

The Smoking Habits of Young Soldiers

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SUMMARY: In a survey of the smoking habits of over 6,000 young soldiers, it was found that the prevalence of regular smoking was 45%. Though the prevalence of regular smoking in young soldiers is higher than the general prevalence rate for smoking in 16 to 19-year olds in the civilian population, the excess is considered to be a reflection of the social and geographical background of Army recruits.

The survey found that young soldiers who smoke, smoke heavily. Eighty two percent smoked more than 20 cigarettes per week, 58% more than 40 cigarettes per week. This is higher than has been recorded by any previous survey of young soldiers.

The proportion of young soldiers who have never smoked has risen markedly over the years. This survey found that 34% had never smoked.

Introduction

The Army Medical Services instituted a programme of research into the smoking habits of young soldiers in 1959. A cohort of approximately 4000 junior entrants was identified; at the time the subjects were members of Army apprentice colleges and junior leader units. They were followed for 15 years. At five-yearly intervals their smoking habits were examined by questionnaire.

In 1959, Richards and Crowdy (1) found that the smoking habits of young soldiers joining the Army were similar to those of school children of the same age. More than 50% of the 15-year old entrants had started smoking before they joined the Army. However, by their 18th year this had risen to 79%. This represented an excess of the order of 17-20% over their civilian counterparts. Furthermore, by their 18th year, Army smokers had developed adult patterns of smoking with over 45% of smokers smoking more than 40 cigarettes per week.

In 1966, Crowdy and Lewthwaite (2) surveyed the smoking habits of 8,785 young soldiers and compared their findings with those of the 1959 cohort. They found that boys were having their first smoking experience at an earlier age. Among the 1966 15-year olds there were not only more regular smokers than in 1959, but more who smoked more heavily. In the older age groups (16, 17 and 18-year olds) there were, however, significantly fewer regular smokers in 1966. Between 1959 and 1966 the percentage of smokers, aged 17 and 18 years, fell from 68 to 63%. Among the regular cigarette smokers there was a distinct trend, especially at ages 15 and 16, to heavier smoking in 1966 than in 1959. Despite the reduction since 1959 in the proportion of smokers in the

population of young soldiers aged 16 to 18, there is evidence to suggest that cigarette smoking by Army youth remained both more widespread and heavier than smoking by civilian boys of the same age.

A further survey of a third generation was carried out in 1971 (3) when 9056 young soldiers responded to the questionnaire. There had been a slight increase in the proportion who had never tried smoking. Of those who smoked, the age of starting had fallen between 1959 and 1966, but not between 1966 and 1971. There had been a decrease in prevalence, marked for all age groups except the 15-year olds, to a greater extent than had been reported for the civilian population over the same period. Nonetheless, the prevalence of smoking in young soldiers remained much higher than that of their civilian counterparts. In terms of numbers smoked, but again with the exception of the 15-year olds, there had been a significant diminution among smokers, particularly marked between 1966 and 1971, of the proportion smoking more than 40 per week. This ran counter to the national trend for young males in the civilian population over the same period.

No further studies were carried out to examine the smoking habits of young soldiers between 1971 and 1988.

It was decided, in 1988, to repeat the survey of smoking habits in young soldiers in order to identify long term trends.

Subjects and Methods

The young soldiers being surveyed fell into two

categories; junior leaders, who had been selected as potential non-commissioned officers of the future, and Army apprentices, who were being trained in a particular trade. The trades varied from highly technical electronics operators to infantry soldiers. In the 1959, 1966 and 1971 surveys, the young soldiers had been aged 15-18 years. In the 1989 survey they were 16-18 years old.

A non-smoker was defined as someone who has never smoked.

An experimenter was a young soldier who had smoked but never more than one per day.

An occasional smoker was someone who had smoked one or more cigarettes per day, but who had not smoked in the past 4 weeks.

A regular smoker was someone who had smoked one or more cigarettes per day and who had smoked in the past 4 weeks.

The same questionnaire had been used in the three previous surveys of the smoking habits of young soldiers; it was originally developed by a study group of the London School of Hygiene and Tropical Medicine (4). When it was suggested in 1988 that the survey be repeated with a modern population of young soldiers it was decided that the same questionnaire design should be used so as to provide comparability of results.

In order to increase the response from young soldiers it was decided that the questionnaire should be completely anonymous.

As the questionnaire had been used successfully in three previous surveys it was considered that there was no requirement for formal validation or a pilot survey.

In January 1989, questionnaires were sent to all young soldier training establishments, the commanding officers having previously agreed to co-operate with the survey. The questionnaires were administered to all young soldiers in the unit at the same time. The soldiers were instructed to enter their date of birth; completion of the rest of the questionnaire was voluntary. The completed questionnaires were returned to the Royal Army Medical College for analysis.

When the training establishments were initially contacted to seek their co-operation in the survey, they were asked to estimate how many young soldiers would be in the unit at the time of the survey. In order to ensure that they had sufficient numbers of questionnaires the units rounded their figures up and, therefore, over-estimated the number of young soldiers available on the day. In order to overcome this, the units were asked to state how many young soldiers they had on their ration strength on the day of the survey.

Results

Six thousand three hundred and eighty young soldiers were on the ration strength of training units at the time of the survey. Four thousand two hundred and seventy questionnaires were received back, representing a response rate of 67%. The ration strength over-estimates

the numbers of young soldiers in the units but is the best measure available. The true response rate was probably higher.

Owing to the anonymous nature of the survey, it was impossible to follow-up non-responders. Were smokers less likely to respond than non-smokers? Figure 1 shows the prevalence of smoking in each unit, compared with the response rate. The higher prevalences were found in the units with the lower response rates.

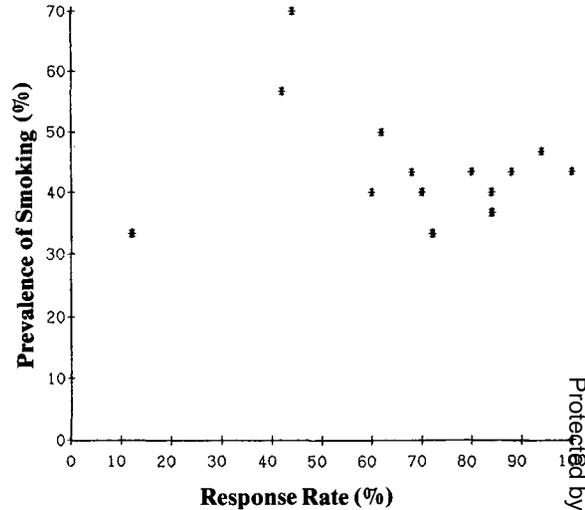


Fig 1. Prevalence of Smoking in Young Soldiers' Units Compared with Response Rate

None of the soldiers had taken the opportunity to enter their date of birth only, leaving the rest of the questionnaire blank. 10 questionnaires were eliminated from the analysis.

Sources of Error in Estimates of Consumption

Some regular smokers did not specify the numbers of cigarettes they smoked. To have qualified as regular smokers they indicated that they had been smoking at least one cigarette per day. Therefore, they were counted as smoking 7 cigarettes per week. This approximation clearly under-estimates the true figure.

Some smokers indicated that they smoked more than 70 cigarettes per week but did not stipulate the amount. Their consumption was recorded as 70 per week but, again, this under-estimates the true figure.

Rather than stating a specific number of cigarettes smoked per week, some smokers gave a range, for example, 80-100 per week. The upper figure was taken.

These anomalies accounted for less than 1% of responses.

Very few young soldiers reported smoking pipes or cigarettes they had rolled themselves. These categories were eliminated from the survey.

Starting to Smoke

Twenty two per cent of all young soldiers had smoked before the age of 11. Of those smoking before the age of 11, 71% went on to become regular smokers. The proportion of young soldiers starting to smoke increased until the age of 14 and then fell off (Fig 2).



- + = Experimenters
- o = Occasional Smokers
- * = Regular Smokers

Fig 2. The Ages at which Children Smoked their First Cigarette and Subsequent Smoking Habit.

There was no difference in the ages at which experimenters, occasional smokers and regular smokers had their first cigarette. Over 90% of the young soldiers who smoke had started smoking before they joined the Army.

Current Habit

One thousand four hundred and seventy-one (34%) of the young soldiers were non-smokers.

Four hundred and twenty five (10%) were experimenters. They had smoked but had never smoked as much as one per day and they had not smoked during the previous 4 weeks.

A further 454 (11%) were occasional smokers. They had smoked more than one per day but had not smoked in the 4 weeks prior to the survey.

One thousand nine hundred and thirty two (45%) were regular smokers, smoking more than one cigarette per day, and having smoked during the previous 4 weeks. The prevalence of regular smoking in different units varied between 33% and 69%, as is shown in Figure 1.

Consumption of tobacco by smokers

Smokers smoked on average 50.8 cigarettes per week.

The numbers of cigarettes young soldiers smoked was directly related to the age at which they started to smoke (Fig 3). Those who had started to smoke before they were 11 years of age smoked 65 cigarettes per week

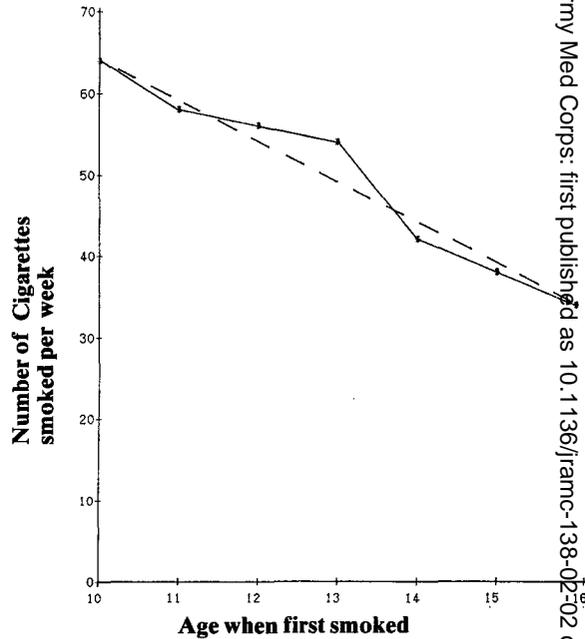


Fig 3. The Number of Cigarettes Smoked per Week Compared With the Age at which Children Started Smoking.

whereas those who had started smoking at 17 years of age smoked 40 cigarettes per week. Eighty two percent of regular smokers smoked more than 20 cigarettes per week, while 58% smoked more than 40 cigarettes per week.

Comparison with Previous Surveys

The Survey Population

In previous surveys the age range of the population varied from 15 to 18 years. With the raising of the school leaving age, young soldiers are now predominantly 16 and 17 years of age (Table 1).

Table 1
Percentage Distribution by Age in Years of Responders

Generation	Age in Years			
	15 years	16 years	17 years	18 years
1959	19.1	37.5	33.9	9.5
1966	20.7	42.1	30.5	6.7
1971	25.0	47.7	24.3	3.0
1989	—	50.2	39.9	9.9

Starting to Smoke

There has been a marked increase in the proportion of young soldiers who have never smoked. Previous studies commented that there had been a steady increase in the proportion of non-smokers over the years, from 9.5% in 1959 to 13.5 in 1971. The proportion of young soldiers

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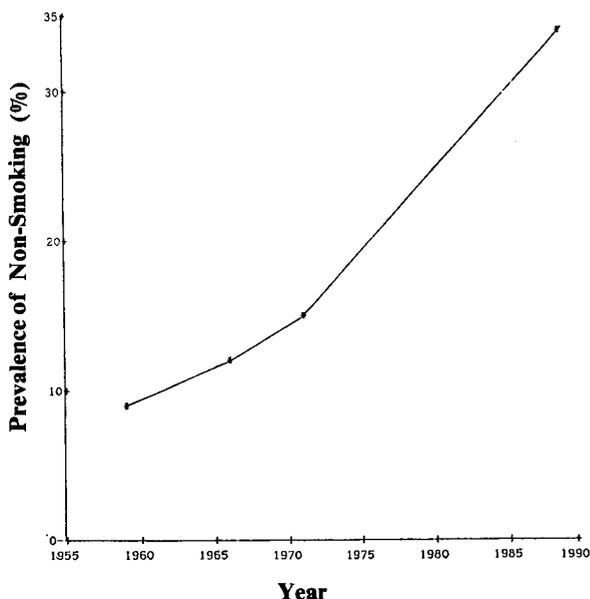


Fig 4. Prevalence of Non-Smoking 1959-1989

who have never smoked is now considerably higher at 34.4% (Fig 4 and Table 2).

Though fewer young soldiers now smoke, the age at which they start to smoke has remained remarkably constant since 1966.

Table 2

Non-smokers and age of first smoking

Generation	Percentage never smoked	Percentage of those who have smoked at some time starting before the age of:				
		11 yrs	12 yrs	13 yrs	14 yrs	15 yrs
1959	9.5	23.9	32.6	46.1	62.4	80.6
1966	12.1	31.4	45.1	59.6	75.6	90.2
1971	13.5	32.1	45.1	60.0	75.3	89.9
1989	34.4	32.2	44.7	58.4	79.5	90.7

Current Habits

The prevalence of regular cigarette smoking in young soldiers is considerably lower than that found in previous surveys (Fig 5). It is now 45% compared with 79% in 1959. It is not possible to identify accurately when the reduction happened as there is insufficient information from the intervening years. Though there has been a general downward trend, the prevalence of smoking in young soldiers, aged 16 and 17 years, appears to have fluctuated during this period.

Consumption

The data in Table 3 is age-standardised. Since the last survey in 1971 there has been a fall in the percentage of regular smokers smoking less than 20 cigarettes per week and a marked increase in the number smoking more than

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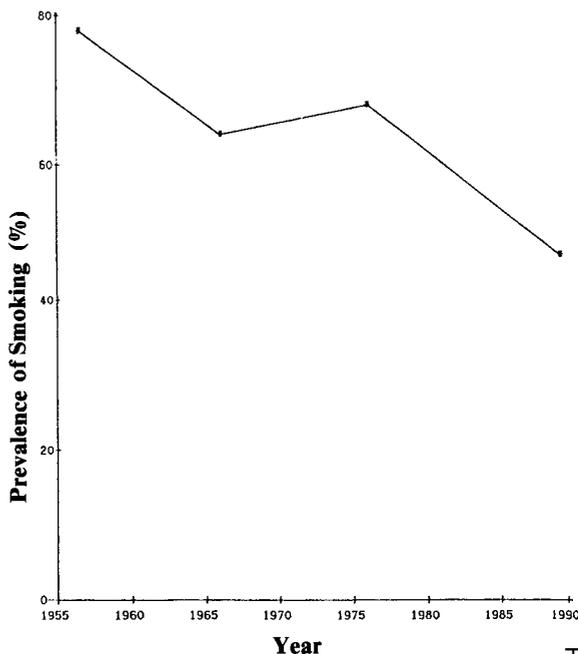


Fig 5. Prevalence of Smoking 1959-1989.

40 per week: young soldiers who smoke are now smoking more than ever.

Table 3

Regular smokers classified by the percentage smoking various amounts.

Generation	Percentage of smokers smoking per week (numbers of cigarettes)		
	up to 19	20 to 39	40 plus
1959	30.3	24.2	45.5
1966	26.8	24.1	49.1
1971	34.5	19.8	45.6
1989	18.4	26.2	55.4

Discussion

It is gratifying to note that the reduction in the prevalence of smoking in young soldiers has continued the general downward trend which had been observed during the 1960s. At 45% it is also lower than had been measured in trained soldiers in Germany in 1979, though that is only to be expected.

However, when compared to the most recent figures for 16 to 19-year olds in the civilian population, the position is not so favourable. The latest figures from the General Household Survey (5) give the prevalence for this age group as 30%.

There are a number of problems associated with such a simple comparison. Though similar, the age distributions are not exactly the same and should be standardized. The civilian figures are a national average for all

social classes. In some parts of the country the prevalence of smoking in 16 to 19-year olds in social class 5 can be as high as 43%. It would be comforting to assume that the high prevalence in young soldiers simply reflects their social and geographical background. Without accurate standardization, such an assumption cannot be made.

Furthermore, the definitions of smoking habit used are different. One cigarette per week is enough to identify a civilian as a regular smoker. We required smokers to be smoking one cigarette per day and to have smoked within the previous 4 weeks. Had our questionnaire incorporated the current definitions used by the Office of Population Censuses and Surveys (OPCS), the prevalence of smoking recorded in young soldiers would have been higher.

In 1988, the OPCS completed a survey of the smoking habits of school children in England (6). Thirty six per cent of 15-year olds in 1988 reported that they had never smoked. This compares with 34% in our survey.

Of considerable concern is the consumption of cigarettes reported by young soldiers who smoke. Over 80% smoke more than 20 cigarettes per week and almost 60% smoke more than 40. Throughout the previous studies it had been noted that young soldiers soon adopted adult patterns of smoking, and this finding was repeated in the present study.

Conclusion

The proportion of young soldiers who have never smoked (34%) is virtually the same as the proportion of 16 to 19-year old civilians who have not smoked (36%).

At 45%, the prevalence of regular smoking in young soldiers would appear high compared with the 30% recorded in 16 to 19-year old civilians. This however, is possibly a reflection of the social and geographical background of Army recruits.

Even if the prevalence of smoking in young soldiers is the same as that in their civilian counterparts, young soldiers smoke more though it is difficult to estimate the excess.

Acknowledgements

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REFERENCES

1. RICHARDS H J A, CROWDY J P. Smoking habits of young soldiers. *Br J Prev Soc Med* 1961; **15**: 84.
2. CROWDY J P, LEWTHWAITE C J. Smoking habits of young soldiers; a comparison between 1959 and 1966 generations. *J R Army Med Corps* 1972; **118**: 168-72.
3. CROWDY J P, LEWTHWAITE C J, SOWDEN R. Smoking: the changing habits of male adolescents. A comparison of three generations of young soldiers. *J R Army Med Corps* 1975; **121**: 126-131.
4. A Study Group of The Public Health Department, London School of Hygiene and Tropical Medicine. *Br J Prev Soc Med* 1959; **13**: 1-4.
5. OPCS. General Household Survey, 1986. HMSO, London. 1989.
6. OPCS. Smoking among secondary school children in England in 1988. HMSO, London. 1988.

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