	2.2	(1.5, 3.3)****
Most people smoke	26	(43)	69	(37)	20	(33)	121	(38)	23	(20)	1.9	(1.3, 2.8)****
Cigarette smoking is not an important enough health hazard for the government to do something about it	33	(55)***	60	(32)	17	(28)	116	(36)	16	(14)	2.6	(1.6, 4.2)****
I think you have to smoke a lot more than I did/do to put your health at risk	29	(48)	61	(32)	19	(31)	113	(35)	27	(23)	1.5	(1.1, 2.2)*
Many people who smoke all their lives live to a ripe old age, so smoking is not all that bad for you	31	(52)****	57	(30)	13	(21)	105	(32)	13	(11)	2.9	(1.7, 5.0)****
Physical activity and sports stretch the lungs and get the tar out of your system	13	(22)	46	(24)	22	(36)	86	(27)	19	(16)	1.6	(1.1, 2.6)*
It's safe to smoke low-tar cigarettes	21	(35)*	46	(24)	10	(16)	80	(25)	9	(8)	3.2	(1.7, 6.2)****
Cigarette smoking has no serious effects on nonsmokers	17	(28)	33	(18)	11	(18)	63	(20)	10	(9)	2.3	(1.2, 4.4)**
Smoking less than 20 cigarettes per day is safe	15	(25)	30	(16)	9	(15)	56	(18)	7	(6)	3.1	(1.4, 6.6)**

Note. Twenty-three smokers did not answer the stage-of-change question, so row totals of first three columns do not equal the number of smokers shown in the total Smokers column. NS = not significant.
* $P < .05$; ** $P < .01$; *** $P < .005$; **** $P < .001$.

beliefs marked as statistically significant in Table 2, there was little difference in adherence to self-exempting beliefs between smokers at different stages of change in relation to quitting. Thus, hypothesis 5 was not confirmed.

We tested whether people could agree that smoking was injurious to health while at the same time maintaining various self-exempting beliefs. Table 3 shows the adherence to self-exempting beliefs by those respondents (27.9% of

smokers; 95% CI = 23.0%, 32.8%; 42.1% of ex-smokers; 95% CI = 33.3%, 50.9%) who agreed that smokers were more likely than nonsmokers to get all five of the diseases listed in Table 1. Again, our hypothesis (6) was overwhelmingly borne out. For 9 of 14 self-exempting beliefs, at least 25% of such smokers agreed. Thus more than one in four smokers, despite agreeing that smokers are more likely than nonsmokers to get these five diseases, maintain a

constellation of self-exempting beliefs. Among these, several appear to function as clear personal exemptions: "If you started smoking when you were young, the damage is already done" (66.7% of "disease believing" smokers agreed); "A lot of doctors smoke" (51.7% of smokers agreed); "The medical evidence that smoking causes cancer is not convincing" (34.8% of smokers agreed); "I think you have to smoke a lot more than I do to put your health at risk" and "Most lung

TABLE 3—Agreement with Self-Exempting Beliefs by Those Believing that Smoking Causes Five Diseases

Self-Exempting Belief	Ex-Smokers Agreeing (n = 51)		Smokers Agreeing (n = 90)		Smokers:Ex-Smokers	
	No.	(%)	No.	(%)	Relative Risk	(95% CI)
Most people who quit smoking put on weight	34	(66.7)	72	(80.9)	1.21	(0.98, 1.51) NS
A lot of doctors smoke	24	(47.1)	45	(51.7)	1.10	(0.77, 1.57) NS
If you started smoking when you were young, the damage is already done	23	(45.1)	60	(66.7)	1.48	(1.06, 2.07)*
The medical evidence that smoking causes cancer is not convincing	9	(17.6)	31	(34.8)	1.97	(1.02, 3.81)*
If smoking was really harmful, the government would ban tobacco advertising	14	(27.4)	29	(32.2)	1.17	(0.69, 2.01) NS
Most lung cancer is caused by air pollution, petrol fumes, etc.	4	(7.8)	27	(30.3)	3.87	(1.43, 10.43)**
Most people smoke	9	(18.0)	24	(27.3)	1.52	(0.77, 3.00) NS
Cigarette smoking is not an important enough health hazard for the government to do something about it	5	(9.8)	22	(24.4)	2.49	(1.01, 6.18)*
I think you have to smoke a lot more than I did/do to put your health at serious risk	11	(22.0)	27	(30.3)	1.38	(0.75, 2.54) NS
Many people who smoke all their lives live to a ripe old age, so smoking is not all that bad for you	2	(3.9)	9	(10.0)	2.55	(0.57, 11.35) NS
Physical activity and sports stretch your lungs and get the tar out of your system	8	(15.7)	24	(27.3)	1.74	(0.84, 3.58) NS
It's safe to smoke low-tar cigarettes	0	(0.0)	17	(19.3)
Cigarette smoking has no serious effects on nonsmokers	2	(3.9)	11	(12.5)	3.19	(0.74, 13.82) NS
Smoking less than 20 cigarettes per day is safe	0	(0.0)	9	(10.0)

Note. NS = not significant.
* $P < .05$; ** $P < .01$; *** $P < .001$.

cancer is caused by air pollution, petrol fumes, etc.” (30.3% of smokers agreed with both statements); “Physical activity and sports stretch the lungs and get the tar out of your system” (27.3% of smokers agreed). For all 14 statements, more “disease believing” smokers than ex-smokers agreed with the self-exempting beliefs.

Discussion

Our findings on hypotheses 2 and 3 lend strong support to the dissonance-reduction theory. However, we emphasize that this study does not allow any firm conclusion to be drawn about whether maintenance of self-exempting beliefs is in any way instrumental in preventing ces-

sation. The data do not allow us to argue that the ex-smokers in the sample may, before quitting, have held a range of self-exempting beliefs comparable to those of the smokers we studied. However, in comparison with differences between smokers and ex-smokers, smokers at different stages of change show little difference in the maintenance of such beliefs. Thus, we believe it is likely that a significant degree of shedding of such beliefs accompanies successful cessation, rather than the beliefs' gradual reduction through the stages of change and after cessation. A cohort study would be required to determine whether this was in fact the case.

Public information campaigns about smoking often infer a knowledge gap about the association between smoking and health and attempt to address this gap: It is reasoned that a more informed smoker is more likely to quit than one who is more ignorant of the smoking-disease nexus. Our results suggest that almost all smokers, even if they do have knowledge about this association, may maintain an active set of erroneous or self-exempting beliefs about smoking that may well be in the forefront of their assessment of smoking. This may be the case particularly for the more than one in four smokers who accept that smoking places smokers at greater health risk than nonsmokers. We do not suggest that the decision to stop or to continue smoking is based solely or even largely on the presence or absence of such beliefs. However, they may work to “exempt” a proportion of smokers from otherwise actively considering quitting.

Are there any of the 14 self-exempting beliefs we examined in this study that seem especially important? Two criteria might be used to rank each belief: the prevalence of agreement with a belief among smokers and the relative risk of the likelihood of smokers' and ex-smokers' holding a belief. When the beliefs are ranked according to these criteria, no belief appears in the first five rankings of both lists. Some beliefs are common in both smokers and ex-smokers, most especially “Most people who quit smoking put on weight,” “a lot of doctors smoke,” and “If you started smoking when you were young, the damage is already done.” Compared with the other beliefs examined, the prevalence of these three beliefs does not appear to lessen significantly after people have quit smoking; these beliefs remain disturbingly common regardless of smoking status. Efforts to address these widespread beliefs would clearly be im-

portant in any comprehensive program of reducing misinformation about smoking in the community.

The apparent "belief shedding" we noted when comparing smokers and ex-smokers may be a potentially important phenomenon. By subtracting the prevalence of agreement for each belief among ex-smokers from its prevalence among smokers and then ranking the residuals from highest to lowest, we found that the following five beliefs share the characteristics of being both prevalent among smokers and less prevalent among ex-smokers:

1. Most lung cancer is caused by air pollution, petrol fumes, etc.
2. Cigarette smoking is not an important enough health hazard for the government to do something about it.
3. The medical evidence that smoking causes cancer is not convincing.
4. Most people smoke.
5. It's safe to smoke low-tar cigarettes.

These beliefs are those that our evidence suggests often appear to be discarded by ex-smokers, although we emphasize that they remain disturbingly common even among ex-smokers. Three of these beliefs (1, 4, and 5) are simply false and could be readily addressed in sustained public information campaigns. Beliefs 2 and 3 are more obtuse and seem less likely to yield to direct challenges. Several of the other 9 beliefs also could be addressed in such campaigns, with dis-

tinct possibilities arising in the area of revised health warnings on cigarette packs.

Our results suggest possibilities for a different approach to public information about smoking and health. Rather than simply assuming the task of education to be one that addresses a lack of information, it may be equally important to address misinformation of the sort suggested by our research. A major question for health promotion arises from this study: Would interventions that succeeded in undermining the maintenance of such self-exempting beliefs assist in promoting more successful quit attempts in smokers?

How resilient is cognitive dissonance? If the particular beliefs we have researched could be successfully undermined through health promotion campaigns, we concede that it is possible that a virtually inexhaustible number of similar statements (e.g., "Just about everything causes cancer these days") might easily fill the cognitive vacuum that remained. Further research, particularly using qualitative approaches, seems likely to enhance understanding of the natural history of smoking cessation. □

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