

Young adult smokers in Scotland

December 2008

Revised December 2009

Key points

- In 2006, 28% of those aged 16–24 in Scotland were regular smokers – an estimated 166,000 young adults. The Scottish Government has set a target to reduce this rate to 22.9% by 2012.
- Smoking rates (age 16–24 years) fell between 1999 and 2004, from 31% to 25%, then rose to reach 30% in 2007, falling to 28% in 2008.
- Young women generally have higher smoking rates than young men in the 16–19 age group. Male rates exceed female rates in the 20–24 age group.
- Half of young adult smokers in 2006 were in employment (51%), with 30% not in education, employment or training (NEET), 16% in further or higher education (FE/HE) and 3% at school.
- In general, large employment sectors had high numbers of smokers and small employment sectors had low numbers.
- There were large numbers of young adult smokers employed in: wholesale and retail trade, repair trades; hotels and restaurants; construction (men); and health and social work (women).
- Meeting the 2012 target will require sustained and radical action to discourage take-up and promote smoking cessation, particularly among young people in the workplace and within the NEET group.

Contents

Introduction	1
Using the Scottish Household Survey	1
What is the smoking prevalence during the transition to adulthood?	1
Who are the young smokers?	3
Which industries do young smokers work in?	7
Where do young smokers live?	9
What are the smoking trends among young adults?	10
Special population groups	12
Discussion	15
References	16

Authors

Martin Taulbut and David Gordon

Public Health Observatory Division, NHS Health Scotland

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Note to revised edition

An error in the formula for confidence interval calculations meant that all confidence intervals in the original report were too wide. This is corrected in this revision. The original key points and interpretation are not affected by this. We have also taken the opportunity to update Figure 12 and associated text with data for 2008.



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Introduction

In 2006, an estimated 166,000 young adults (aged 16–24) in Scotland smoked regularly. Reducing this figure is a major public health priority, with the Scottish Government noting that: ‘if smoking is truly to become a thing of the past, there is still much to be done, particularly to stop young people from starting smoking in the first place’.¹ In its 2008 Smoking Prevention Action Plan, the government set a target to reduce smoking rates among those aged 16–24 to 22.9% by 2012.¹ Meeting this challenging target from its 2007 rate of 30% (2008 = 28%) will require a clearer understanding of which young people smoke, how they spend the major part of their time and where they can be found, so that effective strategies can be developed and appropriately targeted.

This briefing uses data from a large-scale survey – the Scottish Household Survey (SHoS) – to examine the characteristics of young smokers aged 16–24 in Scotland to help inform the development and targeting of practical responses to reduce smoking in this age group.

Using the Scottish Household Survey

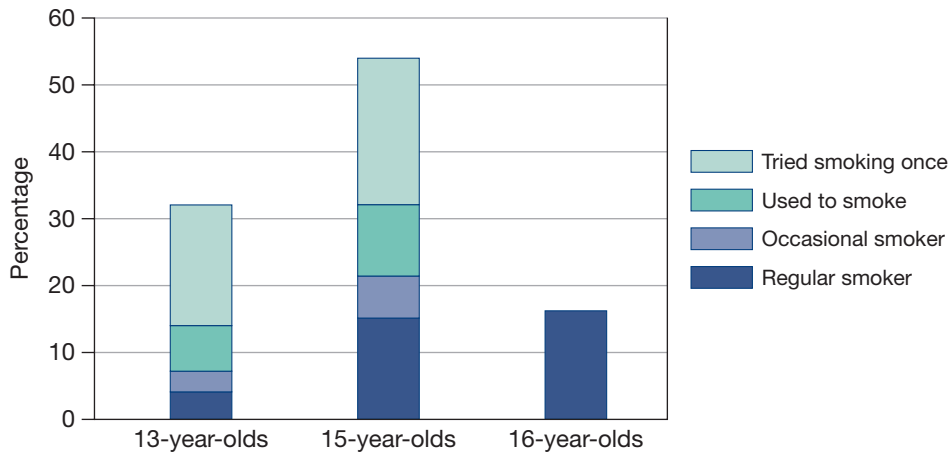
The SHoS was established in 1998 to provide the Scottish Government with detailed, frequent information on aspects of the Scottish adult population, particularly those relevant to local authorities. SHoS remains the preferred, authoritative source for estimating smoking rates among the Scottish adult population, with detailed results available for the period 1999 to 2006. One-half of each year’s sample (approximately 15,000 people, of whom 1,200 were aged 16–24) were asked ‘Do you smoke cigarettes nowadays?’. All of those aged 16–24 who answered ‘yes’ to this question were treated as smokers. All except 0.1% smoked at least one cigarette a day, with a mean daily consumption of 11.9 cigarettes.

Results were analysed by economic activity, survey year, individual age, area deprivation using the Scottish Index of Multiple Deprivation (SIMD) and (for 2001–06 only) industry of employment. Several years’ data were combined to give large enough numbers for robust subgroup analysis. Provisional figures (now final) for 2007 were published as this analysis was being prepared and have been used in time trend analysis.

What is the smoking prevalence during the transition to adulthood?

Before considering the 16–24 age group, it is valuable to examine the smoking habits of the under-16s. [Figure 1](#) shows that in 2006, at age 13, 4% of adolescents were regular smokers (at least one cigarette a week), with 3% occasional smokers, 7% ex-smokers and 18% experimental smokers (tried smoking once). At age 15, the proportion of regular smokers had jumped to 15%, but there were also increases in the proportion of occasional smokers (6%), ex-smokers (11%) and experimental smokers (22%). At age 16, regular smoking rates increased only slightly, to 16%, largely driven by males ‘catching up’ with females.

Figure 1 Smoking habits among 13-, 15- and 16-year-olds in Scotland

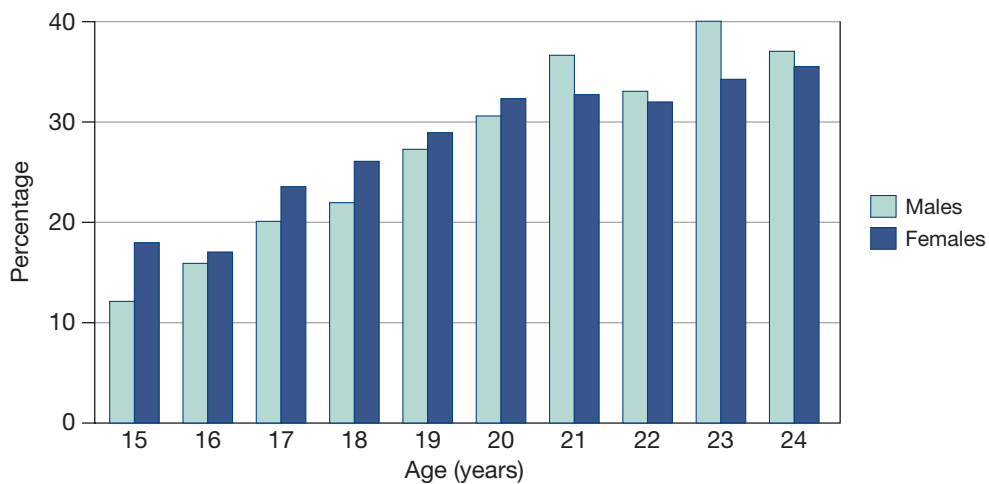


Sources: Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS) 2006; SHoS 1999–2006.

These figures are not based on repeated observations of the same individuals over time. However, it is likely that some, perhaps much, of the inflow to regular smoking between the ages of 13 and 15 is from occasional, former and experimental smokers.

Inflows to smoking do not cease at age 16. The period from age 16 to 24 is one of immense change for most young people, in terms of both the social groups of which they are part and the physical settings in which they spend their time. It is also a period of substantial smoking uptake. Smoking rates increase steadily in early adulthood, more than doubling from those found in school surveys at age 15 (Figure 2), demonstrating ‘a steep trajectory from non/experimental to regular smoking’.² And while school surveys show lower smoking prevalence among boys, this is reversed after age 20, with the smoking prevalence among men overtaking that of women.

Figure 2 Smoking prevalence (%) among young adults (aged 15–24) in Scotland, by single year of age and gender, 1999–2006



Sources: SALSUS 2006; SHoS 1999–2006. Data reported for 15-year-olds are from 2006.

Who are the young smokers?

To give estimates of absolute numbers, the total number of young adult smokers in Scotland was calculated by applying 2006 smoking prevalence rates for age 16–24 to the 2006 General Register Office for Scotland (GROS) mid-year population estimates. Next, aggregate data from the Scottish Household Survey 1999–2006 were used to divide young smokers into four broad categories: working; not in education, employment or training (NEET); in further or higher education (FE/HE); and at school. [Table 1](#) gives more detail on these categories. The proportion in each category was then applied to the estimated total number of young smokers, to give absolute numbers for Scotland in 2006.

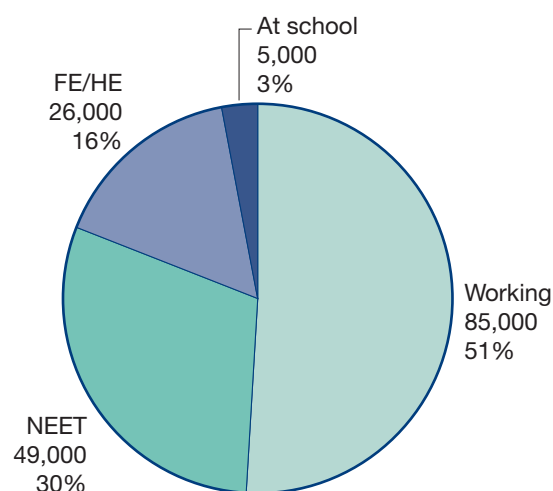
On this basis, of the estimated 166,000 young adult smokers in 2006, half (51%, 85,000) were working, nearly one-third (30%, 49,000) were NEET and the remainder were in full-time education (most in FE/HE) ([Figure 3](#)).

Table 1 Simplified economic activity categories used and number of those aged 16–24 in sample within each category, derived from self-reported economic activity in the Scottish Household Survey 1999–2006

Category	SHoS category	Smokers	Non-smokers	Total
Working	Full-time employment	1,156	2,162	3,318
	Part-time employment	294	406	700
	Self-employed	42	53	95
NEET	Unemployed and seeking work	494	377	871
	Looking after home/family	446	341	787
	Permanently sick or disabled	49	58	107
	Government work/training scheme	37	43	80
	Other	28	48	76
	Unable to work due to short term ill-health	51	21	72
	Permanently retired from work	1	3	4
FE/HE	Higher or further education	419	1,724	2,143
At school	At school	68	881	949

Source: SHoS 1999–2006.

Figure 3 Estimated young smokers (aged 16–24) in Scotland, by economic status, 2006



Sources: GROS mid-year population estimates 2006; SHoS 1999–2006. Figures shown in chart sum to 165,000 because of independent rounding.

For both males and females, smoking **rates** are highest among those who are NEET (50%) and lowest among young people in full-time education (Table 2). Separate analysis showed that the smoking rate among young women looking after home and family, who are included in the NEET group in this briefing, is also high (54%), with an estimated 16,000 young women in this position in 2006. (The number of young men describing themselves as looking after home and family was negligible.)

Figure 4a–c examines smoking rates by single year of age and gender among young people who were working (Figure 4a), in further and higher education (Figure 4b) and NEET (Figure 4c). It is important not to be misled into interpreting these graphs as showing change over time or with increasing age of individuals. The composition of each single-year age group is different from that of earlier and later age groups. For example, the ‘reduction’ in smoking prevalence seen in Figure 4a for females in employment from ages 16 to 17 is probably not because 16-year-olds in employment are stopping smoking by the age of 17 but because more non-smokers have entered employment by age 17.

What is striking is the almost complete absence of any strong patterns in these graphs. There is a suggestion that young women entering employment at ages 16 and 17 might be more likely to smoke: the confidence intervals are wide but the difference is statistically significant (Figure 4a). The strongest pattern is seen for those aged 16 and 17 in FE/HE (Figure 4b). The SHoS does not allow FE and HE to be separated out as distinct categories but we can speculate that those (probably) in FE at ages 16 and 17 are a distinct population from those in (mainly) HE at age 18. For example, students in FE and HE show contrasting patterns of association with area deprivation (Table 3).

Among the NEET group, there is a striking feature not evident in the graph. Young women looking after home and family account for just 10% of all young female smokers at age 17 but more than one-quarter (26%) by age 24 (see also Figure 6).

Table 2 Smoking prevalence (%), young people (aged 16–24) in Scotland, by gender and economic activity, 1999–2006

	Working	NEET	FE/HE	At school
Males	34	47	18	7
Females	33	52	17	7
Persons	34	50	18	7

Source: SHoS 1999–2006.

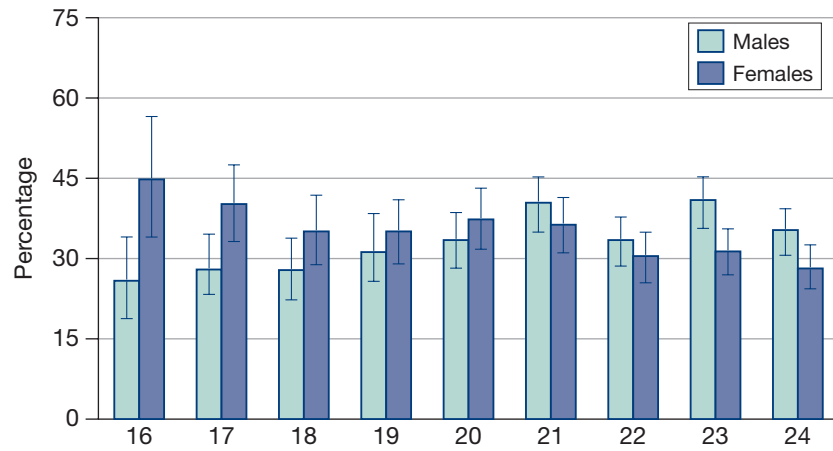
Table 3 Whole-time equivalent students in further education and higher education in Scotland, by deprivation quintile: 2004–05 (%)

SIMD quintile	Further education	Higher education
1 – most deprived	27	13
2	23	16
3	19	19
4	17	23
5 – least deprived	13	29

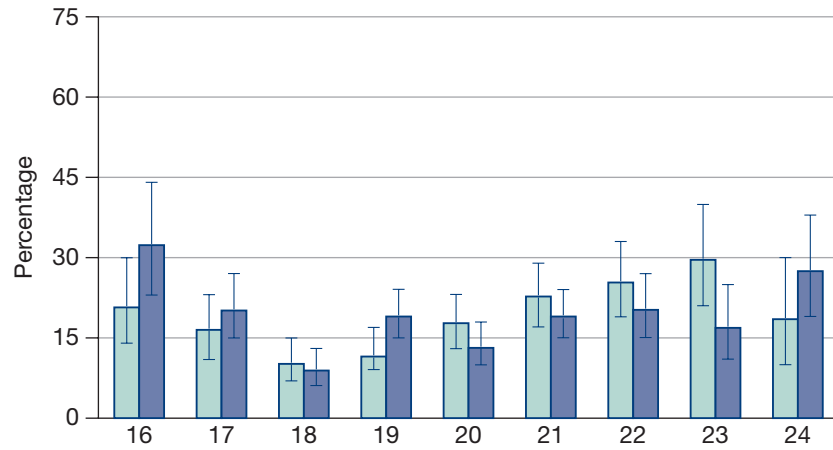
Source: Scottish Neighbourhood Statistics.

Figure 4 **Smoking prevalence (%) among young adults in Scotland by gender and single year of age, 1999–2006 (with 95% confidence intervals)**

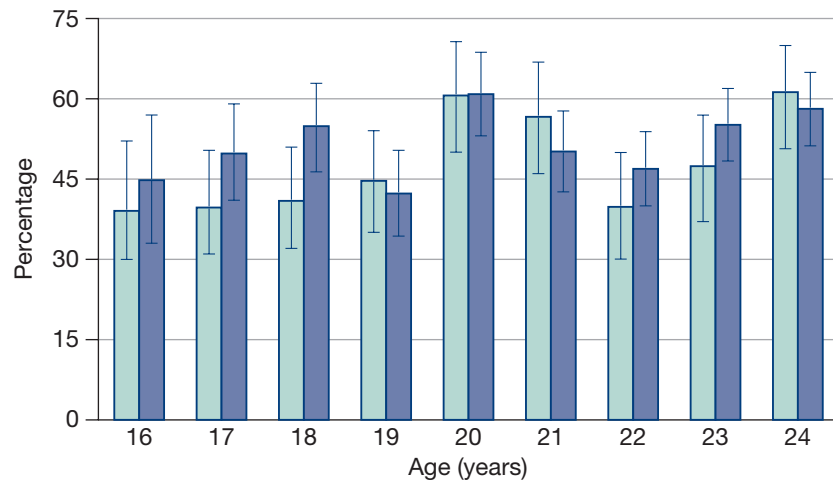
(a) In employment



(b) In further or higher education (FE/HE)



(c) Not in education, employment or training (NEET)

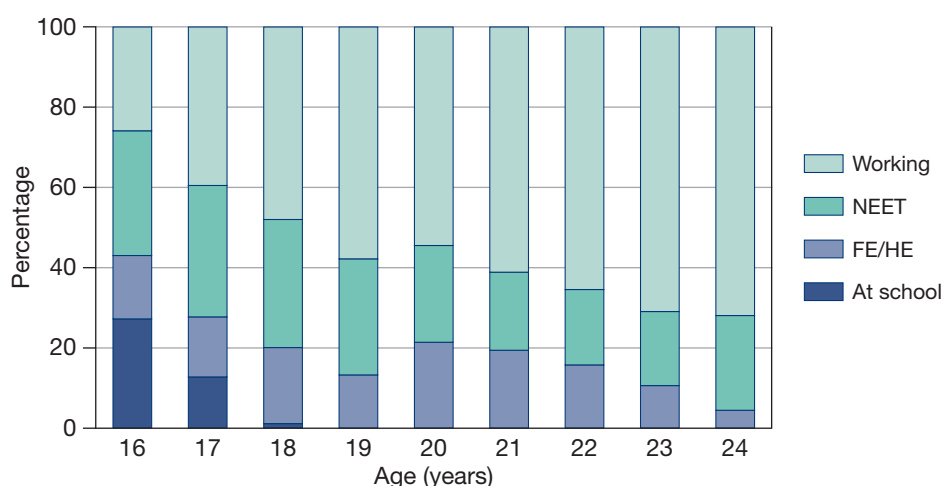


Source: SHoS 1999–2006.

Figures 5 and 6 show the distribution of young smokers by age and economic activity separately for men and women.

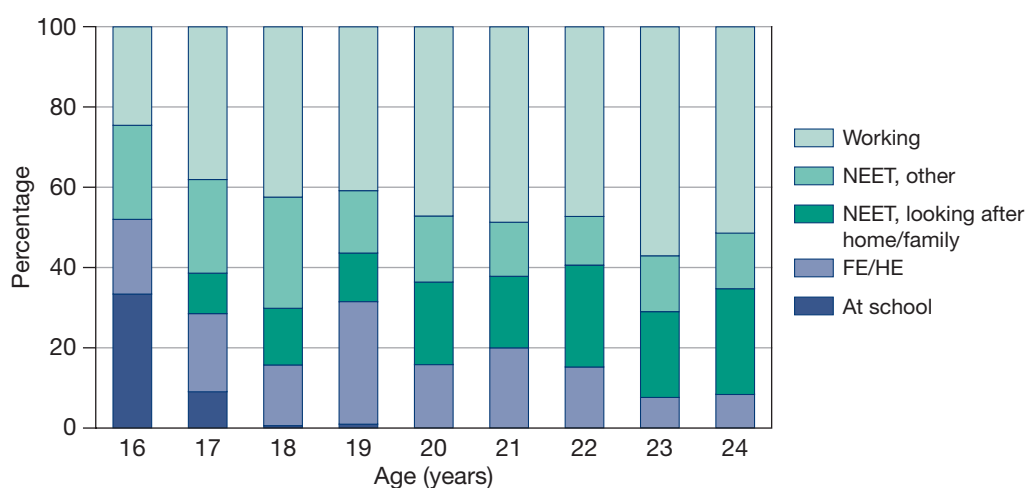
- At age 17, 39% of **male** smokers are in work, 33% are NEET, 15% are in FE/HE and 13% are in school.
- At age 20, 54% are in work, 24% are NEET and 22% are in FE/HE.

Figure 5 Young smokers in Scotland by economic activity and single year of age, 1999–2006: male



Source: SHoS 1999–2006.

Figure 6 Young smokers in Scotland by economic activity and single year of age, 1999–2006: female



Source: SHoS 1999–2006.

- By age 23, 71% are in work, 18% are NEET and 11% are in full-time education (Figure 5).
- At age 17, 38% of **female** smokers are in work, 10% are looking after home and family, 24% are other NEET, 20% are in FE/HE and 9% are at school.
- By age 20, 47% are in work, 21% are looking after home and family, 16% are other NEET and 16% are in education.
- At age 23, 57% are in work, 22% are looking after home and family, 14% are other NEET and 8% are in education (Figure 6).

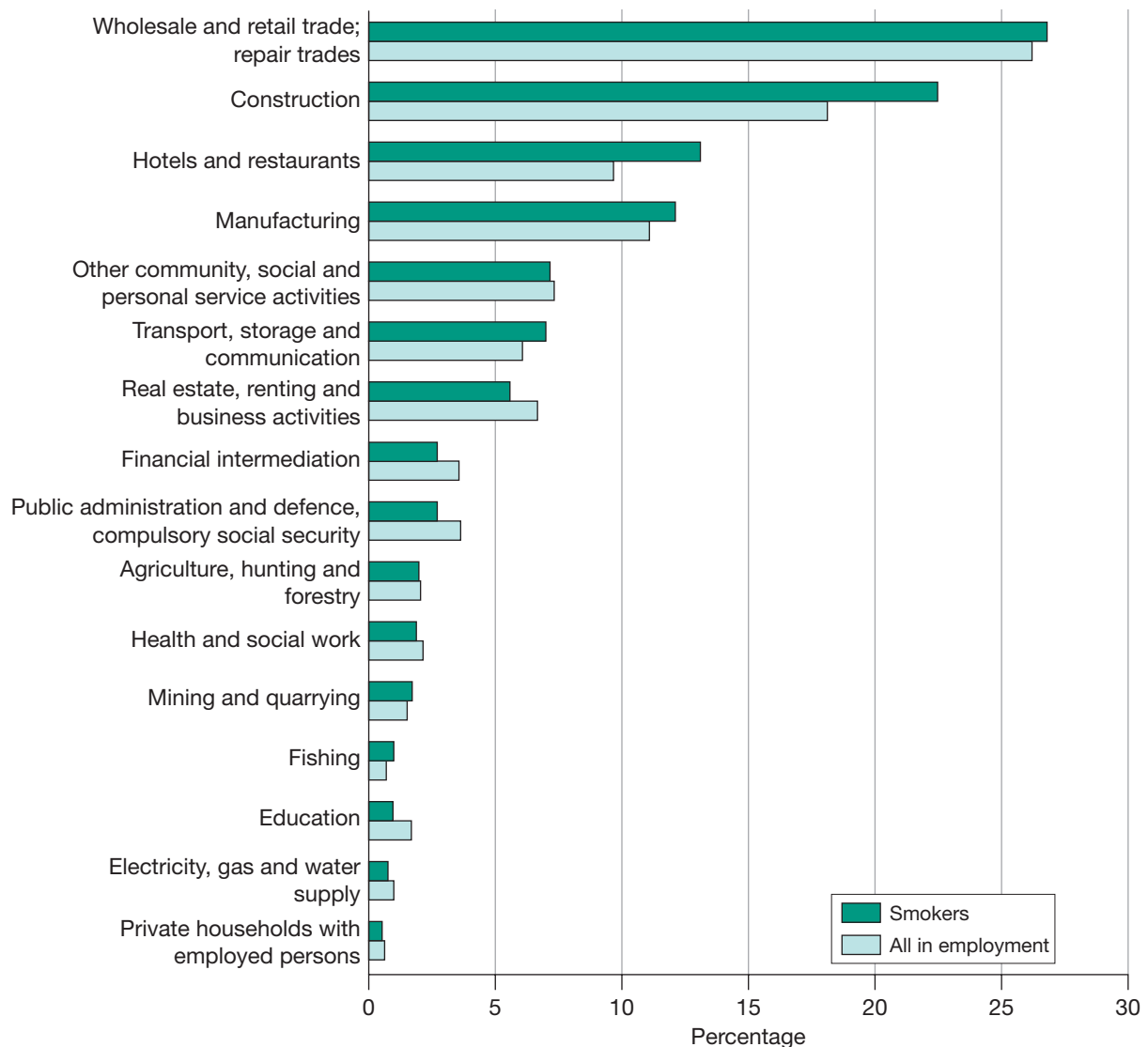
The greatest numbers of smokers and the highest prevalences of smoking are in employment or NEET. As mentioned above, young women looking after home and family are included in the NEET figures, but their high smoking prevalence rate matches that of the NEET group as a whole. Numbers and rates in education are lower, except for those in (we assume) FE at age 16.

Which industries do young smokers work in?

Given the large number of young smokers in employment, it is useful to ask what industries they are employed in. Here, data from the SHoS 2001–06 were used, since the industrial classification of respondents was not recorded in 1999 and 2000. The smoking prevalence rates for young men and young women were calculated for industry of employment, and these rates applied to the total number of young people working in these same industries in Scotland in 2006 according to the Annual Population Survey (regarded as a more robust source of employment statistics). In the charts that follow, the distribution of working young adult smokers by industry is compared against **all** working young people by industry, as recorded by the Annual Population Survey. All data are for the population aged 16–24.

More than one-quarter (27%) of young male smokers in employment work in **wholesale and retail trade; repair trades**, and more than one-fifth (22%) are employed in **construction** (Figure 7). Another 12% of young male smokers in work are employed in **manufacturing**,

Figure 7 **Industry of employment: young male smokers compared with all young male workers, 2006**

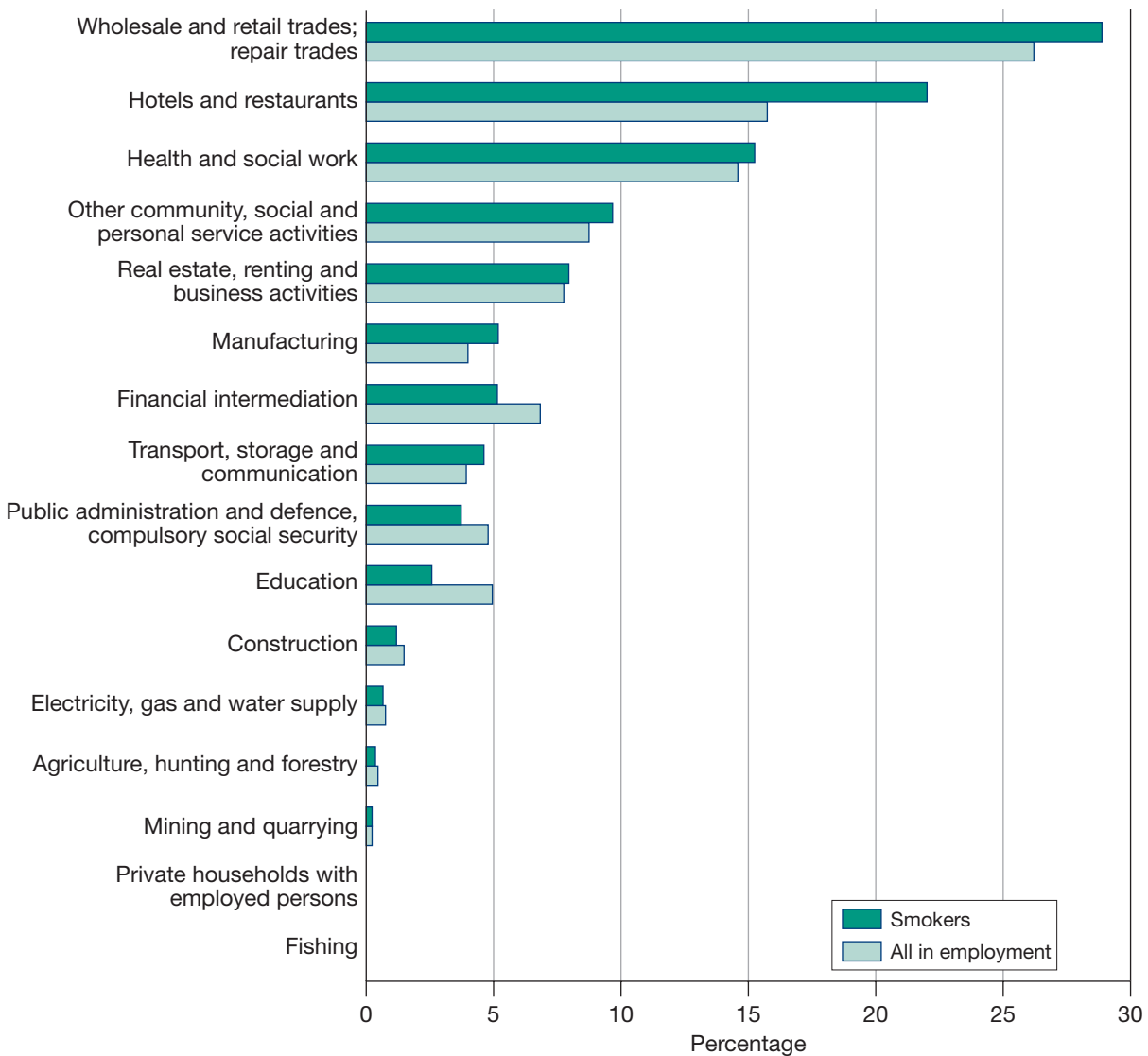


Source: Annual Population Survey January–December 2006; SHoS 2001–06 data.

with 13% employed in **hotels and restaurants**. Young male smokers are ‘over-represented’ in certain industries, notably construction and hotels and restaurants, but the more common pattern is that the larger the industrial sector, the more young smokers it has.

Among young female smokers in work there are some similarities and some differences. The largest numbers of working young female smokers are concentrated in the **wholesale and retail trades; repair trades** (28%) and **hotels and restaurants** (22%). Large numbers are also employed in **health and social work** (15%) and **other community, social and personal service activities** (10%). Relative to their total numbers in employment, young women smokers are ‘over-represented’ in hotels and restaurants (Figure 8), but, again, the larger the industrial sector, the more young smokers it has.

Figure 8 Industry of employment: young female smokers compared with all young female workers, 2006



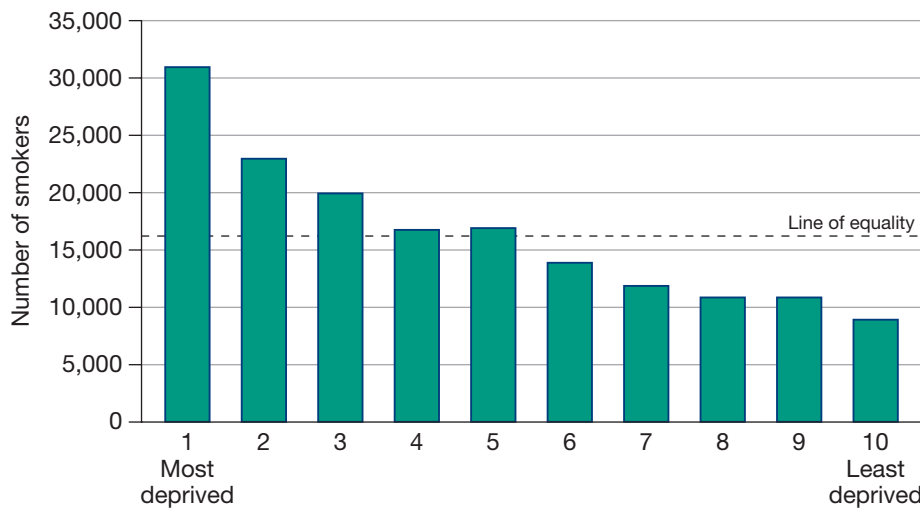
Source: Annual Population Survey January–December 2006; SHoS 2001–06 data.

Where do young smokers live?

Using the Scottish Index of Multiple Deprivation (SIMD), it is possible to examine the level of deprivation in the areas where young smokers live and offer some comparisons with all smokers. Using SHoS data from 1999–2006, the Scottish young adult population was divided into 10 groups (deciles), from most to least deprived. One-third (54,000, 34%) of young smokers live in the most deprived two deciles, although the majority live in less deprived areas – including 20,000 in the two least deprived deciles (Figure 9).

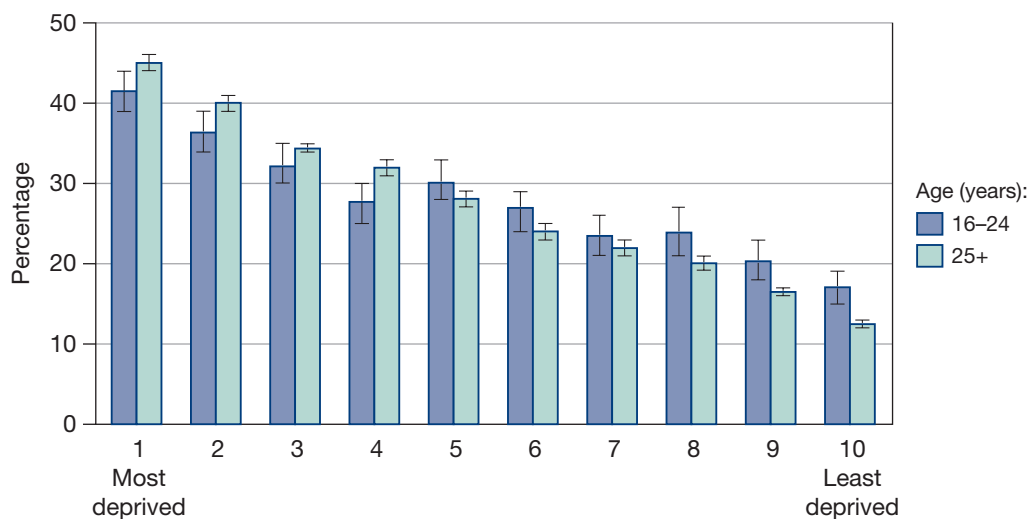
A strong deprivation gradient in smoking exists for both young adults and the population aged 25+. However, in less deprived areas smoking prevalence is higher among young people than in the 25+ age group (Figure 10). This is consistent with evidence that smokers from more affluent

Figure 9 **Estimated young smokers (aged 16–24) in Scotland, by deprivation decile, 2006**



Sources: GROS mid-year population estimates 2006; SHoS 1999–2006. Figures shown in chart sum to 165,000 because of independent rounding.

Figure 10 **Smoking prevalence (%) by deprivation decile, young adults and adults aged 25+, 1999–2006 (with 95% confidence intervals)**



Source: SHoS 1999–2006.

backgrounds are more likely to give up after their early twenties.¹ However, there are also likely to be cohort effects (shared experiences), perhaps particularly influencing the consistently lower smoking prevalence of young adults relative to older adults in the most deprived deciles. For example, there may have been more school-based anti-smoking activity in more deprived areas when those aged 16–24 were at school than there was for older cohorts.

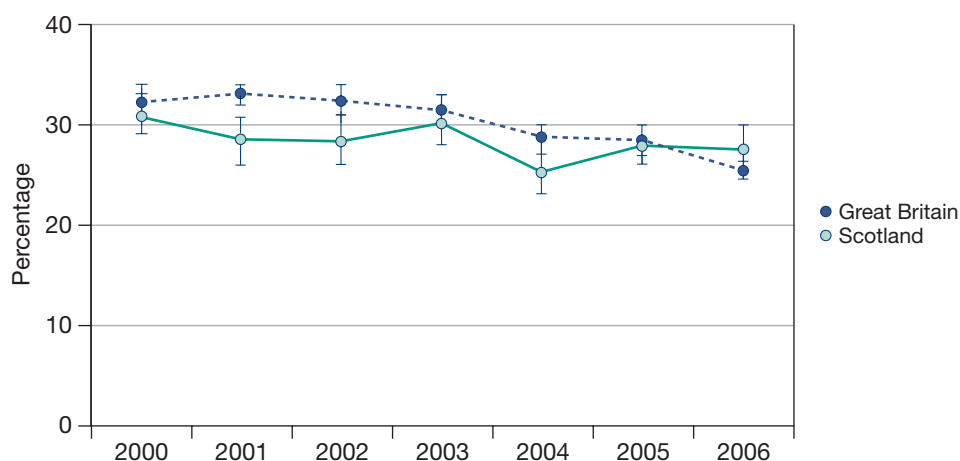
Further analysis of the 2007 tobacco atlas for Scotland³ suggests that the distribution of young smokers in 2003–04 at health board level was broadly in line with the distribution of the population aged 16–24. The exception was in Lothian, which had a lower than expected share of young smokers.

What are the smoking trends among young adults?

In Great Britain as a whole, smoking rates among young people have shown a steady and statistically significant downwards trend since 2001 (Figure 11). Smoking rates for young people in Scotland show a fluctuating pattern. Between 1999 and 2004 there was a fall in the smoking rate among 16- to 24-year-olds in Scotland, from 31% to 25%. This was statistically significant. However, the rate then rose to 28% in 2006. More recent data for 2007 and 2008 show further fluctuation (Figure 12). To reach the 2012 target of 22.9% will require a sharp and sustained year-on-year fall. Such consistency is not evident in the data for the past decade.

Within the overall trend between 1999–2000 and 2005–06, there was a statistically significant reduction in smoking rates among young people in FE/HE or at school,ⁱ although this appears to have tailed off in recent years. However, there was no significant change in smoking rates among young people in work or NEET (Figure 13).

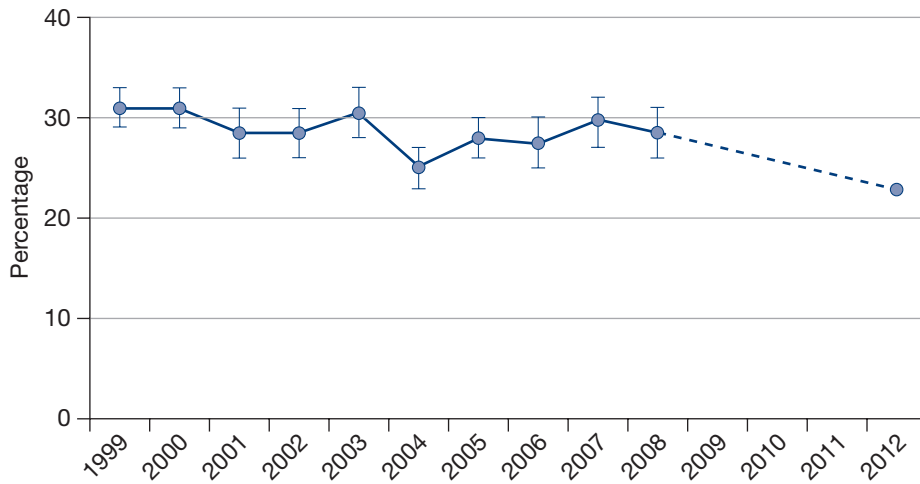
Figure 11 Smoking prevalence (%) among 16- to 24-year-olds in Scotland and Britain, 2000 to 2006 (with 95% confidence intervals)



Sources: SHoS; General Household Survey.

ⁱ Linear by linear chi-squared association between year and smoking status, with a significance of $P = 0.00$ (FE/HE) and $P = 0.04$ (school) respectively. For those in work and NEET, the significance levels were $P = 0.71$ and $P = 0.17$ respectively.

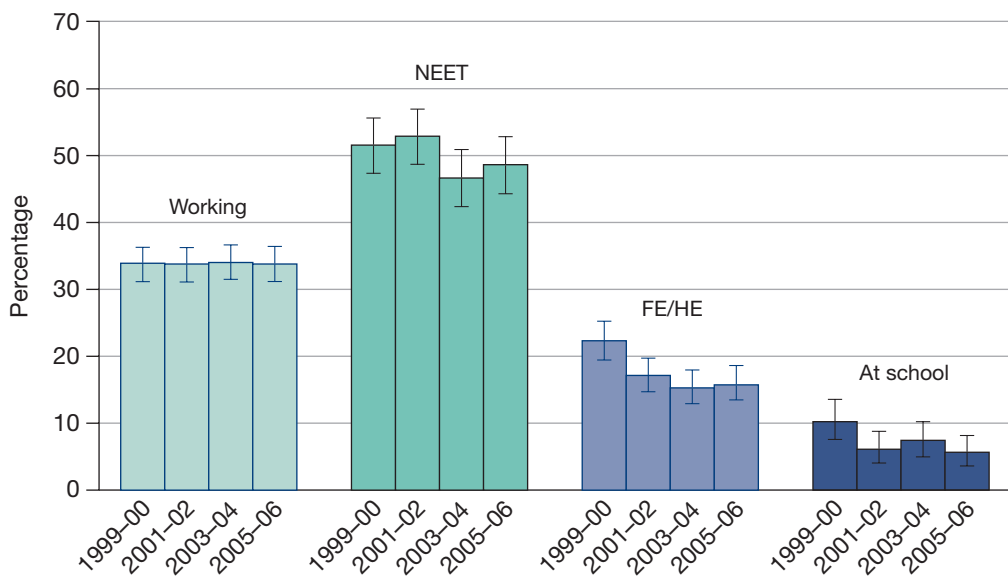
Figure 12 Smoking prevalence (%) among 16- to 24-year-olds in Scotland: annual data 2000 to 2008 (with 95% confidence intervals) and linear trend to 2012 target^a



Source: SHoS.

^aPercentages shown use unrevised (pre-2009) SHoS weighting. The picture is similar if the revised weights are used.

Figure 13 Smoking prevalence (%) among 16- to 24-year-olds in Scotland by economic activity, 1999–2000 to 2005–06 (with 95% confidence intervals)

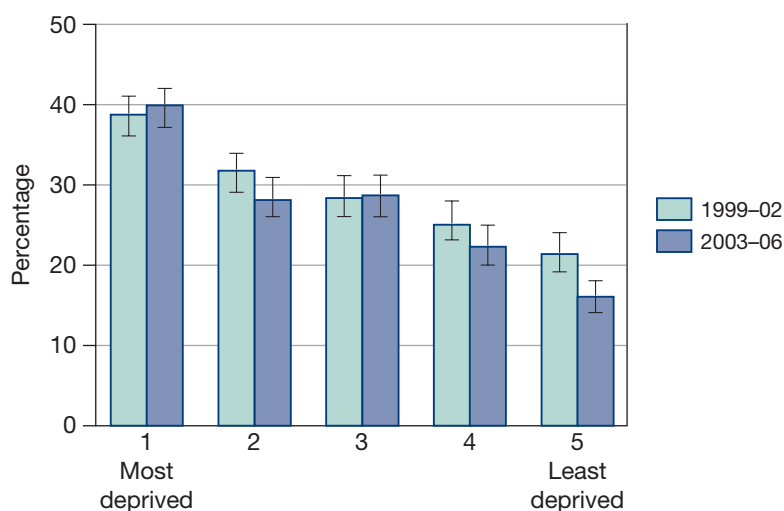


Source: SHoS 1999–2000 to 2005–06.

Smoking prevalence among young people showed increasing inequality by deprivation quintile between 1999–2002 and 2003–06. Smoking rates among young people in the most deprived quintile of Scotland remained unchanged, although there was a significant reduction from 21% to 16% in the least deprived quintile (Figure 14).ⁱⁱ

ⁱⁱ Using chi-squared test for association, in the most deprived quintile, smoking rates were 39% in 1999–02 and 40% in 2003–06 ($P = 0.54$), while in the least deprived quintile smoking rates were 21% in 1999–02 and 16% in 2003–06 ($P = 0.00$).

Figure 14 Smoking prevalence (%) among young people in Scotland, by deprivation quintile, 1999–2002 and 2003–06 (with 95% confidence intervals)



Source: SHoS 1999–2002 and 2003–06.

Special population groups

The SHoS is a general population survey of private households. It thus excludes certain groups from its sample. In the main, those relevant to young adults are communal establishments, such as prisons, nurses’ homes and student halls of residence, but there are also other groups (e.g. homeless people, travellers) who are missed out of the survey. In addition, the SHoS does not distinguish other special populations (e.g. young people leaving care) that might be of interest.

To overcome this gap, we estimated the absolute number of smokers and smoking rates for six special population groups in Scotland (see Table 4). The special populations selected were: students living away from home (including both students living in halls of residence and those in private households away from home),ⁱⁱⁱ gypsies/travellers, young people in HM forces, young prisoners, care leavers and homeless young people.

The results presented here should be treated with some caution as they are derived from a mixture of administrative and (often unique) small-scale surveys. We have had to assume the comparability of English and Scottish data, for example that young homeless people in England and Scotland have similar smoking rates. In addition, the categories are not mutually exclusive, so a young person could be, for example, both a care leaver and homeless. Finally, some of these special population groups are likely to overlap with young people in the NEET group.

Figure 15 shows the estimated smoking prevalence across the six special population groups. Nearly all young homeless people and most young offenders smoke. Prevalence is higher than average among care leavers, gypsies/travellers and members of HM forces; however, it is low among students living away from home (13%).

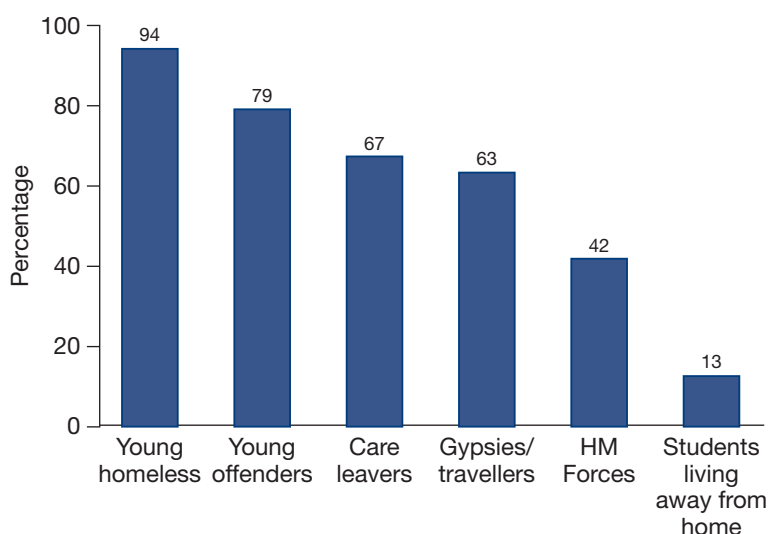
ⁱⁱⁱ It was not possible to separate out students in halls of residence as a distinct group.

Table 4 Special population groups aged 16–24 in Scotland, estimated number of smokers and smoking prevalence (%), 2006

Group	Estimated smoking rates (%)	Estimated no. of smokers (i)	Age group	Source of prevalence	Source of population	Comments
Students living away from home	13	4,000	15–24 (16–24 for prevalence)	SHoS data for students in FE/HE with appropriate social backgrounds; 13% for students away from home	31,370 Scottish students or school-children living away from home during term time, Census Day 2001	Population data from the 2001 Census. SHoS estimates to calculate prevalence for students in FE/HE by National Statistics Socio-economic Classification (NS-SEC)
Gypsies/travellers	63	100	16–24 (estimated)	63% smoking rates for 16- to 40-year-old gypsy travellers in England reported in Parry <i>et al</i> (2004) ⁴	Circa 160 gypsy travellers in 16–24 age group in 2008: twice-yearly count from the Scottish Government ⁵	Prevalence used is for England, (n = 260). In 2008, there were 82 gypsies/travellers in the 16–19 age group; assumption has been made there are a similar number in the 20–24 age group to calculate the base population
Young people in HM forces	42	2,200	16–25	42% smoking rates in regular armed forces personnel reported in Boos and Croft (2004) ⁶	13,500 members of the armed forces in Scotland in 2006 (Q1), MOD data; ⁷ 40% of the armed forces in the UK were aged 16–25 in 2005	Prevalence used is from 2004 study of regular British Armed Forces serving in Iraq, aged 18–62, with a median age of 33.3; this is likely to understate true prevalence among 16- to- 24-year-olds (n = 556); population data from MOD
Prisoners	79	1,700	16–24	79% smoking rates (all ages) in SPS Prisoner Survey 2007 ⁸	2,135 prisoners in custody in Scotland (aged 16–24), 30 June 2006 ⁹	2005 study reported prevalence rates for young male offenders same as whole prison population; female prisoners show higher smoking rates (93%)
Care leavers	67	1,000	16–21	67% smoking rates reported in Ward <i>et al</i> (2003), ¹⁰ for mean age of 18	1,483 young people ceasing to be looked after in Scotland 2006/07 ¹¹	Prevalence used is for England (n = 200) – young care leavers from London, South East, West Country and Merseyside
Homeless	94	22,500	16–24	Mean of 93% rates reported for 16- to 19-year-olds, 96% rates reported for 20- to 24-year-olds reported in Wincup <i>et al</i> (2003) ¹² . Overall mean 94%	23,975 homeless persons aged 16–24 in Scottish households 2006/07 ¹³	Prevalence used is for England (n = 160) – four study areas: Birmingham, Brighton and Hove, Canterbury and Cardiff

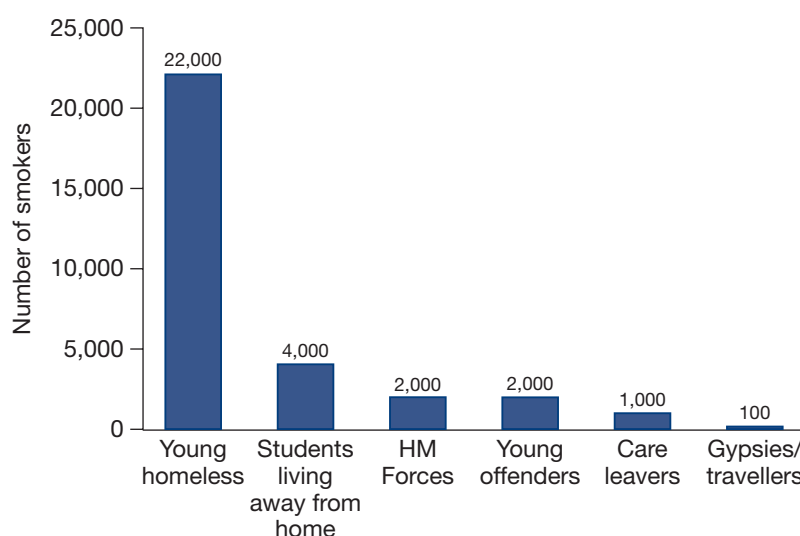
(i) Rounded to the nearest hundred.

Figure 15 Estimated smoking prevalence (%) among young adults in Scotland, within selected 'special populations', 2006



Sources: see Table 4.

Figure 16 Estimated number of young smokers in Scotland, within selected 'special populations', 2006



Sources: see Table 4.

The total number of young smokers within these special groups is estimated at 30,000, with nearly three-quarters being in the homeless group (Figure 16). This compares with 166,000 in the private households covered by the SHoS. We cannot simply add these figures because there will be some double counting between them (and also probably between some of the special groups), but it is clear that the total number of young adult smokers is higher than 166,000.

Discussion

The prevalence of young adult smoking in Scotland fluctuated without any sustained trend between 1999 and 2008. Meeting the 2012 target for young adult smoking will require sustained and radical action to discourage take-up and promote smoking cessation, especially in the workplace and among more disadvantaged young people. The largest absolute numbers of young adult smokers in Scotland are either working or within the NEET group – 51% and 30%, respectively, of all smokers aged 16–24. Not only is smoking prevalence among these groups higher than that seen in the general population aged 16–24, but also it remained essentially unchanged between 1999–2000 and 2005–06.

There are concentrations of young smokers in particular industries, especially construction and manufacturing (young men), health and social work and other community, social and personal service activities (young women), and wholesale, retail, motor repairs and hotel and restaurants (both sexes). But it is also the case that, in general, larger employment sectors have larger numbers of young smokers.

Although young people not in education, employment or training are a heterogeneous group, there may be scope to engage with them through the mechanisms established following the recommendations in *More Choices, More Chances*.¹⁴ High smoking prevalence among young women who are looking after home and family also gives cause for concern, since in some cases they may be exposing their children to second-hand tobacco smoke.¹⁵

In general, young smokers are no less likely to want to quit than older age groups. In 2005/06, more than two-thirds (69%) of young people in Scotland who were regular smokers reported that they wanted to stop smoking completely, identical to the figure reported by all adult smokers aged 16+.¹⁶ Nor are they ignorant about the health risks of smoking. The 2006 Scottish Schools Adolescent Lifestyle and Substance Use Survey found that more than 90% of regular smokers aged 13–15 were aware of the risks of lung cancer and the harm to unborn babies that is associated with smoking.¹⁷ Fewer than four in ten thought that smoking helped people cope better with life, and less than one-third thought that smoking was not really dangerous to 'light' smokers.

Smoking prevalence rates are high in special populations, such as young prisoners. Specific initiatives may be of benefit with such defined population groups. However, the absolute numbers involved in special populations are often small. Reducing smoking rates among young people must necessarily involve both population-wide and high-risk population approaches.

Tobacco companies rely on the constant recruitment of new smokers to maintain their profitability.¹⁸ The transition to adulthood between 16 and 24 represents a vital market, since many smokers recruited at this age will become addicted and continue to smoke for several decades, providing a continuing source of revenue. At least some of these recruits are likely to come from those who experimented with smoking in early adolescence, especially in combination with the social 'lubricant' and 'identity' aspects of smoking as young people move from school to new settings through employment, further education or unemployment.^{2,19} The evidence presented here shows that tobacco companies are continuing to recruit new young smokers with a high degree of success. Protective measures need to be made more robust and effective alongside promotion of more life-enhancing ways of establishing social identity during the transition from adolescent to adult life.

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