

# Smoking In The Singapore Armed Forces

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## ABSTRACT

The Singapore Armed Forces has, since 1986, established a comprehensive smoking control programme which combines health education, counselling and administrative measures aimed at discouraging non-smokers from smoking, and encouraging smokers to quit the habit. The prevalence of regular smoking decreased from 28.6% in 1987 to 20.7% in 1993. The latest, 1993 survey as in past surveys covered 3,545 respondents, made up of regulars (32.0%), NSF (62.2%) and NUSAF (5.6%). The 1993 survey revealed that the majority of smokers (88.9%) in the SAF who consist primarily of 18 to 20-year-olds, had started smoking before enlistment. Most acquired the habit on their own (49.8%) or through influences outside the SAF (40.3%). Very few smokers became smokers through the influence of fellow soldiers (4.9%). The majority (87.7%) of smokers readily agreed that smoking is harmful, but this is not translated into practice. Health education efforts need to focus more on bringing about positive attitudinal and behavioural changes, rather than merely give information and advice. The young age of smoking onset (mean age of 14.3 years) in the SAF population surveyed points to the need to focus preventive efforts further upstream than hitherto emphasised.

**Keywords:** Singapore Armed Forces, smoking prevalence, servicemen, enlistment

## INTRODUCTION

In 1986, the Singapore Armed Forces (SAF) started its Smoking Control Programme, in conjunction with the wider national effort led by the Ministry of Health to make Singapore a "smoke-free nation". Smoking in the military warrants special concern because of its long-term harmful effects on the individual's health and its negative effects on physical fitness and combat readiness<sup>(1-3)</sup>.

The smoking control programme in the SAF involves a combination of several approaches:

- a) Health education  
Exhibitions, audio-visual presentations, and educational talks by doctors are held regularly in SAF camps and training schools. Anti-smoking campaigns are organised annually and smoke-free days are observed SAF-wide in conjunction with the World No Tobacco Day.
- b) Counselling  
SAF doctors and counsellors conduct monthly Smoking Cessation Clinics which use the

behavioural and group therapy approach to help smokers quit their habit. These clinics comprise 3-hour sessions each day for 5 days.

### c) Administrative measures

Since 1986, smoking has been progressively banned in all common areas, meeting rooms, air-conditioned offices, messes, clubs, canteens and vehicles, culminating in a total ban in all areas in 1993. Smoking is now allowed only in specially designated open areas marked out by a yellow box. Smoking in public areas while in uniform has also been made a disciplinary offence. Sale of cigarettes and tobacco products is prohibited in SAF camps and premises. Servicemen sent for overseas training on chartered or military flights are also not allowed to buy duty-free tobacco.

In effect, the message to servicemen is:

- If you are not smoking, do not start.
- If you smoke, stop.
- If you cannot stop, do not smoke where it can harm others.

To monitor the smoking prevalence in the SAF, surveys have been carried out annually since 1987, except for 1989<sup>(4)</sup>. The smoking trend in the SAF over the years and some pertinent findings of the latest survey conducted in 1993 are presented.

## METHODOLOGY

The 1993 SAF Smoking Survey, as in all previous years, was conducted on a sample population comprising full time National Servicemen (NSF), regulars and Non-Uniformed SAF personnel (NUSAF). The following categories were excluded: servicemen stationed in overseas bases, in detention, on local study courses and civilian employees.

The sample was obtained by computer-generated proportional random sampling. The sample population comprised 62.2% of NSF, 32.0% of regulars and 5.6% of NUSAF. This was stratified according to ranks (Officers, Specialists and other ranks), service arm (Army, Navy and AirForce) and service status (NSF, Regulars and NUSAF).

Personnel identified for the survey were asked to turn up at designated centres where the questionnaire was administered. (A copy of the questionnaire is available from the authors.) Three thousand, five hundred and forty-five out of the original sample of

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4,500 (78.8%) completed the questionnaire. Reasons for non-participation included overseas exercise, leave, or other unforeseeable circumstances; therefore these did not strictly constitute non-response, and were unlikely to result in bias. The characteristics of the respondents were verified to closely match those of the SAF population with respect to age, sex, education, ethnic group and rank structure, these being the characteristics known to affect smoking habits.

A medical officer or senior medical orderly was present to supervise and answer any queries. It was emphasised to the respondents that they were chosen randomly by computer, and that their answers would be kept confidential and anonymous. It was also stressed to the supervisor that the survey should be conducted in an impartial atmosphere free from anti-smoking overtones.

The self-administered questionnaire covered aspects of servicemen's knowledge, attitudes and practices with regard to smoking. In addition, it carried a section on evaluation of the SAF Smoking Campaign.

Key definitions used in this survey were as follows:

- a. Non-smoker - Never smoked before.
- b. Regular smoker - Smoked at least 7 cigarettes a week.
- c. Occasional smoker - Smoked less than 7 cigarettes a week.
- d. Ex-smoker - No longer smoking at the time of the survey but smoked at least 7 cigarettes a week for not less than 6 months in the past.
- e. Experimental smoker - Smoked too little in the past to be regarded as an ex-smoker (less than 7 cigarettes per week for less than 6 months).

#### Profile of respondents

58.1% of the respondents were between 20 and 24 years old while 17.3% were between 15 and 19 years old, reflecting a young SAF population. The study population was predominantly male (91.4%).

### RESULTS

#### Smoking prevalence rates

There were 20.7% regular smokers and 3.9% occasional smokers, giving an overall smoking prevalence rate of 24.6%. Fig 1 shows the trend of regular smoking over the years, since 1987.

#### Sex

Smoking prevalence was much higher among men (26.8%) than women (1.3%). This corroborates with findings of earlier national studies<sup>(5,6)</sup>.

#### Age

Smoking prevalence decreased with age, but after 40 years, it increased with age (Fig 2).

#### Race

Malays had the highest smoking prevalence (43.8%), while Chinese had the lowest (22.6%) and the prevalence for Indians and Others were 32.0% and 28.1% respectively. This pattern is similar to that

Fig 1 - Smoking prevalence trend (regular smokers) in the SAF 1987-1993

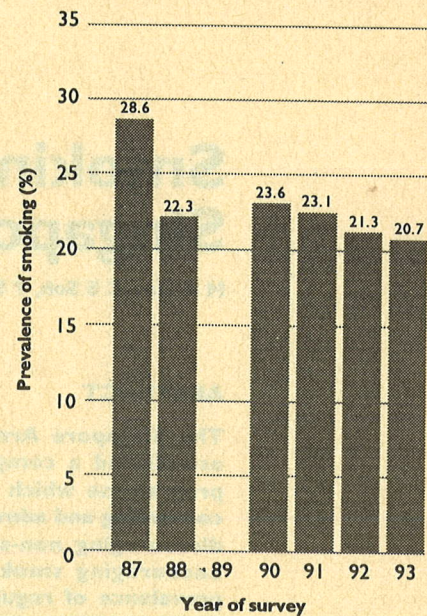


Fig 2 - Smoking prevalence by age group

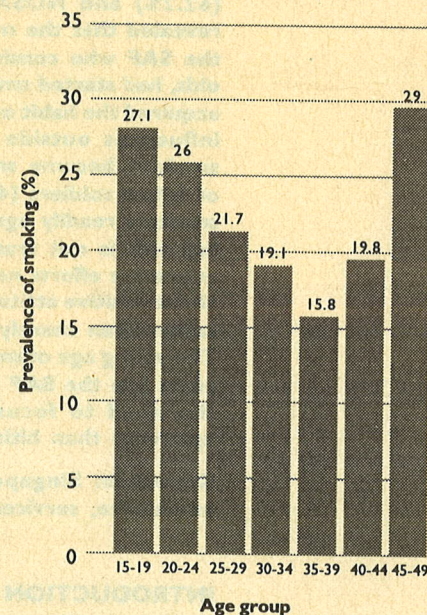
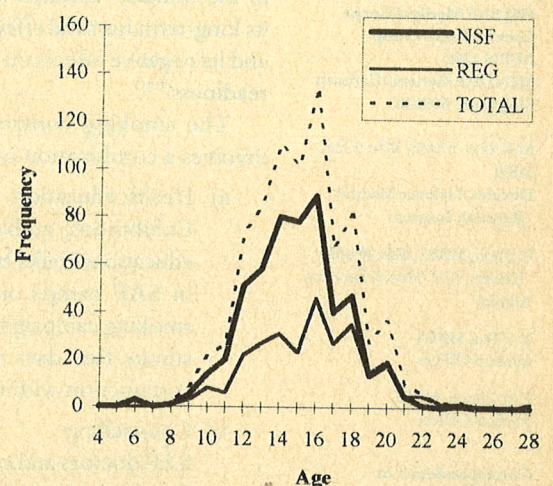


Fig 3 - Age started smoking





**Table I - Frequency of smokers by age started smoking**

Age	NSF	REG	NUSAF	TOTAL
4		2		1
6	3			3
7			1	1
8	1	1		2
9	5	3		8
10	14	8		22
11	20	6	4	30
12	51	22		73
13	58	27	1	86
14	80	31		111
15	78	23	1	102
16	89	46	3	138
17	40	27	3	70
18	47	35	3	85
19	14	13		27
20	19	18	3	40
21	5	5	1	11
22	1	5	1	7
23		2	1	3
24	1	2		3
25		1	2	3
26		1		1
27		2		2
TOTAL	526	279	24	829

found in previous surveys among school children and the general population<sup>(5,6)</sup>.

#### Service status

There was no significant difference in the smoking prevalence between NSF (25.3%) and regulars (26.2%).

#### Educational level

Smoking was more common among those with lower educational level. This finding, once again, corroborates with findings from earlier national surveys<sup>(5,6)</sup> and from the picture around the world.

#### Rank

A significantly lower prevalence rate is seen among officers (11.5%) than non-officers (26.9%). This could be related to the higher educational level of the officers.

#### Smoking habit

The vast majority of smokers (88.9%) said they started smoking before enlistment. Among the NSF who were in the age group 18-20, not unexpectedly, 94.5% said that they took up smoking before enlistment. Most smokers in the SAF took up smoking at an early age - 40.7% before the age of 15, and another 55.7% between the ages of 15 and 20 years (Table I). The mean age at which smoking started among SAF smokers was 14.3 years (Fig 3). 49.8% said they started smoking on their own accord. 40.3% were introduced to smoking by friends outside the SAF. Only 4.9% said they were introduced to smoking by their fellow soldiers.

The main reasons given for starting smoking were relaxation (29.8%), curiosity (24.1%) and boredom (15.8%). 18.5% of smokers were unsure of their reasons. These reasons are similar to those given by smokers in earlier national surveys<sup>(5,6)</sup>.

Sixty-four percent of smokers had family members who were smoking at the time they started.

The types of cigarettes smoked were: filters with low tar (33.0%), filters with tar (60.0%), unfiltered cigarettes with normal tar (4.2%), and others (2.7%).

34.5% of smokers smoked less than 10 cigarettes a day, with a roughly equal proportion (39.5%) smoking between 10-20 cigarettes daily.

The majority of smokers (72.1%) said they had attempted to give up smoking in the past. 29.8% have actually tried more than 3 times, but were unsuccessful reflecting the addictive effect of smoking. 70.5% of those who failed now attributed their failure to poor self-discipline.

#### Smoking knowledge of respondents

The respondents obtained information about the hazards of smoking usually from TV/radio/cinema (86.4%) and newspapers/magazines (85.9%). The media therefore played an important role in disseminating these information.

The great majority (smokers 87.7%, ex-smokers 94.3%, non-smokers 96.6%) acknowledged that "smoking is harmful" and agreed (smokers 72.2%; ex-smokers 82.9%; non-smokers 84.9%) with the statement "passive smoking is harmful". However, when it came to more specific questions on the effects of smoking, such as whether smoking causes various cancers, reduces fitness and causes harm to the unborn fetus, the responses were generally less satisfactory ("good/excellent" score for smokers were 68.1%; for ex-smokers, 86.3%; and non-smokers, 88.7%).

#### DISCUSSION

Over the years, the smoking prevalence rate in the SAF declined from 28.6% in 1987 to 23.1% in 1991. This was followed by a rebound to 27.6% in 1992 and then a fall to 20.7% in 1993. The rise in 1992 is consistent with the National Health Survey<sup>(7)</sup> which also showed a rise in the 1992 smoking prevalence among those between 18-19 and 20-39 years old.

A survey conducted by the Ministry of Health among school children in Singapore showed that the mean age of the first puff was 12.1 years and the median age of regular smoking was 14.1 years<sup>(8)</sup>. This, and our finding of a young mean age (14.3 years) of smoking onset volunteered by the NSF who were aged 18-20, suggest that greater health education efforts should be targeted at young people before the age of first puff which should be at the age of 9 to 10 years so that they are well armed with the necessary health information.

Our findings also dispel the somewhat common but erroneous perception that the majority of our young men pick up the smoking habit in the SAF, while serving national service. Earlier national surveys done in Singapore which studied the age of onset of smoking among Singaporeans under 20 years of age, showed that 60% of regular smokers took up smoking before the age of enlistment. Interestingly, in a study among Italian naval recruits, Arciti<sup>(9)</sup> also found that the military was not a major influencing factor.



## CONCLUSION

In summary, the profile of the SAF smoker may be characterised as follows:

- Male
- Aged 17-18
- Non-officer
- Of lower educational level, viz primary, secondary, or ITE education
- Began smoking at 14 years of age
- Usually smokes up to 10 cigarettes per day

The study has revealed that while the SAF smoker may agree that smoking is harmful to himself and others, this knowledge or belief does not necessarily translate into the appropriate health proactive action for a minority group of 20% or 80%. Health educational efforts should therefore be aimed not only at imparting health knowledge per se, but at bringing about attitudinal and behavioural change. The very young age of smoking onset also points to the need to focus more attention on smoking among youths at around 10 years of age so that they have the necessary health information.

## REFERENCES

1. Jensen RG. The effect of cigarette smoking on army physical readiness test performance of enlisted army medical department personnel. *Milit Med* 1986; 151 (2): 83-5.
2. Bahrke MS, Baur TS, Poland DF, Connors DF. Tobacco use and performance on the army Physical Fitness Test. *Milit Med* 1988; 153: 229-35.
3. White JL, Pedersen DM, Wood SD, Warden DR, Thiese SM. Cigarette smoking and combat injuries. *Milit Med* 1988; 153: 381-2.
4. Headquarters Medical Corps, Singapore Armed Forces. SAF Smoking Surveys 1987, 1988, 1990, 1991, 1992, 1993.
5. Emmanuel SC, Ho CK, Chen AJ. Cigarette smoking among school children in Singapore. Part I - Smoking prevalence. *Singapore Med J* 1990; 31: 211-6.
6. Emmanuel SC, Phe Aylanna, Chen AJ. The impact of the anti-smoking campaign in Singapore. *Singapore Med J* 1988; 29: 233-9.
7. Singapore, Research & Evaluation Department, Ministry of Health. National Health Survey. Singapore, 1992.
8. Emmanuel SC, Ho CK, Chen AJ. Cigarette smoking among school children in Singapore. Part II - Developmental of the smoking habit. *Singapore Med J* 1991; 32: 146-50.
9. Arciti C, Santi L, Doglio B, Masirroni R. Anti-smoking messages during military service. *World Health Forum* 1991; 12: 448-9.

## CORRIGENDUM

The Editor of the SMJ wishes to apologise for the following inadvertent errors:

A typographical error in the title of the article "Ectopic Cushing's Syndrome in a Young Female with A Typical Bronchial Carcinoid Tumour" was published in the *Singapore Medical Journal* 1997; 38:29-31. The correct title should be "Ectopic Cushing's Syndrome in a Young Female with Atypical Bronchial Carcinoid Tumour".

The orientation of the chest radiograph (Fig 2b) of "Clinics in Diagnostic Imaging (19)" which was published in the *Singapore Medical Journal* 1996; 37:653-7 is incorrect. The correct orientation of the figure is printed herein.

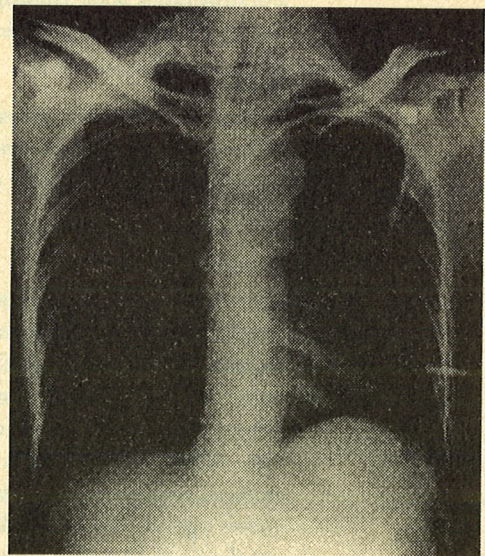


Fig 2b