Smoking and Smoking Cessation in England 2011: Findings from the Smoking Toolkit Study

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Background

This report describes key findings from the Smoking Toolkit Study (STS) relevant to development of tobacco control policy for the years 2007 to 2011. The STS is a continuing series of monthly surveys of representative samples of the population of England aged 16+. Each monthly wave is followed up for 6 months by means of a postal survey. Full details of the study methods are described elsewhere[1]. This document focuses on top level study findings relating to smokers and recent ex-smokers. It does not stratify findings by sociodemographic variables. Neither does it address issues relating to harm reduction. A number of papers have been published from the study that include analyses relating to such stratification and to harm reduction[2-21]

Smoking prevalence

Cigarette smoking prevalence declined from 24.1% in 2007 to 20.6% in 2011 (Figure 1). Prevalence of current smoking of any tobacco product in 2011 was 21.0%. Prevalence of any smoking within the past year was 22.2%. The decline in cigarette smoking prevalence since 2008 averaged 0.5% per year ($p<0.001$[1]).

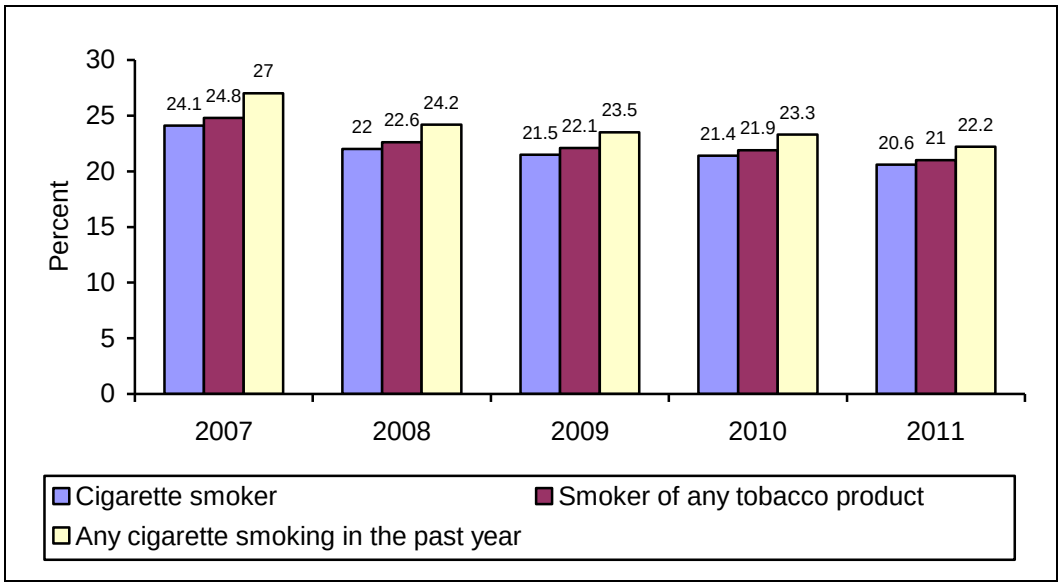

Figure 1: Prevalence of smoking. Base: All respondents aged 16+; N=22,079(2007), 18,991(2008), 21,138(2009), 24,795(2010), 23,626 (2011)

Cigarette consumption and spending on tobacco products

The average daily cigarette consumption has declined from 14.5 cigs per day in 2007 to 12.4 in 2011 ($p<0.001$, Figure 2). There was a sharper fall in consumption of manufactured cigarettes and a rise in the consumption of hand-rolled cigarettes ($p<0.001$in both cases).

[1] p values derive from chi-squared tests for categorical variables and analyses of variance for quantitative variables in all cases unless otherwise stated.

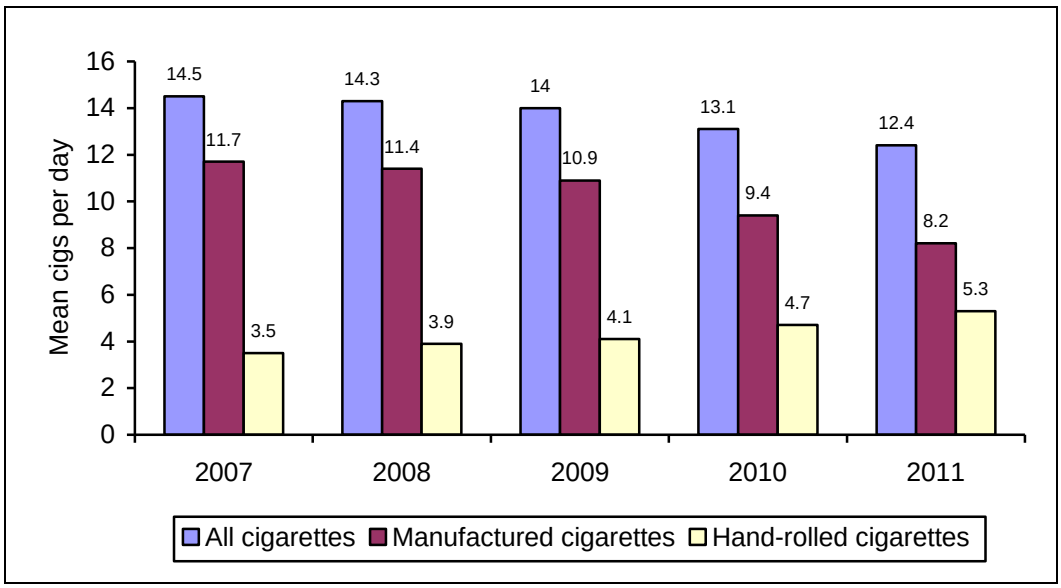

Figure 2: Mean daily consumption of different types of cigarette. Base: all current cigarette smokers, N=8,650(2007), 6,446(2008), 6,827(2009), 6,376(2010), 5,128(2011). Samples sizes are reduced for manufactured and hand-rolled cigarettes because of missing values. This also leads to these not adding exactly to the total number of cigarettes smoked.

The average price paid per 20 cigarettes was estimated by linear regression of the weekly spend on to consumption for cigarettes in general and for specific types of cigarettes, forcing the line through the origin. The estimated average price per 20 cigarettes smoked in 2008 increased from £3.94 to £4.48 in 2011; the price paid for 20 manufactured cigarettes rose from £4.85 in 2008 to £5.78 in 2011; and for hand rolled cigarettes the price rose from £1.93 in 2008 to £2.54 in 2011 ($p<0.001$ for the increase in price in all cases, Figure 3). The increase in the overall price per cigarette was reduced by switching from manufactured to hand-rolled (see Figure 2). This switching, together with the overall drop in consumption, meant that the weekly cost of smoking rose only slightly ($p<0.01$) (Figure 4).

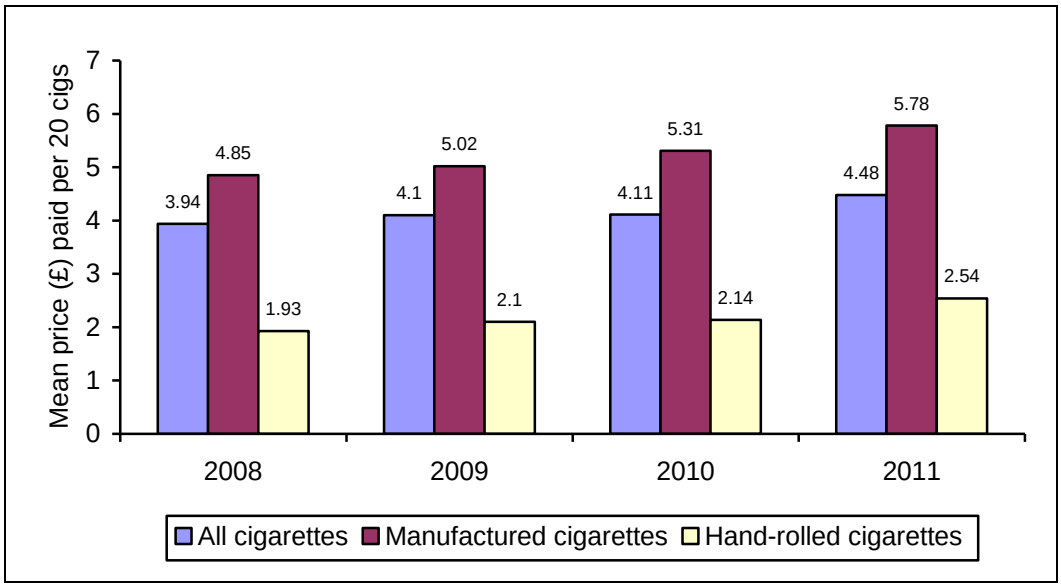

Figure 3: Amount spent per 20 cigarettes by type of cigarette and year. Base: All cigarette smokers. N=3,984(2008), 2,201(2009), 2068(2010), 4,610(2011). Questions about price paid were not asked in all waves and there were some missing data for hand-rolled and manufactured cigarettes questions. Participant responses where cost per 20 cigs was less than 50p or more than £20 were omitted.

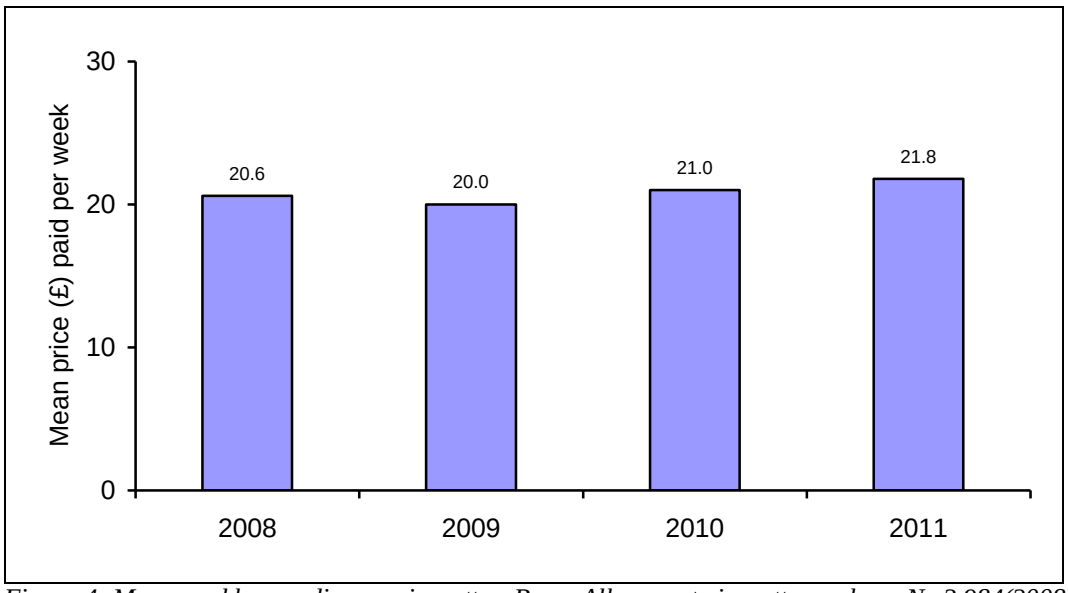

Figure 4: Mean weekly spending on cigarettes. Base: All current cigarette smokers. N=3,984(2008), 2,201(2009), 2,068(2010), 4,610(2011). Question about price paid was not asked in all waves.

The consistency of the information provided by respondents on price paid per week on smoking and numbers of manufactured and hand-rolled cigarettes was assessed by examining the variance accounted for (R^2) in each year when the weekly spending was regressed on to the numbers of different types of cigarette smoked, forcing the regression through the origin. The figures were 0.84, 0.85, 0.84 and 0.85 for 2008, 2009, 2010 ands 2011 respectively, showing a high level of consistency between the different types of information.

Motivation to stop smoking

Motivation to quit is strongly predictive of quit attempts in the subsequent 6 months ($p<0.001$ by chi-squared test, Figure 5).

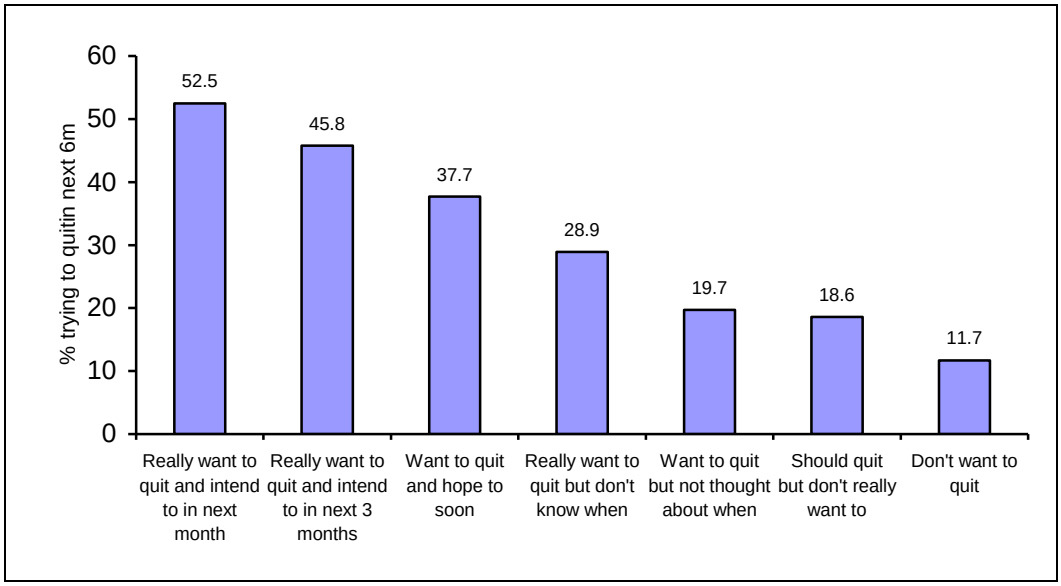

Figure 5: Association between ratings of motivation to quit at baseline and reports of quit attempts between baseline and 6-month follow up. Base: Current cigarette smokers at baseline who were successfully followed up; N=2,812

The proportion of smokers not wanting to quit has increased from 15% in 2008 to 21.8% in 2011 ($p<0.001$, Figure 6). The decrease has been mainly in the percentage who really want to quit but do not know when ($p<0.001$).

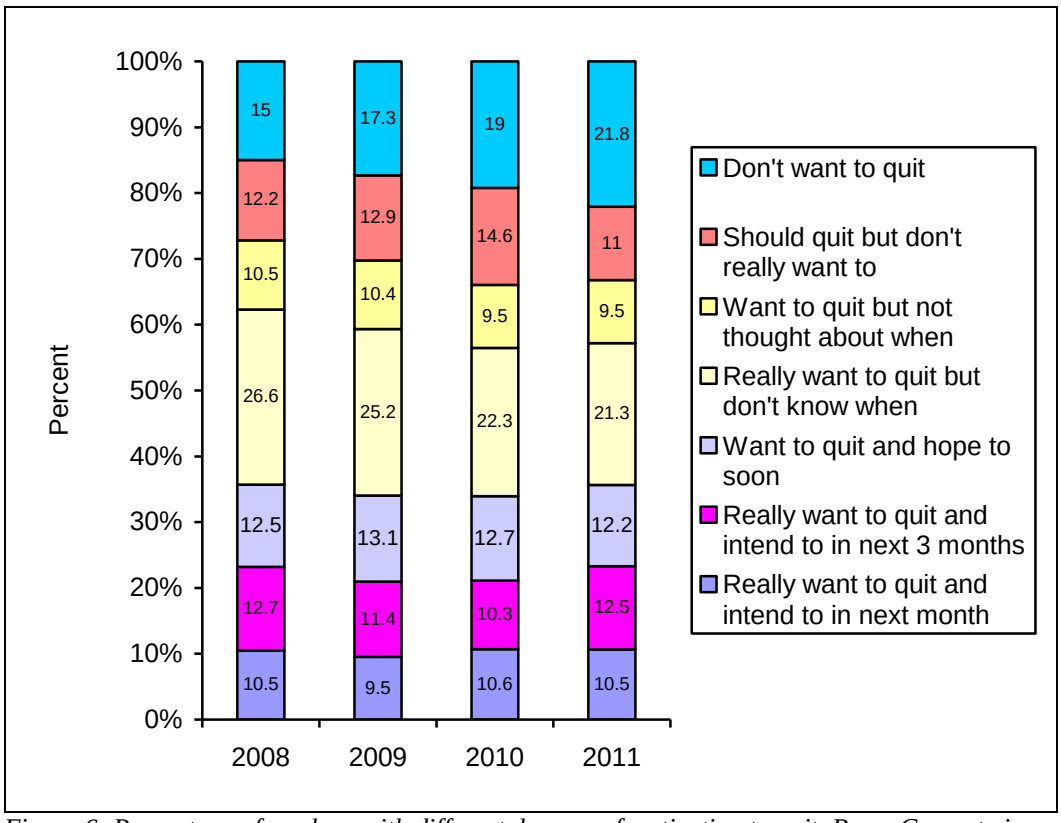

Figure 6: Percentage of smokers with different degrees of motivation to quit. Base: Current cigarette smokers at baseline. N=361(2008), 4553(2009), 5293(2010), 4965(2011). The question was introduced in 2008.

Attempts to stop smoking

The proportion of smokers who tried to quit in the previous 12 months has declined from 42.5% in 2007 to 33.3% in 2011 (p<0.001, Figure 7). The proportion of smokers who had tried to quit in the past 12 months and lasted at least 24 hours also declined (p<0.001).

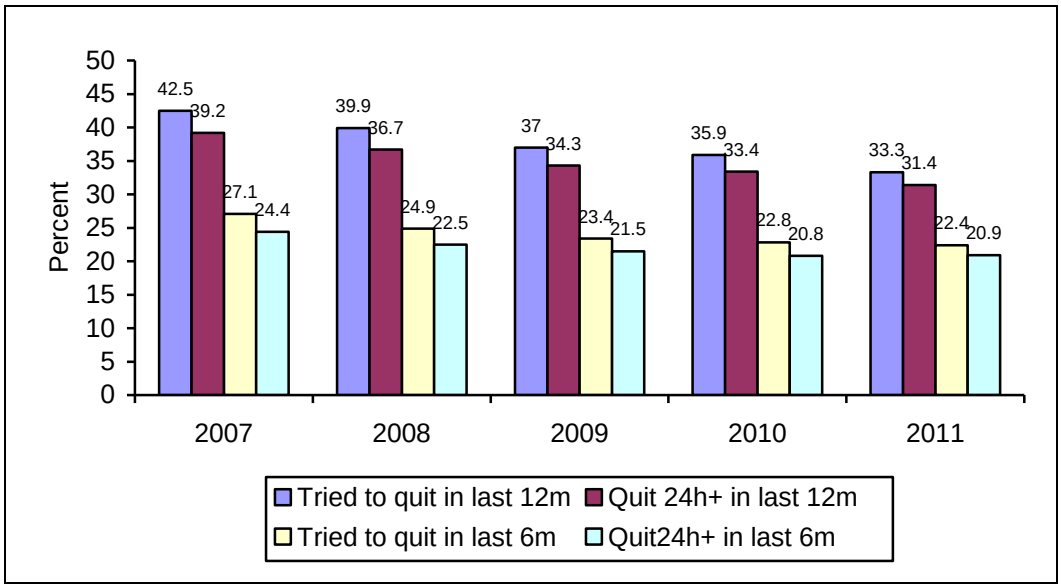

Figure 7: Percentage of smokers who tried to quit in the preceding 6 and 12 months. Base: All respondents who reported having smoked in the past 6 (26,086) and 12 months (N=26,522).

Receipt of advice to stop smoking

The proportion of smokers being advised to stop by their GP, or offered support was similar in 2011 and 2010 (Figure 8).

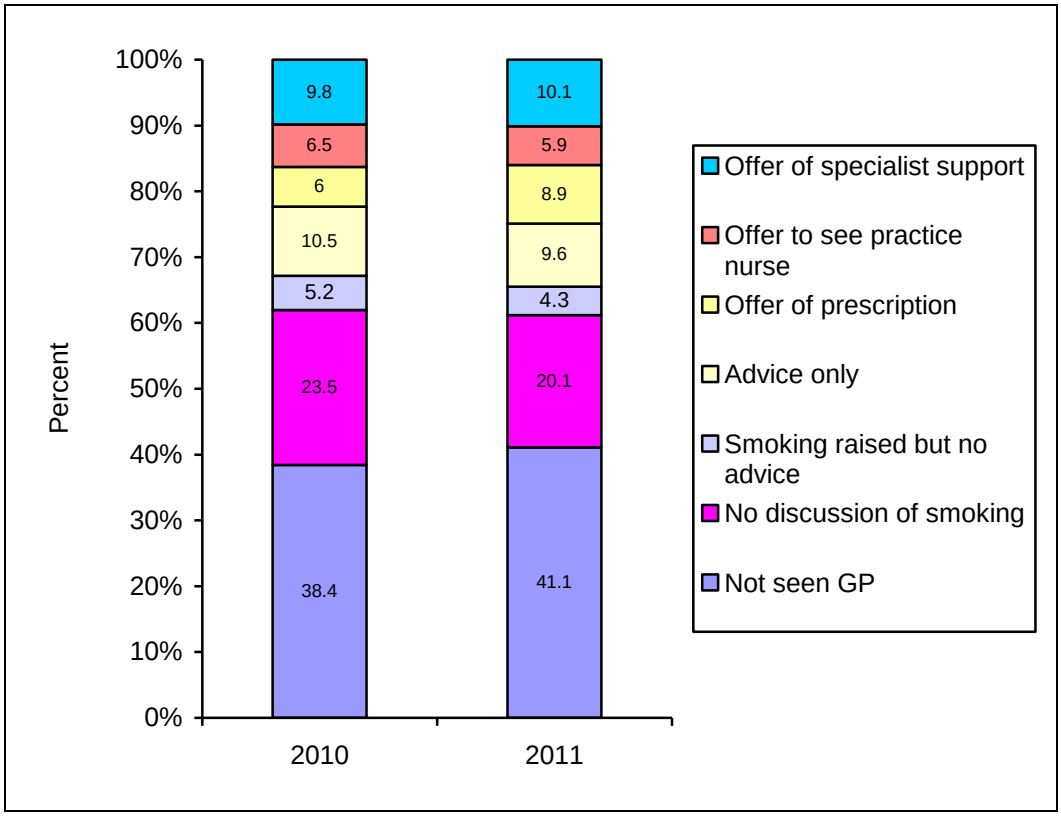

Figure 8: Proportion of smokers reporting having received different types of advice to stop smoking from their GP (N=10,809)

Offer of support with stopping was significantly associated with the likelihood of having tried to stop in the past 12 months ($p<0.001$, Figure 9).

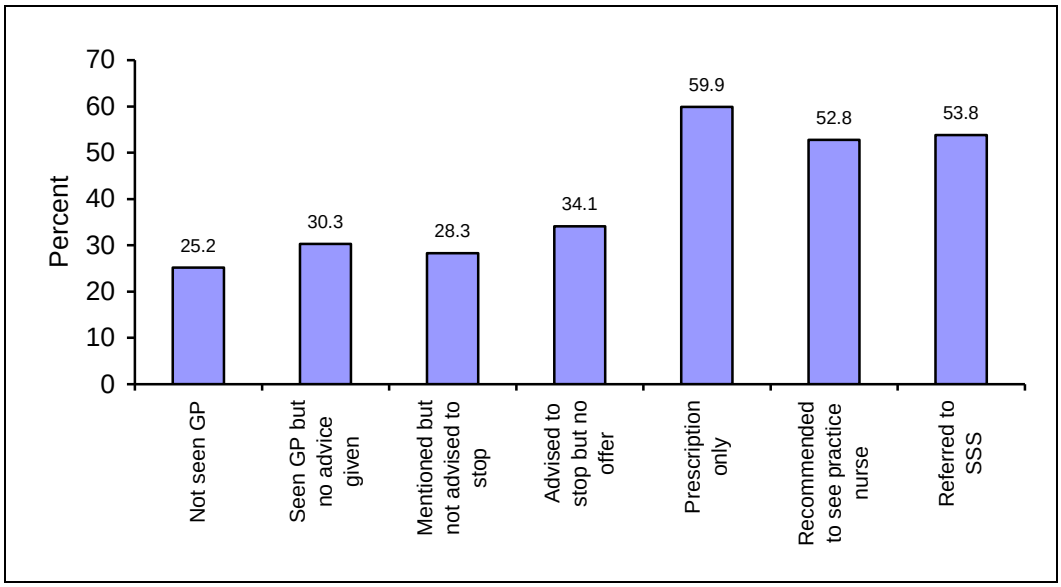

Figure 9: Percentage of smokers who reported having made a quit attempt in the past 12 months as a function of advice received from their GP during that time. Base: All respondents who had smoked in the past 12 months, N=10,967

Use of aids to cessation

The proportion of smokers who made at least one quit attempt who used some form of cessation aid increased from 49.1% in 2007 to 53.5% in 2011; the increase was primarily in those who used a prescription with minimal behavioural support (p<0.001, Figure 10).

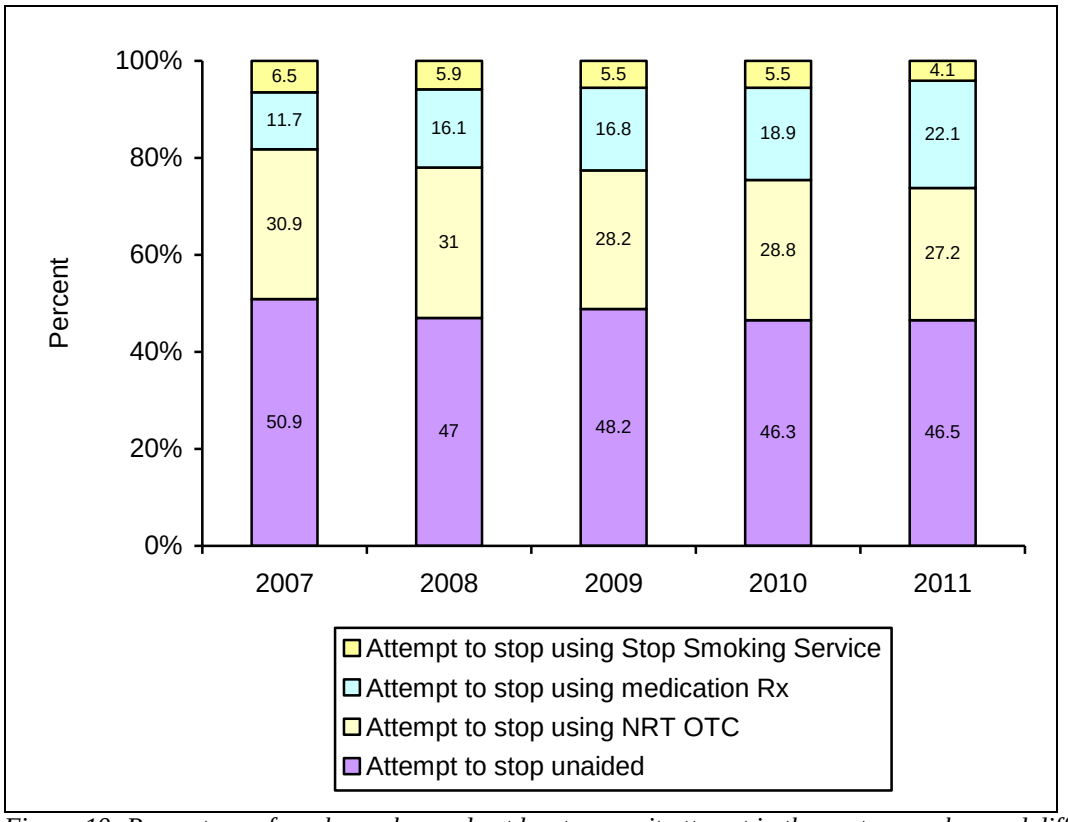

Figure 10: Percentage of smokers who made at least one quit attempt in the past year who used different aids to cessation. Base: All smokers who reported having made at least one quit attempt in the past 12 months. N=2,534 (2007), 1,831(2008), 1,833(2009), 2,068(2010), 1,749(2011)

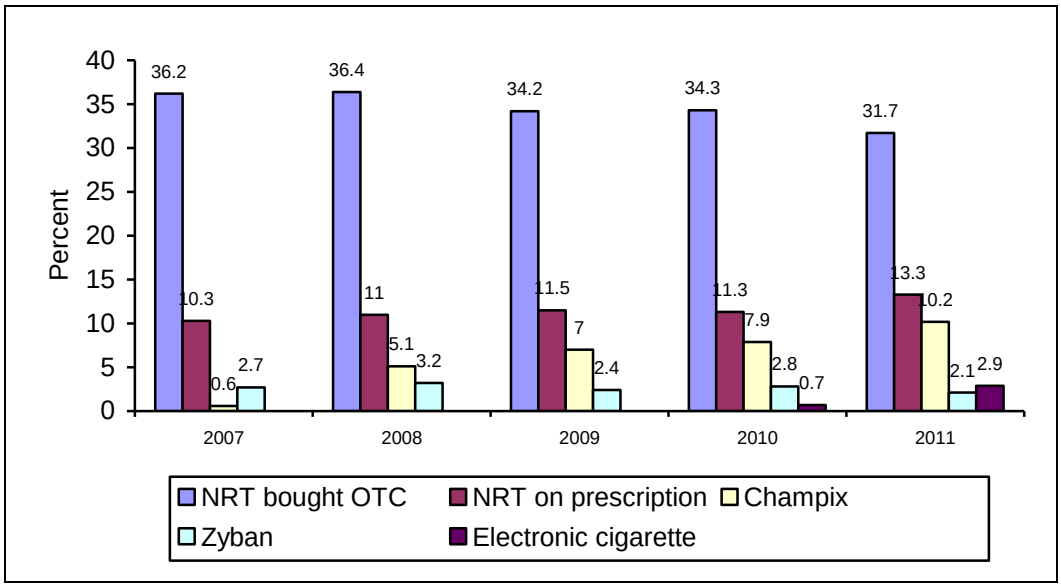

Figure 11: The proportion of smokers who made quit attempts in the past 12 months who used different types of medication. Base: All those who smoked in the past 12 months who made at last one quit attempt in the past 12 months. N=2,533(2007), 1,830(2008), 1,832(2009), 2,068(2010), 1,749(2011)

There has been an increase in proportion of smokers who make quit attempts using varenicline from 0.06% in 2007 to 10.2% in 2011 (p<0.001) with no commensurate fall in the use of prescriptions for other medications (Figure 11). There has been a fall in the use of NRT bought over the counter

(p<0.001). Data have been collected since 2010 on use of electronic cigarettes. There was an increase in 2011 to 2.9% (p<0.001).

Approaches to quitting

There was a decline in the percentage of quit attempts that were unplanned from 58.1% in 2007 to 49.6% in 2011 (p<0.001 by chi-squared test, Figure 12). The proportion of quit attempts that involved gradual cutting down increased from 40.0% in 2007 to 43.5% in 2011 (p<0.001).

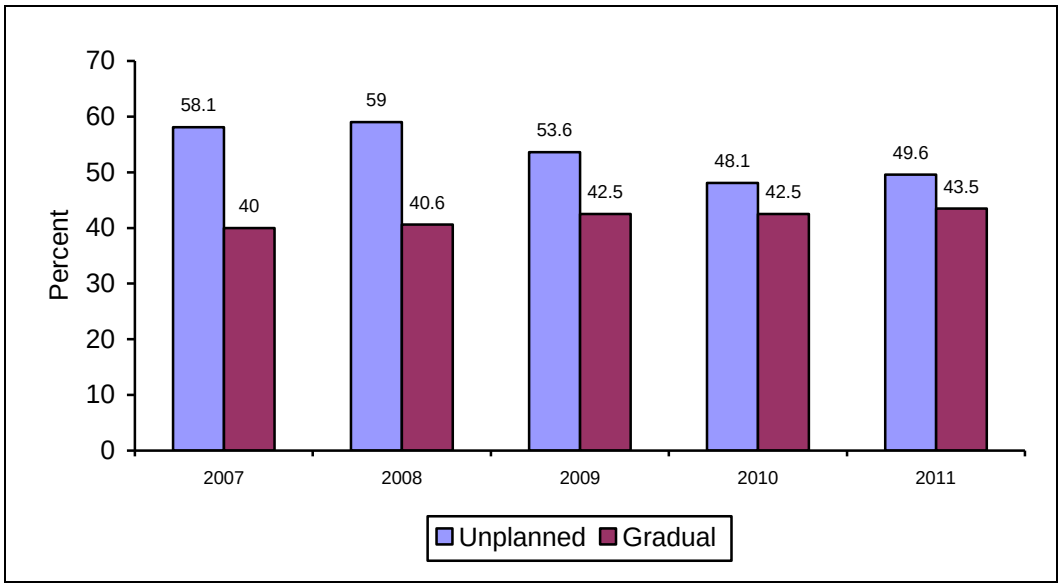

Figure 12: Percentage of smokers adopting different approaches to quitting in their most recent quit attempt. Unplanned=made the quit attempt as soon as the decision was taken and did not even wait a day; gradual=made the quit attempt by cutting down first. Base=All those who smoked in the past 12 months who made at least one quit attempt. N=2,525(2007), 1,827(2008), 1,832(2009), 2,054(2010), 1,729(2011)

Success at stopping smoking

Figure 13 shows the proportion of ever-confirmed-smokers (people who report that they ever smoked for at least a year) who had not smoked for at least at least a year, aggregating data from all years of the study. Only 25% achieve ex-smoker status by the age of 35 – the age at which smokers begin to lose significant life-expectancy. Only 55% were ex-smokers by the age of 65.

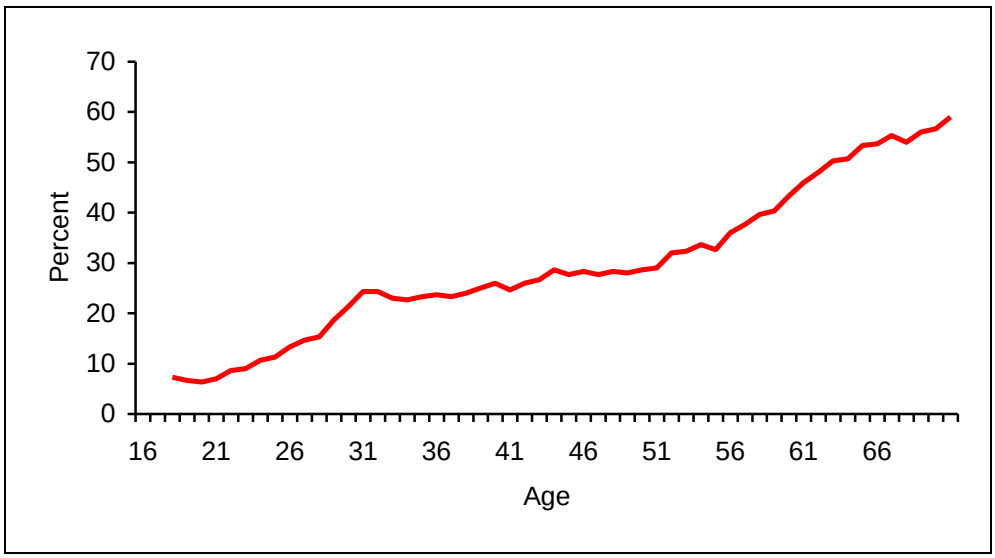

Figure 13: Percentage of ever-confirmed-smokers (currently smoke or have smoked for at least a year) who were ex-smokers (reported not having smoked for at least a year) as a function of age. Base: All ever-confirmed smokers. N=28,207. Data only used for respondents up to the age of 70 because of significant bias from death after that age.

The proportion of last-year smokers (people who had smoked within the past 12 months) who reported no longer smoking declined from 6.7% in 2007 to 4.8% in 2010 (p<0.001, Figure 14). There was also a fall in the proportion who had succeeded given that they made a quit attempt (p=0.02).

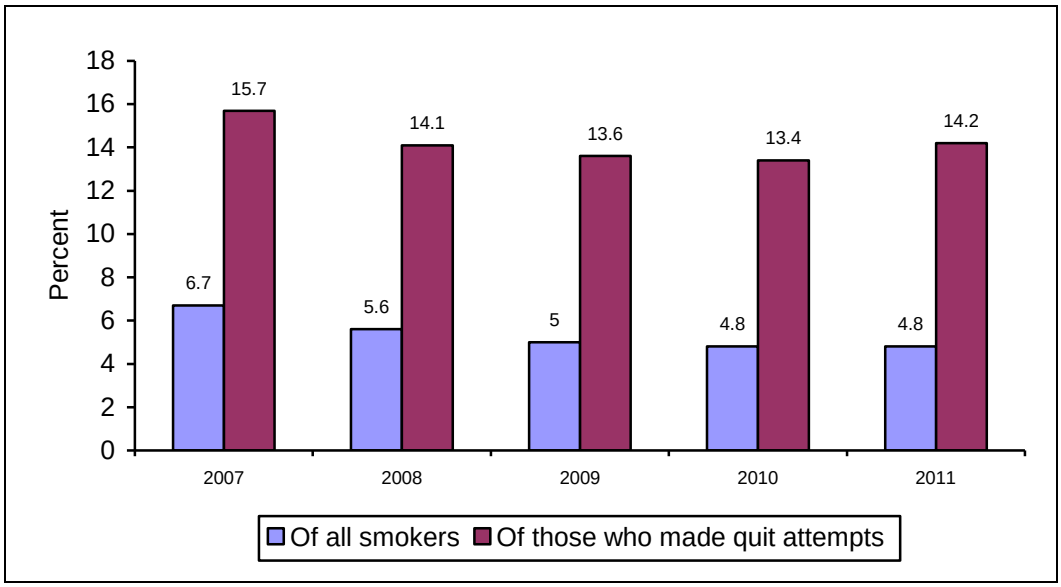

Figure 14: Percentage of smokers who have smoked in the past 12 months but report not smoking now. Base: All those who smoked in the past year and all those who smoked in the past year and made at least one quit attempt. N=5,958(2007), 4,602(2008), 4,973(2009), 5,775(2010) for all smokers and N=2,533(2007), 1,829(2008), 1,833(2009), 2,068(2009), 2,068(2010), 1,749(2011)

Aggregating data over all years, a multiple logistic regression analysis was used to assess the predictors of current non-smoking status among those who had attempted to stop within the past 12 months. All predictors were entered simultaneously (giving adjusted odds ratios). Table 1 shows the results.

Table 1: Predictors of success (currently not smoking) of quit attempts made in the previous 12 months by forced entry multiple logistic regression.

Variable	**Odds ratio (adjusted)**	**95% confidence interval**
Age (years)	1.01**	1.01-1.02
Routine and manual occupation vs non-routine and manual (reference)	0.77**	0.67-0.88
Female vs male (reference)	0.92	0.81-1.06
Strength of urges to smoke (1-6)	0.50**	0.45-0.56
Time spent with urges to smoke (1-6)	0.55**	0.49-0.61
Time since most recent quit attempt		
26-52 weeks (reference)	1	
<1 week	10.18**	7.79-13.3
1-4 weeks	3.32**	2.68-4.12
4-8 weeks	1.33*	1.05-1.68
8-12 weeks	1.03	0.80-1.31
12-26 weeks	1.07	0.89-1.28
Number of prior quit attempts in the past 12 months	0.67**	0.61-0.73
Abrupt vs gradual cessation (reference)	1.80**	1.56-2.08
Unplanned vs planned in advance (reference)	0.97	0.84-1.11
Method used		
Unaided (reference)	1	
NHS specialist support	3.14**	2.02-4.87
NRT Rx	1.67**	1.38-2.03
NRT OTC	0.95	0.81-1.12

Base=All respondents who had smoked in the past year and made at least one quit attempt. N=10,230. Routine and manual=social grade C-E; Strength of urges smoke (1=no urges-6=extremely strong) and time spent with urges to

smoke (1=no urges, 6=all or almost all the time) are measures of dependence; Abrupt=tried to quit without cutting down first; Unplanned=tried to quit as soon as made the decision; Rx=prescription with minimal behavioural support, NRT OTC=nicotine replacement therapy bought over the counter

Success was associated with greater age, non routine and manual occupation, lower dependence (time with and strength of urges to smoke), having made fewer quit attempts previously that year, having made the quit attempt more recently, and abrupt rather than gradual cessation. Use of specialist NHS support (which includes medication) was associated with 3.14 times the odds of quitting compared with unaided quit attempts and use of medication on prescription was associated with 1.67 times the odds of quitting. No improvement in success rates could be found for NRT bought over the counter.

A logistic regression analysis was undertaken restricted to respondents who had tried to quit with medication obtained on prescription or provided by the NHS specialist service to determine whether the type of medication used was associated with success rates. It was found that those who used varenicline had 1.63 (95% CI 1.15-2.30) times the odds of success compared with those using NRT or bupropion after adjusting for all the predictor variables used previously.

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