

How do prompts for attempts to quit smoking relate to method of quitting and quit success?

*Michael Ussher¹ Ph.D., Jamie Brown² MSc., Abirami Rajamanoharan¹ BSc.,
Robert West² Ph.D.

**Corresponding author:* musser@sgul.ac.uk

¹ Division of Population Health Sciences and Education, St George's University of London,
Cranmer Terrace, London, UK

² Health Behaviour Research Centre, Department of Epidemiology & Public Health,
UCL, Gower Street, London, UK

Acknowledgements: This study was funded by Cancer Research UK. JB was part funded by Pfizer under an investigator initiated award. MU, RW and JB are members of the UK Centre for Tobacco Control Studies.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

How do prompts for attempts to quit smoking relate to method of quitting and quit success?

ABSTRACT

1
2 **Background:** Understanding how prompts for quit attempts relate to quitting methods and
3
4 success may help improve the effectiveness of smoking cessation interventions. **Purpose:** To
5
6 establish whether specific prompts for quitting are associated with quitting method and
7
8 success. **Methods:** Using a cross-sectional design, 6,126 past-year smokers who had tried to
9
10 quit in the last 12 months were asked to identify the prompts contributing to their most recent
11
12 attempt. **Results:** After adjusting for potential confounders, quit attempts prompted by health
13
14 professional advice were significantly more likely to involve use of treatments and gradual
15
16 rather than abrupt cessation (ORs (95% CIs) = 3.64 (3.14-4.22), 0.68 (0.59-0.78);
17
18 respectively), but were not more likely to succeed. Attempts prompted by concern about
19
20 current or future health, or cost, were significantly more likely to succeed (OR (95% CIs)
21
22 =1.79 (1.38-2.32), 1.25 (1.01-1.54), 1.41 (1.13-1.76); respectively). **Conclusions:** Quit
23
24 attempts prompted by health professional advice appear to be more likely to involve gradual
25
26 reduction and use of treatments, while those prompted by health concerns and cost appear
27
28 more likely to be successful.
29
30
31
32
33
34
35
36
37
38

39 Key words: Smoking cessation, smoking abstinence, triggers, prompts, cessation method
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

INTRODUCTION

1
2 Evidence from surveys suggests that the main reason smokers give for wanting to stop, in
3
4 countries such as the US and UK, is concern about health followed by cost and social
5
6 concerns (1,2). There is also evidence that specific events, such as being advised to stop by a
7
8 health professional or seeing an anti-smoking advertisement, can trigger quit attempts (3). A
9
10 significant gap in the literature concerns how different prompts that contribute to quit
11
12 attempts influence the way those quit attempts are conducted and their ultimate success. This
13
14 study addressed that gap.
15
16
17
18

19 If some prompts to quitting are associated with a higher chance of success than others, it
20
21 would make sense to focus on these in any interventions. An obvious example is advice from
22
23 a health professional. It would be hoped that quit attempts that were prompted by such advice
24
25 would be more likely to use one or more of the evidence based methods of quitting
26
27 (behavioural support and/or medication such as nicotine replacement therapy) and as a result
28
29 be more likely to succeed (4-7). In the UK, health professionals are encouraged to
30
31 recommend these treatments (8). Due to evidence that gradual cigarette reduction is
32
33 associated with lower success rates (9), it is also recommended that smokers try to stop
34
35 abruptly rather than gradually (8). Therefore, health professional advice might be expected to
36
37 be associated with a higher rate of abrupt quits. Use of assistance from the UK National
38
39 Health Service is likely to require planning the quit attempt in advance and so if health
40
41 professionals are promoting quitting one would expect those quit attempts to be more likely
42
43 to involve pre-planning. Other things being equal this might undermine quit success if
44
45 smokers who were ready to stop at a given time are led to delay the quit attempt (10-13).
46
47
48
49
50
51
52
53 When it comes to prompts other than health professional advice, there is an important
54
55 question about whether health concerns, cost and family concerns (the most common ones
56
57 cited in the literature) have any influence on method of quitting or quit success. Of relevance
58
59
60
61
62
63
64
65

1 here is the PRIME theory of behaviour change (14), which argues that **R**esponses are
2 influenced by a wide variety of motivational inputs, from **I**mpulses and inhibitory forces,
3
4 through **M**otives arising from desires, drives, and emotional states, to **E**valuations and **P**lans;
5
6 the exact course of action is said to be determined on a moment-to-moment basis depending
7
8 on which inputs are salient. In the present context, PRIME theory would lead to the view that
9
10 any prompt that was emotionally salient and could retain that emotional salience after the quit
11
12 attempt had started would contribute to the success of that quit attempt. The theory (14)
13
14 would also lead to the prediction that, other things being equal, the greater the number of
15
16 prompts contributing to a quit attempt the more likely it would be to succeed. This is because
17
18 motivational forces are believed to summate when present at the same time, however diverse
19
20 their source (14).
21
22
23
24
25

26 Six prospective studies were identified which assessed whether specific reasons for
27
28 wanting to quit predict success at quitting (15-20). One of these studies (16) observed that
29
30 giving pregnancy as a reason was associated with a significantly increased likelihood of
31
32 quitting; the other studies found no association with quit success. Prospective studies have the
33
34 advantage over retrospective studies that there is less risk of biased recall. However, as these
35
36 studies survey reasons for wanting to quit in advance of a quit attempt, rather than surveying
37
38 what prompted a specific attempt, they focus on assessing attitudinal or internal reasons for
39
40 quitting (e.g., health concerns) and do not assess the environmental cues prompting an
41
42 attempt (e.g., health professional advice). All these studies were also limited by assessing a
43
44 narrow range of reasons for quitting; other limitations included: focussing only on comparing
45
46 intrinsic versus extrinsic reasons for quitting as predictors of success (17), a specific ethnic
47
48 population (15), a range restriction with the vast majority individuals citing health reasons,
49
50 thereby reducing the power to detect an association with abstinence (15), or not reporting the
51
52 frequency for the different reasons (16), and collecting data around 30 years ago (16,18,20)
53
54
55
56
57
58
59
60
61
62
63
64
65

1 when important prompts such as health professional advice and smoking restrictions were of
2 less prominence than they are now.
3

4 In a retrospective study, Vangeli and colleagues (3) assessed whether any prompts
5 contributing to a specific quit attempt predicted quit success. They also assessed associations
6 between smoking characteristics, socio-demographic factors and reports of quitting prompts.
7 The most prevalent prompts (reported by at least 5% of respondents), in order of frequency,
8 were: future health concerns, current health concerns, cost of smoking and health professional
9 advice. Smoking restrictions was the only prompt shown to predict quitting success. In
10 addition, older individuals were more likely to report the prompts of current health concerns
11 and health professional advice; younger respondents more frequently cited future health
12 concerns and knowing someone else who was quitting; men were more likely to report future
13 health concerns; women were more likely to report health professional advice; those of a
14 higher social grade more frequently cited future health concerns, and those of a lower social
15 grade more frequently cited current health concerns and cost. However, participants were
16 only allowed to cite one prompt and potentially confounding variables (e.g., dependence)
17 were not considered. No previous studies could be identified assessing associations between
18 prompts contributing to attempts to quit smoking and method of quitting.
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40

41 The present study used data from a national survey of English smokers who had made
42 at least one attempt to quit smoking in the previous year. The main questions addressed were:
43 1) are different prompts for quitting associated with different methods of quitting, and 2) are
44 specific prompts associated with different chances of success of the quit attempt? The study
45 also aimed to update Vangeli et al's observations about prevalence of different quitting
46 prompts and about smoking characteristics and socio-demographic factors associated with
47 different prompts. The following hypotheses were tested: (i) in accordance with National
48 Health Service guidelines, reports of health professional advice as a prompt will be associated
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

1 with assisted, planned and abrupt methods of quitting; (ii) reports of health professional
2 advice as a prompt will be associated with successful quitting, as those who report this
3 prompt should be more likely to pursue evidenced-based methods of quitting; (iii) as
4 predicted by PRIME theory, prompts that are continually present in the smoker's experience,
5 and that therefore have the potential to retain emotional salience after the quit attempt, are
6 most likely to be associated with quit success (i.e., current health problems, cost of smoking,
7 family pressure); and (iv), again, as predicted by PRIME theory, those reporting a greater
8 number of prompts will be more likely to have succeeded at quitting.
9

10 **METHODS**

11 This study was part of the "Smoking Toolkit Study", which is an ongoing national household
12 survey designed to provide information about smoking prevalence and behaviour (21). Each
13 month a new sample of approximately 1,800 adults aged 16 and over completes a face-to-
14 face computer-assisted survey, of whom about 450 have smoked in the past year. The survey
15 methods have been described in full elsewhere and have been shown to result in a sample that
16 is nationally representative in its socio-demographic composition (22).
17

18 **Study population**

19 Using a cross-sectional design, data were used from respondents to the survey in the period
20 from May 2009 (the wave in which the current measure of quitting prompts was added to the
21 survey) to July 2012, who reported smoking cigarettes (including hand-rolled) or any other
22 tobacco product (e.g. pipe or cigar) daily or occasionally in the 12 months previous to the
23 survey and who reported making at least one quit attempt in the last 12 months.
24

25 **Measures**

26 *Quit attempts in the previous 12 months*
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

Individuals were asked: “How many serious attempts to stop smoking have you made in the last 12 months? By serious attempt I mean you decided that you would try to make sure you never smoked again. Please include any attempt that you are currently making and please include any successful attempt made within the last year”. This is a standard question used in surveys of this kind. Such questions need to focus on the mental act of ‘trying’ rather than behavioural outcomes (e.g., not smoking for 24 hours or more) to avoid confounding with quit success. While in theory a quit attempt may not involve the intention never to smoke again, it is very rare for smokers to stop without such an intention (23).

Prompts for attempts to quit smoking

Individuals were presented with the list of prompts previously used by Vangeli and colleagues (3): “Which of the following do you think contributed to you making the most recent quit attempt?” Unlike the study by Vangeli and colleagues, respondents were allowed to select as many options as they considered to be appropriate from the following list: 1) Advice from a GP\health professional; 2) TV advert for a nicotine replacement product; 3) government TV\radio\press advert; 4) hearing about a new stop smoking treatment; 5) a decision that smoking was too expensive; 6) being faced with smoking restrictions; 7) I knew someone else who was stopping; 8) seeing a health warning on a cigarette packet; 9) being contacted by my local National Health Service Stop Smoking Services; 10) health problems I had at the time; 11) a concern about future health problems; 12) attending a local stop smoking activity or event; 13) something said by family\friends\children; 14) a significant birthday; 15) Other (please specify); 16) Don’t know/can’t remember. ‘Other’ responses were subsequently categorised as follows: 17) worried for children, 18) knew someone who was ill/had died from smoking; 19) pregnancy; 20) going on holiday; 21) Just decided to quit; 22) Other. When considering the entire list, it contained ‘internal’ or attitudinal prompts (i.e., thoughts and feelings; for example, relating to health concerns), and external prompts relating

1 to personal events (e.g., pregnancy) or environmental cues (e.g., TV advert, health
2 professional advice). To minimise confabulation, respondents were permitted simply to say
3 that they did not know or could not remember.
4

5 6 7 *Method of quitting smoking*

8
9 Questions were included relating to three different aspects of method: 1) whether the quit
10 attempt was assisted by treatment in the form of a stop-smoking medicine or behavioural
11 support versus not using medication or behavioural support; 2) whether the attempt was
12 planned in advance or made without any pre-planning; and 3) whether the smoker stopped
13 abruptly or tried to cut down gradually.
14
15
16
17
18
19
20

21
22 Regarding whether the quit attempt used some form of treatment, individuals were
23 presented with a list of possible aids to cessation and were asked to identify which aids they
24 had used. The responses were dichotomized into “assisted” attempts (i.e., those using the
25 recommended medications (nicotine replacement therapy, bupropion or varenicline, or
26 behavioural support, including telephone helplines - this is a common summation and has the
27 largest impact on outcome) versus “unassisted” attempts (i.e., all aids other than the
28 recommended medications or support, or no aids used, or cannot remember).
29
30
31
32
33
34
35
36
37
38

39 Respondents were also asked: “Did you cut down the amount you smoked before trying to
40 stop completely at your most recent serious quit attempt?” The responses were: 1) cut down
41 first; 2) stopped without cutting down; or 3) don’t know/can’t remember. Lastly, they were
42 asked: “Which one of the following applies to your most recent serious quit attempt?”: 1) I
43 planned the quit for later the same day or for a date in the future; 2) I started the quit attempt
44 the moment I made the decision I was going to stop; or 3) don’t know or can’t remember.
45
46
47
48
49
50
51
52

53 *Smoking abstinence*

54
55
56
57
58
59
60
61
62
63
64
65

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

Individuals were asked: “How long did your most recent serious quit attempt last before you went back to smoking?” (1) still not smoking; (2) less than a day; (3) less than a week; (4) more than 1 week and up to a month; (5) more than 1 month and up to 2 months; (6) more than 2 months and up to 3 months; (7) more than 3 months and up to 6 months; more than 6 months and up to a year. Responses were dichotomised into “still not smoking” and “currently smoking”.

Other measures

Respondents provided data on age, gender, and occupation of the chief income earner in the household, which was used to derive social grade as outlined in the British National Readership Survey (24, see Table 1.) Strength of urges to smoke has been shown, in this population, to be a stronger predictor of relapse than more traditional measures of dependence (25); therefore these urges were assessed by asking "In general, how strong have the urges to smoke been?" (0=no urges to smoke to 5=extremely strong) (25).

Length of time since the quit attempt started was assessed in order to adjust for this when predicting success of the quit attempts and also to check for recall bias, with some prompts potentially being forgotten more quickly than others. Participants were asked: “How long ago did your most recent serious quit attempt start? By most recent, we mean the last time you tried to quit”: (1) in the last week; (2) more than a week and up to a month; (3) more than 1 month and up to 2 months; (4) more than 2 months and up to 3 months; (5) more than 3 months and up to 6 months; (6) more than 6 months and up to a year; or (7) don’t know/can’t remember.

Analysis

First, the frequencies with which each prompt was reported were assessed. To preserve acceptable statistical power for measures of associations involving prompts these analyses

1 were restricted to prompts reported by at least 5% of respondents. For these prompts, logistic
2 regressions were used to examine associations between each prompt and:
3

4 (i) Socio-demographic and smoking characteristics: In the unadjusted analysis each prompt
5 (dependent variable) was regressed onto each of the demographic and smoking related
6 variables of age, gender, social grade, strength of urges to smoke and time since the most
7 recent quit attempt. In the adjusted analysis, each prompt was regressed against each
8 demographic and smoking variable, while adjusting for all the remaining demographic and
9 smoking characteristics. The score for the total number of prompts was also regressed onto
10 each of these characteristics (unadjusted model) and these regressions were then repeated
11 while adjusting for all the demographic and smoking characteristics.
12
13

14 (ii) The reported method of quitting: In the unadjusted analysis the three methods of quitting
15 (abrupt versus gradual cessation, planned versus unplanned and assisted versus unassisted –
16 dependent variables) were separately regressed on to each of the prompts. In the adjusted
17 analysis, adjustment was made for all the demographic and smoking characteristics listed in
18 (i), for the two other methods of quitting which were not the dependent variable, and for all
19 the other prompts. In a sensitivity analysis, we also considered the associations with prompts
20 when treating assistance with medications and assistance with behavioural support as
21 separate variables.
22
23

24 (iii) Whether respondents were abstinent from smoking: In the unadjusted models smoking
25 status (dependent variable) was regressed separately onto each prompt. In the adjusted
26 analysis adjustments were made for demographic and smoking characteristics, for the three
27 methods of quitting and for all the other prompts. Smoking status was also regressed onto the
28 total number of prompts; first without adjustments and then with adjustments for all the
29 demographic and smoking characteristics and for the three quitting methods.
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

1 For all regressions, adjusted and unadjusted findings are presented. Bivariate associations
2 between reports of each prompt and reports of the other prompts were examined using
3 tetrachoric correlations, particularly to check for collinearity that might interfere with the use
4 of all the prompts in the logistic regression models. Additionally, we used chi-squared tests to
5 examine associations between the different methods of quitting. To check whether the order
6 of the list of prompts affected the likelihood of citing a prompt, item order was correlated
7 with the frequency of reports of each prompt. SPSS version 19 was used and, throughout, the
8 level of significance was set at $p < 0.05$.

19 **RESULTS**

20 Of 14,316 responders who reported smoking in the year previously, 42.8% ($n=6,126$)
21 reported making at least one quit attempt in the last 12 months and were included in the
22 analysis. The demographic and smoking characteristics of these 6,126 individuals are
23 presented in Table 1. Eighty-nine percent (5464) reported at least one prompt contributing to
24 their most recent quit attempt, 2.6% (159) reported just deciding to quit and 8.2% (503) did
25 not know or could not remember. Among those reporting specific prompts, the large majority
26 (77.3%) reported just one prompt, 14.0% reported two, 5.8% reported three and the
27 remainder reported between four and eight. For 60% of individuals the most recent quit
28 attempt started at least 3 months ago.

29 Table 2 presents the percentage of respondents who reported each prompt as contributing
30 to their most recent quit attempt. Advice from a GP/Health professional was the prompt cited
31 most often, at around a quarter of quit attempts, followed by concern for future health
32 problems, cost, family pressure, current health and someone else stopping. Other prompts,
33 including government media campaigns, were reported by fewer than 5% of respondents. The
34 associations between reports of each prompt and reports of the other prompts were all low

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

($r < 0.2$). The order of the prompts in the questionnaire was not significantly correlated with the frequency of reporting each prompt.

Prompts and demographic and smoking characteristics

In the adjusted analysis (see Table 3: unadjusted and Table 4: adjusted), smokers with lower social grade were significantly less likely than those with higher social grade to report future health, cost, family pressure and someone else quitting, and were significantly more likely to cite the prompt of health professional advice. Social grade was not related to reporting current health as a prompt. Those who were older were more likely to cite health professional advice and current health, whereas, those who were younger were more likely to report the prompts of future health, family pressure or someone else quitting. Age was not associated with 'cost' as a prompt. Significantly more men than women cited future health as a prompt and gender was not associated with any other prompts. Individuals reporting a stronger urge to smoke were more likely to report the prompts of health professional advice and cost, but urge was not related to 'future health', 'family pressure', 'current health' or 'someone else quitting'. In addition, those with lower social grade cited significantly fewer prompts, but none of the other demographic/smoking characteristics were associated the number of prompts cited.

Regarding time since the quit attempt, health professional advice was slightly more likely to be reported for attempts made more recently. Family pressure and current health were slightly more likely to be reported as prompting attempts made longer ago.

Prompts and method of quitting smoking

Regarding the method of stopping smoking, around half of respondents: quit abruptly (54.8%), had a planned quit attempt (49.5%), and were assisted in that attempt by medications or support from health professionals (53.4%). Those using an assisted method were more likely to reporting cutting down and planning ($\chi=32.27$, $\chi=280.47$, respectively,

1 both at $p < 0.001$); while those taking a planned approach were more likely to report cutting
2 down ($\chi^2 = 328.70$, $p < 0.001$). In the adjusted analysis (see Table 5: unadjusted and Table 6:
3
4 adjusted), reporting health professional advice as a prompt was associated with a significantly
5 greater likelihood of gradual rather than abrupt quitting and with an assisted quit attempt, but
6
7 was not associated with whether a planned or more spontaneous approach to quitting was
8
9 adopted. Concern about future health as the prompt was associated with planning, but was not
10
11 associated with the other quitting methods. Concern about the expense of smoking was
12
13 associated with a planned and assisted method, but was not associated with using a gradual or
14
15 abrupt method. Family pressure was not associated with any of the methods. Concern about
16
17 current health was only associated with using an unplanned method. Finally, ‘someone else
18
19 quitting’ was only associated with a planned and assisted approach. In a sensitivity analysis,
20
21 we considered the associations with prompts when examining assistance with medications
22
23 and assistance with behavioural support as separate variables and the pattern of results was
24
25 unchanged compared with combining these variables.
26
27
28
29
30
31
32

33 **Prompts and smoking abstinence**

34
35 In the adjusted analysis, concern about current or future health or costs were significantly
36
37 associated with an increased likelihood of still being abstinent at the time of the survey (see
38
39 Table 5: unadjusted and Table 6: adjusted). The more prompts were cited the greater the
40
41 likelihood of still being abstinent (unadjusted: $\beta = 0.09$, $p = 0.027$, OR = 1.10 (1.01-1.19);
42
43 adjusted: $\beta = 0.14$, $p = 0.004$, OR = 1.15 (1.05-1.27)).
44
45
46
47
48

49 **DISCUSSION**

50
51 The study found that, as predicted, the prompt of health professional advice was associated
52
53 with an increased probability of using evidence based treatments in the quit attempt.
54
55 However, against our hypothesis, it was not associated with an increased likelihood that the
56
57 quit attempt would succeed, after adjusting for method of quitting. Also disproving our
58
59
60
61
62
63
64
65

1 hypothesis, health professional advice was associated with a greater likelihood of quitting
2 gradually rather than abruptly. As hypothesised, according to PRIME theory, the emotionally
3 salient prompts of current health and cost of smoking were associated with a greater
4 likelihood of the quit attempt succeeding. While, to a lesser extent, the less emotionally
5 salient prompt of ‘concerns about future health’ was also associated with success. Against
6 expectations, the emotionally salient prompt of ‘family pressure’ was not associated with
7 success. Also, as predicted by PRIME theory, citing more prompts for the quit attempt was
8 associated with a greater chance of success of the attempt.

9 The most frequently cited prompts were similar to those reported in the survey by Vangeli
10 and colleagues (3), in which respondents were only allowed to choose one prompt; except
11 that health professional advice and family pressure were cited four to five times more
12 frequently in the present study. The high frequency of reports of health professional advice as
13 a prompt may be UK specific and studies are needed in other nations. A large majority of
14 respondents cited only one prompt; however, around one quarter cited more than one prompt,
15 which supports the importance of allowing individuals to report multiple prompts. Most of
16 the associations observed between the prompts and demographic and smoking characteristics
17 were comparable to those observed by Vangeli and colleagues (3). One notable exception
18 was that those of a lower social grade were less likely to be prompted to quit due to the cost
19 of smoking. This is at odds with evidence that economically deprived smokers are likely to be
20 more responsive to increases in the cost of cigarettes (26, 27). Rather than being reflected in
21 quit attempts, this response may be reflected in reduced cigarette consumption. Another
22 possibility is that what smokers say prompts them (i.e., their attributions) is different from
23 what actually prompts them. For example, cigarette pack warnings appeared to have little
24 impact in prompting quit attempts yet many national studies show that individuals report that

1 these health warnings increase their motivation to quit and increase the likelihood of
2 remaining abstinent following a quit attempt (28).
3

4 Several significant associations between demographic/smoking characteristics and
5 prompts were distinct from those reported by Vangeli and colleagues. Young people were
6 more likely to cite ‘someone else stopping’ as a prompt and this may be a consequence of
7 there being higher quit rates among younger smokers (29). Family pressure was also cited as
8 a prompt more often by younger individuals, although it is not clear whether this relates to
9 differences in exposure or reactivity to family pressure. That concerns about future health
10 were more frequently cited as a prompt by those of a higher social grade is consistent with
11 evidence that smokers from higher socio-economic groups are more oriented towards future
12 events (30). Future orientation has been associated with increased attempts to quit smoking
13 (31) and studies are needed to determine whether smoking cessation campaigns and
14 interventions can increase future orientation. Those of a lower social grade were also less
15 likely to report family pressure or ‘someone else quitting’ as a prompt. This is consistent with
16 reports that smokers from more deprived backgrounds have less social support for smoking
17 cessation (32).
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37

38 A number of significant associations were observed between quitting method and
39 prompts that had not been hypothesised. Concern about future health was associated with a
40 planned quit attempt, whereas, concern about current health was associated with an
41 unplanned approach. Most likely, current, and therefore more ‘urgent’, health concerns are
42 more likely to motivate a spontaneous attempt, without the delays of planning. Both assisted
43 and planned quit attempts were more likely to be triggered by cost. This is difficult to
44 interpret and may be because individuals concerned about cost make use of free National
45 Health Service medications and support. ‘Knowing someone else who is quitting’ was
46 associated with an assisted attempt to quit. Again, this is hard to interpret; it may be because
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

1 those who make it known that they are quitting are more likely to be using, and advocating,
2 cessation aids. The hypothesis that health professional advice as a prompt would be
3 associated with more planned quit attempts was not supported. Evidently, around half of
4 attempts prompted by a health professional occur ‘spontaneously’. This is encouraging as it
5 suggests that those individuals who are prompted by a health professional, and who are ready
6 to quit immediately, are not necessarily compromising their quit attempt by delaying it
7 though planning (10-13).
8
9

10 Overall, these data are important in informing models of the real world effect of particular
11 quitting prompts, both in terms of use of healthcare interventions, such as treatment to aid
12 cessation, and cessation outcomes. When adjusting for method of quitting and other potential
13 confounders, health professional advice was not associated with higher quit success, although
14 in the unadjusted analysis the finding approached significance. This suggests that its effect is
15 primarily in prompting attempts and increasing the chance that they will involve evidence-
16 based treatment, rather than in independently aiding those attempts. If the main mechanism of
17 any effect of health professional advice on quitting success is the use of evidenced-based
18 methods of quitting then it may be unrealistic to expect health professional advice to have an
19 independent effect on this success. However, given that most smokers have to try to quit
20 many times before they succeed, the success of any one attempt may not be all that important
21 and therefore the prominence of health professional advice as a prompt is important
22 regardless of success rates.
23
24

25 The finding that quit attempts prompted by health professional advice were more likely to
26 involve gradual reduction suggests an important training gap, given that such attempts are
27 less likely to succeed (9). The most obvious explanation is that health professionals do not
28 understand the importance of recommending abrupt cessation and are leading smokers who
29 would have quit abruptly to do it gradually, thus worsening their chances. It is also possible
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

1 that smokers whom health professionals feel it appropriate to advise to stop are more
2 disposed to try gradual reduction, but it is hard to conceive of a realistic scenario for this. It is
3 possible to conceive, however, that smokers prompted by health professionals may be ‘less
4 ready’ than those who come to the decision on their own and therefore opt for gradual
5 cessation. This could also partly explain why smokers prompted by health professionals were
6 not more likely to succeed at quitting.
7
8
9
10
11
12
13

14 As anticipated, those using an assisted method of quitting were more likely to use a
15 planned approach. However, against expectations, those using assisted and planned methods
16 were more likely to cut-down than quit abruptly. This a concern as it is recommended that
17 smokers try to stop abruptly (8) and, as discussed above, this may be partly due to health
18 professionals encouraging a cutting-down method.
19
20
21
22
23
24
25
26

27 The observation that quit attempts prompted by current health and cost, and to a lesser
28 extent future health, were more likely to succeed suggests that these prompts retain emotional
29 salience after the quit attempt has started and can continue to exert their influence. This is
30 important because it means that population level interventions that raise concerns about
31 health or cost, such as mass media campaigns and tax increases, do not just prompt quit
32 attempts, they may assist them as well. Interestingly, only around 3% of respondents reported
33 mass-media campaigns as prompts. This is most likely due to the infrequency of these
34 campaigns. Tax increases were not given as an option in the list of prompts, but were
35 subsumed by the option “a decision that smoking was too expensive”. To unravel the distinct
36 influence of tax increases, future studies should offer this as a separate option in the list of
37 prompts.
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52

53 The positive association between number of prompts cited and quit success, independent
54 of what the prompts were, supports the hypothesis from PRIME Theory that motivations
55 from disparate sources summate as long as they are present at the same time (14). From a
56
57
58
59
60
61
62
63
64
65

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

practical perspective it also supports an intervention strategy in which external prompts such as tax increases and mass media campaigns are co-ordinated in time, and that local regional and national behaviour change interventions are timed to coincide. This approach may be particularly important among those of lower social grades, who were likely to report fewer triggers.

The most obvious limitation of the present study is reliance on recall. It is possible to assess the extent of bias that it creates by assessing whether reports of prompts differ as a function of how long ago the quit attempt started. We found statistically significant associations with time since quitting but these were small and could not account for the findings, especially given that we adjusted for this variable. However, studies are needed to more accurately assess what prompts a quit attempt in ‘real-time’; for example using ecological momentary assessment. A second limitation is that respondents may have had different views on what counted as a prompt ‘contributing’ to their quit attempt. However, this could be true for any self-report measure and the fact that meaningful associations were found that went beyond what respondents themselves would be likely to confabulate gives confidence that whatever error there may be in the measure, it was picking up a real phenomenon. A third limitation is that respondents may have been inclined to pick the first item on the list that seemed to apply and been less motivated to mention others further down the list. Against this is the fact that there was no correlation between item order and likelihood of being cited. Another limitation is that we know that quit attempts are forgotten quite rapidly if they fail (33). This inflates success rates of quit attempts made longer ago. This should not be an issue for this study, however, unless quit attempts triggered by different prompts are systematically forgotten at different rates, and as noted above this appears only minimally to be true. It is also possible that smoking status was misreported. However, such

1 misreporting is rare in population surveys (34) and it would have to differ according to what
2 prompted the attempt, which is implausible.
3

4 A question may be raised about whether adjusting for the measure of dependence, strength
5 of urges to smoke, may inadvertently create associations that were not present by virtue of
6 confounding with abstinence; however, this would require a complex and implausible
7 interaction between the measure, abstinence and specific triggers. In the event, adjusting for
8 this measure did not significantly affect the results as indicated by the similarity of the
9 adjusted and unadjusted regression coefficients.
10
11
12
13
14
15
16
17
18

19 A further consideration is that the prompts reported are of many different types, including:
20 personal events, environmental cues and attitudinal or internal cues, and these prompts may
21 interact. For example, health campaigns and health professional advice may contribute to
22 attitudinal cues, making it difficult in a cross-sectional analysis to explicate the relationship
23 between the prompts and to determine their independent contributions to quitting success.
24 However, there was no evidence of strong associations between the prompts and we
25 controlled for the other prompts when assessing associations between prompts and quitting
26 methods or success. There are also prompts which were not included in the list presented (e.g,
27 set an example for my children) or that if phrased differently might yield a slightly different
28 response. However, we did allow participants to report 'other' prompts and none of these
29 were of a high frequency. Also, some of the options could have been divided into
30 subcategories; for instance, offering options for both 'current concerns about smoking related
31 illness' and 'other health concerns' may have revealed different results
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49

50 **CONCLUSIONS**

51 This study provides the first evidence from a large scale population survey of associations
52 between different prompts for smoking cessation attempts and the methods used in those
53 attempts and their success. The findings must be treated with caution since smokers'
54
55
56
57
58
59
60
61
62
63
64
65

1 attributions may differ from what actually prompts a quit attempt and smokers recalled these
2 attributions rather than recording them at the time. Health professional advice appears to
3
4 promote use of evidence-based treatment to aid the attempt, but encourages smokers to try to
5
6 quit gradually, which may be counter-productive. In itself, this advice does not appear to
7
8 make the attempts more or less likely to succeed. Health problems, concerns about future
9
10 health and cost are prompts that do appear to be associated with improved chances of success
11
12 of the attempts they trigger. Citing more prompts is linked to greater quitting success. The
13
14 findings provide support for some tenets of PRIME Theory, suggest there may be a training
15
16 need for health professionals concerning the advice they give to smokers, and support the
17
18 idea that interventions to raise the cost of smoking and health concerns may help smokers to
19
20 quit as well as prompting quit attempts.
21
22
23
24
25
26
27
28
29

30 **Conflict of interest statement:** RW has undertaken research and consultancy and received
31
32 travel funds from companies that develop and manufactures smoking cessation medications.
33
34 He has a share of a patent for a novel nicotine delivery device. He is a trustee of the stop-
35
36 smoking charity QUIT and co-directs the National Centre for Smoking Cessation and
37
38 Training. JB has received an unrestricted research grant from Pfizer. MU has no conflict of
39
40 interest to disclose.
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

REFERENCES

- 1
2
3 (1) Lader D. *Smoking related behaviour and attitudes, 2006. A report on research using the*
4
5 *National Statistics Omnibus Survey produced on behalf of the Information Centre for*
6
7 *Health and Social Care.* London: Office for National Statistics; 2007.
- 8
9
10 (2) McCaul KD, Hockemeyer JR, Johnson RJ, et al. Motivation to quit using cigarettes:
11
12 a review. *Addict Behav.* 2006; 31: 42-56.
- 13
14 (3) Vangeli E, West R. Sociodemographic differences in triggers to quit smoking: findings
15
16 from a national survey. *Tob Control.* 2008; 17: 410-415.
- 17
18 (4) Brose LS, West R, McDermott MS, Fidler JA, Croghan E, McEwen A. What makes for
19
20 an effective stop-smoking service? *Thorax.* 2011; 66: 924-926.
- 21
22 (5) Cahill K, Stead LF, Lancaster T. Nicotine receptor partial agonists for smoking cessation.
23
24 *Cochrane Database Syst Rev.* 2011; 2: CD006103.
- 25
26 (6) Hughes JR, Stead LF, Lancaster T. Antidepressants for smoking cessation. *Cochrane*
27
28 *Database Syst Rev.* 2007; 1: CD000031.
- 29
30 (7) Stead LF, Perera R, Bullen C, Mant D, Lancaster T. Nicotine replacement therapy
31
32 for smoking cessation. *Cochrane Database Syst Rev.* 2008; 1: CD000146.
- 33
34 (8) Department of Health. *NHS Stop Smoking Services: service and monitoring guidance*
35
36 *2010-11.* London: Department of Health; 2011.
37
38 <https://www.gov.uk/government/publications/>. Accessed January 30, 2013.
- 39
40 (9) Cheong Y, Yong HH, Borland R. Does how you quit affect success? A comparison
41
42 between abrupt and gradual methods using data from the International Tobacco Control
43
44 Policy Evaluation Study. *Nicotine Tob Res.* 2007; 9: 801-810.
- 45
46 (10) Ferguson SG, Shiffman S, Gitchell JG, Sembower MA, West R. Unplanned quit
47
48 attempts-results from a U.S. sample of smokers and ex-smokers. *Nicotine Tob Res.* 2009; 11:
49
50 827-832.

- 1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
- (11) West R, Sohal T. “Catastrophic” pathways to smoking cessation: findings from national survey. *Brit Med J*. 2006; 332: 458e60.
- (12) Cooper J, Borland R, Yong HH, et al. To what extent do smokers make spontaneous quit attempts and what are the implications for smoking cessation maintenance? Findings from the International Tobacco Control Four country survey. *Nicotine Tob Res*. 2010; 12: Suppl: S51-7.
- (13) Murray RL, McNeill A, Lewis S, Britton J, Coleman T. Unplanned attempts to quit smoking: a qualitative exploration. *Addiction*. 2010; 105: 1299-1302.
- (14) West R. *Theory of addiction*. Oxford: Blackwell Publishing; 2005.
- (15) Ahluwalia JS, Resnicow K, Clark WS. Knowledge about smoking, reasons for smoking, and reasons for wishing to quit in inner-city African Americans. *Ethn Dis*. 1998; 8: 385-393.
- (16) Barnes GE, Vulcano BA, Greaves L. Characteristics affecting successful outcome in the cessation of smoking. *Int J Addict*. 1985; 20: 1429-1434.
- (17) Curry SJ, Grothaus L, McBride C. Reasons for quitting: Intrinsic and extrinsic motivation for smoking cessation in a population-based sample of smokers. *Addict Behav*. 1997; 22: 727-739.
- (18) Eiser JR, van der Pligt J, Raw M, Sutton SR. Trying to stop smoking: Effects of perceived addiction, attributions for failure, and expectancy for success. *J Behav Med*. 1985; 8: 321-340.
- (19) Lichtenstein E, Cohen S. Prospective analysis of two modes of unaided smoking cessation. *Health Edu Res*. 1990; 5: 63-72.
- (20) Schneider SJ. Who quits smoking in a behavioral treatment program? *Addict Behav*. 1984; 9: 373-381.
- (21) The Smoking Toolkit Study. www.smokinginengland.info. Accessed November 12, 2012.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

(22) Fidler JA, Shahab L, West O, et al. 'The Smoking Toolkit Study': A national study of smoking and smoking cessation in England. *BMC Public Health*. 2011; 11: 479.

(23) Brown J, Vangeli E, Fidler JA, Raupach T, West R. Quitting without reporting having tried: findings from a national survey. *Addict Behav*. In press.

(24) IPSOS. *Social Grade: a classification tool*. IPSOS MediaCT; 2009. <http://www.ipsos-mori.com/researchpublications/publications/1285/Social-Grade.aspx>. Accessed January 4, 2013.

(25) Fidler JA, Shahab L, West R. Strength of urges to smoke as a measure of severity of cigarette dependence: comparison with the Fagerstrom Test for Nicotine Dependence and its components. *Addiction*. 2011; 106: 631-638.

(26) Townsend J, Roderick P, Cooper J. Cigarette smoking by socioeconomic group, gender, and age: effects of price, income, and health publicity. *Brit Med J*. 1994; 309: 923-927.

(27) Thomas SD, Fayer K, Misso, et al. Population tobacco control interventions and their effects on social inequalities in smoking: systematic review. *Tob Control*. 2008; 17: 230-237.

(28) Hammond D. Health warning messages on tobacco products: a review. *Tob Control*. 2011; 20: 327-337.

(29) Hyland A, Borland R, Li Q, et al. Individual-level predictors of cessation behaviours among participants in the International Tobacco Control (ITC) Four Country Survey. *Tob Control*. 2006; 15 (suppl 3): iii83-94.

(30) Wardle J, Steptoe A. Socioeconomic differences in attitudes and beliefs about healthy lifestyles. *J Epidemiol Community Health*. 2003; 57: 440-443.

(31) Hall PA, Fong GT, Yong HH, Sansone G, Borland R, Siahpush M. Do time perspective and sensation-seeking predict quitting activity among smokers? Findings from the

1 International Tobacco Control (ITC) Four Country Survey. *Addict Behav.* 2012; 37: 1307-
2 1313.

3
4 (32) Lindström M, Hanson BS, Ostergren PO, Berglund G. Socioeconomic differences in
5 smoking cessation: the role of social participation. *Scand J Public Health.* 2000; 28: 200-208.
6

7
8 (33) Berg CJ, An LC, Kirch M, et al. Failure to report attempts to quit smoking. *Addict*
9
10 *Behav.* 2010; 35: 900-904.
11

12
13 (34) Velicer WF, Prochaska JO, Rossi JS, Snow MG. Assessing outcome in smoking
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
cessation studies. *Psychol Bull.* 1992; 111: 23-41.

TABLE 1. Demographic and smoking characteristics of the sample

Characteristic	Percentage (n)	
Female	52.7 (3227/6126)	
Social grade (n=6126):		
AB: Higher and intermediate managerial/administrative/professional	10.7 (657)	
C1: Supervisory, clerical, junior managerial/administrative/professional	21.4 (1308)	
C2: Skilled manual workers,	21.7 (1327)	
D: Semi-skilled and unskilled manual workers	19.2 (1174)	
E: On state benefit, unemployed, lowest grade workers	27.1 (1660)	
	Mean (SD)	n
Age (range 16 - 90 years)	40.1 (16.0)	6125
Usual number of cigarettes per day (0 – 100)	12.9 (8.9)	6043
Number of quit attempts in the last 12 months (1 - 52)	1.7 (1.8)	6126
Strength of urge to smoke score (0 - 5)	2.0 (1.2)	5792
Number of specific factors prompting quit attempt (1 – 12)	1.4 (0.9)	5464

TABLE 2 Percentage reporting each factor^a as prompting the most recent quit attempt (N=6126)

Factor	Percentage (n)
Advice from a health professional	24.5 (1498)
Concern about future health problems	20.6 (1261)
Decision that smoking was too expensive	19.2 (1178)
Something said by family/friends/children	13.8 (847)
Health problems I had at the time	11.8 (723)
I knew someone else who was stopping	8.1 (496)
Being faced with smoking restrictions	4.4 (270)
TV advert for nicotine replacement therapy	4.0 (247)
Government TV/radio/press advert	2.9 (175)
Seeing a health warning on a cigarette packet	2.8 (172)
Hearing about a new stop smoking treatment	2.3 (139)
Pregnancy	2.1 (126)
Other answers	1.8 (112)
Worried for children	0.9 (56)
A significant birthday	0.7 (45)
Knew someone who was ill/had died (from smoking)	0.7 (41)
Being contacted by my local National Health Service Stop Smoking Service	0.6 (36)
Health reasons - not specified if current or future	0.5 (32)
Attending a local stop smoking activity or event	0.3 (21)
Going on holiday	0.1 (7)

^aFactors are not mutually exclusive, as respondents were allowed to report multiple factors.

TABLE 3: Unadjusted logistic regression analysis showing the associations between the most prevalent factors prompting a quit attempt and demographic and smoking characteristics (results shown in bold are significant at $p < 0.05$)

Factors prompting quit attempt (dependent variables)	Demographic and smoking characteristics (independent variables)				
	Age	Gender	Social grade	Strength of urges to smoke	Time since most recent quit attempt
Health professional advice	$\beta = 0.02^{***}$ OR= 1.02 (1.02-1.03)	$\beta = 0.08$ OR= 1.05 (0.96-1.22)	$\beta = 0.13^{***}$ OR= 1.14 (1.09-1.19)	$\beta = 0.18^{***}$ OR= 1.20 (1.14-1.27)	$\beta = -0.04$ OR= 0.96 (0.93-1.00)
Future health	$\beta = -0.01^*$ OR= 1.00 (0.99-1.00)	$\beta = -0.25^{***}$ OR= 0.78 (0.69-0.89)	$\beta = -0.19^{***}$ OR= 0.83 (0.79-0.87)	$\beta = -0.06^*$ OR= 0.95 (0.90-1.00)	$\beta = 0.03$ OR= 1.03(0.99-1.07)
Cost	$\beta = -0.002$ OR= 1.00 (0.99-1.00)	$\beta = -0.02$ OR= 0.98 (0.86-1.11)	$\beta = -0.06^*$ OR= 0.94 (0.90-0.98)	$\beta = 0.07^*$ OR= 1.07(1.01-1.13)	$\beta = -0.03$ OR= 0.97 (0.93-1.01)
Family pressure	$\beta = -0.01^{***}$ OR= 0.99 (0.98-0.99)	$\beta = 0.10$ OR= 1.11(0.96-1.28)	$\beta = -0.08^*$ OR= 0.93 (0.88-0.98)	$\beta = 0.01$ OR= 1.01(0.95-1.08)	$\beta = 0.06^*$ OR= 1.06(1.01-1.11)
Current health	$\beta = 0.02^{***}$ OR= 1.02 (1.02-1.03)	$\beta = 0.05$ OR= 1.05(0.90-1.23)	$\beta = 0.05$ OR= 1.05 (1.00-1.12)	$\beta = 0.06$ OR= 1.06 (0.99-1.14)	$\beta = 0.07^*$ OR= 1.07(1.02-1.13)
Someone else quitting	$\beta = -0.02^{***}$ OR= 0.98 (0.98-0.99)	$\beta = 0.11$ OR= 1.12 (0.93-1.35)	$\beta = -0.11^*$ OR= 0.90 (0.84-0.96)	$\beta = -0.08$ OR= 0.92 (0.85-1.00)	$\beta = -0.02$ OR= 0.98 (0.93-1.04)
Total prompts score ^b	$\beta = 0.001$ B= 0.001(-0.01-0.02)	$\beta = 0.002$ B= 0.003(-0.04-0.05)	$\beta = -0.04^{**}$ B= -0.02 (-0.04- -0.01)	$\beta = 0.02$ B= 0.01(-0.01-0.03)	$\beta = -0.004$ B= -0.002 (-0.01-0.01)

DV: dependent variables, IV: independent variables, OR: Odds ratio (95% confidence intervals), significance achieved: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

^bTotal number of factors prompting quit attempt, using linear regression analysis

TABLE 4: Adjusted^a logistic regression analysis showing the associations between the most prevalent factors prompting a quit attempt and demographic and smoking characteristics (results shown in bold are significant at p<0.05)

Factors prompting quit attempt (dependent variables)	Demographic and smoking characteristics (independent variables)				
	Age	Gender	Social grade	Strength of urges to smoke	Time since most recent quit attempt
Health professional advice	β= 0.02*** OR= 1.02 (1.02-1.03)	β= 0.05 OR= 1.05 (0.93-1.19)	β= 0.11*** OR= 1.11 (1.06-1.17)	β= 0.16*** OR= 1.18 (1.12-1.24)	β= -0.05* OR= 0.95 (0.92-0.99)
Future health	β= -0.01* OR= 1.00 (0.99-1.00)	β= -0.19** OR= 0.83 (0.73-0.94)	β= -0.17*** OR= 0.85 (0.81-0.89)	β= -0.03 OR= 0.97 (0.92-1.03)	β= 0.03 OR= 1.03 (0.99-1.08)
Cost	β= -0.002 OR= 1.00 (0.99-1.00)	β= -0.004 OR= 1.00 (0.87-1.14)	β= -0.08** OR= 0.93 (0.88-0.97)	β= 0.08** OR= 1.08 (1.02-1.14)	β= -0.04 OR= 0.96 (0.92-1.00)
Family pressure	β= -0.01*** OR= 0.99 (0.98-0.99)	β= 0.11 OR= 1.12 (0.96-1.30)	β= -0.07* OR= 0.93 (0.88-0.98)	β= 0.04 OR= 1.04 (0.97-1.10)	β= 0.07** OR= 1.07 (1.02-1.13)
Current health	β= 0.02*** OR= 1.02 (1.02-1.03)	β= 0.04 OR= 1.04 (0.88-1.22)	β= 0.04 OR= 1.04 (0.98-1.10)	β= 0.05 OR= 1.05 (0.98-1.12)	β= 0.06* OR= 1.06 (1.01-1.12)
Someone else quitting	β= -0.02*** OR= 0.98 (0.98-0.99)	β= 0.15 OR= 1.16 (0.96-1.40)	β= -0.12** OR= 0.89 (0.83-0.96)	β= -0.05 OR= 0.95 (0.87-1.03)	β= -0.02 OR= 0.98 (0.93-1.04)
Total prompts score ^b	β= 0.01 B= 0.003 (-0.01-0.02)	β= 0.01 B= 0.01 (-0.04-0.06)	β= -0.04** B= -0.03 (-0.04- -0.01)	β= 0.03 B= 0.02 (-0.002-0.04)	β=-0.006 B= -0.003 (-0.02-0.01)

OR: Odds ratio (95% confidence intervals), significance achieved: ***p<0.001, **p<0.01, *p<0.05

^aEach regression adjusted for all the above demographic and smoking characteristics.

^bTotal number of factors prompting quit attempt, using linear regression analysis.

TABLE 5. Unadjusted logistic regression analysis showing the associations between reports of the factors prompting the most recent quit attempt, the method of quitting, and reporting abstinence from smoking (results shown in bold are significant at $p < 0.05$)

Factors prompting quit attempt (independent variables)	Method of quitting (dependent variables) ^{††}			Whether abstinent from smoking (DV) ^d
	Abrupt cessation versus cutting down ^a	Planned versus unplanned ^b	Assisted versus unassisted ^c	
Health professional advice	$\beta = -0.49$ $p < 0.001$*** OR=0.61 (0.54-0.69)	$\beta = 0.24$ $p < 0.001$*** OR=1.27 (1.13-1.43)	$\beta = 1.30$ $p < 0.001$*** OR=3.68 (3.23-4.20)	$\beta = -0.17$ $p = 0.059$ OR=0.84 (0.71-1.01)
Future health	$\beta = 0.17$ $p = 0.009$** OR=1.18 (1.04-1.34)	$\beta = 0.16$ $p = 0.011$* OR=1.17 (1.04-1.33)	$\beta = -0.26$ $p < 0.001$*** OR=0.77 (0.68-0.87)	$\beta = 0.21$ $p = 0.019$* OR=1.23 (1.03-1.46)
Cost	$\beta = -0.06$ $p = 0.373$ OR=0.94 (0.83-1.07)	$\beta = 0.26$ $p < 0.001$*** OR=1.30 (1.14-1.48)	$\beta = 0.30$ $p < 0.001$*** OR=1.35 (1.19-1.53)	$\beta = 0.14$ $p = 0.140$ OR=1.15 (0.96-1.37)
Family pressure	$\beta = 0.16$ $p = 0.034$* OR=1.17 (1.01-1.36)	$\beta = -0.09$ $p = 0.225$ OR=1.09 (0.95-1.27)	$\beta = -0.05$ $p = 0.520$ OR=0.95 (0.82-1.10)	$\beta = 0.004$ $p = 0.967$ OR=1.00 (0.81-1.24)
Current health	$\beta = 0.18$ $p = 0.023$* OR=1.20 (1.03-1.41)	$\beta = -0.30$ $p < 0.001$*** OR=0.74 (0.64-0.87)	$\beta = -0.003$ $p = 0.972$ OR=1.00 (0.85-1.17)	$\beta = 0.43$ $p < 0.001$*** OR=1.54 (1.26-1.89)
Someone else quitting	$\beta = 0.16$ $p = 0.104$ OR=1.17 (0.97-1.41)	$\beta = 0.25$ $p = 0.007$** OR=1.29 (1.07-1.55)	$\beta = 0.08$ $p = 0.376$ OR=1.09 (0.90-1.31)	$\beta = -0.06$ $p = 0.669$ OR=0.94 (0.72-1.24)

OR: Odds ratio (95% confidence intervals), significance achieved: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. Coded as: ^a: abrupt=1, cutting down=0; ^b: planned=1, unplanned=0; ^c: assisted=1, unassisted=0; ^d: abstinent=1, non-abstinent=0.

TABLE 6. Adjusted[†] logistic regression analysis showing the associations between reports of the factors prompting the most recent quit attempt, the method of quitting, and reporting abstinence from smoking (results shown in bold are significant at p<0.05)

Factors prompting quit attempt (independent variables)	Method of quitting (dependent variables) ^{††}			Whether abstinent from smoking (DV) ^{†††^d}
	Abrupt cessation versus cutting down ^a	Planned versus unplanned ^b	Assisted versus unassisted ^c	
Health professional advice	β=-0.39 p<0.001*** OR=0.68 (0.59-0.78)	β=0.05 p=0.435 OR=1.06 (0.92-1.21)	β=1.29 p<0.001*** OR=3.64 (3.14-4.22)	β=0.07 p=0.550 OR=1.07 (0.85-1.35)
Future health	β=0.08 p=0.268 OR=1.08 (0.94-1.24)	β=0.24 p=0.001** OR=1.27 (1.11-1.45)	β=-0.07 p=0.339 OR=0.94 (0.82-1.07)	β=0.22 p=0.042* OR=1.25 (1.01-1.54)
Cost	β=-0.09 p=0.219 OR=0.92 (0.80-1.05)	β=0.19 p=0.007** OR=1.21 (1.05-1.39)	β=0.44 p<0.001*** OR=1.55 (1.34-1.79)	β=0.35 p=0.002** OR=1.41 (1.13-1.76)
Family pressure	β=0.09 p=0.261 OR=1.09 (0.94-1.28)	β=0.07 p=0.372 OR=1.07 (0.92-1.26)	β=0.14 p=0.099 OR=1.14 (0.98-1.34)	β=0.08 p=0.541 OR=1.08 (0.84-1.40)
Current health	β=0.13 p=0.125 OR=1.14 (0.96-1.36)	β=-0.25 p=0.005** OR=0.78 (0.66-0.93)	β=0.04 p=0.663 OR=1.04 (0.87-1.24)	β=0.58 p<0.001*** OR=1.79 (1.38-2.32)
Someone else quitting	β=0.14 p=0.181 OR=1.15 (0.94-1.40)	β=0.26 p=0.010* OR=1.30 (1.07-1.59)	β=0.37 p<0.001*** OR=1.45 (1.19-1.78)	β=-0.16 p=0.342 OR=0.85 (0.61-1.19)

DV: dependent variables, IV: independent variables, OR: Odds ratio (95% confidence intervals). [†]All regressions were adjusted for age, gender, socio-economic status, number of quit attempts in the previous year, time since most recent quit attempt, strength of urges to smoke, and for the five factors prompting the quit attempt. ^{††}Regressions were also adjusted for the two other quitting methods which were not the DV. ^{†††}Regressions were also adjusted for all the quitting methods. Significance achieved: ***p<0.001, **p<0.01, *p<0.05. Coded as: ^a:abrupt=1, cutting down=0; ^b: planned=1, unplanned=0; ^c: assisted=1, unassisted=0; ^d: abstinent=1, non-abstinent=0.