

## Starting young? Children's experiences of trying smoking during pre-adolescence

Beth Milton<sup>1\*</sup>, S. E. Woods<sup>2</sup>, L. Dugdill<sup>3</sup>, L. Porcellato<sup>4</sup> and R. J. Springett<sup>2</sup>

### Abstract

Although the risks smoking poses to health are now well known, many young people continue to take up the habit. While numerous cross-sectional studies of adolescents have identified correlates of smoking initiation, much less prospective, longitudinal research has been conducted with young children to gather their accounts of early experiences of smoking, and this study fills that significant gap. Quantitative and qualitative data, collected using questionnaires, interviews and focus groups, are presented from the pre-adolescent phase of the Liverpool Longitudinal Study of Smoking. By age 11, 27% of the cohort had tried smoking, 13% had smoked repeatedly and 3% were smoking regularly. Rates of experimentation increased over time. Qualitative data revealed that curiosity and the role of peers were central to children's accounts of early smoking. By pre-adolescence, children are at different stages in their smoking careers, therefore interventions must be targeted to their varied experiences. Current prevention strategies often focus on restricting access to cigarettes, but a broad

range of intervention measures is required which take account of the multifactorial nature of smoking onset. To be effective, policies that aim to prevent smoking must be grounded in children's lived experiences.

### Introduction

Although smoking rates are falling among adults in many industrialized countries, smoking rates among young people present a different picture. In the UK, 9% of children aged 11–15 are regular smokers [1]. In the US, 21.9% of high school students smoke [2]. In Canada, 12% of children aged 12–16 smoke regularly [3], and in Australia, 14% of young people aged 12–17 are current smokers [4]. Most smokers begin to smoke regularly during their teenage years [5–10]. It is therefore vital to understand why children experiment with cigarettes and why some go on to become regular smokers, particularly since large numbers of children continue to take up the habit although the risks smoking poses to health are now well known.

Smoking initiation is multifactorial in origin, and much of the research on smoking prevention has sought to identify the correlates of smoking among young people. Children are more likely to take up the habit if their parents [11–20], siblings [11, 16] and friends [11, 12, 17–25] smoke. Child smoking is linked with living in a lone parent household [14, 18], curiosity about what smoking is like [26, 27], truancy from school [28], low self-esteem [13] and depressive symptoms [14, 15, 24]. There is also evidence to suggest that smoking by

<sup>1</sup>Division of Public Health, University of Liverpool, Liverpool L69 3GB, UK, <sup>2</sup>Institute for Health, Liverpool John Moores University, Liverpool L3 2AB, UK, <sup>3</sup>School of Community, Health Sciences and Social Care, University of Salford, Salford M6 6PU, UK and <sup>4</sup>Institute of Public Health Research and Policy, University of Salford, Salford M5 4QA, UK

\*Correspondence to: B. Milton.

E-mail: [bmilton@liverpool.ac.uk](mailto:bmilton@liverpool.ac.uk)

adolescents is inversely associated with socioeconomic status [14, 29].

Although it is unusual for regular smoking patterns to be established before the teenage years, regular smoking is preceded by experimentation with cigarettes and children may try their first cigarette while at primary school, or even before they start school [30–35]. Because early experimentation with cigarettes is experienced as unpleasant, some young children try a cigarette just once, whereas others persevere until a regular smoking habit is acquired [36, 37]. Access to cigarettes is a major factor in children's experimentation with tobacco [38]. Those with smoking parents may have easy access to cigarettes at home [13, 23, 26], and children may also be given cigarettes by friends or siblings [39].

Theories of smoking onset suggest that there are several distinct stages involved in making the transition from never having tried a cigarette to becoming a regular smoker. Different models of progression have been suggested, based on both stage theories and concepts of susceptibility [40–43]. There is broad agreement that children move from the preparatory stage, when knowledge and beliefs about smoking are acquired, to the stage of first trial at which point the child tries smoking for the first time. Some children will progress no further. Others, however, will make the transition to the experimentation stage, with repeated attempts at smoking. Regular smoking is the fourth stage, and may be followed by a fifth addictive stage, characterized by nicotine dependency, craving and withdrawal symptoms. Individuals move through these stages in different ways, and developmental trajectories vary [44]. Children's smoking behaviour is often erratic, and early experimentation does not necessarily predict a progression to regular use [45–48].

While numerous studies of adolescents have identified correlates of smoking initiation, much less research has been conducted with younger children to gather their accounts of early experiences of smoking, and this study fills that significant gap. With few exceptions [22], existing research has largely been quantitative, cross-sectional and

retrospective, has focused on events between the ages of 11 and 15 and has examined the later stages of smoking uptake [21, 27, 49]. In order for smoking prevention strategies to be successful, they must be grounded in a thorough understanding of children's experiences of trying smoking. A recent review identified a clear gap in the existing evidence base for longitudinal, prospective, naturalistic studies, which track young children from an early age (as never smokers), and examine the development of initial use and the possible progression to regular smoking behaviour [49].

This paper presents data from the Liverpool Longitudinal Study of Smoking (LLSS), an ongoing naturalistic, prospective study which has tracked a single birth cohort since school entry, and fills this significant gap in the literature. Data are presented from the pre-adolescent phase (aged 9–11) because rates of experimentation peak during this time [12]. The research aimed to examine emerging patterns of first tobacco use, particularly the transition from never having smoked to experimentation with cigarettes. The study also sought to explore children's experiences of tobacco use in the context of the family and peer group. Analyses of LLSS data have already established that paternal and fraternal smoking, best friend's smoking and knowing someone with smoking-related disease at age 9 predicted experimentation with cigarettes by age 11. Being male was also a significant predictor of smoking uptake [50].

---

## Methods

---

The LLSS is a prospective longitudinal study carried out in six primary schools which were selected to represent the range of social conditions found in the city of Liverpool in northwest England. Liverpool is characterized by deprivation, and smoking rates among adults are high: in central Liverpool, 37% of adults smoke (compared with 27% for England as a whole) [51]. The schools were chosen at the start of the study (when the cohort were aged 5 years) on the basis of three indicators: employment data from the 1991 census, lung cancer standardized mortality

ratios and data drawn from an index of well-being [52]. The sample was designed to reflect variation within the city in terms of health and socioeconomic status. Over half of the cohort lived in low-income families, and 82% lived in the most deprived quartile (the poorest quarter of addresses) in the northwest of England as calculated using Townsend's indices of deprivation [50]. Every child attending school in the target cohort year (already age 9 at the beginning of the academic year) in the six sample schools was included in the sample. Boys (47%) and girls (53%) were approximately equally represented in the cohort, and 7% of the children belonged to minority ethnic groups. Quantitative and qualitative data were collected from the cohort annually, and as new children joined the cohort's classes, they were added to the sample. The actual numbers of children participating varied slightly over time (children participating in data collection each year:  $n = 247$  at age 9;  $n = 257$  at age 10;  $n = 239$  at age 11). The total number of children participating throughout the pre-adolescent phase was larger than the numbers participating each year, because each year some were absent at the time of data collection, and others were lost to attrition (total number of children participating in the study by each time point:  $n = 247$  at age 9;  $n = 276$  at age 10;  $n = 279$  at age 11).

Ethical approval was granted by the Liverpool John Moores University Ethics Committee. Headteachers and parents gave written consent, although—as is usual practice in school-based research—a non-response clause was used, ensuring the participation of children whose parents neither specifically opted out of the study nor returned their consent form. Only one parent withheld consent for his child to participate. Assent to participate was also given by the children themselves. Children's participation rates were high (>92%), and most non-participation was due to absence from school during data collection.

### Questionnaire survey

A range of quantitative and qualitative methods were used in triangulation. The children completed

questionnaires in the classroom under quasi-examination conditions (children were encouraged to complete the questionnaire in silence and not to look at what their classmates were writing). This method of administration has been shown to elicit the most accurate self-reporting of smoking behaviour with teenagers [12]. The researcher stood at the front of the class and guided the children through the questionnaire by reading out each question as the children wrote their responses. Children were routed to different coloured sections of the questionnaire depending on whether or not they had tried smoking. The questionnaires elicited both quantitative and qualitative data on first trials, experimentation and regular smoking. Children who had tried smoking were asked to record how many times they had tried smoking, together with details of their first ever cigarette. They were asked to recall how old they were at first trial, where they obtained the first cigarette, where and with whom they smoked it, why they smoked it and whether they enjoyed the experience. At the end of the survey, each child sealed his/her responses in an envelope. This measure was designed to emphasize to the children that their answers were confidential. Questionnaires were also marked with numbers rather than names to demonstrate confidentiality, and children chose their own pseudonyms for the reporting of data.

### Individual interviews

Further qualitative data were generated using individual interviews with a subsample of 37 case study children, who were sampled purposively at the start of the study (at age 5) to ensure both genders were equally represented. The case study children were distributed evenly across the different schools taking part in the study to ensure that the range of socioeconomic backgrounds of children taking part in the LLSS was also reflected in the composition of the interview sample. They were by necessity children whose parents had returned their consent forms, they had to be present on the day of the interviewing and not involved in other school activities at the time of the research. Frequently, only

one or two children were eligible in each class on the basis of these criteria, which made selection relatively straightforward. Participants were invited to discuss photographs of adults and children smoking and to direct the conversation as much as possible by talking about their own experiences of tobacco use among family and friends. Children were asked about smoking by parents and other family members, and also if they were ever exposed to second-hand smoke at home or in other settings. Interview participants also talked about whether they knew any children who smoked, and discussed their views on adult and child smoking. Children were also asked if they had ever tried smoking and, if they had tried, to describe their experiences of smoking.

### **Focus groups**

Ninety children took part in 16 peer-selected, single-sex focus groups each year. The focus groups were designed to yield cross-sectional data, and the same children did not participate from year to year. For each group, the researcher selected one boy or girl at random, and then that child selected his/her close friends from within the class to participate. (A few of the case study children were also selected by their classmates to participate in focus groups.). The focus group activity was adapted from a card game method for exploring health behaviours with young people [29]. After introductions, the researcher passed round a bag containing several pieces of paper on which were written smoking-related questions. Each child took it in turns to pull a slip of paper from the bag, and to read out and then answer his/her question. This was then discussed by the other children. Children were asked whether they knew anyone who smoked, and about their experiences of passive smoking, whether it was easy or difficult to stop smoking, whether their parents smoked, why some children try smoking and what they would do if someone offered them a cigarette. Because the children were among trusted friends, they felt free to discuss topics openly and in depth. The structure which the researcher imposed on the conversation was intentionally kept

to the minimum, and instead the children were encouraged to raise their own concerns and issues and to introduce themes from their own experiences. Data from interviews and focus groups were tape-recorded and subsequently transcribed in full.

The study design, collection and analysis of data were informed by theory drawn from the sociology of childhood. The research sought to understand children's experiences of smoking from their own perspectives, and to situate these in their social context. Data were generated and analysed simultaneously during the course of the fieldwork, and this meant that emergent themes could be explored with subsequent participants. The qualitative data were analysed thematically using the constant comparative method. This analysis drew both inductively on themes that emerged from the data during the course of the fieldwork and also deductively on themes drawn from the review of the literature that preceded the fieldwork. Data were initially coded 'by hand' without the use of qualitative data management software. In addition, the entire longitudinal qualitative data set was entered into N-Vivo and themes and codes compared across the whole time span of the study. Although the children were all asked to describe their first trial of smoking every time that data were collected, the data presented only include the first reporting because the earliest account is assumed to be the closest in time to the child's first use, thus minimizing any recall bias. The credibility of the analysis was established by using different methods in triangulation, and respondent validation was also used to check the overall findings from the pre-adolescent phase of the LLSS in focus groups with 11-year-old children [30].

---

## **Results**

---

### **Initiation and experimentation**

The data presented in this paper focus on the experiences of the 76 children within the cohort who reported that they had tried smoking at least once, some of whom participated in interviews and focus

groups. Unless specifically attributed to an interview or focus group, all data presented are drawn from the questionnaire survey.

At age 9, 8% of the cohort ( $n = 20$ ) admitted that they had tried smoking. Reports increased over time, and by age 10, 21% of the cohort ( $n = 58$ ) had reported trying smoking (at either age 9 or 10), rising to 27% ( $n = 76$ ) by age 11 (reports at either ages 9, 10 or 11). Some of these triers persisted with smoking and three children (1%) had tried smoking more than once at age 9, increasing to 22 children (8%) by age 10, and 36 children (13%) by age 11. Furthermore, at age 10, two of the children had begun to smoke regularly (1%) and at age 11, six (3%) were regular smokers (smoking at least one cigarette each week). Boys were more likely to report experimentation than girls [50]. Some children tried smoking at a very early age (before school entry), and rates of experimentation increased as the children got older.

### Access to tobacco

Children acquired cigarettes from a number of sources, many through family members. A small proportion ( $n = 3$ ; 4%) stated that they had been given their first cigarettes by parents, although more children ( $n = 13$ ; 17%) revealed that they had stolen their first cigarettes from a parent, or had tried smoking while fetching a parent's cigarettes ( $n = 1$ ; 1%). Some had been given their first cigarette by another relative ( $n = 3$ ; 4%), or had stolen it from them ( $n = 3$ ; 4%). Most triers, however, were given their first cigarettes by a friend ( $n = 46$ ; 61%). In one instance, the cigarette was obtained from a friend's parent ( $n = 1$ ; 1%). Yet others ( $n = 4$ ; 5%) had tried smoking a used cigarette butt found in the street, or had taken a quick puff from a cigarette left lying lit in an ashtray ( $n = 2$ ; 3%). During a focus group at age 9, Paul described how he had tried smoking a cigarette butt that he had picked up off the floor:

Interviewer: So Paul, you've tried one? Where did you get it from?

Paul: It was on the floor. Outside.

Interviewer: And you tried a puff? What was it like when you tried it?

Paul: It was horrible.

Interviewer: Why was it horrible?

Paul: It was just ...

Boy: It had been on the floor?!?!

Paul: No! It was just, when I breathed in, I don't know, it was just horrible. When I breathed in I could feel stuff in my throat. I didn't like it.

Interviewer: You didn't like it, but do you think you'd try it again?

Paul: Yes. Just one, two or three. No more.

Interviewer: Why would you try it again if it was horrible?

Boy 2: Try one that hasn't been on the floor.

Boy 3: It's been on the floor and someone's puffed into it. They've smoked half of it and you're just picking it up ...?!?!

Paul: You had to say that, didn't you?

In an interview at age 11, Bruce described how he had tried his father's cigarette that had been left lying lit in an ashtray:

Interviewer: Have you ever wanted to try smoking?

Bruce: I have. I've done it once. But I've never done it since.

Interviewer: How old were you when you tried smoking?

Bruce: I was seven. My Dad was smoking in the living room. He went out. I was hiding under the table and came up and had a bit and then just went back under the table so he didn't see me.

Interviewer: So then you put it back in the ashtray?

Bruce: [nods]

Although none of the triers suggested that they had bought their first cigarette from a shop, some

participants described shops that sold 'loosies' (loose cigarettes) to children, and none of the children who had tried smoking repeatedly suggested that they found it difficult to access cigarettes.

### **A social act?**

Our findings suggest that for most children, the first cigarette constitutes a 'social act'. The majority of triers ( $n = 58$ ; 76%) shared their first smoking experience with another person (smoked alone:  $n = 18$ ; 24%). While a few children shared their first cigarette with a parent ( $n = 4$ ; 5%) or another relative ( $n = 4$ ; 5%), most shared their first cigarette with a friend ( $n = 50$ ; 66%).

While a small proportion of triers smoked either at their own home ( $n = 10$ ; 13%) or that of another relative ( $n = 4$ ; 5%) or friend ( $n = 4$ ; 5%), most children ( $n = 52$ ; 68%) smoked their first cigarette outside. At age 11, all the children were asked to describe the places where they smoked and these give a fascinating insight into the spaces where pre-adolescents spend their leisure time. Children smoked in hidden places, such as down alleyways ( $n = 13$ ; 17%) and in an empty house ( $n = 1$ ; 1%), and in open spaces, such as parks ( $n = 8$ ; 11%), fields ( $n = 2$ ; 3%) and a forest ( $n = 1$ ; 1%). Some children also tried smoking in public spaces where other adults may be present, but perhaps not adults with responsibility for them, such as in the street ( $n = 6$ ; 8%), outside a pub ( $n = 2$ ; 3%), on a bridge ( $n = 1$ ; 1%), behind a block of flats ( $n = 1$ ; 1%) or on the railway ( $n = 3$ ; 4%).

Although many of the triers ( $n = 36$ ; 47%) had persevered with tobacco by smoking repeatedly, few of those who had tried ( $n = 6$ ; 8%) described their first experience of smoking as enjoyable. Instead, triers were more likely to state that either they had not enjoyed their first cigarette ( $n = 49$ ; 64%) or they were unsure ( $n = 21$ ; 28%).

### **Stated motives for first trial**

#### *The influence of peers*

At age 11, all the triers were asked an open-ended question about why they had tried smoking, to

which children could give multiple responses. Of the 65 children who reported trying smoking, only 41 (63%) could offer an explanation of why they had tried. Several children ( $n = 14$ ; 18%) cited the influence of friends. In an interview at age 11, Chima described how she had been under pressure from her friends to try smoking and how, even when she did try, they made fun of her because she hadn't inhaled:

Interviewer: Have you tried smoking?

Chima: Once. I didn't take it back though. That's one thing I wouldn't do. I put it to my lips .... Then I threw it back. It was just that horrible. I didn't go to throw it back, I just flung it on the floor and stood on it. I was coughing and didn't touch it again. That was at New Year.

Interviewer: And what made you try smoking, do you think? Why did you try it?

Chima: Because I felt scared that they were going to do something to me, because they all had looks on their eyes like that.

Interviewer: Who were all these people? Who was it?

Chima: My friends.

Interviewer: So what did you think they would do to you?

Chima: At the time, they were my only mates. And I was like 'If I lose these, I'll have no-one else', because I fell out with the others at that time. And I thought 'If I lose these, I won't have no-one to play with'.

And I thought 'They're going to hurt me' so I just like pretended and just threw it down and stood on it.

Interviewer: So what did they say when you tried it? Were they pleased?

Chima: They just thought like 'Ah hah! You didn't even take it back, you wimp!' They were just laughing at me. And I was just saying 'So? I don't want to wreck my life'.

At age 11, two children said they had tried smoking to appear 'cool' and two children suggested that they were 'forced' into smoking by friends or acquaintances. In Fitzzy's account, given in an interview at age 9, he described being 'forced' to smoke by his 'best friend':

Interviewer: Do you know any children who smoke?

Fitzzy: I know a mate of mine—my best friend. He smokes and sometimes he forces me to smoke. And I just get it and throw it on the floor and stamp it out and run away.

Interviewer: So even though your best friend smokes, it doesn't make you want to try smoking?

Fitzzy: He's forcing me ...

Interviewer: Why do you think he wants you to smoke?

Fitzzy: Because he wants me to be like him.

Interviewer: Have you ever wanted to try smoking?

Fitzzy: No. I hate smoke!

### *Curiosity*

Curiosity was the motive most frequently suggested by triers ( $n = 19$ ; 25%). James reported during an interview at age 11 that he had tried smoking out of curiosity after his friend had given him his first cigarette, which they smoked together in a derelict house:

Interviewer: What happened? Tell me about what happened.

James: By ours, [friend] one of his mates come and he had a ciggie. And he had half and he said 'Do you want a bit?' and I said 'No, I'm alright'. And he went 'Just taste it'. And I went 'No I'm alright'. And he went 'Just have a bit, and see if you like it'. So I just had a little pull and threw it away because I didn't like it.

Interviewer: So was your mate forcing you to smoke or do you think you chose to just try it?

James: He wasn't forcing me to smoke. I chose. Just to see what it was like.

Interviewer: So why did you want to see what it was like?

James: I don't know. Because everyone else has had one and I just wanted to see what it was like.

### *The role of family*

Another child said that she tried smoking because she was influenced to do so by her parents. One child responded that he had smoked 'because I was very stupid'. Two children said they had been given a cigarette to deter them from future smoking. In an interview at age 9, Pete described how his aunt had given him a cigarette to try to deter him from smoking:

Interviewer: So did your auntie give you the cigarette?

Pete: Yes, she was just telling me not to taste it, not to take it off no-one because it is horrible.

Interviewer: So your auntie gave you a cigarette just because she wanted you to know that it was horrible?

Pete: Yes, and it was bad for your health.

Interviewer: And how old were you when that happened?

Pete: I was eight Miss, nearly nine.

Interviewer: Were you? And what was it like? Did you have a smoke of it? Did you have a puff of it?

Pete: Yes just a little bit.

Interviewer: And what was it like when you tried it?

Pete: Horrible, Miss, and disgusting.

Interviewer: Does it make you never want to try a cigarette or did you think I might like to try this again?

---

Pete: Yes, Miss. If my friends tell me to, I just say no and run away.

---

## Discussion

---

The LLSS is a unique, prospective longitudinal study that has tracked a cohort of children from age 5 throughout pre-adolescence, using mixed methods to generate both quantitative and rich qualitative data. During pre-adolescence, the proportion of children who reported that they had tried smoking increased over time, and by age 11 over a quarter of the cohort had tried, and 3% were smoking regularly. For some children their first trial did not act as a deterrent but as an introduction to further smoking. Many children were unsure whether they had liked smoking or not, yet still persisted in repeated trials. The majority of triers were unable to articulate why they had tried smoking. Perhaps, these first trials were as a result of a complex interplay of different factors that the children could not themselves articulate (many adults, of course, similarly cannot account for health behaviours). It is interesting to note that many children did not have a clear personal rationale to defend their decision to try smoking, and perhaps these children might be more amenable to health education interventions which offer a strong rationale for not smoking in future.

Lucas and Lloyd [53] postulated that there are two main pathways through early smoking experience: either children make their own decision to experiment with cigarettes based on curiosity or alternatively they feel pressured or coerced into smoking by a group of peers. The results of the LLSS give support to this view, although what this research adds is the finding that perceptions of coercion vary, and the children attached different meanings to the concept of being 'forced' to smoke. While some chose to present themselves as active social agents when recalling their early smoking experience, others constructed their accounts to emphasize the role of peers.

With regard to the first pathway, some children (such as Paul and Bruce) emphasized that they had

deliberately initiated their first trials. The motive most frequently mentioned by triers was curiosity. Many of the accounts emphasized the opportunistic nature of the first trial, which was based on the ease of access to cigarettes. Parental smoking is of tremendous importance in giving young children easy access to cigarettes. Children know where their parents keep their cigarettes, and often cigarettes are left lying in ashtrays, which may give children (like Bruce) a fleeting opportunity for a puff of smoke. A few children (such as Paul) had tried smoking by picking up lighted cigarette butts off the floor. This is perhaps the easiest—but least appealing—way for children to try smoking. It also demonstrates the lengths to which some will go if they are determined to try smoking.

Other children who participated in this study suggested that they had followed the second pathway. At age 11, the influence of friends and being forced were key motives in explaining early smoking. The first trial was a social act for most of the children who had tried smoking, and triers were likely to have smoked their first cigarette with a friend. Friends were also the main source of cigarettes for first trials, suggesting that in many instances peers may initiate first use. Some of the accounts centred on peer pressure and the child's reluctance to try smoking (e.g. Chima). Pressure from friends ranged from gentle persuasion to threats of exclusion from the friendship group. In Fitzzy's account, he described being forced to smoke by his 'best friend'. The way in which he recalled his experiences appears particularly contradictory. He suggested that he was being coerced into smoking to the extent that he had to run away, yet the person he was with was his best friend. Chima described the peers who featured in her account as friends, although she suggested that she was scared and found them intimidating. She explained that she succumbed to trying smoking because she feared exclusion from the group. Perhaps, some of these accounts blend themes of friendship and coercion because children deal with being encouraged to engage in a risky behaviour by denying their own agency in the situation, and it is likely that some children described themselves as having been



forced to smoke to deal with the contradictions that they felt. Because smoking is an illicit behaviour for pre-adolescents, perhaps some were therefore keen to emphasize the role that friends had played in encouraging them to smoke, in order to absolve themselves of the responsibility of having made a decision that they knew had the potential to harm their health.

Finally, a very small number of children (such as Pete) reported that family members offered them the opportunity to try a cigarette at home in a situation 'managed' by the adult. At the time of the interview, Pete reported that his aunt's strategy had been successful and, for the time being at least, he was resisting offers of cigarettes from friends. In some ways, his aunt's intervention was timely, as it appears to have only just preceded pressure from friends to smoke. Although family members may offer cigarettes in an attempt to prevent pre-adolescents from taking the initiative in trying smoking themselves, it is perhaps unlikely that the experience will serve as a deterrent from future experimentation in the context of high levels of perceived pressure from peers. Although statistical analyses of LLSS data showed that having parents who smoked was associated with trying smoking during pre-adolescence [50], most triers did not acknowledge parents as an influence on their own smoking. Instead, they cited the role played both by peers and their own curiosity.

Although this study is built on the assumption that children give reliable accounts of their own experiences [54], it should be noted that the data that describe past experimentation should be treated with caution because they are both self-reported and retrospective, and therefore may be affected by recall bias. This is a limitation of the study. Nevertheless, children of primary school age have been shown to be able to accurately recall their first cigarette because the experience will have happened relatively recently [11]. This is particularly the case when data have been collected annually as with the LLSS.

Not all children who experiment with cigarettes go on to become regular smokers. Further qualitative research is needed to identify why some children persist with smoking despite the initial

unpleasantness of the first trial. Qualitative research is also required to explore why some children make the transition to becoming regular smokers, whereas others try smoking either once or repeatedly, yet do not progress further.

### **Implications for smoking prevention**

The UK government has set targets to reduce child smoking rates [55]. Successful tobacco control policy must be evidence based [56]. Therefore, the LLSS has the potential to form a useful foundation for policy because it has yielded an understanding of the processes that determine children's early smoking careers, together with a unique insight into the way that children think about smoking. If policies that aim to prevent smoking are to be successful, then it is vital that they are grounded in children's lived experiences and acknowledge the importance of their perspectives.

Although there is currently the political will to intervene to reduce child smoking rates, the questions of when and how to intervene are difficult ones. Stage theorists argue that young people take up smoking in phases, and therefore interventions should be designed to prevent them making the transition from stage to stage. While primary prevention involves preventing early trying and experimental use, secondary prevention aims to get experimenters or regular users to quit [41]. Pre-adolescence represents a key time to intervene in the development of children's smoking careers. At age 11, the majority of children have never tried smoking and primary prevention measures must be taken to ensure that these children remain non-smokers. At the same time, however, by age 11 just over a quarter of the LLSS cohort had tried smoking and some were at the stage of repeated experimentation or even regular smoking. These children require secondary prevention interventions to either encourage them to quit or to deter them from further trials. Because by pre-adolescence, children are at different stages in their smoking careers, it is important to target effective and realistic interventions that relate to their own experiences of tobacco, diverse as these may be.

So, if pre-adolescence represents an ideal time to engage in primary and secondary smoking prevention, what kind of interventions should be carried out? School-based peer interventions may be effective in reducing smoking [57]. The findings from this phase of the research have shown that by age 11 children are already well-informed about smoking, and well aware of the risks smoking poses to health [30]. Therefore, interventions which aim to prevent smoking uptake must take a broad approach which goes beyond health education to take account of the multifactorial nature of smoking onset.

Some factors that contribute to smoking uptake are more amenable to policy intervention than others. For example, while it is theoretically relatively straightforward to use tobacco control policy to raise the price of cigarettes, to introduce health education initiatives, to ban tobacco advertising and to restrict smoking in certain places, it is very difficult to intervene in social factors which perhaps represent the most important influences on smoking uptake, such as the role played by family and peers [58]. Nevertheless, smoking prevention programmes must be targeted at the community level if they are to be effective [56]. This study has shown that social factors are central to the reasons why children take up smoking [30, 50]. It is therefore important that interventions tackle the root causes of smoking, which may well be linked to the nature of adolescence and also to the deprivation that is associated with parental smoking.

Policies to reduce smoking rates among young people often focus very narrowly on access to tobacco products through shops and vending machines. Although it is important that young people cannot purchase tobacco from these sources—and older children may try and succeed in doing so—this study has shown that pre-adolescents do not obtain their cigarettes from shops or vending machines. Younger children who are not yet smoking regularly may steal their first cigarettes from parents or they may smoke butts picked up in the street. Many children are given their first cigarette by friends, however, so these measures may be useful in breaking the chain of supply in which older children buy cigarettes from shops or machines and then give or sell them on to

younger children. In addition, while these measures may not prevent experimentation, they may prevent children from making the transition to regular smoking, which requires access to a ready supply of cigarettes.

Although smoking rates among adults are falling in many industrialized countries, and the risks smoking poses to health are now well known, many children take up smoking every day, often trying their first cigarette before adolescence. It is vital to intervene early to prevent young children from trying their first cigarette, and to stop older triers progressing to repeated experimentation and then regular smoking. Data from the LLSS have shown that a broad range of intervention measures are required which take account of the multifactorial nature of smoking onset.

---

### Funding

---

The Roy Castle Lung Cancer Foundation to the LLSS (1203 32004 R32017).

---

### Acknowledgements

---

We would like to express our gratitude to the pupils, parents, staff and headteachers of the six Liverpool primary schools who took part in the study. We would also like to thank Michael Mair for his insightful comments on earlier drafts.

---

### Conflict of interest statement

---

None declared.

---

### References

---

1. Boreham R, Blenkinsop S. *Drug Use, Smoking and Drinking among Young People in England in 2003*. London: The Stationery Office, 2004.
2. Centers for Disease Control and Prevention. Surveillance summaries, 21 May 2004. *Morb Mortal Wkly Rep* 2004, **53**(No. SS-2): 1–96.
3. Boyce W. *Young People in Canada: Their Health and Well Being*. Ottawa, Canada: Health Canada, 2004.
4. White V, Hayman J. *Smoking Behaviours of Australian Secondary Students in 2002*. *National Drug Strategy Mono-*

- graph Series No. 54. Canberra, Australia: Australian Government Department of Health and Ageing, 2004.
5. Charlton A. Children's opinions about smoking. *J R Coll Gen Pract* 1984; **34**: 483–7.
  6. Balch G. Exploring perceptions of smoking cessation among high school smokers: input and feedback from focus groups. *Prev Med* 1998; **27**: 55–63.
  7. Eckhardt L, Woodruff S, Elder J. A longitudinal analysis of adolescent smoking and its correlates. *J Sch Health* 1994; **64**: 67–72.
  8. Doherty W, Allen W. Family functioning and parental smoking as predictors of adolescent cigarette use: a six-year prospective study. *J Fam Psychol* 1994; **8**: 347–53.
  9. Boomsma D, Koopmans J, van Doornen L *et al.* Genetic and social influences on starting to smoke: a study of Dutch adolescent twins and their parents. *Addiction* 1994; **89**: 219–26.
  10. McGee R, Stanton W. A longitudinal study of reasons for smoking during adolescence. *Addiction* 1993; **88**: 265–71.
  11. Bewley B, Bland J, Harris R. Factors associated with the starting of cigarette smoking by primary school children. *Br J Prev Soc Med* 1974; **28**: 37–44.
  12. Charlton A, Blair V. Predicting the onset of smoking in boys and girls. *Soc Sci Med* 1989; **29**: 813–8.
  13. Jackson C, Henriksen L, Dickinson S *et al.* The early use of alcohol and tobacco: its relation to children's competence and parents' behaviour. *Am J Public Health* 1997; **87**: 359–64.
  14. Fleming CB, Hyoshin MS, Harachi TW *et al.* Family processes for children in early elementary school as predictors of smoking initiation. *J Adolesc Health* 2002; **30**: 184–9.
  15. Conwell L, O'Callaghan M, Andersen M *et al.* Early adolescent smoking and a web of personal and social disadvantage. *J Paediatr Child Health* 2003; **39**: 580–5.
  16. Vink JM, Willemsen G, Boomsma DI. The association of current smoking behaviour with the smoking behaviour of parents, siblings, friends and spouses. *Addiction* 2003; **98**: 923–31.
  17. Engels RCME, Vitaro F, den Exter Blokland E *et al.* Influence and selection processes in friendships and adolescent smoking behaviour: the role of parental smoking. *J Adolesc* 2004; **27**: 531–44.
  18. Kandel DB, Kiros G-E, Schaffran C *et al.* Racial/ethnic differences in cigarette smoking initiation and progression to daily smoking: a multilevel analysis. *Am J Public Health* 2004; **94**: 128–35.
  19. Taylor JE, Conard MW, O'Byrne KK *et al.* Saturation of tobacco smoking models and risk of alcohol and tobacco use among adolescents. *J Adolesc Health* 2004; **35**: 190–6.
  20. Vitaro F, Wanner B, Brendgen M *et al.* Differential contribution of parents and friends to smoking trajectories during adolescence. *Addict Behav* 2004; **29**: 831–5.
  21. Nichter M, Nichter M, Vuckovic N *et al.* Smoking experimentation and initiation among adolescent girls: qualitative and quantitative findings. *Tob Control* 1997; **6**: 285–95.
  22. Rugkåsa J, Kennedy O, Barton M *et al.* Smoking and symbolism: children, communication and cigarettes. *Health Educ Res* 2001; **16**: 131–42.
  23. Dierker LC, Avenevoli S, Goldberg A *et al.* Defining subgroups of adolescents at risk for experimental and regular smoking. *Prev Sci* 2004; **5**: 169–83.
  24. Gilpin EA, Lee L, Pierce JP. How have smoking risk factors changed with recent declines in California adolescent smoking? *Addiction* 2005; **100**: 117–25.
  25. Derzon J, Lipsey M. Predicting tobacco use to age 18: a synthesis of longitudinal research. *Addiction* 1999; **94**: 995–1006.
  26. Greenlund K, Johnson C, Webber L *et al.* Cigarette smoking attitudes and first use among third-through sixth-grade students: The Bogalusa Heart Study. *Am J Public Health* 1997; **87**: 1345–8.
  27. DeLorme D, Kreshel P, Reid L. Lighting up: young adults' autobiographical accounts of their first smoking experiences. *Youth Soc* 2003; **34**: 468–96.
  28. Denscombe M, Drucquer N. Diversity within ethnic groups: alcohol and tobacco consumption by young people in the East Midlands. *Health Educ J* 2000; **59**: 340–50.
  29. Shucksmith J, Hendry L. *Health Issues and Adolescents—Growing Up, Speaking Out*. London: Routledge, 1998.
  30. Milton B. A Longitudinal Study of Liverpool Schoolchildren's Experiences of Smoking Aged 9 to 11. *Unpublished PhD Thesis*. Liverpool, UK: Liverpool John Moores University, 2002.
  31. Schneider F, Vanmastrigt L. Adolescent-preadolescent differences in beliefs and attitudes about cigarette smoking. *J Psychol* 1974; **87**: 71–81.
  32. Eiser C, Walsh S, Eiser JR. Young children's understanding of smoking. *Addict Behav* 1986; **11**: 119–23.
  33. Charlton A. Young children with smoking parents. Are they at risk? *Midwife, Health Visitor Community Nurse* 1987; 382–4.
  34. Isohanni M, Moilanen I, Rantakallio P. Determinants of teenage smoking, with special reference to non-standard family background. *Br J Addict* 1991; **86**: 391–8.
  35. Michell L, Fidler W. The social meaning of smoking for boys in a residential school for children with emotional and behavioural disorders. *Health Educ J* 1993; **52**: 55–8.
  36. Gilpin EA, Pierce JP. Trends in adolescent smoking initiation in the United States: is tobacco marketing an influence? *Tob Control* 1997; **6**: 122–7.
  37. Choi W, Gilpin E, Farkas A *et al.* Determining the probability of future smoking among adolescents. *Addiction* 2001; **96**: 313–23.
  38. Gilpin EA, Lee L, Pierce JP. Does adolescent perception of difficulty in getting cigarettes deter experimentation? *Prev Med* 2004; **38**: 485–91.
  39. Forster J, Chen V, Blaine T *et al.* Social exchange of cigarettes by youth. *Tob Control* 2003; **12**: 148–54.
  40. Leventhal H, Cleary P. The smoking problem: a review of the research and theory in behavioural risk modification. *Psychol Bull* 1980; **88**: 370–405.
  41. Flay B, Hu F, Richardson J. Psychosocial predictors of different stages of cigarette smoking among high school students. *Prev Med* 1998; **27**: 9–18.
  42. Prokhorov AV, de Moor CA, Hudmon KS *et al.* Predicting initiation of smoking in adolescents: evidence for integrating the stages of change and susceptibility to smoking constructs. *Addict Behav* 2002; **27**: 697–712.
-

43. Kremers SPJ, Mudde AN, de Vries H. Model of unplanned smoking initiation of children and adolescents: an integrated stage model of smoking behavior. *Prev Med* 2004; **38**: 642–50.
44. Hirschman R, Leventhal H, Glynn K. The development of smoking behaviour: conceptualisation and supportive cross-sectional survey data. *J Appl Soc Psychol* 1984; **14**: 184–206.
45. Goddard E. *Why Children Start Smoking*. London: HMSO, 1990.
46. Stanton W, Silva P, Oei T. Change in children's smoking from age 9 to age 15 years: the Dunedin study. *Public Health* 1991; **105**: 425–33.
47. Goddard E. Why children start smoking. *Br J Addict* 1992; **87**: 17–8.
48. Sutton S. Is taking up smoking a reasoned action? *Br J Addict* 1992; **87**: 21–4.
49. Eissenberg T, Balster RL. Initial tobacco use episodes in children and adolescents: current knowledge, future directions. *Drug Alcohol Depend* 2000; **59** (Suppl. 1): S41–60.
50. Milton B, Cook PA, Dugdill L *et al*. Why do primary school children smoke? A longitudinal analysis of predictors of smoking uptake during pre-adolescence. *Public Health* 2004; **118**: 247–55.
51. Twigg L, Moon G, Walker S. *The Smoking Epidemic in England*. London: Health Development Agency, 2004.
52. Porcellato L, Dugdill L, Springett J. A longitudinal study exploring primary schoolchildren's perspectives on smoking: results from the Early Years phase. *Childhood* 2005; **12**: 425–43.
53. Lucas K, Lloyd B. Starting smoking: girls' explanations of the influence of peers. *J Adolesc* 1999; **22**: 647–55.
54. Mair M, Barlow A, Woods SE *et al*. Lies, damned lies and statistics? Reliability and personal accounts of smoking among young people. *Soc Sci Med* 2006; **62**: 1009–21.
55. Department of Health. *Smoking Kills*. The Stationery Office, London, 1998.
56. Samet J, Taylor C, Becker K *et al*. Research in support of tobacco control. *Br Med J* 1998; **316**: 321.
57. Health Development Agency. *Smoking Interventions with Children and Young People: Better Health for Children and Young People, Health Development Agency Briefing No. 6*. London Health Development Agency: 2004
58. Townsend J, Roderick P, Cooper J. Cigarette smoking by socioeconomic group, sex, and age: effects of price, income, and health publicity. *Br Med J* 1994; **309**: 923–7.

*Received on September 19, 2006; accepted on April 25, 2007*