BRITISH SOLDIERS' SMOKING HABITS

A five year follow-up study

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SUMMARY: As part of a prospective study, 2,582 young soldiers aged twenty to twenty-three years were questioned on their smoking habits. The survey was undertaken in 1964, five years after the first investigation of the same subjects while members of army junior leaders regiments and apprentice units.

Of the soldiers 75 per cent were regular smokers and 94 per cent of the regular smokers were exclusive smokers of cigarettes. More than two-thirds of the cigarette smokers consumed more than 20 a day and more than a quarter smoked more than 25 a day. Both the proportion of regular smokers and the numbers of cigarettes smoked are in excess of the national average. No evidence could be found to suggest a decrease in smoking akin to that reported for similar age groups in the United Kingdom as a whole during the period 1961 to 1965.

The existence of a causal relationship between smoking and chest disease was denied by 36 per cent of the cigarette smokers. The proportion was highest among those who smoked most. More than one-third of the cigarette smokers intended to reduce their smoking. The implications of this intention and the unlikely possibility of its fulfilment are discussed in relation to attitudes and beliefs.

Introduction

The Army Medical Services, concerned with the now well recognised connection between smoking and health, have set up a number of research studies to elucidate the relationship and its particular application to the military community. One such study was started in 1959 to assess and follow the smoking habits of young men joining the army as boy entrants. The results of the initial investigation were reported in an earlier paper (Richards and Crowdy, 1961), which described the smoking habits of 4,052 young soldiers aged fifteen to eighteen years. The study originally planned for a single follow-up survey of the same population five years after the first. At that time the main purpose of the study was an appreciation of the changes in smoking habits of a young population, and it was considered that a repeat survey after five years and comparison with the original results must be the basic requirement; firstly, because memory being but a poor guide to the habits of even a few years before, a reliable smoking history can be established only by repeated questioning of the group under study; secondly, because the Medical Services needed information on the results of the anti-smoking propaganda campaign mounted during these years.

It was, however, early appreciated that with the availability of the sickness experience of all these subjects, it would be possible to expand the purpose of the study to examine directly the morbidity experience related to smoking habits. For this purpose, again,

repetition of the survey at regular five yearly intervals is an essential part of the necessary information. This paper presents the results of the first five year follow-up survey, purely in respect of the smoking habits, since more time is needed before any sickness can be reliably examined.

Procedure

In November 1964, exactly five years after the first survey, questionnaires were sent to 3,171 of the 4,052 originally questioned. The difference between the two figures represents those who had, for one reason or another, left the Army in the five year period since November 1959. When first questioned all the boys were in apprentice schools or junior leaders regiments. In 1964, the 3,171 still serving were scattered all over the world. Questionnaires were sent by post to each individual and 2,582 replies were received representing 81 per cent of the available population and 64 per cent of those originally questioned. The 1964 questionnaires asked for particulars of past and present habits, and also enquired about current attitudes and intentions.

Results

Loss of subjects during period of survey

It is necessary in the first place to establish that in terms of smoking habits the subjects remaining in the second survey can be reasonably regarded as being randomly drawn from those included in the first; i.e., there has been no bias introduced as a result of the wastage of subjects in the five year period. Table I shows that there is a difference

Table I
Numbers retained in five year follow-up

1959		1964		
Age Nov 59	No. questioned	Age Nov 64	No. questioned	Per cent retained
15	776	20	444	57
16	1,518	21	965	64
17	1,374	22	892	65
18	384	23	281	73
15—18	4,052	20—23	2,582	64

between the percentage of each age group contributing to the wastage, but this can be explained in terms of the expected wastage experience of boy entrants. What is important is that the 1964 sample has retained almost unaltered the smoking characteristics of the original. This is shown in Table II by re-analysis of the 1959 answers. There has been a

Table II
Comparison between the 1959 habits of the original population
and the 1964 sample

	No. questioned	Non- smokers %	Weekly smoking habits in 1959		
			Less than 10 %	10—19 %	20 and more %
1959 Whole group	4,052	27.5	8.1	10.5	53.9
1964 Portion of 1959 total	2,582	29.6	7.6	10.0	52.8

slight, but not significant, tendency for a higher proportion of 1959 smokers to remain in the survey.

Regular smokers, past and present

Using the definition of a regular smoker as one who has at any time smoked regularly one or more cigarettes a day (or $\frac{1}{4}$ oz or more pipe tobacco per week) 83.4 per cent of the group were classified as having been smokers at some time and 75.0 per cent smoking at the time of questioning. In Table III the past and present habits are classified

Table III
Past and present regular smokers by age

Age (Nov 64)	One time regular smokers %	Present smokers		Total in group (=100%)
		All forms %	Cigarettes only %	
20	79.7	73.4	70.3	444
21	84.9	76.4	72.3	965
22	83.1	73.9	69.3	892
23	85.1	76.2	69.4	281
Aggregate	83.4	75.0	70.6	2,582

by age. There is remarkably little difference between the age groups, which suggests that the adult pattern is fully established by the age of twenty.

Cigarette smokers

Most emphasis in relating smoking habits to subsequent morbidity or mortality focuses on cigarette smoking. For this reason the soldiers were questioned specifically about numbers smoked, being asked to state how many were usually smoked each day. No distinction was made between types of cigarette and so the answers may be construed to include both manufactured and hand-rolled cigarettes. From Table III it can be seen that 70.6 per cent of all the men were cigarette smokers, compared with only 4.4 per cent smoking a pipe or a combination of pipe and cigarettes. Cigarette smokers comprised 94.2 per cent of the smoking population. The subsequent analysis excludes the small number of cigarette smokers who are also pipe smokers and therefore slightly underestimates the true extent of cigarette smoking.

It is, however, of interest to examine the cigarette smokers by age to show the proportion these bear to all present smokers and to all who at one time or another were regular smokers in their age group. These figures are shown in Table IV. From these it would appear as if there were some tendency for those who smoke cigarettes, considered as a proportion of those who have been regular smokers at some time in their life, to decrease with age; also that there might be a slight shift from cigarettes to other forms of smoking, presumably a pipe. Whilst the trend as shown by these figures is not statistically significant, it indicates a change which would be of some importance in relation to the propaganda campaign, and which, if its continuance were shown to be maintained in future surveys which it is planned to carry out, would give a positive indication of the fruits of this campaign.

Table IV
Present regular cigarette smokers, by age

Age	Cigarette smokers as percentage of		Total in group (= 100%)
	All present smokers	One time regular smokers	
20	96.0	88.5	444
21	94.6	85.2	965
22	93.8	83.4	892
23	91.1	81.6	281
Aggregate	94.2	84.7	2,582

Numbers of cigarettes consumed

In Table V are displayed the percentage of each group of cigarette smokers, by age,

Table V
Habits of regular cigarette smokers

Age (Nov 64)	Cigarettes smoked per day			No. of cigarette smokers (= 100%)
	Less than 10 %	10—19 %	20 and more %	
20	3.8	27.2	69.0	313
21	5.3	28.4	66.0	698
22	3.1	28.6	68.3	618
23	5.1	29.2	65.7	195
Aggregate	4.3	28.2	67.5	1,824

falling into the selected categories of daily consumption. Two features of interest emerge; firstly, the very small variation produced by age reinforces the earlier suggestion that adult habits are fully and firmly established by the age of twenty; secondly, attention is drawn to the minute proportion who smoke less than 10 cigarettes daily. The majority—over two-thirds of all the cigarette smokers—consume 20 or more daily. What little change there is suggests a decrease in the number of heavier smokers at the expense of those smoking less, particularly leading to an increase in the group smoking 10 to 19 per day. This again is not established at any statistically significant level.

Difference between type of entrant

In the 1959 report a distinction was drawn between boys in junior leaders regiments and those in apprentice units, the two kinds of establishments being likened, in terms of academic and intellectual attainment, to secondary modern and grammar schools respectively. It was shown that more boys smoked more cigarettes and from an earlier age in the junior leaders regiments than in the apprentice units. It is now interesting to note from Table VI that grouping the 1964 subjects according to their type of school in 1959, a significant difference in smoking habits, according to the type of school, is established comparable with that shown in the original 1959 survey. As a particular example the experience of the Infantry, as part of the ex-junior soldiers group, is compared with that of the R.A.M.C., this latter not only forming part of the ex-apprentice group, but also, by virtue of their work, a group which should be at once more susceptible and

Table VI
Past schools and present Corps

		1964 Smoking habits			
		Non-smokers %	Smokers		Total in group (= 100%)
			All kinds %	Cigarettes only %	
Type of School in 1959	Apprentice units	27.5	72.5	67.5	1,493
	Junior leaders regiments	21.6	78.4	74.9	1,089
Present Corps	Infantry	19.6	80.4	78.0	168
	R.A.M.C.	32.8	67.2	57.4	61

more respondent to anti-smoking propaganda. It is of interest to mention that the R.A.M.C. shows in fact the features of the experience of the ex-apprentice group to their greatest extent. Not only does the R.A.M.C. group rate the highest percentage of non-smokers, but among the smokers the proportion of cigarette smokers is the lowest at 85.4 per cent (overall 94.2 per cent), and finally, of the cigarette smokers 54.3 per cent smoke more than 20 per day (overall 67.5 per cent). The numbers in the group are admittedly small but the trend is clear.

Adolescent to adult, habits compared

In the five years from 1959 to 1964 the surveyed group has grown from adolescence to adult maturity. It is thus relevant to examine the changes occurring during this formative period in an effort to discover how far boyhood smoking habits and age of starting influence the fully developed adult pattern. Table VII has been compiled to

Table VII
1959 and 1964 habits compared

	Habits in 1964		
	Non-smokers %	Smoking more than 20 per day %	Total in group (= 100%)
All Ages			
Non-smokers in 1959	60.1	24.2	765
Smoking more than 20 per week in 1959	9.2	60.7	1,364
17 year olds only			
Non-smokers in 1959	72.4	16.7	210
Smoking more than 20 per week in 1959	10.2	61.0	569

compare the habits of 1959 with those of 1964 for the whole group of 2,582; in addition a single age group has also been taken to show the experience of a more homogeneous sub-group, the age group chosen being that of the seventeen-year-olds in the original survey. (There is no reason to believe that the smoking habits of this group are in any

way biased). Non-smokers and quantity smokers only have been considered. For the latter the criterion in 1959 was 20 per week, changing to 20 or more per day in 1964. For the whole group and for the seventeen-year-olds alone the pattern suggests that some 60 per cent of those who smoke 20 or more a week in their adolescent years will—by the time they are aged twenty to twenty-three—be smoking 20 or more a day. On the other hand the picture for non-smokers is less clear. The whole group must include many who at the time of the 1959 survey had yet to start and a few who had already given up, so in general the persistence of non-smoking will rise with age, although the absolute number shrinks. In the earlier report on this survey it was suggested that age seventeen was when the adult pattern appeared. But this view must be modified by the finding that, although the majority of non-smokers persist as such, a significant minority (16.7 per cent) started smoking at seventeen and onwards to become committed quantity smokers of 20 or more a day by the time they are twenty to twenty-two years old.

The age spread (fifteen to eighteen) of the original group precludes the production of precise evidence as to age of starting. The younger boys who had not started when first questioned may well have started in the subsequent year. The first survey could not and the second did not cover this contingency. It is possible, however, to compare the later habits of those who smoked before they were fifteen with those who did not. Of 1,857 boys who had started under fifteen years of age, 52 per cent were smoking more than 20 per day five years later. Of the remainder—725 who had not started under fifteen—only 36 per cent were smoking more than 20 a day in 1964. Admittedly, the figure of 725 includes the determined non-smokers so that a direct comparison between the two groups opposed cannot be made from these figures. As it stands, however, the suggestion, a not unexpected one, is that those who start before fifteen are likely to become heavier smokers than those who have not started by that age.

Beliefs and intentions

The 1964 survey asked everyone—smokers and non-smokers alike—if they believed cigarette smoking caused chest disease. The question did not specify the kind of chest disease and answers were required to fit into a “Yes”, “No”, “Don’t know” category. Taking the straightforward “No” figures as indicative of a categorical expression of opinion these answers have been collated in Table VIII. The proportion denying the

Table VIII
Beliefs and habits

Smoking category		Percentage of category who do not believe smoking causes chest disease
Non-smokers	Never smoked	10.5
	Ex-smokers	12.3
Cigarette smokers	1–9 per day	23.4
	10–19 per day	36.1
	20 and more per day	37.2

existence of a causal relationship between smoking and chest disease showed a highly significant difference between the cigarette smokers (36 per cent) and the non-smokers

(11.1 per cent). Smokers were asked a further question about future intentions giving three possible answers: give up, cut down, or keep on smoking. 64 per cent of the cigarette smokers intended to maintain their present habits, whereas 10 per cent professed an intention of giving up. Comparison of these responses with the beliefs concerning chest disease reveals an interesting trend (Table IX). Of those cigarette smokers who

Table IX
Beliefs and intentions of cigarette smokers

Beliefs in relation to smoking and chest disease	Future intentions			Total in group (= 100%)
	Keep on %	Cut down %	Give up %	
Not a cause	78.4	15.7	5.9	662
Don't know	60.1	30.2	9.7	496
Causes chest disease	53.8	30.8	15.4	666

believed smoking caused chest disease, 46 per cent were intending to give it up or cut it down, whereas of those who recognised no connection between the two, only 22 per cent planned to change their habits. Conversely, of the 190 cigarette smokers who were going to give it up only 21 per cent thought there was no relationship between smoking and chest disease compared with 44 per cent of this way of thinking among the 1,175 who intended to keep on.

Discussion

Smoking in the Army

Comparison of the present findings with the national statistics (Todd, 1966) suggests not only that this particular group of young soldiers contains a higher percentage of regular smokers than the average but also that the cigarette smokers among them smoke more cigarettes than the average. The national figures show that the percentage of regular smokers (all kinds of tobacco) in the twenty to twenty-four male age group fell from 71 per cent in 1961 to 66 per cent in 1965. The fall in the number of smokers among the younger age groups has been commented upon by other observers (Pygott, 1964), and appears to be a nationwide occurrence. It is difficult to make a chronological comparison for the young soldiers in this study because so many of the younger ones will have developed the adult habit only in the last year or so. The two older groups (seventeen and eighteen in 1959) had been considered in the earlier report to have attained the adult pattern. Among the 1,173 boys in this category who were questioned in both surveys there were 873 regular (at least five cigarettes a week) smokers in 1959 and 880 regular smokers (all kinds) in 1964. On this basis there is little to suggest any decrease in the proportion of smokers.

As concerns the quantity of cigarettes consumed the present study again provides figures in excess of the national average. The percentage distribution of cigarette smokers by numbers smoked per day are shown in Table X. Todd's figures are for manufactured cigarettes, but as only 1.9 per cent of the sixteen to twenty-four age group are exclusive smokers of hand rolled cigarettes the errors in the comparison are likely to be small. Two-thirds of the Army cigarette smokers consume more than 20 a day compared with less than half of the United Kingdom male cigarette smoking population aged twenty

Table X
Comparison of numbers smoked by cigarette smokers

		Percentage of cigarette smokers consuming daily more cigarettes than		
		15 per day %	20 per day %	25 per day %
National (Todd, 1966) (Males 20 to 34)	1961	64	46	23
	1965	59	44	19
Present study (20 to 23)	1964	85	68	28

to thirty-four. The Army has from time to time been accused of giving passive encouragement to smoking by the provision of duty-free cigarettes in stations abroad. The rates adduced in this study suggest that on the whole there is some effect which has succeeded in overwhelming the anti-smoking campaigns mounted by the Army Medical Services. Without further analysis based on the knowledge of duration of service abroad it cannot definitely be stated that the above mentioned 'passive encouragement' is the sole effect. The relative failure of active and aggressive smoking discouragement programmes has been commented upon by various authors (Taylor, 1963, Martin and Stanley, 1966), but this should not be allowed to obscure the unmistakable trend, already mentioned, for fewer young men to smoke, or perhaps to start to smoke. If the increased morbidity from cigarette smoking operates for the present group of young soldiers at the now expected rates, it is likely that the next ten years will produce significant effects on the health of the group.

Attitudes and intentions

It is probably optimistic to expect all or even some of the 649 smokers who announced their intention of forsaking or curtailing the habit to put these intentions into effect. If they did it would make a most impressive difference to the smoking habits of the group. The relationship between smoking habits, beliefs on disease causation and future intentions provides the subject for stimulating but limitless speculation. The tendency found in the present study for those who deny a causal relationship with chest disease to smoke, and in turn smoke more, has been noted both for adults (Horn, 1963) and adolescents (Salber, Read, Harrison and Green, 1963). It is difficult to decide whether these smokers are convinced of the absence of a health risk and hence smoke more, or whether they are committed addicts who rationalize their views to suit their habits. The latter attitude was suggested by Cartwright, Martin and Thompson (1960) who considered smokers tended to believe smoking was dangerous only for those who smoked more than themselves. A similar ambivalence is observed when considering the high proportion of those who accept the causal relationship and declare their intention of reduction (Table IX). Swinehart and Kirscht (1966) suggested that this intention to quit apparently helped some smokers to tolerate the disturbing discrepancy between their beliefs and behaviour.

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THE BRITISH TRANS-ARCTIC EXPEDITION 1968/1969

The following message was sent by the Director-General of Army Medical Services to the Leader of The British Trans-Arctic Expedition:—

“The Director-General and All Ranks Royal Army Medical Corps congratulate you on your fine achievement in accomplishing the first surface crossing of the Arctic Circle. The participation of one of our officers, Major Ken Hedges, in your feat of courage and endurance has been an inspiration to us all. Please convey to him our admiration and good wishes.”

The Leader replied:—

“My companions and I much appreciate your kind message of congratulations on our journey and send you our warmest thanks.

I personally am very grateful indeed to the Royal Army Medical Corps for allowing Ken Hedges to take part in an expedition which has proved to be both challenging and rewarding.”

General Sir Geoffrey Musson, the Adjutant-General, has signalled Major Ken Hedges:—“On behalf of the Army Board I send heartiest congratulations to you and your colleagues of the B.T.A.E. on your great achievement.

We are all delighted to know of your safe return.”