Smoking behaviour in North West schoolchildren: a study of fifteen and sixteen year olds

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Key findings and recommendations

- Of the 9,833 young people surveyed, 58.2% had tried smoking and 22.5% were current smokers (Table 1). Of these, 15.7% were regular smokers and 6.8% reported smoking cigarettes only when they drank alcohol.
- Based on these findings, we estimate that over 42,100 15 and 16 year olds in the North West are current smokers; of these 29,200 are regular smokers and 12,900 smoke when drinking alcohol.
- Across all those who had smoked, mean age of initiation was 12.9 years. Those starting smoking at an earlier age smoked more cigarettes a day than those beginning smoking at a later age.
- Of those that smoked regularly, 27.2% smoked less than five cigarettes per day, 47.7% smoked between six and ten per day and 25.0% smoked more than 10 per day.
- Smoking was more common among females; 18.4% of girls were regular smokers compared with 13.0% of boys.
- Smoking was more prevalent among 15 and 16 year olds living in deprived areas; 16.5% of those living in the least wealthy areas were regular smokers compared to 11.7% of those living in the wealthiest areas.
- Any smoking (regular or when drinking) was more likely among children who:
  * Had a greater amount of weekly spending money
  * Had parents who smoke
  * Were not participating in hobbies or sports
  * Were drinking alcohol frequently
  * Were binge drinking
- Binge drinking was the strongest predictor of smoking. The odds of smoking were over nine times higher in those binge drinking at least once a week compared to non- or moderate (i.e. non-binge) drinkers.
- Among regular smokers, heavier smoking (i.e. smoking five or more cigarettes a day) was related to:
  * Having a greater amount of weekly spending money
  * Having parents who smoke
  * Not participating in hobbies or sports
  * Frequent binge drinking
- In October 2007, the legal age of buying tobacco products was increased from 16 to 18 years. This survey was conducted between January and March 2007. Thus, these findings provide an important baseline to measure changes in access methods resulting from this legislative change.
- The most common method of accessing cigarettes was through off-licenses and newsagents. Fifteen year old smokers were more likely to access cigarettes through siblings and friends than 16 year olds.
- Over half of young smokers report having purchased cigarettes containing foreign health warnings. Consequently, attention needs to be paid to international price differentials and increases in international travel which encourage the importation of foreign cigarettes and subsequently provide children with cheap access to cigarettes (whilst limiting their exposure to health messages).
- Given that the majority of young people reported buying cigarettes from off licences and newsagents, it is essential that legislation preventing retailers from selling cigarettes to those underage continues to be rigorously enforced. However, youth access policies alone have limited effects on young people's smoking behaviour. Rather, such policies must form part of broader, multi-component interventions that also aim to change both children's and parents' attitudes towards smoking.
- A quarter of 15 and 16 year old smokers reported purchasing fake cigarettes. Given the additional health risks associated with smoking counterfeit cigarettes, reducing the purchasing of fake cigarettes among young people should be a key priority.
- Findings suggest that measures addressing parental smoking, providing parental support (including advice on monitoring children's spending) and providing more out of school activities for young people would be important aspects of multi-component smoking prevention measures.

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Introduction

Smoking tobacco is the greatest cause of preventable death globally and in the UK. Internationally, smoking causes over five million deaths each year, accounting for one in ten deaths among adults (1). In England, it causes approximately 86,500 premature deaths annually (2) and is a major contributor to health inequalities, with the burden of smoking-related illness and mortality falling hardest on deprived populations (3). Although there has been a gradual decline in smoking among adults in England since the mid 1990s (4), the prevalence of smoking among the adult population remains high. In 2006, an estimated 22% (23% men and 21% women) of the adult population were current smokers (5).

With adult smoking behaviour often being established in childhood (1,5,6), decreasing and preventing the use of cigarettes among young people is essential in both protecting children's health and preventing them from suffering smoking-related health problems in later life. Those who begin to smoke when young are at increased risk of suffering from a smoking-related disease. For example, individuals who start smoking aged 15 have a three times greater risk of dying from cancer due to smoking compared to those who start smoking in their mid-20s (7). Smoking during childhood is also linked to other risky behaviours such as alcohol and illicit drug use, which bring with them additional negative health and social outcomes (6,8-12).

Despite young people being generally knowledgeable about the adverse effects of tobacco (13), 38% of young people believe it is OK for someone of their age to try smoking (8). As such, smoking is perceived by young people in England as being the second most acceptable form of substance use; less acceptable than using alcohol yet more acceptable than getting drunk. While the proportion of young people who smoke has decreased in recent years, in 2007 over half of 15 year olds in England had tried smoking with 12% of boys and 19% of girls regularly smoking[1]. In England, regular smoking among 15 year olds has been associated with factors including being female, being of white ethnic background, truancy, higher levels of alcohol use, and illicit drug use. For instance, young people who have taken drugs at least once in the last year are over 13 times more likely to be regular smokers than non-drug users (8).

Reducing smoking among young people is a key government priority and a range of legislative measures have been introduced to deter children from smoking, outlined in Box 1. However, with one in five girls and one in eight boys already regularly smoking by the age of 15, developing a greater understanding of the risk factors and behaviours associated with teenage smoking is critical. In the North West, Trading Standards North West (TSNW) carried out a major survey of 15 and 16 year old schoolchildren in 2007 to explore smoking and drinking levels and behaviours. Here, we examine the relationship between smoking behaviours and demographics, income, parental smoking, leisure activities and alcohol consumption among North West teenagers.

Box 1: Legislation aimed at reducing smoking among young people in England and Wales

- The White Paper Smoking Kills (7) highlighted smoking as a public health priority, setting targets to reduce the prevalence of smoking among those aged 11-15 from 13% in 1996 to 9% by 2010. The paper recommended a range of steps to respond to under-age tobacco sales, tobacco advertising in shops and children purchasing cigarettes from vending machines.
- Under The Children and Young Persons (Protection from Tobacco) Act (1991) retailers selling tobacco products can be penalised via enforcement by Local Authorities.
- The Criminal Justice and Immigration Act (2008) has since strengthened action against retailers who persistently sell cigarettes to underage children.
- The Tobacco Advertising and Promotion Act (2002) introduced a ban on cigarette billboard and press advertising.
- In 2007, The Health Act (2006) introduced SmokeFree legislation banning smoking in public places in England and Wales (from 1st July 2007) and increasing the legal age of buying tobacco products from 16 to 18 years (from 1st October 2007).
- The Consultation on the future of tobacco control (14) addresses strategies to reduce young people's access to tobacco and tobacco promotion. The consultation presented a number of options on the sale of tobacco from vending machines and the display of tobacco in retail environments.

Methodology

The Trading Standards North West survey was conducted between January and March 2007 and consisted of a short, anonymous questionnaire covering demographics (age, sex and postcode of residence), young people's hobbies and weekly income, smoking and drinking behaviours, and access to alcohol and cigarettes. The questionnaire was made freely available to schools in the North West via their local Trading Standards service. Schools were sent

[1]Regular smoking was defined as smoking at least once a week
[2]Small geographical areas with an average population of around 1,500 individuals

questionnaires which were then completed by students aged 14 to 17 within normal school lessons. A total of 140 schools in 19 local authorities took part in the survey, with 11,724 questionnaires returned. Since the majority of pupils participating were aged 15 and 16, analyses were limited to these ages, giving a total sample size of 9,833. The sample was not intended to be representative of all students in the North West, but aimed to cover a wide range of community types. To allow for deprivation analyses, attempts were made to match the postcode of each individual to Lower Super Output Area (LSOA[2]), a level at which measures of deprivation (Index of Multiple Deprivation [15]) are also available (see appendix for further details).

Definitions

Current smoker: any current use of cigarettes. This includes regular smokers and those who only smoke when they drink. It excludes pupils who used to smoke but have given up, or those that have tried smoking but didn't like it.

Regular smoker: those who smoke on a regular basis, excluding those that only smoke when drinking.

Binge drinking: drinking five or more alcoholic drinks on one occasion.

Results

Of all 15-16 year old school pupils (n=9,833), 58.2% had tried smoking and 22.5% were current smokers (Table 1). Of these, 15.7% were regular smokers and 6.8% reported smoking cigarettes only when they drank alcohol. Regular smoking was most common among those: aged 16, female, living in more deprived areas, with parents that smoke, reporting not having a hobby, and having greater weekly spending money. Smoking behaviours were also significantly associated with alcohol use. For instance, over a third of those who drank more than once a week or who binge drank at least once a week were regular smokers, compared to just 5% of non- or moderate (i.e. non-binge drinking) drinkers.

Table 1: Relationship between smoking behaviours and demographics, drinking behaviours and parental smoking

		Smoking Behaviour						
		Never smoked	Tried but disliked	Given up	Only when drinking alcohol	Regular Smoker	n	P
All		41.85	27.31	8.31	6.83	15.70	9699	
Age	15	45.27	26.08	8.32	6.23	14.10	4796	
	16	38.51	28.51	8.30	7.40	17.28	4903	**
Sex	Female	35.52	27.87	9.73	8.51	18.37	4851	
	Male	48.18	26.75	6.89	5.14	13.04	4848	**
Deprivation quintile	(wealthiest)1	45.86	26.15	7.34	8.97	11.68	1472	
	2	42.78	26.27	7.99	8.04	14.92	1877	
	3	40.73	28.55	8.70	5.46	16.56	1667	
	4	41.10	27.50	8.77	5.49	17.14	1949	
	(poorest)5	41.59	26.85	8.66	6.37	16.53	2402	**
Hobby, sports or club member	No	33.35	26.16	9.25	7.73	23.51	3352	
	Yes	46.74	27.94	7.75	6.28	11.29	6128	**
Parent who smokes	No	42.97	30.51	7.65	8.62	10.25	4536	
	Not reported	68.48	19.18	4.98	0.93	6.43	1726	
	Yes	27.00	27.17	10.85	7.42	27.55	3437	**
Money available (£) per week	<=£10	49.14	25.95	7.60	5.89	11.41	3156	
	>£10-20	38.07	28.85	8.97	7.13	16.98	2385	
	>£20	32.22	27.96	9.39	8.32	22.11	1161	
	Not reported	53.04	26.32	6.32	5.12	9.20	1250	**
Frequency of drinking alcohol	Never	71.88	18.42	4.56	0.00	5.14	1536	
	<=1 week	43.32	31.00	8.37	6.31	11.00	5819	
	>1 week	18.42	23.94	10.66	12.63	34.35	2908	**
Frequency of binge drinking	Never	70.91	19.51	4.49	0.55	4.53	2537	
	<1 week	42.25	32.79	8.78	6.52	9.65	4144	
	>=1 week	15.88	26.39	10.99	12.70	34.05	2922	**

Statistical significances * P< 0.05 ** P<0.001

When confounding factors were controlled for[3] predictors of being a current smoker were: being female, having no hobbies, having a greater amount of weekly spending money, drinking more than once a week, binge drinking and having parents who smoke. The strongest predictor of smoking was binge drinking. Compared to non- or moderate drinkers, odds of being a current smoker were over three times higher in those binge drinking less than once a week and nine times higher in those binge drinking at least once a week.

Amongst regular smokers, around a quarter (27.2%) smoked less than five cigarettes per day, almost half (47.7%) smoked between six and 10 per day and around a quarter (25.0%) smoked more than 10 per day (Table 2). There were no significant differences between the number of cigarettes smoked per day and age, sex or deprivation of smokers. However, heavier smoking (>5 cigarettes per day) was more prevalent among those whose parents smoked, who had greater weekly spending money, who drank more frequently and who binge drank. Regular smokers with hobbies were more likely to be lighter smokers (<=5 cigarettes per day).

After controlling for confounding factors, predictors of heavier smoking[4] in regular smokers were: not having a hobby, having higher weekly spending money (>£20), frequent binge drinking (once a week or more) and having parents who smoke.

Table 2: Relationship between individual factors, drinking behaviours, parental smoking and number of cigarettes smoked per day among regular smokers

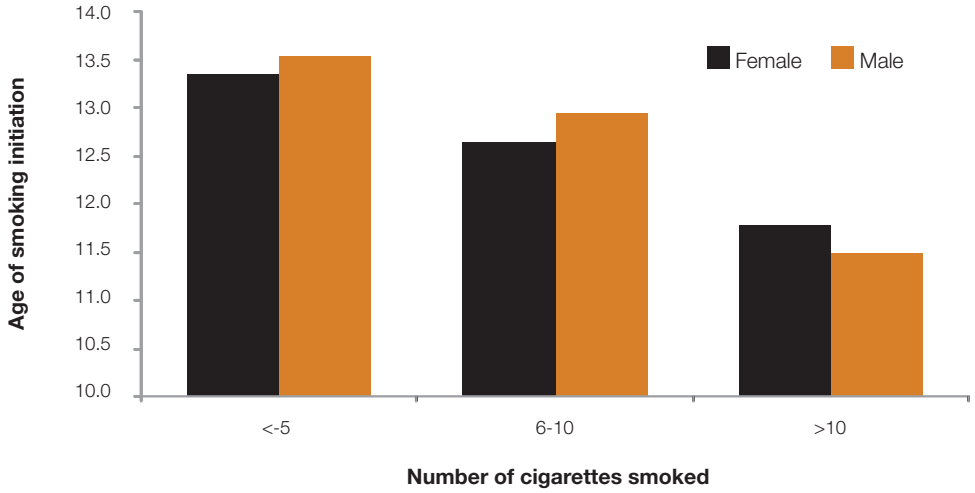
		Cigarettes smoked per day by regular smokers				
		<=5	6-10	>10	n	P
All		27.18	47.73	25.08	1523	
Age	15	28.25	46.60	25.15	676	
	16	26.33	48.64	25.03	847	NS
Sex	Female	27.27	49.72	23.01	891	
	Male	27.06	44.94	28.01	632	NS
Deprivation quintile	(wealthiest)1	31.98	44.77	23.26	172	
	2	28.21	47.14	24.64	280	
	3	27.54	47.10	25.36	276	
	4	26.65	49.10	24.25	334	
	(poorest)5	24.94	48.87	26.20	397	NS
Hobby, sports or club member	No	22.46	53.17	24.37	788	
	Yes	31.94	42.05	26.01	692	**
Parent who smokes	No	33.76	45.16	21.08	465	
	Not reported	38.74	42.34	18.92	111	
	Yes	22.60	49.63	27.77	947	**
Money available (£) per week	<=10	34.44	50.00	15.56	360	
	>10-20	27.16	50.37	22.47	405	
	>20	23.17	47.12	29.70	643	
	Not reported	26.96	34.78	38.26	115	**
Frequency of drinking alcohol	Never	43.04	43.04	13.92	79	
	<=1 week	31.56	48.91	19.53	640	
	>1 week	22.19	47.26	30.55	802	**
Frequency of binge drinking	Never	42.61	41.74	15.65	115	
	<1 week	37.00	42.50	20.50	400	
	>=1 week	21.41	50.55	28.04	995	**

Statistical significances * P< 0.05 ** P<0.001, NS = not significant

[3]Confounding factors were controlled for using logistic regression analyses
[4]Smoking more than five cigarettes a day

Across all those who had ever smoked, mean age of smoking initiation was 12.9 years. Figure 1 shows the mean age that regular smokers first used cigarettes by the number of cigarettes they smoke per day. Age of smoking initiation decreased with heavier smoking in both boys and girls. The mean age of smoking initiation for those smoking ten or more cigarettes a day was below age 12, while for those smoking five or less cigarettes a day it was later than age 13.

Figure 1: Relationship between the mean age of smoking initiation and the amount of cigarettes smoked per day by regular smokers



At the time of survey, 16 year olds were legally permitted to purchase cigarettes, with legislation raising the legal minimum purchase age to 18 not coming into effect until October 2007. Consequently, analyses of cigarette access methods are first broken down by age, and then by the quantity of cigarettes consumed (for both ages combined) (Table 3). Overall, smokers reported a variety of mechanisms to access cigarettes, with off-licences (61.4%) and newsagents (58.7%) being the most common, and parents the least common (12.3%; Table 3, participants were able to choose more than one method of accessing cigarettes). With the exception of parents, methods of accessing cigarettes differed between age groups. Although purchasing cigarettes from off licenses was the most common means of access among both 15 and 16 years olds, a greater proportion of 16 year olds reported purchasing cigarettes themselves from all sources while accessing cigarettes through friends and siblings was more likely among 15 year olds. For example, 34.3% of 15 year olds accessed cigarettes via friends or siblings over the age of 16 compared to 26.0% of 16 years olds.

To gain an understanding of more 'alternative' tobacco markets, smokers were also asked if they had ever bought cigarettes with foreign health warnings, in fake packaging, or in single cigarette transactions. There were no significant differences between age groups, with over half of both 15 and 16 year old smokers having purchased foreign cigarettes or single cigarettes, and over a quarter having purchased fake cigarettes (Table 3).

When access methods were analysed by smoking behaviours, off licences and newsagents remained the most common access methods among all smoking categories. However, as the number of cigarettes smoked per week increased (from 5 or less to over 10 per day), the percentage of young people accessing cigarettes through all methods increased, most notably for access via parents. Slightly different patterns were found for those who smoke only when drinking. Compared to the other smoking categories, a lower percentage of these individuals accessed cigarettes through parents, vending machines, off licenses and supermarkets, and a higher percentage through siblings/friends (both over 16 and under 16). Prevalence of all three 'alternative' access types was significantly associated with levels of smoking, being reported least by those who only smoked when drinking and most by those who smoked more than ten cigarettes per day. For example, a third of those who only smoked when drinking had bought cigarette packets with foreign health warnings, rising to four out of five of those who smoked ten or more a day.

Table 3: Relationship between cigarette access methods and amount smoked

	Current smokers				Smoke only when drinking	Cigarettes per day			
	All	Age 15	Age 16	P		<=5	6-10	>10	P
n	2185	975	1210		662	414	727	382	
Source:									
Parents	12.27	12.72	11.90	NS	4.08	5.56	13.89	30.63	**
Siblings/friends Over 16	29.84	34.26	26.28	**	34.44	24.40	28.47	30.37	*
Siblings/friends Under 16	16.11	19.90	13.06	**	21.90	13.77	11.28	17.80	**
Buy from vending machines	12.45	10.56	13.97	*	9.21	12.08	10.87	21.47	**
Buy from off licenses	61.42	55.69	66.03	**	48.64	60.39	69.19	69.90	**
Buy from supermarkets	31.12	23.28	37.44	**	20.85	28.99	36.45	41.10	**
Buy from newsagents	58.67	51.08	64.79	**	41.54	62.08	66.99	68.85	**
Buy from street sellers/neighbours	15.06	16.21	14.13	NS	5.29	11.11	18.84	29.06	**
Ever bought:									
Cigarettes with health warnings in different languages	57.03	55.49	58.26	NS	34.74	50.00	69.46	79.58	**
Fake cigarettes (in packaging that looks like well known brands)	28.28	27.18	29.17	NS	10.57	18.36	39.06	49.21	**
Single cigarettes (not in packets)	53.55	54.26	52.98	NS	35.95	52.90	61.90	68.85	**

Statistical significances * P< 0.05 ** P<0.001, NS = not significant

Discussion

The Trading Standards North West (TSNW) survey found that 58.2% of 15-16 year olds surveyed had tried smoking and that 22.5% were current smokers (of which 15.7% were regular smokers and 6.8% smoked only when drinking). Based on these findings we estimate[5] that 29,200 15 and 16 year olds in the North West are regular smokers, and that a further 12,900 smoke when they drink alcohol; meaning over 42,100 are current smokers. Smoking was more prevalent among females, with 18.4% of girls and 13.0% of boys being regular smokers. Although not directly comparable, levels of smoking and gender differences among 15 and 16 year olds in our survey were similar to those reported nationally in 2007 (15% of young people aged 15 in England smoked regularly; 12% boys and 19% girls [8]).

The mean age of initiation into smoking in the North West was 12.9 years for both males and females. This is similar to findings nationally with, for example, the Health Behaviour in School-aged Children (HBSC) survey (16) finding the average age of smoking initiation in 15 year olds who had ever smoked to be 12.7 for girls and 12.6 for boys in England in 2001/02. The Trading Standards North West survey found that young people who began smoking at an earlier age smoked more cigarettes than those commencing smoking at a later age (Figure 1). This supports both national and international research findings showing that those smoking more heavily in adulthood are more likely than lighter smokers to have started smoking at an early age (5,6). For example, 53 percent of adults in Great Britain who smoked 20 or more cigarettes a day in 2006 had started smoking regularly before they were 16, compared to 33 percent of those currently smoking less than 10 cigarettes a day (5). This shows a potential building habit where earlier onset of smoking subsequently leads to heavier use in later life. Identifying those at risk of early initiation is therefore crucial in preventing young people's uptake of smoking and reducing heavy smoking.

North West schoolchildren were more likely to be smokers if they had parents who smoked. Internationally, research on parental smoking as a risk factor for the uptake of smoking among young people is inconclusive (17,18). Whilst some research has linked parental and child smoking behaviours (19,20), other studies have questioned this link or suggested stronger relationships exist with peer smoking behaviours (18,21). Whilst the North West study did not measure peer smoking behaviour, our findings and those elsewhere suggest that parents can have a positive influence on young people's smoking behaviour through disapproving of smoking, being supportive, communicating with children and being involved in young people's free time (6,22,23). Importantly, involvement

[5]This estimate is corrected for gender and deprivation differences in smoking prevalence.

in hobbies, sports and other extra-curricular activities was shown to be a protective factor against the onset of smoking and linked to lower consumption among young smokers. This has also been found in other studies (22). Together these findings suggest that measures addressing parental smoking, providing parental support and providing more out of school activities for young people, would be important in preventing and reducing smoking among young people.

Smoking was more prevalent amongst 15-16 year olds living in more deprived areas. Although deprivation was no longer a significant factor in smoking behaviour once confounding factors were controlled for, the relationship between deprivation and smoking may be mediated through other factors such as binge drinking and parental smoking. Smoking has been identified as a key reason for the gap in life expectancy between the rich and poor and children from disadvantaged social backgrounds are slightly more likely to start smoking than children from more affluent backgrounds (18). Moreover, those from disadvantaged backgrounds are least likely to have stopped smoking before reaching their 30s (24).

Young people's smoking was significantly linked to frequency of drinking alcohol and strongly linked to binge drinking. Such risky drinking behaviours are also closely related to parental behaviours and young people's out-of-school activities (25,26). Here, odds of being a current smoker were over nine times higher in those binge drinking at least once a week than in non- or moderate drinkers, and three times higher even in those binge drinking less than once a week. Further, among regular smokers, heavier smoking (over five cigarettes per day) was again significantly associated with weekly binge drinking. The association between smoking and drinking behaviours is well established. Among 11-15 year olds in England, smoking increases with the number of units drunk in the previous week (8). Both binge drinking (11) and frequent alcohol intoxication have been associated with an increased use of cigarettes among young people (27). Studies have found that individuals consuming alcohol are less able to resist smoking (28) and that alcohol can increase the rewarding effects of nicotine such as smoking satisfaction and calming effects (29). Initiatives aimed at addressing both smoking and drinking in young people would be beneficial in reducing the harms associated with both behaviours. However such services are rare, with those focusing on smoking not always recognising or being able to respond to those individuals at increased risk of alcohol consumption, and vice versa.

North West teenagers accessed cigarettes from a range of different sources, most commonly reporting buying them themselves from off-licenses (61.4%) and newsagents (58.7%). However, the study took place between January and March 2007, prior to changes in legislation that increased the legal age of tobacco purchase from 16 to 18 in October 2007. This meant that around half of participants would have been legally entitled to purchase tobacco at the time of the survey. However, the effectiveness of legalisation aimed at limiting young people's access to cigarettes is unclear. Research has shown that although access policies can reduce the illegal sales of cigarettes to young people when enforced (30,31), legislation tends to influence retailers' behaviour rather than young people's smoking behaviour itself. This is because young people often obtain cigarettes from other sources such as friends and family (32). The Trading Standards North West (TSNW) study will provide important baseline data for identifying changes in smoking behaviours and cigarette access methods following the implementation of age legislation. At the time of survey, compared to national research, a slightly higher proportion of young smokers in the North West accessed cigarettes via parents (12.3%) (nationally, 7% of young people access cigarettes via parents [33]). Further, despite restrictions on where vending machines can be positioned (7), 10.56% of 15 year olds were purchasing cigarettes from vending machines.

Importantly, over half (57%) of young smokers reported having bought cigarettes containing foreign health warnings. Cigarette prices can be significantly lower abroad than in the UK, with the latest comparative data (34) showing the price of tobacco to be three times lower in Spain and one and a half times lower in France than in the UK. Factors such as increased availability of low cost air travel (35) have contributed to a rapid growth in international travel in recent years. The number of visits abroad by UK citizens increased from 42.1 million in 1996 to 69.5 million in 2006, with France and Spain being the most popular destinations (36). Thus the high costs of cigarettes in the UK may be encouraging the purchasing and onward sale of cheap foreign cigarettes by British travellers, providing children with cheap access to cigarettes and limiting their exposure to health messages. Although there is a lack of evidence on the impact of foreign cigarettes on the consumption of tobacco by adults or young people in the UK, such international price discrepancies have the potential to undermine the impact of access measures currently in place.

Over half of both 15 and 16 year old current smokers reported having purchased single cigarettes. The purchasing of single cigarettes by young people via social sources such as friends, often within the school environment, is common

place (37, 38, 39). Since young people often begin smoking within peer groups, more understanding of peer markets is needed to inform possible ways of intervening in peer to peer cigarette sales (18, 21, 32, 37). A quarter of 15 and 16 year olds currently smoking also reported purchasing fake[6] cigarettes. The counterfeit trade has been identified as a contributor to the illegal cigarette market in the UK (40, 41) and the purchasing of fake cigarettes is said to be on the increase (42,43). Moreover, counterfeit cigarettes are more harmful to health than genuine cigarettes due to the higher levels of toxic metal they contain (42,44). The purchasing and smoking of fake cigarettes may therefore pose additional long and short term risks to the health of young people.

Overall, there is little evidence that smoking prevention interventions impact on the uptake of smoking among young people (45) and the effectiveness of access reduction programmes in particular are dependent on enforcement and the level of retailer compliance (31). However, multi-component measures that include youth access interventions, taxation, community policies and proof of identity schemes can be more effective in influencing smoking among young people (31,32). Guidelines from the National Institute for Health and Clinical Exellence (NICE) (46) recommend such programmes and suggest that mass media and point of sale measures, to prevent the uptake of smoking among young people should be combined with other prevention measures such as price and regulation controls, education programmes, cessation support and community programmes, as part of a comprehensive tobacco control policy.

Conclusion

Smoking has been associated with a wide range of short and long-term health problems among young people including respiratory disease, cancer and cardiovascular disease (7,47). Identifying factors that increase young people's risks of smoking is thus a crucial element in developing appropriate prevention interventions. The 2007 Trading Standards North West (TSNW) survey has provided valuable information on the prevalence of smoking in 15 and 16 year olds in the region, how smokers access cigarettes and the risk factors associated with smoking. Critically, we estimate that over 42,100 15 and 16 year olds are current smokers, of whom over 29,200 smoke on a regular basis. Encouraging and supporting these children to stop smoking and preventing other children from starting smoking must be a major priority. Results show that smoking is strongly related to being female, having no hobbies, having a greater amount of income, frequent and binge drinking and having parents who smoke. Our findings suggest advising parents to improve monitoring of their children's spending and providing more opportunities for young people at risk of smoking to be involved in out of school activities would be important components of strategies to reduce smoking among young people.

Appendix: Methodology

Matching postcode to Lower Super Output Area (LSOA)

Those individuals with full and legitimate postcodes were matched directly to LSOA (n=5,233). The remaining pupils had either partial postcodes or no postcode information. Since partial postcodes (either incode10 + 2, n=159; incode + 1, n=225; or incode only, n=1,525) spanned more than one LSOA, they were matched to the LSOA that contained the majority of the partial postcodes. If no legitimate postcode (or incode) was available, the postcode of the school (if known) was matched directly to the LSOA (n=2,353). Based on the IMD scores of all LSOAs in the North West, each LSOA (and therefore individual) was allocated to a regional quintile of deprivation. A total of 324 pupils had neither a legitimate postcode nor a known school and could not be allocated to an LSOA or consequently a deprivation quintile. A further 14 pupils had postcodes outside of the North West region and were therefore excluded from geographical analyses. However, such pupils were included in analyses examining associations between behavioural factors (e.g. smoking and drinking behaviours).

Statistics

Chi square was used to examine initial relationships between smoking behaviours, demographics, drinking behaviours and parental smoking (Table 1). Chi square was also used to examine the relationship between the number of cigarettes smoked per day by regular smokers and individual factors, drinking behaviours and parental smoking (Table 2), and the relationship between cigarette access and amount smoked (Table 3). However, to control for confounding factors, logistic regression was used to further examine these relationships and to identify predictors of smoking behaviours .

[6]Counterfeit cigarettes are cheap imitations of popular brands manufactured illicitly (41)

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