

Cigarette access and pupil smoking rates: a circular relationship?

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SUMMARY

Adolescents obtain cigarettes from both commercial and social sources. While the relationship between commercial access and adolescent smoking has been researched, no one has considered in detail whether rates of peer smoking affect cigarette availability. In two relatively deprived Scottish schools that differed in their pupil smoking rates, we assess pupil access to cigarettes. 896 13 and 15 year olds were surveyed, and 25 single-sex discussion groups held with a sub-sample of the 13 year olds. Smokers in both

schools obtained cigarettes from shops, food vans and other pupils. However, pupils in the 'high' smoking school perceived greater access to both commercial and social sources, and had access to an active 'peer market'. These findings suggest that variations in cigarette access may contribute to school differences in pupil smoking rates, and that the relationship between access and adolescent smoking is circular, with greater availability increasing rates, and higher rates enhancing access.

Key words: school differences; pupil smoking; cigarette access

INTRODUCTION

Policy developments employed to deter adolescents from smoking include the enforcement of tobacco sale laws and increases in tobacco taxes (Siegel *et al.*, 1999). Such measures can be effective: laws prohibiting cigarette sales to young people have been associated with lower levels of adolescent smoking [e.g. (Jason *et al.*, 1999; Siegel *et al.*, 1999)], and some adolescents view the cost of cigarettes as a factor that curtails their habit (Crawford *et al.*, 2002). Yet, young people obtain cigarettes not only from commercial but also social sources, e.g. family and friends (Harrison *et al.*, 2000) and, so far, little attention has been given to how to address such 'informal' provision.

It would be foolish not to consider availability from social sources. Some researchers have *not* found an association between restricted commercial sales and adolescent smoking, noting that

whilst sales fell, perceived access remained high because provision from alternative sources continued (Rigotti *et al.*, 1997; Altman *et al.*, 1999). Additionally, some teenagers use social sources more often than commercial outlets, and the exchange of cigarettes appears a wide spread activity among young smokers (Forster *et al.*, 2003). In fact, friends can be an individual's main provider (Harrison *et al.*, 2000), and this level of reliance suggests that peer provision not only undermines the effect of tobacco sale laws, but may actually have a greater influence on adolescent smoking than commercial availability.

Although friends have been noted as particularly important sources, to our knowledge no one has considered *how* friends 'supply' cigarettes. Do they give or sell cigarettes, provide single cigarettes or packets, ask for the 'commercial' price or more?

Understanding this market would provide a basis from which to tackle it.

An additional question is whether higher levels of adolescent smoking are associated with greater levels of peer trading. The positive relationship between adolescent and friend's smoking is well documented (West and Michell, 1999; Alexander *et al.*, 2001). It is unclear, however, how *levels* of peer smoking affect young people's access. If higher rates of adolescent smoking were associated with greater levels of peer provision, it would seem the relationship between access and smoking is circular, with access affecting smoking rates and smoking rates influencing access.

During the Teenage Health in School (THiS) study, we asked pupils attending schools that varied in their pupil smoking rates how they and their peers obtained cigarettes. This paper assesses whether variation in pupil access to commercial and/or social sources could contribute to school differences in pupil smoking rates, and considers how levels of peer smoking affect adolescents' access to cigarettes. To maintain confidentiality, all names have been replaced with pseudonyms.

METHODS

Data collection

In 2001, we conducted surveys with 13- and 15-year-old pupils in two local authority (i.e. state) schools. Highacres (school roll 1100) and Lowlands (roll of 1400) were selected because, on the basis of the *West of Scotland 11–16* study, they were known to differ in their smoking rates for pupils aged 13 (in 1996) and 15 (in 1999) (Sweeting and West, 2000). On the basis of area deprivation scores (Carstairs and Morris, 1991) both schools were also regarded as being relatively deprived (Sweeting and West, 2000). The data collected in 2001 confirmed that they still differed in their smoking profiles, with Highacres continuing to have higher proportions of 'regular/occasional' smokers than Lowlands at both ages (Table 1).

THiS surveys gathered information on the pupils' smoking behaviour, views on how easy it was to obtain cigarettes from specific commercial and social sources, and best friends', parents' and siblings' smoking behaviour. Smokers were also asked to indicate whether or not they bought/got cigarettes from friends, relatives, shops/food

Table 1: Rates of pupil, parent, best friend and sibling smoking [%(*n*)]

School and year	Response rate	Pupil			Parent			Best friend's			Sibling		
		Smoking	Chi-squared	<i>p</i>	Smoking	Chi-squared	<i>p</i>	Smoking	Chi-squared	<i>p</i>	Smoking	Chi-squared	<i>p</i>
Highacres 13 year olds	92 (213)	19.0 (39)	5.01	0.02	52.3 (92)	5.01	0.02	33.0 (63)	8.35	<0.01	19.6 (36)	2.32	0.12
Lowlands 13 year olds	92 (276)	11.7 (32)			67.2 (160)			21.0 (56)			25.8 (67)		
Highacres 15 year olds	87 (189)	26.5 (50)	17.2	<0.01	54.2 (90)	13.46	<0.01	39.2 (71)	14.13	<0.01	34.7 (61)	9.49	<0.01
Lowlands 15 year olds	80 (218)	10.6 (23)			73.2 (131)			21.8 (46)			20.5 (41)		

vans. Surveys were conducted during school time, on school premises. Parents were notified about *THiS* and could refuse their child's participation. At the time of survey, pupils were also given the opportunity to opt out.

Following the surveys, single-sex discussions groups were held in each school so that issues covered in the questionnaire could be considered in more detail. Twenty-five discussion groups were conducted in total [13 in Highacres (seven male, six female) and 12 in Lowlands (six male, six female)]. Only 13-year-old pupils were interviewed as results of 11–16 data showed 'school effects' (variation between schools over and above individual predictors of a particular outcome) for smoking were stronger at age 13 than 15 (P. West, (personal communication), and the schools were reluctant for older pupils to be involved due to academic pressures.

Believing pupils would talk more openly if groups were friendship-based (Lees, 1986), we recruited participants by asking pupils to volunteer along with friends from their class. The groups ranged in size from three to eight individuals. Most of the discussions lasted over an hour. All were conducted on a double-blind basis with neither the pupils nor ourselves knowing the schools' smoking rates. With participant consent, each group was audio taped and transcribed verbatim.

As *THiS* aimed to identify school- and pupil-related explanations for school differences in pupil smoking, in each school half the groups focused on issues concerning the Health Promoting School (HPS) (WHO, 1993) (e.g. school ethos, health education curriculum), while the other half explored pupils' views of smoking, smokers and peer structures. During these latter groups, participants were asked "Where do pupils buy cigarettes?" and "How easy is it to do so?", and prompted to discuss both commercial and social sources. Although these questions were not asked during the HPS discussions, because participants in these groups were asked to discuss issues concerning pupil health, some of them discussed pupil access to cigarettes.

Data analysis

Survey data were analysed using SPSS, and two-sided *t*-tests and chi-square tests used to assess the significance of differences found between Highacres and Lowlands pupils.

Analysis of the discussion group material involved one of us (K.T.) thoroughly reading each transcript, and then developing a coding frame based on themes that reflected the content of the discussions. Transcripts were then imported into NVivo version 1.2 (NVivo, 2000) and fully coded. For the purpose of this paper, analysis focused on all discussions concerning access to cigarettes. K.T. wrote descriptive summaries detailing what participants in each group had said regarding access, and noted any group consensus and divergent views. These summaries were used to make within and across school comparisons.

In this paper, to clarify whether we are referring to pupils who completed a questionnaire or pupils who took part in a discussion, the former will be referred to as *pupils* and the latter as *participants*.

FINDINGS

The survey data

We surveyed 402 pupils in Highacres and 494 in Lowlands. There was no significant difference between the schools regarding male:female ratio.

Fewer Highacres than Lowlands pupils reported that one or both parents smoked, but a greater proportion of Highacres than Lowlands pupils reported they had a best friend who smoked, and a greater proportion of Highacres 15 year olds stated they had a brother and/or sister who smoked (Table 1). These differences implied *school* processes underpinned the schools' differing rates of pupil smokers. Children with parents who smoke are more likely to smoke than children with parents do not smoke (Wakefield *et al.*, 2000). The school setting is the main arena in which young people make friendships (Cotterell, 1996) and since both schools served local catchment areas, it is likely that siblings attended the same school.

Table 2 shows that Highacres smokers and non-smokers at both ages perceived buying single cigarettes or packets from a shop/van as easier than Lowlands pupils. Fifteen year olds at Highacres also viewed buying single cigarettes from a fellow pupil as easier, conversely however, those 15 year olds who did not smoke described getting cigarettes at school as harder. Thus, Highacres pupils perceived greater access than Lowlands pupils when considering specific

Table 2: Smokers' and non-smokers' view of how easy it would be to get/buy cigarettes from certain outlets or individuals (1 = easy, 4 = very difficult) [mean (SD)]

Question	Smokers				Non-smokers			
	Highacres 13 year olds	Lowlands 13 year olds	p	Highacres 15 year olds	Lowlands 15 year olds	p	Highacres 15 year olds	Lowlands 15 year olds
Get cigarettes at school	2.41 (0.93)	2.10 (0.89)	0.17	2.61 (0.99)	2.17 (0.93)	0.08	2.37 (0.95)	2.07 (0.81)
Buy a single cigarette from a pupil	1.55 (0.56)	1.80 (0.76)	0.12	1.59 (0.64)	1.95 (0.80)	0.05	1.54 (0.55)	1.78 (0.71)
Buy a single cigarette from a local shop/van	1.66 (0.80)	2.45 (0.99)	<0.01	1.74 (0.84)	2.82 (0.95)	<0.01	1.98 (0.93)	2.24 (0.91)
Buy a packet of cigarettes from a local shop/van	1.63 (0.84)	2.24 (1.06)	0.01	1.22 (0.46)	1.82 (0.79)	<0.01	1.56 (0.61)	1.99 (0.84)

commercial sources, and among the older pupils there was some suggestion of more pupil trading in Highacres than in Lowlands.

The smokers' answers concerning where they bought/got cigarettes showed they relied mainly on shops/vans but that provision from friends was also important (Table 3). Although there was no difference between the schools concerning what proportion of pupils in each used a specific source, it should be noted that numbers were small and so there might not have been enough power to detect any differences.

The discussion group data

Both Highacres and Lowlands participants were aware that in the UK it is illegal to sell cigarettes to individuals under the age of 16. Despite this, in both schools individuals described how they and/or their peers bought cigarettes from shops, ice-cream/food vans and other pupils.

Shops

Highacres

Most participants described how they and others could easily purchase cigarettes from local shops. One smoker even commented that she had never been refused, and a non-smoker described how each morning on the way to school he saw pupils buying cigarettes. As pupils were required to wear school uniform, this suggested that even when it was apparent the individual was a pupil, cigarettes could still be bought. However, it was evident that buying was not always straightforward. One participant described how a fellow pupil had been asked for proof of age (ID), and another mentioned that he had seen a shopkeeper refuse pupils cigarettes. Others stated shopkeepers often asked for ID, and some smokers commented that it was getting increasingly hard to buy cigarettes without it. As we were not aware of any youth access programmes being undertaken in the area, such developments might simply have been due to an increasing awareness among local shopkeepers of tobacco sale laws. Participants also described how some pupils used various tactics in order to ensure they were served. These included going into shops with older siblings, pretending they had forgotten their ID, using fake ID, saying the cigarettes were for a parent, and asking older pupils to buy for them. It was also apparent that

Table 3: Proportion of smokers who stated they bought/got cigarettes from certain sources [%(*n*)]

Question	Highacres 13 year olds	Lowlands 13 year olds	<i>p</i>	Highacres 15 year olds	Lowlands 15 year olds	<i>p</i>
Shops or vans	75.0 (27)	83.9 (26)	0.54	97.8 (45)	95.7 (22)	1.00
Pupils at my school	67.6 (23)	55.6 (15)	0.42	44.2 (19)	59.1 (13)	0.30
Friends outside school	51.5 (17)	63.0 (17)	0.43	43.9 (18)	66.7 (14)	0.11
From siblings	17.6 (6)	15.4 (4)	1.00	26.8 (11)	15.0 (3)	0.35
From parents	3.2 (1)	0.0 (0)	1.00	12.2 (5)	0.0 (0)	0.16
Someone else	23.3 (7)	18.5 (5)	0.75	10.3 (4)	10.0 (2)	1.00
Steal	23.5 (4)	5.9 (1)	0.33	0.0 (0)	7.1 (1)	0.30

whilst participants knew specific shops that sold to under 16s, not all shops were easy to buy from:

P: Wee (small) newsagents just sell you them...

P: The (general store) an' (and) that don't.

P: No, an' the garages, they're...

P: The garage's dead strict.

P: Aye (yes). (HS3, girls, non-smokers)

These non-smokers talked in a way that implied they smoked; some had bought cigarettes for their parents. This situation was not unique to this group. During both Highacres and Lowlands discussions, non-smokers commented that they had bought cigarettes for others.

Lowlands

Lowlands participants also mentioned shops as an outlet from which pupils could easily buy cigarettes. Two groups commented that some shops sold single cigarettes (singles) for "25 and 30 or something" pence. Since at the time the cost of a packet of 10 cigarettes ranged from about £1.80 to £2.30, singles seemed relatively expensive. Yet, as some participants noted, their availability meant those who could not afford a whole packet could still buy cigarettes.

Although participants stated it was "easy" to buy cigarettes, they only did so when describing how those purchasing used various tactics. For example:

I: So where do pupils buy cigarettes?

P: Shops.

P: Shops.

I: Quite easy to get them?

P: Aye, you just get somebody to get them or you get them yourself, without your school bag 'cos most of the people don't look their age, they look older. (LS6, girls, non-smokers)

Although Highacres participants had also discussed how pupils employed certain strategies

when buying, some had stated that certain shops "just sell you them", implying such measures were not always necessary.

Summary

Both Highacres and Lowlands pupils purchased cigarettes from shops, and participants in both schools mentioned that pupils sometimes used various tactics when purchasing. However, Highacres participants mentioned specific shops in their area that sold to under 16s, and Lowlands participants only stated access was easy when describing how pupils employed certain tactics. Furthermore, although only Lowlands participants mentioned that shopkeepers sold singles, as will be noted shortly, Highacres smokers purchased singles from food vans and other pupils. Thus, this availability would have made little difference in terms of increasing Lowlands pupils' access over Highacres pupils'.

Vans

Highacres

Smokers and non-smokers made reference to a local ice-cream van that readily sold pupils both packets of cigarettes and singles. Of those mentioning the cost of a single, all except one said they were 20 pence each; the exception was a non-smoker and he thought singles sold for "10 pence or something". The fact that both smokers and non-smokers talked about the van suggested it was a well-established source. As it was described as being around everyday and working near to the school, it also seemed very accessible to pupils.

During the discussions, reference was also made to a baker's van. Participants mentioned this van sold packets and singles to pupils, and

that singles were 20 pence each. The baker's van appeared popular and accessible, one group commenting that "every single morning everyone is at the baker" and another describing the van as touring around the area. Additionally, pupils explained that the vans' provision of singles meant cigarettes were available to those who could not afford a whole packet.

Lowlands

Lowlands participants talked of local ice-cream vans that sold pupils both packets and singles and, as in Highacres, highlighted that the selling of singles meant cigarettes were available to those who could only afford one:

I: At the ice-cream vans, and how much are those?

P: Fifty pence for wan (one) fag.

I: Fifty pence.

P: That's terrible.

P: You're better just buying a packet...

P: Aye you're better buying a packet than wan but if you have not got enough for a packet. (LS1, girls, non-smokers)

Only one other Lowlands group mentioned how much vans sold singles for. They stated 30 pence, and again this was a price that meant buying singles was not economical.

Although participants talked about "the vans" as if there were a number of them working in the area, some pupils may not have had access to them. One group described how some vans had been shut down for selling "foreign" cigarettes, and another mentioned that a van used to come to the school but was now banned from doing so. In addition, one participant commented that while most vans sold to under 16s, some did not, indicating that access depended on which van was approached.

Summary

Both Highacres and Lowlands participants mentioned vans as a source. Highacres participants, however, talked of specific vans, indicating that they knew particular individuals who would sell to them, whereas Lowlands participants talked more generally of "vans in the area" and gave no suggestion that these were regular providers. Furthermore, it seemed that Highacres smokers could purchase cigarettes at a lower price, as the cost of singles mentioned in Highacres was less than that stated in Lowlands.

Pupil-to-pupil

Highacres

Numerous accounts were given of pupils buying and selling singles from/to one another. Participants described how exchanges occurred not only between friends but also strangers, and between pupils in different year groups. One group of non-smokers commented that pupils sold singles at the school's entrance, indicating that pupil selling occurred near to the school, within school time and was visible to those not involved.

Price could depend on who was selling and buying. A range of possible prices was mentioned: 20, 30 or 50 pence, and sometimes a pound if pupils were selling their last cigarette to someone who was not a friend or in a younger year. In addition, one smoker explained that she had bought a single for a pound because she was "desperate", and one group described how a pupil had paid £1.20 because he was scared of the person selling.

As well as pupils buying from each other, pupils also "halved in" and "tapped" other pupils:

I: You do what?

P: You half in.

P: You (i.e. two friends) put in a pound each and then there's ten fags between you, and you can either go twos (smoke half each) on them all or have five each. (HS4, girls, smokers)

P: You just get somebody to tap you a fag...

P: Aye, say, "tap us a fag", and they give you one and then when you get yours you just give them it back. (HS3, girls, non-smokers)

Participants also talked of friends sharing the same cigarette, and giving each other "2s" (half a cigarette), "3s" (a third of a cigarette) and "draws" (single puffs). As non-smokers as well as smokers described this sharing, and explained their knowledge in terms of witnessing such behaviours, it seemed such activity was clearly visible. It was also apparent that pupils sometimes asked others for cigarettes and/or were offered them. Pupils were able to do this because so many smoked during the school day:

I: Do you think it's easy for pupils to smoke here?

P: Uhuh. Just get offered a fag anywhere.

P: Cos there's that many people that smoke...

P: They all go into the same wee corner (on school premises).

P: Aye. (group)

P:...if you asked for one like eight or ten times you get one.

P: Like if you're standing with somebody that's smoking they might offer you one. (HS5, girls, non-smokers)

The image of pupils selling, sharing and offering cigarettes suggested an “internal” market existed, and created a situation where smoking was a sociable activity and friendships could develop. Certainly, participants commented that some pupils smoked in order to make new friends. This market also gave pupils the opportunity to try smoking without having to actually purchase cigarettes, and therefore meant cigarettes were not only accessible but also available in a way that encouraged pupil smoking and experimentation.

The availability of cigarettes from others also meant commercial sources did not need to be used. One ex-smoker mentioned that he had “never bought any fags, just tapped them off folk”, and a current smoker stated she only bought singles from other pupils.

Lowlands

The peer market in Lowlands was not as large or diverse as that in Highacres. Whilst there were a few accounts of pupils “halving in” and asking each other for cigarettes, no reference was made to pupils sharing a cigarette. In addition, pupil selling and buying seemed a rare activity. Although some participants mentioned that singles could be bought from other pupils, contrasting with Highacres, Lowlands participants only mentioned pupil selling and buying when directly asked if this occurred. Additionally, no reference was made to where pupil selling/buying took place, and no one mentioned friends as their main source of cigarettes. Furthermore, the “sellers” were simply described as “whoever has got them” and as being from “all years”, and whilst participants mentioned a range of prices when discussing how much pupils sold cigarettes for, none of the prices mentioned appeared to be based on experience or observation. While some participants stated pupils charged 20 pence per cigarette, others mentioned 10, 15, 30 and 50 pence as the usual price.

Lowlands’ peer market may have been smaller than Highacres’ because fewer pupils smoked, and so by definition there will have been fewer exchanges. However, its size could also have related to where pupils smoked. While Lowlands participants stated that during the school day pupils smoked outside the school on nearby streets, Highacres participants described how they/fellow pupils mainly smoked on school premises, by the playground or by entrances to the school. Thus, in Lowlands pupil smoking was

less confined to specific areas and, consequently, there might have been less opportunity for pupils to share cigarettes. These areas were also less accessible and more open to public gaze, and teenagers are less likely to exchange cigarettes in settings where they perceive adult disapproval of adolescent smoking (Forster *et al.*, 2003). Yet, Lowlands participants, like Highacres ones, described how they regularly saw pupils smoking during the school day and commented that pupils smoked in groups. They also mentioned that some pupils regarded smoking as a way of making friends. Thus, it is interesting that there was so little evidence of a peer market in Lowlands, and that whilst where pupils smoked might have influenced its nature, rates of peer smoking would seem to be the main factor shaping its size and diversity.

Summary

In Highacres, fellow pupils provided a regular source of cigarettes. This was not the situation in Lowlands. This difference probably contributed to the schools’ differing rates of pupil smokers.

DISCUSSION

Various limitations of the study design should be acknowledged. First, the findings presented cannot be generalized as only two schools were involved. Secondly, as participants were not randomly selected their views may not be representative of their peers. Lastly, since cross-sectional rather than longitudinal data were collected, no comment can be made regarding the direction of any relationships noted. Notwithstanding these limitations, this paper has provided a basis from which to consider the relationship between pupil smoking and access to cigarettes.

Highacres pupils’ relatively high smoking rate could be because they had greater access than Lowlands pupils to both commercial and social sources. Highacres pupils were more likely to believe it was easy to purchase cigarettes from shops/vans, and the 15 year olds in Highacres were more likely than their Lowlands peers to state it was easy to buy singles from other pupils. The qualitative material illuminated possible explanations for this: in contrast to Lowlands, participants in Highacres knew specific local shops and vans that sold pupils cigarettes, and

their accounts suggested they had access to an established peer market. Highacres pupils' greater commercial access probably contributed to their higher level of social exchange as Forster *et al.* (Forster *et al.*, 2003) found use of commercial outlets to be the strongest predictor of participation in this activity.

Although survey results indicated that most smokers obtained cigarettes from commercial providers, analysis of the qualitative material suggested that access to social sources was as important as commercial availability in terms of influencing young people's smoking behaviour. Friends could be an individual's only provider, and the image of pupils sharing and offering cigarettes, and purchasing from one another, suggested such provision not only gave an alternative source but also the opportunity to build and reaffirm friendships. As this was mentioned as a reason for smoking, it appeared that social sources increased both supply and demand for cigarettes. These activities might also have played an important role in encouraging non-smokers to experiment, and experimental smokers to continue smoking. Adolescents often try their first cigarette in the company of friends (West and Foulds, 1999; West and Michell, 1999), and irregular smokers tend to rely on social rather than commercial providers (Harrison *et al.*, 2000). In addition, the opportunity to tap and share cigarettes meant those who could not afford to buy them could still smoke.

When focusing on Highacres' peer market it was evident that selling and buying occurred not only between friends but also strangers. It was also apparent that peer provision enabled some individuals to be independent of commercial sources and to buy cigarettes at a time when a packet was beyond their personal means. However, it was clear that some pupils sold cigarettes to enhance their financial position, and that purchasing singles could increase the monetary cost of smoking. Thus, there was both a positive and a negative side to this market. The accounts of pupil selling also highlighted that whilst researchers have categorized sources of cigarettes as either commercial or social, a commercial social market can exist.

In summary, variations in pupil access to both commercial and social sources of cigarettes provide a possible explanation for school differences in pupil smoking rates. As higher rates of peer smoking appear to increase the extent to which cigarettes are available from fellow pupils,

it seems that the relationship between cigarette access and adolescent smoking is circular, with access affecting smoking rates and levels of smoking influencing access. As adolescents rely on both commercial and social providers, as Altman *et al.* suggest (Altman *et al.*, 1999), young people's access to cigarettes will only be reduced if multiple supply-focused strategies are employed. Researchers have considered how retailers could be encouraged to comply with tobacco sale laws [e.g. (Altman *et al.*, 1999; Stead and Lancaster, 2001)] but have largely ignored how peer provision could be addressed. If adolescents' access to cigarettes is to be limited, this area, including the availability and use of singles, must be researched. There is also a need to inform both commercial and social providers that the selling of singles is illegal, and for schools to consider how peer trading can be addressed.

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REFERENCES

- Alexander, C., Piazza, M. and Mekos, D. (2001) Peers, schools, and adolescent cigarette smoking. *Journal of Adolescent Health*, **29**, 22–30.
- Altman, D. G., Wheelis, A. Y., McFarlane, M., Lee, H. and Fortmann, S. P. (1999) The relationship between tobacco access and use among adolescents: a four community study. *Social Science and Medicine*, **48**, 759–775.
- Carstairs, V. and Morris, R. (1991) *Deprivation and Health in Scotland*. Aberdeen University Press, Aberdeen.
- Cotterell, J. (1996) *Social Networks and Social Influences in Adolescence*. London, Routledge.
- Crawford, M. A., Balch, G. I., Mermelstein, R. and the Tobacco Control Network Writing Group (2002) Responses to tobacco control policies among youth. *Tobacco Control*, **11**, 14–19.
- Forster, J. Chen, V., Blaine, T., Perry, C. and Toomey, T. (2003) Social exchange of cigarettes by youth. *Tobacco Control*, **12**, 148–154.
- Harrison, P. A., Fulkerson, J. A. and Park, E. (2000) The relative importance of social versus commercial sources

- in youth access to tobacco, alcohol, and other drugs. *Preventive Medicine*, **31**, 39–48.
- Jason, L. A., Berk, M., Schnopp-Wyatt, D. L. and Talbot, B. (1999) Effects of enforcement of youth access laws on smoking prevalence. *American Journal of Community Psychology*, **27**, 143–160.
- Lees, S. (1986) *Losing Out. Sexuality and Adolescent Girls*. Hutchinson, London.
- NVivo Qualitative Data Analysis Programme (2000) Version 1.2. QSR International Pty Ltd. Melbourne, Australia.
- Rigotti, N. A., DiFranza, J. R., Chang, Y., Tisdale, T., Kemp, B. and Singer, D. E. (1997) The effect of enforcing tobacco-sales on adolescents' access to tobacco and smoking behavior. *The New England Journal of Medicine*, **337**, 1044–1051.
- Stead, L. F. and Lancaster, T. (2001) Interventions for preventing tobacco sales to minors (Cochrane Review), in *The Cochrane Library*, issue 1. Update Software, Oxford.
- Siegel, M., Biener, L. and Rigotti, N. A. (1999) The effect of local tobacco sales laws on adolescent smoking initiation. *Preventive Medicine*, **29**, 334–342.
- Sweeting, H. and West, P. (2000) *Teenage Health: The West of Scotland 11–16 Study*. MRC Social and Public Health Sciences Unit, Glasgow.
- Wakefield, M. A., Chaloupka, F. J., Kaufman, N. J., Orleans, C. T., Barker, D. C. and Ruel, E. R. (2000) Effect of restrictions on smoking at home, at school, and in public places on teenage smoking: cross sectional study. *British Medical Journal*, **321**, 333–337.
- West, P. and Michell, L. (1999) Smoking and peer influence. In Goreczny, A. J. and Hersen, M. (eds) *Handbook of Pediatric and Adolescent Health Psychology*. Allyn and Bacon, Boston, pp. 179–202.
- West, R. and Foulds, J. (1999) *Smoke-Free Schools: Seven Steps to Success*. Health Education Authority, London.
- WHO (1993). *The European Network of Health Promoting Schools: A Joint WHO-CE-CEC Project*, Copenhagen.