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Fourth Follow-up, 1981

Working Paper
No 5

SMOKING PATTERNS

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NATIONAL CHILD DEVELOPMENT STUDY
FOURTH FOLLOW-UP.

WORKING PAPER NO. 5.

SMOKING PATTERNS.

Prepared for: DHSS (Sara Graham)

Revised, clean data version, prepared by Ken Fogelman.

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Background to Working Papers from the National Child Development Study

1. This Working Paper reports on the analysis of data relating to 12,538 23 year olds living in Great Britain who have been the subjects of a longitudinal study since their birth in 1958. The data were obtained by means of interview survey during late 1981 and early 1982. This wurvey and this Working Paper form part of the fourth follow-up of the National Child Development Study which is being sponsored by five Government departments - DHSS, DES, DE, MSC and DOE. Preparation for the survey began in May 1980 and the project is due for completion by December 1984

2. The National Child Development Study (NCDS) is a longitudinal study which takes as its subjects all those living in Great Britain who were born between 3 and 9 March 1958. Since the original birth survey in 1958 the National Children's Bureau has sought to monitor the social, economic, educational and health circumstances of the surviving subjects. To this end major surveys were carried out in 1965 (NCDS1), 1969 (NCDS2), 1974 (NCDS3) and 1981 (NCDS4). For the purposes of the first 3 surveys the birth cohort was augmented by including those new immigrants born in the relevant week and information was obtained with the active co-operation of parents, teachers and the schools' health service as well as members of the NCDS cohort. The 1981 survey differes in that no attempt was made to include new immigrants since 1974 and information was obtained from the subject only.

3. The target sample for the 1981 survey was a total of 16450 individuals - all those who had participated in NCDS1, NCDS2 or NCDS3, excluding those known to have emigrated or to have died. Following initial tracing by the Bureau details of names and addresses were passed to NOP Market Research Limited and Social and Community Planning Research who carried out further tracing and subsequent interviews. The 12538 interviews obtained represent 76 percent of the original target sample and 93 percent of those traced and contacted by interviewers.

4. The interview survey was carried out by NOP and SCPR between August 1981 and March 1982. Each interview took approximately 90 minutes and information was obtained on employment, unemployment and periods out of the labour force; apprenticeship and training; post-school education; marriage, cohabitation and children; housing and household; family income, savings, investment and inheritance; respondent reported health and health related behaviour; and voluntary activity and leisure.

5. Completed questionnaires were visually checked by NOP and SCPR and the data then transferred by them to computer. Following preliminary computer editing by NOP and SCPR more detailed checks have been carried out by NCB. The majority of open-ended questions were coded by SCPR using coding frames developed by NCB. All open-ended questions related to health states were coded by NCB.

Introduction

1. Between 1972 and 1978 surveys showed that the proportion of smokers in the adult population of Britain declined, which seems to be due to a reduction in the percentage of adults classified as light smokers. In fact there has been little change in the percentage of males smoking heavily, while the percentage of females smoking heavily has increased. Consistent with this, lung cancer deaths among women aged 45 and over have increased sharply (GHS, 1978). The implications for health are significant.

2. The Royal College of Physicians (1977) estimated in 1974 that 21,400 men and 3,750 women aged 35 to 64 died in Britain because of tobacco smoking. More recently Wald (1978) has estimated the figures to be closer to 95,000. Smokers place greater demands on health services than do non-smokers as, in addition to reducing their life expectancy, they are unduly likely to suffer from ill-health (RCP, 1977). Nor is the harm caused by smoking confined to smokers. Smoking during pregnancy can cause foetal damage and a relationship has been established between 'passive smoking' and lung cancer in non-smokers (Plant, 1981).

3. Smoking behaviour is influenced by a complex interplay of positive and negative factors which diminish and increase in significance at different stages (see Stepney, 1980). These are summarised below.

Positive factors (encouraging smoking)	Smoking patterns	Negative factors (discouraging smoking)
Parents, siblings, peers smoking	First cigarette	Side effects
Curiosity		
Symbolism of adulthood		
Social factors (social class etc)	Increased smoking	Fear of health consequences
Psychological arousal	Leading to regular smoking	Experience of health consequences
Mood control		
Physical addiction		

4. The National Child Development Study provides a unique opportunity to analyse this interplay longitudinally. The fourth sweep of the Study

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provides information on current smoking habits, demographic and situational factors influencing these habits. Preliminary data are presented here documenting smoking patterns at age 23 in relation to demographic data collected during the fourth sweep. Further analysed would provide the opportunity to study the relevant data longitudinally.

The survey

5. In view of the continuing concern over cigarette smoking a series of questions relating to smoking were put to NCDS respondents at age 23. Respondents were asked whether they had ever smoked, and with what frequency, and whether they smoked currently. Ex-smokers were asked how old they were when they last smoked and current smokers were asked how many cigarettes a day they currently smoked. Females were also asked about their smoking habits, and any changes in these, during their last pregnancy. Information was also sought about the smoking habits of others in the household.

6. The aim of longitudinal investigation, then would be to obtain information about the development of smoking and current smoking behaviour in the sample of 23 year olds. This could include the following:

a) Documentation of:
The prevalence of cigarette smoking and amount smoked.

b) Analysis of:
The development of smoking patterns.

c) The characteristics of current, ex-smokers and non-smokers.

d) The relationship between smoking and health.

e) The relationship between smoking behaviour and current and earlier measures of social background, educational attainment, socio-economic status, lesiure activities, and parents' smoking habits, and those of other people in the same household.

Current smokers

7. Forty percent of men and 38% of women reported that they currently smoked cigarettes at the time of the 23-year follow-up.

8. This is almost identical to the proportion who had said that they smoked at the time of the study of one in twenty sub-sample of the cohort at age 20. Almost as many, 36%, had said they were smoking at the time of the 16-year follow-up, although only 6% reported smoking a number approaching 10 per day.

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9. The separated, widowed and divorced of both sexes were most likely to smoke at age 23 (Table 1). Married men were somewhat more likely to smoke than single men, but there was little difference between married and single women.

Table 1 - Current cigarette smoking by sex and marital status

	Percentage currently smoking	Total (100%)
Females:		
Single	37	2542
Married	36	3412
Sep/Div/Wid	61	314
All females	38	6268
Males:		
Single	37	3942
Married	43	2177
Sep/Div	64	147
All males	40	6266

10. Ofthose who smoked, men were more likely to smoke tenor more a day than women. In fact,of the smokers, almost half of the men smokers smoked twenty or more cigarettes a day in comparison with two fifths of the women (Table 2).

Table 2 - Number of cigarettes smoked per day by sex and marital status

No of cigarettes smoked daily:		Female				Male				
		Single	Married	Sep/Div/ Wid	Total Fem's	Single	Married	Sep/Div	Total Males	Overall Total
None	%	63	64	39	62	63	57	36	60	61
1-9	%	9	7	6	7	6	5	3	5	7
10-19	%	14	16	24	16	13	16	24	14	15
20-29	%	12	12	25	12	14	17	24	15	14
30-39	%	2	2	4	2	3	4	8	3	2
40+	%	1	1	3	1	1	1	6	1	1
Total (100%)		2542	3412	314	6268	3942	2177	147	6266	12534

11. Table 2 also shows that separated, divorced and widowed people of both sexes were the heaviest smokers, whilst there was virtually no difference between the single and married.

12. The 1981 GHS showed that 19% of males and 13% of females aged 20-24 were classified as heavy smokers (smoking 20+ per day). These are similar to the proportions found among NCDS members at age 23 - the comparable figures being 17% and 15% respectively.

Ex-smokers

13. Thirty per cent of the sample, slightly more men than women, reported that, although they had at some stage smoked a cigarette, cigar or pipe, they did not currently smoke cigarettes (Table 3).

Table 3 - Smoking patterns by sex and marital status

	Female				Male				
Smoking habits:	Single	Married	Div/Sep/ Wid	Total Fem's	Single	Married	Div/Sep	Total Males	Overall Total
Never smoked %	36	34	20	34	31	25	17	29	31
Has smoked, not currently smoking %	26	29	18	28	31	32	18	32	30
Currently smoking %	37	36	61	38	37	43	64	40	39
Total(100%)	2542	3412	314	6268	3942	2177	147	6266	12534

14. However, only 34% of these ex-smokers had ever smoked cigarettes regularly (ie. at the rate of at least one cigarette a day for a period of 12 months or more) (Table 4).

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Table 4 - Regularity of cigarette smoking habit of ex-smokers by sex and marital status

	Female				Male				
	Single	Married	Sep/Div Wid	Total Fem's	Single	Married	Sep/Div	Total Males	Overall Total
Smoked cigarettes regularly* %	26	42	23	35	29	42	40	34	34
Did not smoke cigarettes regularly %	74	58	77	65	71	58	59	66	66
Total (100%)	646	951	56	1653	1203	685	26	1914	3567

* Regular = smoking at a rate of at least one cigarette per day for a period of 12 months or more.

15. There was no relationship between sex or marital status and the ages at which ex-smokers last smoked regularly. Twenty-five per cent of these women and 26 per cent of the men said they had last smoked between the ages of 20 and 23.

16. The GHS figures for 1981 show that the prevalence of cigarette smoking has continued to decline among men but not among women. Between 1978 and 1980 prevalence fell from 45% to 42% among men, but remained at 37% among women. Thus the sex difference in smoking had more than halved by 1980 compared with 1972, when 52% of men and 41% of women smoked cigarettes.

17. GHS figures show that the proportion of smokers fell among all age groups between 1972 and 1980. A particularly marked and consistent decline took place among men aged between 16 and 24, so that by 1980 there was little difference between the proportions of young men and women smoking (44% of men and 40% of women). This pattern is reflected in the proportions of NCDS survey members of both sexes at age 23 who smoke (40% of men and 38% of women). The slightly higher GHS figures probably reflect the broader age groupings included in the analyses (ages 16-24 in comparison with age 23 only of NCDS). The latest figures from the GHS on average weekly consumption per smoker suggest that the trend towards increased consumption has halted among men. In particular there was a marked fall in consumption among male smokers aged 20-24.

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Household composition and smoking habits of other members of the household

18. In terms of household composition generally, there was no relationship between smoking status and whether respondents lived alone or with others. Thre were also no differences between non and current smokers in whether they lived with a partner, child, or relative other than parent. But those who had never smoked were more likely to live with a parent, 39 per cent in comparison with 34 per centof ex-smokers and 32 per cent of current smokers. Also, current smokers were slightly more likely to be cohabiting, 14 per cent in comparison with 9 per cent of ex-smokers and 7 per cent of those who had never smoked. These associations possibly lend support to the theory of the less precocious life style of non-smokers (Russell, 1971).

19. Previous research suggests that starting to smoke is related to the influence of parents and peer groups and to the anticipation of adulthood (Mausner and Platt, 1971), Russell (1971) Bewley et al (1974). Teenagers whose parents and siblings smoke are more likely to smoke than other teenagers. Mausner and Platt found that the greatest influence in starting to smoke, however, came from friends of a similar age. This finding is supported by Bewley et al's longitudinal work (1974) with Derbyshire school children. Analyses of NCDS respondents' smoking patterns and their previous smoking habits (at age 16 - and 20 for feasibility study members), and also parents' smoking patterns, are possible with the longitudinal data set.

20. NCDS 4 respondents were asked whether other household members smoked. Previous research has shown that smokers tend to choose other smokers as friends and non-smokers choose non-smokers (McKennel and Thomas, 1967; Ferri and Fogelman, 1979).

21. In response to the question asking whether they lived with anyone who smoked cigarettes at home, 48% said 'yes' (men and women almost equally). Current smokers were far more likely than those who had never smoked or who were ex-smokers to live with someone who smoked at home. The proportions were 64%, 39% and 37% respectively. Of these, current smokers were also more likely than those who had never smoked or the ex-smokers to say this person was a spouse or partner than an 'other' person: 66% in comparison with 30% and 36% respectively.

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22. Single somen and single, separated and divorced men were most likely to live with a person who smoked at home (Table 5).

Table 5 - Respondents live with person who smokes at home by sex and marital status

Respondent lives with smoker	Female			Male		
	Single	Married	Sep/Div/ Wid	Single	Married	Sep/Div
Yes %	52	44	41	55	39	53
No %	39	56	49	37	61	25
Lives alone %	9	-	9	7	-	22
Total (100%)	2542	3411	314	3940	2177	147

23. Women who said they lived with someone who smoked at home were more likely to say the person was their spouse or partner, while for men the person was most likely to be someone other than a spouse or partner (Table 6).

Table 6 - Person other than the respondent who smokes at home by sex of respondent

Person who smokes at home is:	Female	Male	Total
Respondent's spouse/partner %	58	31	44
Other person %	42	69	56
Total (100%)	2927	3105	6032

24. Those who said their spouse or partner smoked were asked about these people's smoking habits. Table 7 shows that the most frequent response was that the spouse or partner smoked between 10-19 cigarettes per day. The table also show that where a spouse or partner smoked, women were more likely than men to live with someone who smoked 10 or

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more cigarettes a day, 80% in comparison with 73%, but the men generally are likely to smoke more than women. Women's partners were, on average, older than men's partners and so this finding may reflect the age different - older men being more likely to smoke than younger men - at least up to age 54 (Ashton & Stepney, 1982).

Table 7 - Spouse or partner's smoking habits by sex of respondent

Number of cigarettes smoked by spouse/ partner daily		Female	Male	Total
10	%	20	27	23
10 - 19	%	43	48	45
20 - 29	%	29	22	26
30 - 39	%	5	2	4
40 +	%	2	1	2
Uncertain	%	1	(2)	(17)
Total (100%)		1690	952	2642

Smoking in pregnancy

25. The 1298 women who had ever had a child and who said they had ever smoked were asked, in respect of their most recent pregnancy only, whether they had smoked in the 12 months before they become pregnant. Eighty-seven per cent said 'yes'. Sixty-two per cent of those said they had changed their smoking habits during pregnancy. Expressed as percentages of all women who smoked during pregnancy, 24 per cent had given up, 33 per cent had cut down, 5 per cent increased their smoking and the remainder had not changed their smoking habits (Table 8).

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Table 8 - Smoking patterns during most recent pregnancy

Smoking patterns during pregnancy	Of women who had ever smoked and had had a child
Gave up smoking %	21
Cut down somking %	29
Increased smoking %	4
Smoked same amount as before %	33
Did not smoke at all %	13
Total (100%)	1298

26. Previous NCDS research has shown that maternal smoking after the fourth month of pregnancy may have harmful effects on the health of the baby. Table 9 shows that just over half of those mothers who changed their smoking habits did so within the first two months of their pregnancy and 85 per cent changed within the first four months. No differences between marital status groups were found.

Table 9 - Month of pregnancy during which mothers changed their smoking habits

Month of pregnancy:	Percentage changing smoking habits
One	24
Two	30
Three	22
Four	9
Five	5
Six	5
Seven	2
Eight	1
Nine	1
Uncertain	1
Total (of those changing smoking habits)(100%)	693

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Smokers and health

27. The relationship between cigarette smoking and mortality and morbidity is well established (RCP, 1971). In addition, Colley et al (1973) and Kiernan et al (1976) have found a relationship between smoking habits and respiratory symptoms among the cohort of people born in 1946.

28. In response to the question asking NCDS survey members to rate their health status, current smokers were far less likely than ex-smokers or those who had never smoked to rate their health as 'excellent' and more likely to rate it as 'good' or 'fair' (Table 10).

Table 10 - Smoking by self-rated health status

Health status		Never smoked	Ex-smoker	Current smoker
Excellent	%	51	49	37
Good	%	42	44	49
Fair	%	6	6	13
Poor	%	1	1	1
Total (100%)		3861	3565	5101

29. Also men and women who smoked more heavily were less likely to rate their health as 'excellent' or 'good' and more likely to rate it as 'fair' or 'poor'.

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Table 11 - Number of cigarettes smoked daily by health status and sex

Health status:		No of cigarettes smoked: 1 - 9 F	1 - 9 M	10-19 F	10-19 M	20-29 F	20-29 M	30-39 F	30-39 M	40+ F	40+ M
Excellent	%	37	43	38	40	30	40	19	32	17	29
Good	%	50	45	49	48	52	50	47	50	38	43
Fair	%	12	10	12	11	17	10	29	17	31	22
Poor	%	1	2	1	1	1	*	5	2	14	6
Total (100%)		468	336	976	892	783	964	106	200	42	90

* Less than 1%

30. Current smokers were more likely to have respiratory symptoms as Table 12 shows. Similarly marked differences were found in the NCDS feasibility study at age 20. No differences, however, were found between smokers and ex or non-smokers with asthma and bronchitis.

Table 12 - Smoking by respiratory symptoms

Respiratory symptom:		Never smoked	Ex-smoker	Current smoker
Cough first thing in the morning (in winter)	%	4	4	20
Cough during day or night in winter	%	4	4	15
Phlegm first thing in morning in winter	%	4	4	14
Phlegm during day or night in winter	%	4	4	10
Total (100%)		3849*	3560**	5085***

* Totals varied between 3849 and 3859
** Totals varied between 3560 and 3564
*** Totals varied between 5085 and 5100

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Smoking and anxiety

31. Smokers often give the reason for smoking as allieviating anxiety (Frith, 1971, Ferri and Fogelman, 1979) in stressful situations in addition to social pressures (eg when drinking) and offsetting boredom (Emery et al, 1968). Little is known, however, about people's smoking habits under non-laboratory conditions of high and low stress.

32. Table 13 shows those malaise items* which were related to number of cigarettes smoked daily (the relationship reached statistical significance for women only). These tend to support the hypothesis that heavy smoking is related to feelings of stress. Further analyses with malaise items in relation to current smokers and ex and non-smokers are required.

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* The Malaise Inventory is a 24 item inventory, based on the Cornell Medical Index, attempting to measure a tendency towards depression.

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Table 13 - Malaise index items and smoking

Malaise items		Number of cigarettes smoked daily									
		1 - 9		10 - 19		20 - 29		30 - 39		40 +	
		F	M	F	M	F	M	F	M	F	M
Feel tired most of time	%	23	13	27	13	31	14	42	24	51	24
Often miserable or depressed	%	22	12	23	14	30	12	37	13	67	24
Usually great difficulty sleeping	%	14	13	13	14	19	13	27	13	45	12
Usually wake unnecessarily early	%	17	16	16	19	21	17	26	26	48	23
Often suddenly become scared	%	13	3	16	5	18	5	29	6	38	7
Scared to go out alone etc	%	13	2	12	4	15	3	15	4	38	4
Constantly keyed up and jittery	%	5	5	5	5	7	4	15	4	33	8
Poor appetite	%	4	4	8	6	10	5	13	9	19	4
Things get on nerves	%	4	2	4	2	5	2	13	3	21	2
TOTAL* (100%)		465	333	973	891	778	960	106	198	41	90

* Total figures vary by between 1 and 3 for each item. The totals shown are the lowest.

33. Women who were current smokers were more likely to rate themselves as having a tendency towards depression (ie a score of 7+) than women who were ex-smokers and those who had never smoked. The proportions were 21%, 13% and 11% respectively. A similar trend was found among men (but with lower proportions scoring 7+) with the respective proportions being 10%, 4% and 3%.

34. In further support of the previous hypothesis, Table 14 shows that those scoring depressed on the Malaise index smoked far more than other smokers, with "depressed" men being heavier smokers than "depressed" women.

Table 14 - Malaise by smoking by sex

No of cigarettes smoked daily:	Malaise Index Score 'Normal' (0-6)		'Depressed' (7-24)	
	F	M	F	M
1 - 9 %	21	14	13	11
10 - 19 %	42	36	36	38
20 - 29 %	32	40	38	31
30 - 39 %	4	8	7	12
40 + %	1	3	6	7
Total (100%)	1908	2289	469	193

Smoking and risk-taking

35. Personality factors are also of significance and have been found to predate the onset of smoking (Cherry and Kiernan, 1976). Mausner and Platt further cite evidence that children who begin to smoke 'are more rebellious than non-smokers, have poor relations with authority figures, date frequently, drive early and use alcohol, and they tend to have accidents when they drive'. Russell (1971) contrasts the more active social life of the smoker with the more home centre, less precocious non-smoker. It seems, then, that those who smoke are also more likely to indulge in other risk taking behaviours.

36. Williams (1973) found that smoking was positively associated with risk taking among American students, and also with impulsivity in boys. Smokers were also found to use car seat belts significantly less than

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non-smokers (Eiser et al, 1977). Eysenck and Eaves (1980)'s findings on personality and smoking lend support to this although there is some serious doubt over the validity of their measures (Ashton and Stepney 1982).

37. It may thus be hypothesised that smokers, in view of their risk taking behaviour, would have more accidents. This is supported by the NCDS 4 data.

38. Smokers were more likely to have had an accident involving hospital attendance since the age of 16, 49 per cent in comparison with 44 per cent of ex-smokers and 38 per cent of those who had never smoked.

39. Table 15 shows that for both men and women the current smokers were more likely to have experienced more accidents than other respondents.

Table 15 - Current smoking status by number of accidents and sex

No of accidents:	Smoking status: Never smoked Female	Never smoked Male	Current smoker Female	Current smoker Male	Ex-smoker Female	Ex-smoker Male
None %	78	44	70	32	73	41
One %	17	29	20	27	20	26
Two - five %	5	24	9	35	6	30
Six or more %	(3)*	3	(10)*	5	(7)*	3
Total (100%)	2087	1773	2526	2577	1652	1912

* Less than 1% so actual numbers given in brackets.

40. Those who had most accidents were also more likely to be heavy rather than light smokers (Table 16).

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Table 16 - Accidents by smoking by sex

No. of cigarettes smoked daily:	Number of accidents: None Female	None Male	One Female	One Male	Two or More Female	Two or More Male
1 - 9 %	19	16	25	14	16	11
10 - 19 %	42	37	40	37	39	35
20 - 29 %	33	36	31	39	34	41
30 - 39 %	4	8	3	7	8	8
40 +	2	3	1	3	3	5
Total (100%)	1664	789	477	677	236	1018

Smoking and drinking

41. The association between drinking and smoking has been well documented (Ashton and Stepney, 1982).

42. Among NCDS respondents current smokers were more likely to drink alcohol on most days - 24 per cent in comparison with 21 per cent of ex-smokers and 15 per cent of those who had never smoked.

43. Further analyses are desirable looking at quantity smoked and drunk by sex of respondent.

44. Although smoking has been said to counter some of the performance impairment due to alcohol intoxication, research has shown that alcohol and tobacco combined lead to a faster heart rate, higher blood pressure, more adrenaline excretion and to individuals being less steady on their feet, having more hand tremor and higher ratings of subjective intoxication (Myrsten & Anderson, 1975). It is expected from this that those who smoke and drink might have more accidents. Further analyses are required looking at smoking and drinking (in terms of quantity) and accident proneness by sex of respondent.

Smoking and educational achievement

45. Previous research has found that smokers tend to be under achievers at school (Beulay et al, 1974). It has been suggested that they compensate for low academic status by increasing their perceived adult status via smoking.

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46. The feasibility study of NCDS members at age 20 found that current smokers at age 20 had had more time off school at 16 than non or ex-smokers which may partly explain their lower academic achievement. Little different was found among the smoking groups at age 20 in reasons for school absence.

47. More of those who had never smoked by age 20 said, in reply to a direct question, that they wished to continue with their further education than did smokers or ex-smokers. Those who smoked at 20 also had lower scores on verbal and non-verbal tests applied at age 11. These analyses can be repeated with the 23 year olds.

48. At age 23, fewer of the smokers than of ex-smokers or those who had never smoked passed any 'O' levels: 49 per cent, 69 per cent and 70 per cent respectively.

49. Among those with 'O' levels, the relationship between social class and smoking was clear. The non-manual groups containing fewer current smokers than the manual groups. Not only were more of those in non-manual occupations likely never to have smoked at all, but these groups also included the greatest proportions of ex-smokers (Table 17).

Table 17 - Smoking, social class and education ('O' levels)

a) People with at least one 'O' level

Current smoking status		Social class: Never worked	I	II	III NM	III M	IV NM	IV M	V
Never smoked	%	43	46	32	36	30	44	27	24
Current smoker	%	24	19	34	32	41	25	49	55
Ex-smoker	%	33	36	34	32	30	31	25	21
Total(100%)		1663	253	1376	2829	1024	32	542	105

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b) People with no 'O' levels

Current smoking status		Never worked	I*	II	Social Class III NM	III N	IV NM	IV M	V
Never smoked	%	36	(1)	20	27	22	20	19	19
Current smoker	%	44	(2)	58	49	53	71	59	63
Ex-smoker	%	21	(4)	22	24	25	10	22	18
Total(100%)		743	7	279	840	1425	41	1156	299

* Actual numbers given in brackets. Percentages not calculated due to small base number.

50. On the other hand, among those who had no 'O' levels passes, there were disproportionate numbers of middle-class smokers with, for example, no difference in the proportions currently smoking between social classes II and IVM.

51. It would appear that the development of smoking habits is related to educational achievement independently of social class, and further analysis would be able to confirm this point with more certainty.

Smoking and class

52. While the sex difference in smoking has become less pronounced, a difference according to social class has developed. Social class I has the smallest proportion of smokers and social class V has the largest (Capell, 1978).

53. There has been increasing inverse relationship between social class and smoking patterns up to 1978 and then a levelling off, and an increase in the numbers of cigarettes smoked by each smoker. There was apparently little class difference in 1948/ In 1961 social class differences appeared small - 53% of men and 46% of women in social class I smoked compared with 62% of men and 43% of women in social class V. By 1975 there were marked differences - only 29% of both men and women in social class I were still smoking, compared with 57% of men and 48% of women in social class V (Townsend, 1978). GHS figures for 1980 confirm the association between cigarette smoking and socio-economic group, consumption being highest in the manual groups.

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54. In terms of changes in smoking habits, there has been a marked decrease in the numbers of men and women in social class I who smoke, but less of a change in the overall number of women and the number of men from social classes IV and V who smoke (GHS 1982). The trends among NCDS respondents can be analysed when the longitudinal data are available.

55. Because of differential rates of decline in prevalence between social class groups and the faster decline in prevalence among men than among women, by 1980 only slightly higher proportions of men than of women in the non-manual groups were cigarette smokers. In the manual groups however, the sex differences persisted.

56. The results from NCDS 4 reflect those of the GHS (1982). Table 18 shows that respondents in social classes III manual, IV manual and non-manual and V (unskilled) were more likely than respondents in higher social classes to be current smokers. They were also likely to be ex-smokers (as well as non-smokers). Almost half, 45%, of respondents in social class I had never smoked in comparison with about a quarter in the manual groups. Again, less than a fifth of those in social class I were current smokers in comparison to around half of those in the manual classes.

Table 18 - Smoking by social class

		Social Class						
Current smoking status		I	II	III NM	III M	IV NM	IV M	V
Never smoked	%	45	30	34	25	30	21	20
Current smoker	%	19	38	26	48	51	56	61
Ex-smoker	%	36	32	30	27	19	23	19
Total(100%)		260	1658	3372	2453	73	1699	407

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57. Little difference was found between men and women in social class I who had never smoked, although women in social class II and, to a lesser extent III, were more likely than men in those classes to have never smoked (Table 19). The difference between men and women in social class IV rose again - with more women than men never having smoked - but the trend was reversed for those in social class V. The trend was more consistent among women, the proportion of current smokers progressing from 23% of those in social class I up to 61% of those in social class V. The pattern for men was slightly less consistent with 18% of those in social class I being current smokers rising to 69% in social class IV non-manual and dropping again to 61% for those in social class V unskilled.

Table 19 - Smoking, social class and sex

a) Female		Social Class						
Current smoking status		I	II	III NM	III M	IV NM	IV M	V
Never smoked	%	42	32	34	28	33	23	18
Current smoker	%	23	30	37	51	46	57	61
Ex-smoker	%	35	38	29	21	21	21	21
Total (100%)		60	881	2533	466	57	922	100

b) Male		Social Class						
Current smoking status		I	II	III NM	III M	IV NM	IV M	V
Never smoked	%	46	27	33	24	19	20	21
Current smoker	%	18	35	33	47	69	54	61
Ex-smoker	%	36	38	34	29	13	26	18
Total (100%)		200	777	839	1986	16	777	307

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58. Looking more closely at the differences between the sexes, fewer men than women in each social class grouping except II and IV non-manual were current smokers. The difference, and change of direction, was particularly marked between the sexes in this last social class; 69% of men in social class IV non-manual were smokers in comparison with 46% of women in this class. However the numbers in social class IVNM were extremely small.

Smoking and occupation

59. Certain occupational categories - construction workers, labourers and transport and communication workers - have the highest per capita consumption of cigarettes and professional, technical and clerical workers have the lowest (Lee, 1976). In particular, concern has been expressed about the high rate of smoking among nurses which presents problems for nurses acting in a health education role (Spencer, 1982).

60. Nurses form a particularly large group of NHS employees and members of the public are more likely to encounter them than other NHS employees. A nurse who smokes may be transmitting the message to the public that it is acceptable, rather than harmful, to smoke. Nurses who smoke may also see it as irrational to suggest that patients give up smoking, and so fail in their potentially significant role of health education.

61. However, the "problem" of nurses' smoking behaviour has been derived by comparing them with doctors, and doctors are within a social class grouping (I) less likely to smoke anyway; but nurses are members of social class II and are a 'semi profession' (see Spencer, 1982). The high rates of smoking behaviour for nurses may be related to their sex - what is needed is a study of nursing in comparison with other occupations but controlling for sex. Female nurses should be compared with other females. Spencer, on the basis of GHS figures for 1978 has shown that nurses smoking rates were just above the average for the year analysed. The occupational label of nurses also covers a large and diffuse section of employees. Nursing auxiliaries have no qualification and tend to come from low social class background as to State Enrolled Nurses who do not need academic qualifications. However, State Registered Nurses come from more middle-class backgrounds and are required to possess atleast four 'O' levels before acceptance into a training school and some teaching hospitals insist on one 'A' level. Thus it is not methodologically sound to group very different segments of the population into one category and compare them blindly withother occupations. With NCDS 4 we have the opportunity to add to the still limited body of knowledge on smoking and occupation, including nursing, when the occupation data are available.

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Smoking and economic status

62. More current somkers than ex-smokers or those who have never smoked were currently unemployed or in housework (Table 20). One theory attempting to explain a proportion of smoking behaviour is that smoking alleviates boredom (Asheton & Stepney, op cit). This may be partly supported here.

Table 20 - Smoking by economic status

		smoking status		
		Never smoked	Ex-smoker	Current smoker
In employment	%	76	78	68
Full time employment	%	3	3	2
Unemployed	%	7	7	13
Economically inactive	%	13	12	17
Total (100%)		3852	3554	5089

6.3. Table 21 shows that, although in most groupings people were most likely to smoke between 10-29 daily, women in full-time education smoked less (mostly between 1-19 daily), and among men in full-time education their smoking consumption was generally evenly divided between the lightest three groupings.

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Table 21 - Amount smoked by economic status and sex

No of cigarettes smoked daily		Economic status							
		In employment		Full-time education		Unemployed		Economically inactive	
		F	M	F	M	F	M	F	M
1 - 9	%	22	13	38	39	14	11	16	16
10 - 19	%	41	34	29	27	42	43	41	41
20 - 29	%	31	40	29	22	38	39	36	31
30 - 39	%	4	9	4	2	3	5	5	4
40 +	%	2	4	-	-	3	2	2	8
TOTAL (100%)		1356	1942	24	59	5	7	785	49

64. Although further analyses controlling for social class are required, these findings appear to confirm the earlier relationship between education (in terms of 'O' levels) and smoking habits.

65. More smokers than ex-smokers or those who had never smoked had ever been unemployed; 52 per cent, 40 per cent and 40 per cent respectively. The current smokers also had more periods of unemployment (see Table 22), although no clear pattern emerged with length of spells of unemployment.

Table 22 - Smoking by number of periods of unemployment

No. of periods of unemployment since leaving school		Never smoked	Ex-smokers	Current smokers
One	%	65	63	52
Two	%	22	23	24
Three or more	%	13	14	24
Total (100%)		1522	1431	2641

66. Among those who had ever been unemployed, current smokers were more likely to have had three or more periods of unemployment since leaving school. Although social class and education have yet to be controlled for, these findings may also be partly explained by the 'boredom' theory. More light would be thrown on this if type of occupation is analysed in relation to smoking (are people in less active and demanding occupations more likely to smoke?). On the other hand, such situations may be stressful and stress theories may be more appropriate.

67. On the other hand, those current smokers who were employed were more likely to work longer hours (see Table 23). This is difficult to interpret without figures relating to type of work done. Possibly a stress theory may be relevant-longer working hours can be more stressful and may induce people to smoke (Ashton and Stepney op cit).

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Table 23 - Smoking by hours of work

Current job: Hours of work:		smoking status: Never smoked	Ex-smoker	Current smoker
Less than 35	%	9	8	9
35 to 40	%	65	62	55
41 to 60	%	20	23	27
61 +	%	6	7	9
Total (100%)		2948	2801	3474

68. Unexpectedly, however, there was no difference between smokers and ex and non-smokers in relation to working unsocial hours. Most in each of the three groups - around 60% - worked no unsocial hours. This weakens one theory proffered to explain nurses' high smoking rates - that they smoke more because of the stress, not only of the nature of the work, but of shift work.

Possible future analyses

69. Future cross-sectional - and longitudinal - analyses of smoking could include area of residence and income. Within England and Wales the prevalence of cigarette smoking has been found by other researchers to be greater in the non-metropolitan conurbations than in London, but greater in London than in rural areas (Lee, 1976).

70. Details about smoking behaviour are available for NCDS members at age 16, and for a sub-group at 20. Information from the 16 and 20 year old studies show that two thirds of current smokers at age 20 were already smoking at 16. Analyses will be possible to document the 'smoking histories' of cohort members during these periods. Future analyses will be of particular interest in looking at the non-smokers at ages 16 and 20 - have any of them taken up smoking by age 23?

71. At age 20, current smokers were asked about their cigarette smoking patterns at ages 15 and 17. The great majority of these were 'light smokers' at age 15, with males smoking more than females. By 17 their average number of cigarettes smoked per day had almost doubled and the sex difference remained. Just over half the group were in the 'light' smoking category and 10% were 'heavy' smokers. Looking at changes in behaviour very few of those who smoked

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at age 20 smoked fewer cigarettes at 17 than at 15. The great majority smoked more. Between 17 and 20, however, the overall proportion who smoked more at the later age (55%) was smaller than had been the case at 15 and 17)73%). This appears to further confirm that the years up to age 17 appear to be those in which regular smoking is established and the number of cigarettes smoked increases most rapidly. But what about patterns between the ages 20 and 23? Longitudinal analyses will be able to examine whether this pattern remains firmly established.

72. At age 20 the one in twenty sub-sample contacted . were asked about their reasons for smoking. Most, 68% mentioned enjoyment (65% males and 71% females), 37% mentioned 'smoking calms me down' (males and females almost equally), 26% said they could not stop (29% males and 23% females) and 10% said their friends smoke (males and females almost equally).

73. When asked which was the most important reason, enjoyment was still the most frequently mentioned (45% males, 53% females), but 'can't stop' was the next most common reason among both sexes equally.

74. As might be expected, 'enjoyment' was then the most common important reason for smoking given by 'light smokers' and 'can't stop' among 'medium' and 'heavy' smokers.

75. Analyses with the longitudinal data would provide information about how the smoking habits of these respondents at age 23 related to their attitudes expressed at age 20.

76. At age 20 respondents were asked whether they wanted and intended to stop smoking. The majority, 64% wanted to stop withmen outnumbering women with this attitude (70%:60%). Among those, almost half felt that they were unable to do so. The proportions wanting to give up were evenly divided among 'light', 'medium', and 'heavy' smoking groups. However, only 11% of the 'heavy' smokers felt they could give up compared with 39% and 38% of the 'medium' and 'light' smokers respectively.

77. Longitudinal analyses would show how many of those 20 year olds had changed their smoking habits by age 23.

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78. At age 20 the ex-smokers gave 'I thought smoking was bad for my health' as the most frequent reason for giving up smoking (by 79%), followed by 'smoking costs too much' (60%). The smoking patterns (also in relation to income and health status and problems) of those groups in relation to the others can be analysed at age 23 to examine whether they had continued not to smoke.

79. At age 20 the feasibility study respondents were asked to indicate whether they felt that 16 statements concerning the efforts of regular smoking were true or false. All but three of the statements described some adverse effect (eg 'regular smoking can cause lung cancer').

80. With the exception of 'give people a cough' a higher proportion of non-smokers indicated that they considered the statements describing adverse effects of smoking were true. These results have been written up fully by Ferri and Fogelman (1979). The smoking habits of NCDS 4 members can be related back to their attitudes towards smoking at age 20 (in the case of those included in the feasibility study).

81. At age 20 just over half the smokers and non-smokers claimed they had been influenced in some way by health education propoganda regarding the dangers of smoking. The smoking behaviour of these people at age 23 can be analysed in order to detect whether the influence of health education might have had any longer term effect.

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