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Australian smokers increasingly use help to quit, but number of attempts remains stable: findings from the International Tobacco Control Study 2002-09

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Abstract

Objective—To assess interest in quitting smoking and quitting activity, and the use of pharmacotherapy and behavioural cessation support, among Australian smokers between 2002 and 2009.

Methods—Data were taken from 3303 daily smokers taking part in a minimum of two consecutive waves of the International Tobacco Control Four Country Survey. Using weighted data to control for sampling and attrition, we explored any effects due to age, sex, whether living in a metropolitan or regional area, and nicotine dependence.

Results—Around 40% of smokers reported trying to quit and, of these, about 23% remained abstinent for at least one month when surveyed. Low socioeconomic smokers were less likely to be interested in quitting and less likely to make a quit attempt. Reported use of prescription medication to quit smoking rose sharply at the last wave with the addition of varenicline to the pharmaceutical benefits scheme. Among those who tried, use of help rose gradually from 37% in 2002 to almost 59% in 2009 (including 52% using pharmacotherapy and 15% using behavioural forms of support).

Implications—Use of help to quit is now the norm, especially among more dependent smokers. This may reflect a realization among smokers that quitting unassisted is more likely to fail than quitting with help, as well as the cumulative effect of promoting the use of help. Given the continuing high levels of failed quit attempts, services need to be able to expand to meet this increasing demand.

Keywords

Smoking cessation; tobacco; socioeconomic status; cessation support; stop-smoking medication

Introduction

A recent national Australian survey estimated that 50% of Australian smokers attempted to quit in the year prior, but only half were able to sustain abstinence for at least one month.[1] Long-term abstinence rates are much lower, with one international meta-analytic study

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estimating that between 3% and 5% of unaided attempts will last 6-12 months.[2] Smokers who use nicotine replacement therapy (NRT) are almost twice as likely to quit and stay stopped.[3] Advice to stop smoking from doctors,[4] and services provided through Quitlines[5] has also been showed to improve abstinence rates. While most studies understandably focus on the efficacy of these strategies, little is known about quitting activity and the sources of support Australian smokers use to quit, or if there are demographic differences in the use of support.

Australian smokers seeking help to quit can access the Quitline service, Internet-based self-help resources such the Quit Coach, printed self-help materials, community-based group cessation courses, as well as pharmacotherapy. NRT is available over-the- counter in chemists and supermarkets, and includes chewing gum, transdermal (skin) patch, lozenge, inhaler, and sublingual tablet.[6] Bupropion (marketed as Zyban) and varenicline (marketed as Champix) are the only available pharmaceutical alternatives to NRT in Australia and have been available since 2000 and 2008 respectively. Both medications are available on the Pharmaceutical Benefits Scheme (PBS). In addition to these forms of support, brief advice from a general practitioner (GP) can help to motivate a quit attempt,[7] and with an estimated 85% of Australians visiting their GP at least once a year[8] it is a potentially wide-reaching intervention.

The prevalence of smoking is significantly higher among lower socioeconomic groups.[9] Poor access and utilisation of cessation therapies (pharmacological and behavioural) could be a potential barrier to quitting for low SES smokers, although findings on differential use across levels of SES have been mixed. Kotz, Fidler and West[10] reported that social grade was not a predictor of using either pharmacotherapy or behavioural support amongst English smokers, but in the United States Shiffman, Brockwell, Pillitteri and Gitchell[11] found that higher education and higher income were associated with using both types of help. One Australian study has reported that low SES smokers are less likely to call the Australian Quitline,[12] but patterns of pharmacotherapy use stratified by SES remains unknown.[13]

We used data collected between 2002 and 2009 from the Australian cohort of the International Tobacco Control four-country survey (ITC-4) to examine and describe trends in reported interest in quitting and enacted quit attempts. Among those who tried to quit, we explored one-month abstinence rates and the use of various forms of support to quit smoking. This study looks for variations in prevalence within the particular demographics of age, gender, SES, and living in a metropolitan or regional area of Australia, as well as level of nicotine dependence.

Methods

Data collection and sample

The ITC-4 is an annual survey conducted via computer-assisted telephone interview in Canada, UK, US and Australia. This study uses only the data collected in the Australian arm of the ITC-4. All respondents are smokers at the time of recruitment but are retained at follow-up surveys if they quit smoking. At each wave the sample is replenished from the

original sampling frame. A detailed description of the ITC project's conceptual framework[14] and methodology[15] can be found elsewhere.

The seven waves of the ITC-4 were partitioned into six pairs of survey waves, each consisting of a baseline survey and a follow-up survey. Respondents were included if they were smoking daily at the baseline survey and were present at the follow-up survey (n = 3,303). Where stated, the sample is restricted to respondents who made a quit attempt between the baseline survey and the follow-up survey (average n = 524 per wave). Table 1 shows the number of eligible respondents at each baseline survey, and the distribution by demographic characteristics and level of nicotine dependence.

Measures

With the exception of interest in quitting, all measures were taken at the follow-up wave (2 – 7) in each wave-to-wave transition. Interest in quitting was taken from the baseline wave (1 – 6) because this question is only asked of current smokers.

Interest in quitting

Interest in quitting was derived from a measure of intention to quit: 1) Planning to quit in the next month, 2) Planning beyond one month but within six months, 3) Planning beyond six months and 4) Not planning to quit. For the purpose of this study, where the focus is on interest in quitting rather than strength of intention to quit, this measure was dichotomised into ‘Interested in quitting’ (1 – 3) vs. ‘Not interested in quitting’ (4).

Quit attempts and one-month abstinence—Respondents were asked whether they had made any attempts to quit smoking since the last survey (Yes or No). Those who said “yes” were asked whether they were still stopped or back smoking. Those still stopped were asked, “When did your most recent quit attempt start?” in days, weeks or months. If respondents were abstinent forless than one month they were not included in this measure.

Visiting a doctor or other health professional and receiving advice to quit

At waves 2, 3 and 4, respondents were asked whether they had visited a doctor or other health professional in the previous six months (Yes or No). At waves 5, 6 and 7, the time anchor was extended to since the last survey (about 12 months). Those who had visited were asked whether they received any ‘advice to quit smoking’ if they were currently smoking or any ‘encouragement or support for quitting’ if they were not smoking (Yes or No). An additional three questions were: “During ANY visit to the doctor or other health professional, did you receive... a) additional help or a referral to another service to help you quit; b) a prescription for stop-smoking medication; or c) pamphlets or brochures on how to quit? Respondents answered Yes or No to each question.

Support to quit

Use of pharmacotherapy to stop smoking—At wave 2, respondents were asked whether they had used any stop-smoking medications in the previous six months (Yes or No). From wave 3 onwards, they were asked about this in reference to the last survey. Those

reporting medication use were asked whether they used it to stop-smoking completely (as opposed to reducing consumption; Yes or No). Only those who reported using medication to stop completely were considered to have used medication for help quitting. Respondents were asked, "The last time you used medications *to quit smoking*, which product or combination of products did you use?" A list of current products available, including NRT and non-NRT prescription medication, was read out. Varenicline was only asked about at wave 7 as it became available in Australia through the Pharmaceutical Benefits Scheme (PBS) in January 2008. Prior to this, bupropion was the only prescription pharmacotherapy available. Three binary measures were derived: 1) 'Used any pharmacotherapy' vs. 'None at all', 2) 'Used NRT' vs.'Prescription medication or none at all', and 3) 'Used prescription medication' vs. 'NRT or none at all'.

Behavioural support (Quitline, the Internet or local services)—At each wave, respondents were asked whether they received any advice or information about quitting smoking from a) a Quitline, b) the Internet, and c) a local stop-smoking service (such as clinics or specialists) since the last survey (Yes or No to each). A composite of these three items was formed ('Yes to at least one source' vs. 'No to all').

Composite of pharmacotherapy and/or behavioural support—To create a general measure of use of support to quit smoking, a variable was created that included respondents who used any form of support (either or both pharmacotherapy and behavioural support) in one category, and no form of support in the other.

Nicotine dependence

Dependence was assessed using the Heaviness of Smoking Index, ranging from 0 to 6 (HSI).[16] The HSI was created as the sum of two categorical measures: number of cigarettes smoked per day (coded: 0: 0–10 cigarettes per day (CPD), 1: 11–20 CPD, 2: 21–30 CPD, 3: 31+ CPD), and time to first cigarette (coded: 0: 61+min, 1: 31–60 min, 2: 6–30 min, 3: 5 min or less). The HSI was then recoded into three categories of dependence: Low: 0, Moderate: 1 to 3, and High: 4 to 6.

Demographics

The demographic variables measured are age at each wave (18-24, 25-39, 40-54 and 55 plus), gender, whether respondents lived in a metropolitan (capital city) or regional area, and SES. A composite measure of SES was derived from separate measures of education and annual household income. Education was stratified into low (maximum of high school), moderate (training at a technical or TAFE institute or having partially completed a university degree) and high (completed university degree). Reported gross annual household income ranged from under $10,000 to $150,000 and over. This measure was adjusted to take account of the different needs of households of different sizes and compositions using the 'modified OECD scale'. The scale gives a weight of 1.0 to the first adult in the household, and for each additional adult (in this study persons aged 18 and over) a weight of 0.5, and for each child a weight of 0.3. For each household, the weights for household members are added together to form the household weight. Household income is then divided by the household weight to give an income that a single person household would need for a

comparable standard of living. The result was a continuous scale that was divided into approximately equal thirds. Low income corresponds to $20,000 and under, moderate income corresponds to $20,001 to $45,000, and high income corresponds to over $45,000. Low SES corresponds to a low-low combination of income and education, and high SES corresponds to moderate-high and high-high combinations. Moderate SES corresponds to all other combinations of income and education. Where respondents refused to give their income (n = 228) only education was used to estimate SES.

Analysis

Except where proportions are shown for each wave individually, proportions are of the summed total observations across all wave-to-wave transitions. Multivariate models were tested to explore the association between each demographic variable and each of the nine outcome variables, whilst controlling for the remaining demographic variables. In order to control for the correlations between responses from respondents who had data on multiple wave-to-wave transitions, we tested the multivariate models using a Generalised Estimating Equation[17] (GEE) with binomial variations, logit link function and an unstructured correlation structure. Survey wave was included as a covariate and we also looked for trends across the seven waves for each outcome, except for visiting a health professional and receiving advice to quit from a health professional because of different time references (i.e., the surveys at waves 2, 3 & 4 asked about the last 6 months whereas waves 5, 6 & 7 asked about time since last survey). Only significant interactions will be discussed. Because of the relatively short mean intersurvey interval at wave 1 to 2 (194 days), wave 2 to 3 was used as the reference category (388 days). All reported frequencies and analyses are based on weighted data to control for sampling and attrition biases due to age, sex, and geographic region. Statistical significance is set to $p<0.05$. All analyses were performed using Stata v. 10.

Results

Table 1 describes the characteristics of respondents in each wave-to-wave transition. Demographic trends remained stable across the survey waves, although the sample did get somewhat older.

Interest in quitting

Table 2 shows the weighted proportion of smokers who reported any interest in quitting by each demographic group (column 2), and the adjusted odds ratios (column 3). Overall, the level of interest in quitting remained fairly stable across waves. When examined by levels of interest in quitting, an average of 10.3% of respondents were intending to quit within the next month, 21.6% were intending to do so in the next 6 months, 40.7% intended to quit at some more distant point in the future, and 27.3% reported no intention of quitting. Younger respondents, those with higher SES, and those less nicotine dependent were more likely to report an interest in quitting.

Quit attempts

Table 2 also shows the weighted proportion of smokers who made a quit attempt (column 4), and the adjusted odds ratios (column 5). Excluding those from wave 1 to 2 because of the relatively short intersurvey interval, an average of 39.0% made a quit attempt in any given wave (about one year), with no notable change over time. The variables that predicted interest in quitting also predicted making a quit attempt (see Table 2).

Abstinence

An average of 22.7% of respondents who tried to quit had achieved at least one-months abstinence when surveyed at follow-up (see Table 2). There was no clear trend across survey waves. Our reference year was notably low (excluding the shorter wave between wave 1 and wave 2), and rates since then have been higher. Only SES and nicotine dependence were independent predictors of achieving one-month abstinence at follow-up. Low SES smokers had a consistently lower rate of abstinence than either moderate or high SES smokers. There was a significant interaction between SES and survey wave. Whilst high SES smokers did not achieve a consistently higher rate of abstinence than moderate SES smokers, one significant exception was wave 4 where 48.2% of high SES smokers reached one month's abstinence compared to 22.1% of moderate SES smokers. Abstinence rates were comparable at wave 7, with 24% for low SES, 27.9% for moderate SES, and 26% for high SES. Visiting a health professional and receiving advice to quit.

On average, about 73% of respondents reported visiting a health professional, of which 50.5% received advice to quit smoking (see Table 3). Those who visited were more likely to be older and female. Among those who visited, being older and more nicotine dependent predicted receiving advice to quit. In addition to receiving advice to quit, an average of 6.9% of participants who visited indicated they had received additional help or a referral to another service for help with quitting and 16.7% received a pamphlet or brochure with information on quitting smoking.

Use of help among those who made a quit attempt

To explore use of help to quit, we restricted the analyses to those who reported a quit attempt in the intersurvey interval. Whilst this excludes the proportion of respondents who received support or information for quitting but did not try to quit (24.2%), it gives a better indicator of the levels of support used on enacted quit attempts.

a) Use of pharmacotherapy to stop smoking completely—Table 4 shows the weighted distribution and adjusted odds ratios for use of any type pharmacotherapy, and the use of NRT or prescription medication. Among those making quit attempts, reported use of any form of pharmacotherapy increased gradually, rising from 31.9% to 52.2% between 2002 - 03 and 2008 - 09. By contrast, reported use of prescription medication remained relatively stable between waves 2 to 6 but increased five-fold, from 4.9% to 23.9%, between waves 6 and 7. This pattern is consistent with the proportion that received a prescription for stop-smoking medication from a health professional which increased from 9.3% at wave 6 to 34.2% at wave 7 (not shown in table).

The most popular form of pharmacotherapy was the nicotine patch, used on average by 23.3% of respondents attempting to quit. Use of the nicotine patch peaked at 29.0% at wave 6 before declining to 21.6% at wave 7 (the same proportion as at wave 2). This decline was largely due to using varenicline, which only became available in 2008, and was reported by 16.6% at wave 7. Use of Zyban remained fairly stable across all waves.

Pharmacotherapy was more likely to be used by women and those living in a metropolitan area. Smokers aged 40 to 54 were the most likely to report using NRT, whereas those aged over 55 were the most likely to use prescription medication. The interaction between nicotine dependence (the HSI) and survey wave for use of NRT was significant. Nicotine dependence was positively associated with each type of pharmacotherapy at all waves, except at wave 7 where the association between use of NRT and dependence trended negative. Between waves 6 and 7, NRT use declined among the moderately dependent (41.5% to 29.4%) and the highest dependent (41.9% to 28.7%) smokers while reported use of prescription medication increased markedly (4.0% to 22.3% for moderate dependence and 6.6% to 33.7% for highest dependence).

b) Behavioural support (Quitline, the Internet and local services)—A minority of respondents who made a quit attempt (average 11.3%) reported using one or more of these services (see columns 6 & 7 of Table 4). Whilst there was an overall increase in reported use of these services (with the exception of wave 6), the significant increase between waves 4 and 5 was due only to an increase in reported use of Quitlines. Overall, Quitlines were the mostcommonly reported, with an average of 6.8%, followed by 3.5% for local services, and 2.8% for the Internet. Use of these services was associated with being female and living in a metropolitan area.

c) Use of either or both pharmacotherapy and behavioural support—Use of either or both pharmacotherapy and behavioural support for assistance with quitting increased from 37.0% at wave 1 to 59.4% at wave 7 (see columns 8 & 9 of Table 4). Those aged 40 to 54 were the most likely to report using a quit aid although this is likely due to the relatively high numbers using NRT. Using help to quit was more likely among women and those living in ametropolitan area. The strongest effect was for HSI. Among those in the highest tertile of HSI, 68% used some form of help in 2008 - 09 (including 61.7% using pharmacotherapy), either alone or in combination with other help.

Discussion

The most notable aspects of the results are the increased use of help, particularly medications, in making quit attempts. By 2008 - 09 almost 60% of smokers attempting to quit had adopted some form of support. Pharmacotherapy was preferred over behavioural support, with NRT (most commonly, the patch) the predominant type used. In 2006 - 07, use of NRT was five times that of prescription medication, but following the introduction of varenicline the difference largely disappeared, especially among moderate to high dependence smokers for whom use of NRT was displaced to varenicline (the group eligible for this drug on the PBS). It is notable that levels of use of bupropion (the other prescription drug on the PBS) remained relatively stable. It will be interesting to see if the marked

increase in varenicline use stabilizes or continues to increase, and whether it takes over the market share from bupropion given that it appears to be more effective.[18]

Use of the Quitline, the Internet and local services nearly doubled between 2002-03 and 2008-09. Women were more likely than men to use all forms of support to quit smoking and this difference was most marked in the use of prescription medication and behavioural support services. This is consistent with similar findings in England and the United States.[19, 10]

Approximately three-quarters of the sample reported some interest in quitting at any given survey. The proportion that attempted to quit smoking remained stable at around 40%, matching findings in other countries.[10, 20] Almost a quarter of those who tried to quit had managed at least one month's sustained abstinence when surveyed. Use of support to quit was highest among the most nicotine dependent smokers (as indicated by high HSI), with almost 70% of those making a quit attempt seeking help at wave 7. It is reassuring that the more nicotine-dependent smokers were more likely to seek help, but it is disappointing to find no evidence for an increase in quitting activity and short-term success accompanying the increase in use of help.

Around 40% of smokers try to quit each year but it is estimated that where the most effective intervention strategies are in place, such as California, only 4% are able to remain abstinent.[21] Together with evidence that a reasonable proportion of short attempts are forgotten,[22] this means that there are a lot of failed quit attempts. Modifiable environmental conditions, such as reducing the social acceptability of smoking which can be attributed in part to more smoke-free places,[23] and increasing mass media anti-smoking campaigns,[24] lead to increased environmental cues to quit. Thus, the population should be becoming more willing and able to quit and cessation rates should be improving. That they are not suggests that either the interventions are not working or that they are counterbalancing the resistance to quitting suggested by the hardening hypothesis.[25]

There were some concerning SES trends. In particular, smokers in the lowest SES tertile reported less interest in quitting, were less likely to make a quit attempt and, of those who tried to quit, were less likely to achieve one-months abstinence. Our results are consistent with UK findings that low SES smokers in the UK are less likely to maintain a quit attempt.[26] In our sample, the inability of low SES smokers to sustain a quit attempt relative to higher SES smokers was not due to less use of smoking cessation support. Overall, SES was not a predictor of help seeking. However, there were small differences in the type of support that was sought, albeit statistically insignificant. Low SES respondents were more likely to use prescription medication than those in the moderate to high SES categories. Bupropion has been available on the PBS since 2001, making it more affordable than NRT and possibly more appealing to people with financial concerns. Behavioural support services such as quitlines, Internet-based resources, or local clinic services, were non-significantly more popular among smokers of higher SES, consistent with previous research.[12] Yet the most popular form of behavioural support, the Quitline, is available at the cost of a local call, so it seems unlikely that affordability is the main reason for this trend.

Our findings show that about half of smokers who visited a health professional received advice to quit smoking, and this was more common among older, and moderate to high dependent smokers. There is a need for improvement in the provision of smoking cessation advice in health care settings, but it is noteworthy and reassuring that the more nicotine dependent smokers were more likely to receive advice. We found no effect for gender and only a trend for more low SES smokers to receive advice, suggesting that health professionals are reasonably unbiased in providing cessation advice, something that may have changed since the 1990s when low SES and male smokers were more likely to be counselled by their GP.[27,28] Whilst we found that about half of those who visited a health professional received advice to quit, a 2008 survey on tobacco use in New Zealand[29] found that just 30% of 15–64-year-old current smokers who had seen a health care worker in the past 12 months were provided advice or information, referred to quitting programmes or given quitting products. However, this was prior to the implementation of the ABC approach in New Zealand in 2009 and it will be interesting to see if more New Zealand smokers report receiving assistance to quit in the future.

An average of 7% of our sample reported receiving a referral for additional help, a method that has been shown to increase the chances of quitting successfully.[30] Active referral by health professionals to Quitlines and other services is acceptable to both health professionals and smokers,[30] and should be more widely encouraged. The best cessation results are achieved through a combination of pharmacotherapy and behavioural support.[31] Now that smokers are increasingly seeking help to quit, attention needs to be given to encouraging them to use a combination of support, but too many seem to be relying on pharmacotherapy alone. However, if we are to support more smokers, it will be important to ensure there are adequate resources to meet the demand for increased use of Quitlines and other evidence-based services.

A major strength of this study is that we were able to exploit the longitudinal nature of the ITC study and perform GEE analyses across all seven waves, increasing the analytic power to detect even small effects. However, this study has some limitations. A drawback of telephone sampling is that respondents must have a fixed address and landline telephone to be eligible. Thus our measure of SES cannot be generalised to the very poor and marginalised sectors of the Australian smoking community and the weighting we did to make it more representative of the broad Australian community cannot overcome this bias. The study is also dependent on retrospective accounts of quit attempts and types of support used and research shows that people tend to forget or discount short quit attempts, and this effect increases with time.[22] Thus caution should be used with the levels of actions reported, as they may be underestimates.

In this paper we have not attempted to estimate differential success as a function of use of help, as we have established that our measure of nicotine dependence is strongly positively associated with help use, and we are unable to determine whether the smokers in our study were receiving the optimum intensity of support relative to their level of dependence, something which is important for successful treatment.[31] Also, as we know there are other important indicators for dependence besides those measured in this study,[e.g., 32] it is beyond the scope of this paper to control for such variables to meaningfully compare outcomes with

help use. We cannot say whether increased use of cessation support will result in more smokers quitting and staying quit in the long-term, or whether it is required to help smokers who may lack the capacity to quit volitionally[33] to quit at a constant rate.

Conclusions and implications

Whilst the vast majority of Australian smokers are interested in quitting, most quit attempts will end with a relapse back to smoking. This paper shows that interest in quitting and quitting activity is lower among low SES smokers despite similar rates of seeking help to quit. More attention needs to be paid to barriers to cessation for smokers from moderately disadvantaged groups (those represented in our low SES group), as well as the very disadvantaged (i.e. the homeless and chronically mentally ill) for whom interest in quitting is comparable with the general population.[34] This paper also shows that use of help to quit smoking may be becoming normalised among adult smokers attempting to quit, particularly those who are more nicotine dependent. NRT remains the most popular form of support, although the introduction of varenicline on the PBS led to a dramatic short-term increase in prescription medication being used.

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Table 1

Sample characteristics at each wave-to-wave transition (weighted).

	Wave 1 – 2 n=1,671	Wave 2 – 3 n=1,317	Wave 3 – 4 n=1,335	Wave 4 – 5 n=1,190	Wave 5 – 6 n=1,264	Wave 6 – 7 n=1,268
Age						
18-24	15.7%	11.3%	9.6%	7.6%	7.4%	5.0%
25-39	35.4%	32.4%	31.8%	32.3%	29.9%	29.7%
40-54	33.7%	36.9%	36.4%	36.8%	37.1%	39.3%
55+	15.2%	19.4%	22.1%	23.4%	25.6%	26.1%
Gender						
Female	44.7%	46.6%	47.6%	47.7%	46.4%	47.3%
SES						
Low	28.9%	33.6%	31.4%	29.3%	29.7%	26.9%
Moderate	56.4%	52.7%	54.2%	55.0%	54.2%	55.2%
High	14.8%	13.7%	14.4%	15.8%	16.2%	17.9%
Region						
Metro	61.9%	59.8%	60.3%	61.3%	61.2%	62.8%
HSI						
Low	8.8%	11.0%	9.9%	13.2%	7.8%	8.7%
Moderate	53.6%	54.5%	56.2%	53.9%	58.2%	55.9%
High	37.7%	34.6%	33.9%	33.0%	34.0%	35.4%

Notes: HSI = Heaviness of Smoking Index.

Table 2

Percentage interest in quitting, quit attempts, and sustained abstinence: observations within each demographic group and GEE results (weighted; controlling for wave and demographics).

	Interest in quitting[a]		Made a quit attempt		One month sustained abstinence[b]	
	%	Adjusted OR (95% CI)	%	Adjusted OR (95% CI)	%	Adjusted OR (95% CI)
Age						
18-24	83.1%	Ref	47.3%	Ref	20.0%	Ref
25-39	82.9%	0.86 (0.62-1.19)	41.1%	**0.77 (0.62-0.96)**	23.8%	1.19 (0.81-1.77)
40-54	69.8%	**0.43 (0.32-0.59)**	35.2%	**0.60 (0.48-0.74)**	21.6%	1.15 (0.78-1.69)
55+	58.0%	**0.30 (0.22-0.41)**	38.4%	**0.72 (0.57-0.92)**	24.1%	1.42 (0.95-2.15)
Gender						
Female	74.0%	Ref	40.4%	Ref	21.4%	Ref
Male	71.6%	0.91 (0.78-1.06)	37.8%	0.92 (0.81-1.04)	23.9%	1.16 (0.94-1.43)
SES						
Low	67.6%	Ref	36.7%	Ref	18.2%	Ref
Moderate	74.0%	**1.20 (1.03-1.41)**	39.5%	**1.17 (1.02-1.36)**	23.1%	**1.32 (1.03-1.69)**
High	78.4%	**1.55 (1.20-2.00)**	41.2%	**1.34 (1.10-1.62)**	29.0%	**1.67 (1.23-2.27)**
Region						
Metro	72.7%	Ref	38.0%	Ref	22.3%	Ref
Regional	72.8%	1.02 (0.87-1.20)	40.1%	1.12 (0.98-1.28)	23.2%	1.06 (0.85-1.32)
HSI						
Low	80.1%	Ref	51.6%	Ref	33.7%	Ref
Moderate	75.5%	0.93 (0.75-1.15)	40.5%	**0.71 (0.59-0.85)**	23.7%	**0.61 (0.46-0.81)**
High	66.6%	**0.74 (0.58-0.94)**	33.1%	**0.58 (0.48-0.71)**	15.8%	**0.39 (0.27-0.54)**
Wave						
2002 to '03	74.5%	1.14 (0.98-1.32)	32.6%	**0.64 (0.56-0.74)**	14.0%	**0.65 (0.45-0.93)**
2003 to '04	70.8%	Ref	40.8%	Ref	19.8%	Ref
2005 to '06	72.6%	1.11 (0.95-1.30)	39.9%	1.01 (0.87-1.16)	26.8%	**1.42 (1.03-1.96)**
2006 to '07	73.8%	**1.20 (1.01-1.43)**	43.5%	1.15 (0.99-1.34)	25.6%	**1.39 (1.01-1.91)**

	Interest in quitting[a]		Made a quit attempt		One month sustained abstinence[b]	
	%	Adjusted OR (95% CI)	%	Adjusted OR (95% CI)	%	Adjusted OR (95% CI)
2007 to '08	72.5%	1.17 (0.98-1.40)	40.1%	1.04 (0.88-1.23)	23.5%	1.28 (0.89-1.83)
2008 to '09	71.9%	1.14 (0.95-1.37)	39.3%	1.01 (0.86-1.20)	26.6%	**1.42 (1.02-1.99)**
Total	72.8%		39.0%		22.7%	

Notes:

For interest in quitting and quit attempts there are 8,042 observations from 3,303 individuals. OR = Odds ratio; CI = Confidence interval. Bold text indicates $p<0.05$.

[a] Taken at the baseline waves (1 to 6).

[b] Sample is all baseline smokers that made a quit attempt in the previous year, excluding those abstinent for less than one month at the follow-up (2989 observations from 1856 individuals).

Table 3

Percentage visiting a health professional and receiving advice to quit: observations in each demographic group and GEE results (weighted; controlling for wave and demographics).

	Visited a health professional		Received advice to quit (among those who visited)	
Age	**%**	**Adjusted OR (95% CI)**	**%**	**Adjusted OR (95% CI)**
18-24	62.0%	Ref	42.3	Ref
25-39	69.6%	1.24 (0.97-1.57)	45.9	0.94 (0.71-1.26)
40-54	73.2%	**1.58 (1.25-2.00)**	52.6	1.26 (0.95-1.67)
55+	82.8%	**2.75 (2.08-3.63)**	55.6	**1.41 (1.05-1.91)**
Gender				
Female	77.8%	Ref	49.7	Ref
Male	68.8%	**0.63 (0.52-0.72)**	51.2	1.03 (0.88-1.19)
SES				
Low	74.4%	Ref	53.0	Ref
Moderate	71.2%	0.95 (0.81-1.11)	49.3	0.90 (0.77-1.06)
High	76.8%	1.21 (0.97-1.51)	49.0	0.89 (0.70-1.14)
Region				
Metro	73.4%	Ref	50.3	Ref
Regional	72.4%	0.91 (0.79-1.06)	50.8	0.94 (0.80-1.09)
HSI				
Low	74.1%	Ref	38.7%	Ref
Moderate	71.7%	0.85 (0.69-1.05)	49.6%	**1.33 (1.04-1.70)**
High	74.6%	0.94 (0.74-1.18)	54.7%	**1.49 (1.15-1.92)**
Total	73.0%		50.5%	

Notes: Columns 2 & 3; there were 8,040 observations from 3,302 individuals. Columns 4 & 5; there were 5,429 observations from 2,546 individuals. OR = Odds ratio; CI = Confidence interval. Bold text indicates $p<0.05$.

Table 4

Use of support to quit: observations within each demographic group and GEE results (weighted; controlling for wave and demographics).

	Used any pharmacotherapy		Used NRT		Used prescription medication		Behavioural support (Quitline, Internet or clinic)		Pharmacotherapy and/or behavioural support	
		Adjusted OR (95% CI)		Adjusted OR (95% CI)		Adjusted OR (95% CI)		Adjusted OR (95% CI)		Adjusted OR (95% CI)
Age										
18-24	26.1%	Ref	24.0%	Ref	2.6%	Ref	10.2%	Ref	32.3%	Ref
25-39	37.4%	1.34 (0.95-1.89)	31.5%	1.24 (0.87-1.78)	6.8%	1.76 (0.72-4.31)	12.4%	1.07 (0.66-1.72)	43.8%	1.33 (0.96-1.83)
40-54	44.5%	**1.78 (1.26-2.53)**	35.4%	**1.45 (1.01-2.08)**	9.2%	2.24 (0.91-5.51)	11.6%	0.94 (0.58-1.52)	49.9%	**1.60 (1.16-2.22)**
55+	41.2%	**1.50 (1.03-2.20)**	28.8%	1.13 (0.76-1.68)	12.4%	**2.71 (1.07-6.85)**	9.9%	0.82 (0.48-1.38)	46.4%	1.36 (0.96-1.94)
Gender										
Female	41.6%	Ref	32.8%	Ref	9.9%	Ref	12.9%	Ref	47.9%	Ref
Male	37.0%	**0.79 (0.65-0.96)**	30.6%	0.87 (0.71-1.07)	6.7%	**0.70 (0.50-0.96)**	9.8%	**0.75 (0.58-0.97)**	42.3%	**0.76 (0.63-0.92)**
SES										
Low	39.6%	Ref	29.4%	Ref	10.3%	Ref	11.2%	Ref	44.8%	Ref
Moderate	39.5%	1.11 (0.89-1.38)	32.8%	1.23 (0.98-1.55)	7.3%	0.81 (0.57-1.15)	10.4%	0.92 (0.68-1.25)	45.1%	1.14 (0.93-1.41)
High	36.7%	0.98 (0.74-1.29)	28.9%	1.07 (0.79 -1.43)	8.0%	0.75 (0.45-1.25)	14.8%	1.38 (0.95-2.00)	44.3%	1.10 (0.84-1.43)
Region										
Metro	40.2%	Ref	32.4%	Ref	8.3%	Ref	12.6%	Ref	46.3%	Ref
Regional	37.7%	0.82 (0.67-1.00)	29.8%	0.85 (0.69-1.05)	8.3%	0.84 (0.61-1.15)	9.5%	**0.75 (0.57-0.99)**	43.1%	0.83 (0.69-1.01)
HSI										
Low	22.5%	Ref	19.3%	Ref	2.5%	Ref	10.9%	Ref	29.8%	Ref
Moderate	38.8%	**1.98 (1.51-2.61)**	31.3%	**1.77 (1.33-2.36)**	7.7%	**3.00 (1.45-6.20)**	11.4%	1.14 (0.73-1.77)	44.9%	**1.85 (1.41-2.41)**
High	47.2%	**2.73 (2.01-3.71)**	36.6%	**2.24 (1.62-3.10)**	12.0%	**4.61 (2.20-9.67)**	11.7%	1.24 (0.78-1.96)	54.3%	**2.56 (1.90-3.46)**
Wave										
2002-03	31.9%	0.86 (0.67-1.12)	27.5%	0.83 (0.64-1.08)	4.9%	0.82 (0.46-1.45)	8.4%	0.79 (0.52-1.21)	37.0%	0.81 (0.62-1.05)
2003-04	35.6%	Ref	31.5%	Ref	6.2%	Ref	10.5%	Ref	42.4%	Ref
2005-06	34.6%	0.94 (0.73-1.21)	28.6%	0.89 (0.68-1.16)	6.3%	1.00 (0.60-1.67)	11.4%	1.11 (0.74-1.67)	40.5%	0.90 (0.70-1.17)
2006-07	38.2%	1.17 (0.89-1.52)	32.8%	1.09 (0.82-1.44)	5.4%	0.96 (0.55-1.68)	14.2%	**1.50 (1.03-2.19)**	44.3%	1.13 (0.86-1.47)
2007-08	44.7%	**1.45 (1.11-1.89)**	39.1%	**1.44 (1.09-1.89)**	4.6%	0.74 (0.42-1.30)	8.9%	0.81 (0.52-1.26)	48.2%	1.27 (0.97-1.66)

	Used any pharmacotherapy		Used NRT		Used prescription medication		Behavioural support (Quitline, Internet or clinic)		Pharmacotherapy and/or behavioural support	
		Adjusted OR (95% CI)		**Adjusted OR (95% CI)**		**Adjusted OR (95% CI)**		**Adjusted OR (95% CI)**		**Adjusted OR (95% CI)**
2008-09	52.2%	**1.93 (1.47-2.54)**	29.0%	0.86 (0.63-1.17)	23.9%	**4.94 (3.11-7.85)**	15.0%	1.47 (0.98-2.21)	59.4%	**1.92 (1.46-2.53)**
Total	39.2%		31.3%		8.3%		11.3%		45.0%	

Notes: The sample is of those who made a quit attempt in the previous year. OR = Odds ratio; CI = Confidence interval. For use of any type of pharmacotherapy, NRT, and prescription medication, there were 3065 observations from 1910 individuals. For behaviou\ral support there were 3143 observations from 1945 individuals, and for use of any form of support there were 3094 observations from 1925 individuals. Bold text indicates p<0.05.