

Factors associated with the starting of cigarette smoking by primary school children

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SUMMARY

A matched sample of 300 children was selected from 7,115 Derbyshire primary school children, who had completed an initial screening questionnaire on smoking and respiratory symptoms in March 1971. In July 1971, 293 of the 300 children (229 boys and 64 girls) completed a second questionnaire giving information about their first cigarette, smoking by their parents, siblings, and friends, and also their reasons for smoking or not. Because of the small number of girls, only the results from the boys are reported here. Over a period of four months only 63% of the children were consistent in their replies.

It would appear that the parents and brothers living in the household, as well as friends, influence boys to take up smoking. Over half of the smokers were given their first cigarette. Eleven per cent of the boys were given their first cigarette by their parents.

The children's attitudes to smoking were complex. They did not think smoking was enjoyable. Non-smokers saw smoking as showing off. Most of the children thought smoking caused cancer, but some of these did not see this as a health hazard. Few children saw curiosity as an important reason for smoking. This may have implications for effective antismoking education.

INTRODUCTION

Previous studies (Bynner, 1969; Holland, Halil, Bennett, and Elliott, 1969; Cartwright and Thomson, 1960; Chave and Schilling, 1959) have shown that school children start and continue to smoke for many reasons. Studies of adolescent smoking have demonstrated that where both parents smoke the children are more likely to smoke (Cartwright and Thomson, 1960; Salber and MacMahon, 1961). O'Rourke and Wilson-Davis (1970) have suggested that the father's smoking may be the influencing factor. Studies by Bergen and Olesen (1963),

Bynner (1969), and Levitt and Edwards (1970) have suggested that the main influence to smoke comes from the adolescent's peer group. They found that the number of brothers and sisters or friends who smoked was an important factor. In their large studies of adolescent smoking, McKennell and Thomas (1967), Bynner (1969), and Holland *et al.* (1969) have shown that boys smoke more and start smoking earlier than girls and also that the amount of smoking increases with age. Palmer (1970) studied the early pattern of cigarette smoking by school children from South Dakota, USA and found that the amount of smoking was reflected by the smoking incidence of parents and friends and concluded that one of the best predictors for smoking in children and adolescents was still whether or not their parents smoked. The regular adolescent smoker appeared to be surrounded by parents and friends who smoked regularly, whereas non-smokers reflected the non-smoking behaviour of their parents and friends.

THE PRESENT STUDY

This study was designed to find out more about children's smoking and to investigate some of the social factors which may predispose children to start smoking at an early age. These included smoking by parents, siblings, and friends. Some of the factors associated with smoking the first cigarette were studied, as well as the children's accounts of why children of their own age smoked or did not smoke, and their attitudes to smoking. Psychological factors, including the children's self-image and perception of a smoker, were explored but will not be reported here. As the children selected for the study were from a primary school population the memory of their first cigarette should not have been too remote for accurate recall. Previous studies by McKennell and Thomas (1967) and Carr (1963, 1965) had indicated that first experimentation by many children was between 9 and 11 years of age.

METHOD

In March 1971, 7,115 school children aged 10 to 11½ years, who were attending primary school in the Administrative County of Derbyshire, completed a self-administered questionnaire on their smoking habits and respiratory symptoms. The results of this part of the study have been reported elsewhere (Bewley, Halil, and Snaith, 1973). For this part of the study, a smoker was defined as someone who had reported smoking at least one cigarette per week. For the second part of the study, smokers were subdivided into heavy and light smokers. A heavy smoker was defined as someone who had reported smoking one or more cigarettes per day. A light smoker smoked less than one cigarette per day. An experimental smoker was someone who had ever puffed or smoked a cigarette. A non-smoker had never smoked.

A sample of 100 children, who had been identified as smokers in the first part of the study, was taken. All the 33 children (29 boys and 4 girls) who smoked more than one cigarette per day were first selected so that they could be analysed separately, and the remainder (67) were randomly selected from the other smokers. These 100 smokers were matched for sex, school class, and age (within six months) with 100 experimental smokers and 100 non-smokers. In July 1971, this sampled population completed a second, more detailed, self-administered questionnaire under the direction of one of the authors (B.R.B.) and two trained health visitors.

RESULTS

The analyses are based on the replies from 293 children (229 boys and 64 girls) who completed the questionnaires. The seven children who did not respond to the second questionnaire had left the area or were absent from school at the time of the study. The results showed that 62% of boys and 64% of girls were consistent in their replies about their smoking to both questionnaires. Table I shows the number of children who gave different replies to the two questionnaires. As the period between the first and second questionnaires was four months, this might account for some of the discrepancies. For the boys who were classified as heavy smokers, 45% were consistent in their replies to both questionnaires. For the light smokers, 37% were consistent in both questionnaires. Seventy-four per cent of boys who were experimental smokers were consistent in both replies, 14% had become smokers, and 12% reported that they were non-smokers. For the boys who were non-smokers, 73% were consistent, 26% had become experimental smokers, and 1% smokers.

When smokers and experimental smokers for both sexes were grouped together as children who had ever smoked, and compared with non-smokers, there was a high level of consistency. Ninety-four per cent of the boys who reported ever smoking in the first part of the study were consistent in their replies to both questionnaires. This consistency was true for 95% of the girls.

TABLE I
CONSISTENCY OF REPORTED SMOKING HABIT ON TWO OCCASIONS, MARCH AND JULY 1971

Stage II July	Stage I March	Smoker				Experimental Smoker		Non-smoker		Total	
		Heavy		Light		n	%	n	%	n	%
		n	%	n	%						
Boys											
Smoker	..	13	44.8	4	8.3	1	1.3	—	—	18	7.9
Heavy	13	44.8	4	8.3	1	1.3	—	—	18	7.9
Light	7	24.1	18	37.5	10	13.2	1	1.3	36	15.7
Not known	..	3	10.3	4	8.3	—	—	—	—	7	3.1
Experimental smoker	..	6	20.7	21	43.7	56	73.7	20	26.3	103	45.0
..	..	—	—	1	2.1	9	11.8	55	72.4	65	28.4
Non-smoker	..	—	—	—	—	—	—	—	—	—	—
Total	..	29	100	48	100	76	100	76	100	229	100
Girls											
Smoker	..	2	50.0	1	6.2	1	4.5	—	—	4	6.2
Heavy	2	50.0	1	6.2	1	4.5	—	—	4	6.2
Light	—	—	3	18.8	1	4.5	—	—	9	9.4
Not known	..	—	—	—	—	—	—	—	—	—	—
Experimental smoker	..	—	—	11	68.8	19	86.4	5	22.7	35	54.7
..	..	—	—	1	6.2	1	4.5	17	77.3	19	29.7
Non-smoker	..	—	—	—	—	—	—	—	—	—	—
Total	..	4	100	16	100	22	100	22	100	64	100

The number of girls in the sample was too small to allow definite conclusions to be drawn, and therefore the rest of this paper presents the results of the boys (229) only.

HOUSEHOLD SMOKING

Table II shows that 31% of all the boys studied came from households where there were two people who smoked. But significantly more boys who smoked came from households where three or more people smoked ($\chi^2 = 41.0$, $P < 0.001$). For the heavy smokers, 55% had three or more members of the household smoking compared with 23% of light smokers, 18% of boys from the experimental group, and 1% of non-smokers. It is interesting to note that none of the heavy smokers came from non-smoking households. There was a significant difference in the number of household smokers between heavy and light smokers ($\chi^2 = 11.1$, $P < 0.05$).

SMOKING BY PARENTS

As Table III shows, there was a significant association between the boys' smoking habits and those of their parents. Forty per cent of the non-smokers had non-smoking parents compared with 17% of the experimenters, 19% of the light smokers,

and none of the heavy smokers. Fifty-two per cent of heavy smokers had both parents smoking. The proportions among the light and experimental smokers were similar, being 46% and 47%, compared with only 26% among the non-smokers.

SMOKING BY BROTHERS AND SISTERS

Table IV shows a significant association between the boys' smoking and that of their siblings. Sixty-nine per cent of heavy smokers had a brother or sister smoking compared with 33%, 20%, 9% for light, experimental, and non-smokers respectively. The major influence for boy smokers is the brother who smokes and lives at home. Sixty-two per cent of heavy smokers had a brother smoking, compared with 5% of non-smokers.

Because of the possibility that family size may be the underlying cause of the relationship, the data for brothers was further analysed. Table IV also shows the smoking habit by those who had no brothers, those who had brothers who did not smoke, and those who had brothers of whom at least one smoked. There was no association with boys' smoking habit, comparing those having no brothers with those having brothers who did not smoke ($\chi^2 = 2.7$, $P > 0.05$). There was a highly significant association between the smoking of those

TABLE II
SMOKING HABIT OF BOYS RELATED TO NUMBER OF SMOKERS IN HOUSEHOLD

No. in Household Smoking	Smoker				Experimental Smoker		Non-smoker		Total	
	Heavy		Light		n	%	n	%	n	%
	n	%	n	%						
0	—	—	8	16.7	13	17.1	29	38.2	50	21.8
1	4	13.8	12	25.0	23	30.3	22	28.9	61	26.6
2	9	31.0	15	31.2	24	31.6	23	30.3	71	31.0
3+	16	55.2	11	22.9	14	18.4	1	1.3	42	18.4
Not known ..	—	—	2	4.2	2	2.6	1	1.3	5	2.2
Total	29	100	48	100	76	100	76	100	229	100

TABLE III
SMOKING HABIT OF BOYS RELATED TO SMOKING HABIT OF PARENTS

Parents' Smoking Habits	Smoker				Experimental Smoker		Non-smoker		Total	
	Heavy		Light		n	%	n	%	n	%
	n	%	n	%						
Both smoke ..	15	51.7	22	45.8	36	47.4	20	26.3	93	40.6
Father only ..	10	34.5	11	22.9	18	23.7	17	22.4	56	24.4
Mother only ..	4	13.8	4	8.3	8	10.5	8	10.5	24	10.5
Neither smoke ..	—	—	9	18.7	13	17.1	30	39.5	52	22.7
Not known ..	—	—	2	4.2	1	1.3	1	1.3	4	1.7
Total	29	100	48	100	76	100	76	100	229	100

TABLE IV
SMOKING HABIT OF BOYS RELATED TO SMOKING HABIT OF SIBLINGS

Smoking Habits of Siblings	Smoker				Experimental Smoker		Non-smoker		Total	
	Heavy		Light		n	%	n	%	n	%
	n	%	n	%						
Brothers only smoking	12	41.4	9	18.7	9	11.8	3	3.9	33	14.4
Sisters only smoking ..	2	6.9	2	4.2	2	2.6	3	3.9	9	3.9
Brothers and sisters smoking ..	6	20.7	5	10.4	4	5.3	1	1.3	16	7.0
None smoking ..	9	31.0	32	66.7	60	78.9	69	90.8	170	74.2
Not known ..	—	—	—	—	1	1.3	—	—	1	0.4
Total	29	100	48	100	76	100	76	100	229	100
No brothers ..	5	17.2	13	27.1	21	27.6	34	44.7	73	31.9
Brothers of whom none smoke ..	6	20.7	21	43.7	41	53.9	38	50.0	106	46.3
Brothers of whom some smoke ..	18	62.1	14	29.2	13	17.1	4	5.3	49	21.4

having brothers who did not smoke and those with brothers who smoked ($\chi^2 = 32.9$, $P < 0.001$). This suggests that the smoking habit of the siblings rather than the number is the more important factor associated with smoking. There was an insufficient number of sisters smoking to enable this analysis to be done.

SMOKING BY FRIENDS

As shown in Table V, friendships at school and outside were associated with smoking. Seventy-two per cent of heavy smokers reported having school friends who smoked, compared with 37% of non-smokers. However, one-third of the children did not know if their friends smoked.

FACTORS ASSOCIATED WITH THE FIRST CIGARETTE

Table VI shows where and with whom the boys (smokers and experimental smokers) smoked for the first time. There was no significant difference in age between both groups of smokers and experimental smokers, although it would appear that the smokers experimented with cigarettes earlier. Fifty-five per cent of boys stated that they had smoked their first cigarette with their friends. Twenty-five per cent first smoked at home; only one child in the study reported that he had smoked his first cigarette elsewhere—apart from home, school or a friend's house. The places were variously described as 'up a tree', 'in a tent', 'in a field', and 'coming home from school'. Seventy-two per cent of boys said they were

TABLE V
SMOKING HABIT OF BOYS RELATED TO SMOKING HABIT OF FRIENDS

Friends Smoking	Smoker				Experimental Smoker		Non-smoker		Total	
	Heavy		Light		n	%	n	%	n	%
	n	%	n	%						
School friends										
Most/Some friends smoke ..	21	72.4	28	58.4	35	46.1	28	36.8	112	48.9
None smoke ..	—	—	9	18.7	14	18.4	18	23.7	41	17.9
Not known ..	8	27.6	11	22.9	27	35.5	30	39.5	76	33.2
Friends outside school										
Most/Some friends smoke ..	19	65.5	32	66.7	41	53.9	25	32.9	117	51.1
None smoke ..	4	13.8	7	14.6	10	13.2	24	31.6	45	19.6
Not known ..	6	20.7	9	18.7	25	32.9	27	35.5	67	29.3
Total	29	100	48	100	76	100	76	100	229	100

School friends $\chi^2 = 11.4$; $P < 0.01$

Friends outside school $\chi^2 = 15.8$; $P < 0.001$

TABLE VI
FACTORS ASSOCIATED WITH THEIR FIRST CIGARETTE

	n	%
Company for the first cigarette		
Friends	85	55.5
Brother	13	8.5
Sister	2	1.3
Mother/Father	17	11.1
Alone	14	9.2
Other and not known	22	14.4
Total	153	100
Place of first cigarette		
Home	39	25.5
Friend's house	14	9.1
School	1	0.7
Elsewhere	82	53.6
Not known	17	11.1
Total	153	100
Source of first cigarette		
Given	111	72.5
Bought	16	10.5
Found/Taken	11	7.2
Not known	15	9.8
Total	153	100

given their first cigarette, 10% bought them, and 7% took them. Only two boys obtained their first cigarettes from a machine. All boys were asked their feelings about their first cigarette. Non-smokers were asked to say what they imagined they would feel. Table VII shows that 67% of the non-smokers expected to feel sick after their first cigarette. Twenty-one per cent of the heavy smokers, 40% of the light smokers, and 36% of the experimental smokers did in fact feel sick. Nineteen per cent of the smokers reported that they enjoyed their first cigarette and 27% felt nothing.

REASONS FOR AND AGAINST SMOKING

The children were asked why they thought people of their own age did or did not smoke. They were asked to choose as many reasons as they wished from a list. These results are shown in Table VIII. There were significant differences between the smokers and non-smokers for only two of the reasons given for smoking. More of the smokers than non-smokers

TABLE VII
FEELINGS ABOUT FIRST CIGARETTE

Feelings about First Cigarette	Smokers				Experimental Smokers		Expected Feelings by Non-smokers	
	Heavy		Light		n	%	n	%
	n	%	n	%				
Enjoyed it	8	27.6	11	22.9	10	13.2	2	2.6
Nothing	9	31.0	13	27.1	19	25.0	9	11.8
Sick	6	20.7	19	39.6	27	35.5	51	67.1
Disappointed	3	10.3	1	2.1	1	1.3	3	3.9
Sorry	1	3.4	2	4.2	16	21.0	10	13.2
Other feelings	2	6.9	2	4.2	3	3.9	1	1.3
Total	29	100	48	100	76	100	76	100

TABLE VIII
OPINION ON OTHER CHILDREN'S ATTITUDES TO SMOKING

Reasons for Smoking	Smoker		Experimental Smoker %	Non-smoker %	χ^2 χ^2_3
	Heavy %	Light %			
They like it	44.8	29.2	18.4	25.0	7.9 P<0.05
Because their friends smoke	31.0	31.2	42.1	31.6	2.6
To be grown up	27.6	22.9	32.9	36.8	2.9
They want to show off or look big	17.2	43.7	59.2	68.4	25.0 P<0.001
They are curious	3.4	8.3	6.6	7.9	*
They think it's relaxing	17.2	16.7	15.8	13.2	0.4
Reasons for not smoking					
They are worried about their health	65.5	64.6	56.6	61.8	1.4
Parents tell them not to	51.7	60.4	63.2	51.3	2.9
They would get into trouble if they did	41.4	58.3	57.9	51.3	3.1
It is a dirty habit	31.0	31.2	40.8	55.3	8.9 P<0.05
Other children they know do not smoke	20.7	14.6	15.8	9.2	2.7
It is a waste of time	24.1	37.5	36.8	32.9	1.9
It is expensive	24.1	43.7	52.6	50.0	7.4

* Expected values too small for χ^2 test

said that children smoke because they like it, but this is ambiguous as only 45% of even the heavy smokers thought this. The only clear difference was that 68% of the non-smokers thought children smoked to show off, compared with 17% of the heavy smokers. About a third of the children thought friends' smoking was a reason, and about the same number thought that children smoked to feel grown up. It is interesting that in the children's view curiosity is not important as a reason for smoking. This is contrary to adult opinion.

The children were asked why they thought children of their own age did not smoke. Both smokers and non-smokers stated that children of their own age did not smoke because of 'health worries' and 'parents' disapproval'. Over half the children said they would get into trouble if they smoked. The only significant difference between the non-smoker and smoker was that more non-smokers saw smoking as a dirty habit.

ATTITUDES TO SMOKING

Table IX shows the percentages of boys agreeing with a list of attitude statements. The statements which produced significant differences between the groups all showed a clear trend from heavy smoker to non-smoker.

Most of the children agreed that it was a bad idea for children to smoke, though only 69% of the heavy smokers thought so compared with 88% of

non-smokers. Thirty-four per cent of the heavy smokers thought that smoking was enjoyable, compared to 9% of the non-smokers. Fifty-five per cent of the heavy smokers thought smoking a waste of money, compared to 92% of the non-smokers. So even among those children smoking one or more cigarettes a day, the majority attitude seems to be that smoking is a bad idea, not enjoyable, and a waste of money.

Forty-five per cent of heavy smokers agreed that it was nice to smoke with friends, compared to 12% of the non-smokers. Fifty-nine per cent of the heavy smokers thought children smoked to show off, and 85% of the non-smokers agreed with this. Thirty-nine per cent of the boys thought that smoking makes you feel grown up, but there was no significant difference between the groups for this.

There were no statistically significant differences between the groups on attitudes to health or to parents. Fifty-five per cent of the children thought parents should not be angry if their children smoked. Eighty-five per cent of them agreed that smoking causes cancer, but 41% thought smoking was not harmful.

FUTURE INTENTION TO SMOKE

As seen in Table X, there was a significant association between smoking and the future intention to smoke ($\chi^2 = 38.4$, $P < 0.001$). Forty-five per cent of heavy and 40% of light smokers said they would

TABLE IX
PERSONAL ATTITUDES TO SMOKING

	Heavy Smoker	Light Smoker	Experimental Smoker	Non-smoker	Total	χ^2	
Bad idea for children to smoke ..	69.0	72.9	85.5	88.2	81.7	9.9	$P < 0.05$
Smoking is enjoyable ..	34.5	29.2	22.4	9.2	21.0	12.0	$P < 0.01$
Smoking is a waste of money ..	55.2	81.2	85.5	92.1	83.0	22.4	$P < 0.001$
Nice to smoke with friends ..	44.8	41.7	29.0	11.8	28.0	19.2	$P < 0.01$
Smoking makes you feel grown up ..	20.7	43.7	42.1	39.5	38.9	5.0	NS
Parents should not be angry if their children smoke ..	62.1	47.9	55.3	56.6	55.0	1.4	NS
Smoking causes cancer ..	75.9	87.5	85.5	86.8	85.1	1.0	NS
Smoking is not harmful ..	55.2	41.7	39.5	36.8	41.0	3.3	NS
People of my age smoke to show off ..	58.6	68.7	80.3	85.5	76.9	12.8	$P < 0.01$

TABLE X
FUTURE SMOKING BY SMOKING HABIT

Future Smoking	Smoker				Experimental Smoker		Non-smoker		Total	
	Heavy		Light		n	%	n	%	n	%
	n	%	n	%						
Yes	13	44.8	19	39.6	13	17.1	2	2.6	47	20.5
No	9	31.0	20	41.7	42	55.3	58	76.3	129	56.3
Don't know ..	7	24.1	9	18.7	21	27.6	16	21.1	53	23.1
Total	29	100	48	100	76	100	76	100	229	100

be smoking in the future compared with 3% of non-smokers. Twenty-three per cent of all boys stated that they did not know if they would become smokers and 56% said they would not be smoking in the future.

DISCUSSION

Many of the children were inconsistent in their reported smoking between the two questionnaires. There are two possible explanations for this: the children's smoking habits could have changed over the four months between the two questionnaires, or their smoking could be irregular. In view of the small amount actually smoked, and the consistency of replies when classified into those who had smoked and those who had not, we think that the second explanation is more likely. Because of this irregularity, our division of the children into four smoking categories is somewhat arbitrary, particularly between the light smokers and the experimental smokers. However, this system seems to give a reasonable picture of the smoking continuum.

Our results support those of O'Rourke and Wilson-Davis (1970) that boys are more likely to smoke when both parents or their father smoke. Unfortunately, in this study we have no information on the parents' social class, and it may be that this would have some effect on smoking and the home environment. There was an association between the boys' smoking and their brothers' smoking. It is interesting to note that 91% of the non-smoking boys had no brothers or sisters smoking. Our results suggest that when there are smokers living in the household a child is more likely to smoke. In this study there was only one non-smoker who came from a household where there were three or more smokers, compared with 55% and 23% of the heavy and light smokers respectively. This would suggest that cigarettes being available and smoking being acceptable are important in influencing children's smoking. The boys who were smokers reported that their friends, both inside and outside school, smoked. Over half the boys who had smoked reported smoking their first cigarette with their friends and 10% with their brother or sister. This suggests that an influence to start smoking may come from the peer group. Fifty-four per cent reported smoking their first cigarette away from home or school. In describing their feelings about their first cigarette, 32% of the boys who had smoked were sick while 21% of them said they enjoyed it. In contrast, 67% of the non-smokers expected to be sick and only 3% thought that they would enjoy their first cigarette.

The reasons why children smoke are complex. Pleasurable effects of smoking do not seem important. Even among the heavy smokers, the more common view was that smoking was not enjoyable and that children did not smoke because they liked it. In fact, the general attitude of the smokers to smoking seems confused and negative. The non-smokers, on the other hand, seem more definite in their attitudes to smoking. This seems to us to support the view that smoking begins as a response to social pressure.

Overall, 80% of boys and girls believed that smoking caused cancer, but many also believed that smoking was not harmful to health. This suggests that the cancer message has been transmitted to the children but its implications have not been fully understood.

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