

# CIGARETTE SMOKING AMONG SCHOOL CHILDREN IN SINGAPORE. PART III - KNOWLEDGE AND ATTITUDES TOWARDS SMOKING

S C Emmanuel, C K Ho, A J Chen

## ABSTRACT

*In the third article in this series which mainly assesses the knowledge of school children on the harmful effects of smoking, findings showed that the majority (90%) of school children surveyed were aware of the harmful effects. Current smokers appeared to be the least knowledgeable (69.4%) whilst non-smokers (89.3%) and experimenters (93.7%) were the most knowledgeable. Lung cancer (49%), smoking is bad for health (25%), smoking is bad for passive smokers (7%) and for heart disease (6%) were the most common responses given by the children on the specific ill effects caused by smoking.*

*Smokers and non-smokers alike agreed that smoking is addictive, the proportions agreeing, once again, being lowest among smokers and highest among non-smokers. This trend was also observed when respondents were asked for their attitudes towards smoking - whether cigarette smoking was harmful and whether smoking made a person popular.*

*The majority of respondents felt that a boy or girl who smoked "looked bad" - 39% thought so of boys, while a higher proportion (55%), had the same impression of girls.*

*The main reasons for giving up smoking given by ex-smokers were its harmful effects on health (49%), there being no more "kick" to it (16%), peer pressure (13%) and the disapproval of parents and teachers (13%).*

*Among current smokers, at least half stated that they would like to stop smoking. Most of them had tried to kick the habit before but failed in their attempts. Finally, among the non-smokers, only 0.4% of boys and 0.1% of girls indicated that they might smoke in the future.*

*Keywords: Harmful effects of smoking, attitudes towards smoking, impressions of smokers, smoking intentions.*

SINGAPORE MED J 1991; Vol 32: 233-237

## INTRODUCTION

School children the world over are increasingly becoming the main target for health education campaigns which aim towards healthier lifestyles. This is so too in Singapore. The objective is to establish early in life, healthy lifestyles which would minimise the development of the chronic degenerative diseases which are the leading causes of death today in developed and many developing countries. With smoking, this is especially important as it is an addictive habit with significant harmful consequences. Pierce et al in their study in 1983 on current smokers in Sydney and Melbourne in Australia, reported that among smokers, 59.6% males and 65.9% females felt that it was unlikely that they would quit smoking<sup>(1)</sup>.

A significant proportion (20.5%) of school children surveyed in England in 1971<sup>(2)</sup> had indicated they would continue their smoking habits in the future, the proportions stating so being highest amongst the regular smokers.

The Research & Evaluation (R & E) Department of the Ministry of Health therefore undertook a nationwide survey on smoking among the school-going population in 1987, establishing for the first time:

---

Ministry of Health HQ  
College of Medicine Building  
16 College Road  
Singapore 0316

S C Emmanuel, MBBS, MSc (Public Health), AM  
Director, Research & Evaluation Department

C K Ho, BSc (Hons), MSc (Med Stats), FSS, MIS  
Statistician, Research & Evaluation Department

A J Chen, MBBS, DPH, DTM&H, DCH, AM  
Deputy Director of Medical Services (Primary Health Division)  
Assistant Director of Medical Services (Planning & Development Division)

Correspondence to: Dr S C Emmanuel

- o the current levels, or prevalence, of smoking among Singapore's young, and
- o the knowledge, attitude and practice of smoking among the young smokers to help in the formulation of more relevant and effective programmes by the Ministry.

The first article highlighted the smoking prevalence among the younger generation of Singaporeans with regard to their socio-demographic profile<sup>(3)</sup>. The second report presented the composite profile of young smokers in terms of the age of first experimentation with smoking, the effects of the family and home environment and what influenced the young smokers to take up smoking<sup>(4)</sup>.

This report, the last in the series, gives an overview of the knowledge of the school-going population towards smoking, their attitudes towards smokers and also the smoking intentions of smokers and non-smokers in the future. With the availability of this information, anti-smoking programmes could be designed towards being more relevant and effective, aiming especially at those found to be susceptible to the risk of taking up smoking seriously. This should ultimately bring us closer to the national goal of becoming "A Nation of Non-Smokers".

The survey covered two distinct school-going populations in the country. Trainees from the sixteen vocational institutes formed the first group whilst school children were the target population from the public school system.

## METHODOLOGY

The target population for the survey among the school-going population was all pupils aged between 9 and 20 years old, studying in the state-run schools, junior colleges and vocational institutes in Singapore. This comprised approximately 446,000 students from Primary Four up to 'A' levels including those attending the Basic Skills Training (BST) or Pre-Vocational Training (PVT), Technical, Business and Trade Certificate courses in the vocational institutes.

A one-stage disproportionate stratified sample design was used for selecting respondents for this survey from both the schools and vocational institutes. Altogether, 33,700 of the school population in Singapore were randomly selected as

respondents. Details of the sampling methodology had been presented in the first article of this series<sup>(3)</sup>. The response rate was 99% giving a total of 33,400 respondents for this survey.

Two sets of questionnaires were used. In addition to basic questions on smoking behaviour which was asked of all respondents, the "older" children, ie. those aged 16 years and above, were probed, in depth, about their knowledge and attitudes towards smoking. Those who smoked were also asked why they took up the habit, where and with whom they smoked, whilst ex-smokers were questioned on what motivated them to give up the habit.

Statistical analyses performed on the data included detecting any significant differences between the levels of smoking in the various categories using the  $\chi^2$  test of significance. Figures have been adjusted to account for the population composition in the Schools and the VITBs.

## RESULTS

The results presented here feature responses from the older children surveyed, ie. those aged 16 years and above.

### Knowledge of the Effects of Smoking

Among all respondents, the vast majority (90.0%), were well aware of the harmful effects of smoking (Table I). Among boys, the proportion with this knowledge was higher (92.2%) whilst knowledge levels among the girls was lower (86.3%), the difference in responses between boys and girls being highly significant ( $P < 0.0001$ ).

**Table I**  
Respondents by Smoking Behaviour and Knowledge of Harmful Effects %

Knowledge	All Respondents	Current Smokers	Ex Smokers	Experimenters	Non Smokers
<b>All respondents</b>	<b>9997</b>	<b>457</b>	<b>564</b>	<b>1204</b>	<b>7772</b>
Smoking harmful	90.0	69.4	90.1	93.7	89.3
Smoking not harmful	10.0	30.6	9.9	6.3	10.7
<b>Boys</b>	<b>4940</b>	<b>436</b>	<b>490</b>	<b>835</b>	<b>3179</b>
Smoking harmful	92.2	69.3	90.2	93.5	94.5
Smoking not harmful	7.8	30.7	9.8	6.5	5.5
<b>Girls</b>	<b>5057</b>	<b>21</b>	<b>74</b>	<b>369</b>	<b>4593</b>
Smoking harmful	86.3	71.4	89.2	94.0	85.7
Smoking not harmful	13.7	28.6	10.8	6.0	14.3

Furthermore, a strong relationship existed between the child's knowledge and awareness of the health hazards of smoking and whether he or she smoked ( $P < 0.0001$ ). Of the current smokers, almost one third (30.6%) felt that smoking was not harmful to health. Whether this was due to a lack of knowledge or a non acceptance of the truth so as to condone self behaviour, was not ascertained. The knowledge of the harmful effects of smoking rose dramatically among ex-smokers. This may have been an important factor to help these children give up the habit. Non-smokers and experimenters were also highly conscious of the dangers of smoking. Only 10.7% and 6.3% respectively felt that smoking was not harmful to health.

The differences in knowledge between boys and girls for each smoking category was not significant (current smokers,  $P = 0.54$ ; ex-smokers,  $P = 0.44$ ; experimenters,  $P = 0.24$ ). However, among non-smokers, 94.5% of boys were aware of the hazards of smoking whilst a significantly lower proportion (85.7%) of girls thought so ( $P < 0.0001$ ).

With regard to describing the specific most important harmful effects of smoking, almost half (49.0%) of all respondents listed lung cancer as a harmful consequence of

**Table II**  
Respondents' Beliefs About the Effects of Smoking on Health by Sex %

Effects	All Respondents	Boys	Girls
<b>Total</b>	<b>8894</b>	<b>4529</b>	<b>4365</b>
Lung cancer	49.0	46.9	51.1
Bad for health (non-specific)	25.3	26.3	24.2
Harms others	7.2	5.8	8.6
Heart disease	6.2	7.0	5.4
Bad breath/teeth	3.6	3.3	3.9
High blood pressure	1.2	1.0	1.5
Tuberculosis	0.9	0.9	0.8
Others	6.6	8.8	4.4

smoking (Table II). This was followed by a general statement that smoking was bad for health (25.3%).

A small percentage of respondents specifically identified passive smoking as being harmful to health - 5.8% boys and 8.6% girls.

Table III lists the harmful effects of smoking given by the different categories of smokers. A significantly higher proportion of non-smokers and experimenters gave lung cancer as a hazard of smoking compared to current and ex-smokers ( $P < 0.0001$ ). Current and ex-smokers appeared to be more aware of the harmful effects of smoking on the heart than the other groups (12.1% and 11.3% respectively). Only 1.6% of current smokers and 4.0% of ex-smokers highlighted the harmful effects of passive smoking compared with 7.4% of experimenters and 8.6% non-smokers.

**Table III**  
Respondents' Beliefs about the Effects of Smoking on Health by Category of Smokers %

Effects	Current Smokers	Ex Smokers	Experimenters	Non Smokers
<b>Total</b>	<b>317</b>	<b>508</b>	<b>1128</b>	<b>6941</b>
Lung cancer	39.6	39.8	44.8	44.6
Bad for health (non-specific)	25.2	31.9	27.6	28.0
Harms others	1.6	4.0	7.4	8.6
Heart disease	12.1	11.3	5.1	6.7
Bad breath/teeth	4.3	4.9	5.0	3.7
High blood pressure	1.0	1.9	1.0	1.4
Tuberculosis	0.8	1.7	0.7	1.0
Others	15.4	4.5	8.4	6.0

### Personal Attitudes Towards Smoking

Three statements were posed to the older school children to assess their knowledge and attitude, these being:

1. A person could easily get addicted to smoking;
2. Breathing in cigarette smoke is harmful;
3. Smoking makes a person less popular to the opposite sex.

**Fig 1 – Personal Attitudes Towards Smoking**

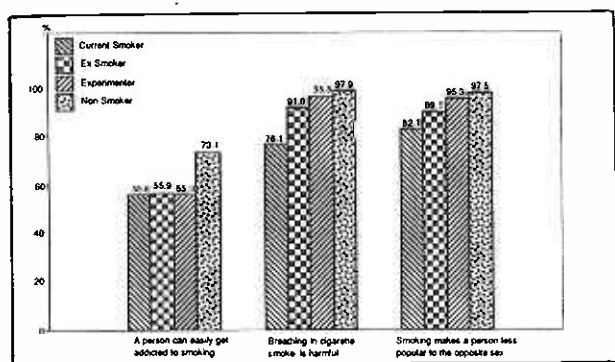


Fig 1 illustrates the results. At least half of all respondents, irrespective of their smoking status, agreed that a person could easily get addicted to the smoking habit. What is worth noting is that a significantly higher proportion of non-smokers were aware of this, which would be an important motivator to keep them away from the habit ( $P < 0.0001$ ).

At least three quarters of all respondents agreed that passive smoking was harmful. This was lowest among current smokers (76.1%) and highest among non-smokers (97.9%). The difference in responses given by the various categories of smokers was significant at  $P < 0.0001$ .

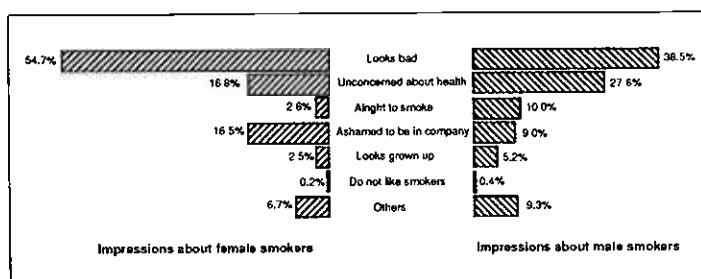
With regard to the statement that smoking makes one popular with the opposite sex, 17.9% of current smokers agreed with this. However, only 4.7% experimenters and 2.5% non-smokers felt this was so ( $P < 0.0001$ ).

It is clear from all the above that current smokers are either ill-informed or they set their beliefs to justify their indulgence.

**Impression about Smokers**

All respondents were next asked to give their impressions of boys and girls who smoked. The majority of respondents felt that a boy or girl who smoked "looked bad" - 38.5% thought that a boy who smoked "was bad" whilst a higher proportion, 54.7%, assessed this of girls who smoked (Fig 2). The opinions of the respondents were similar, irrespective of their sex ( $P > 0.05$ ).

**Fig 2 – Impressions of Smokers**



The impressions given by the various categories of respondents by their smoking status showed a significant difference between the views of those who had ever smoked, and non-smokers ( $P < 0.0001$ ). Furthermore, the impressions among the three categories themselves varied widely (Tables IV and V).

Regarding the negative qualities of smokers, only 17.7% of current smokers thought boys who smoked "looked bad". The corresponding proportion for non-smokers was 41.4% (Table IV). The same assessment of an unfavourable impression of girls who smoked, however, was markedly higher among

**Table IV  
Respondents' Impressions of a Boy who Smokes  
by Smoking Category** %

	Current Smokers	Ex Smokers	Experimenter	Non Smokers
<b>Total</b>	<b>457</b>	<b>564</b>	<b>1204</b>	<b>7772</b>
<b>Negative Qualities</b>				
Looks bad	17.7	27.1	30.1	41.4
Unconcerned about own health	6.6	22.3	23.2	29.9
Ashamed to be in company	3.3	8.0	6.2	9.8
Do not like boy smokers	-	0.4	0.3	0.4
<b>Positive Qualities</b>				
Alright to smoke	35.0	17.6	19.9	6.7
Looks grown up	24.7	12.6	6.3	3.7
Other qualities	12.7	12.0	14.0	8.1

**Table V  
Respondents' Impressions of a Girl who Smokes  
by Smoking Category** %

	Current Smokers	Ex Smokers	Experimenter	Non Smokers
<b>Total</b>	<b>457</b>	<b>564</b>	<b>1204</b>	<b>7772</b>
<b>Negative Qualities</b>				
Looks bad	44.9	52.0	53.3	55.5
Unconcerned about health	4.4	9.0	13.0	18.4
Ashamed to be in company	17.3	20.9	15.9	16.3
Do not like girl smokers	0.4	-	0.5	0.2
<b>Positive Qualities</b>				
Alright to smoke	12.5	5.7	4.1	1.8
Looks grown up	12.5	6.6	2.9	1.8
Other qualities	8.0	5.8	10.3	6.0

current smokers, at 44.9% (Table V). More than half (55.5%) of non-smokers felt likewise. In summary, the proportions of respondents who on overall believed that either a boy or a girl who smoked looked bad was lowest among current smokers and highest among non-smokers.

A large proportion of non-smokers also believed that those who smoked were unconcerned about their health - 29.9% thought this of boys who smoked whilst 18.4% felt the same of girls who smoked. This figure was observed to decrease with the experience of smoking, with only a small proportion of current smokers thinking that boys (6.6%) or girls (4.4%) who smoked were not bothered about their health. On selecting what forms the overriding impression of male and female smokers, it appears that it is far more socially unacceptable for girls to smoke, whilst the concern about health is more strongly expressed for male smokers as compared with female smokers.

Regarding the "positive qualities" of smokers, slightly more than a third of current smokers felt that it was "quite alright" for a boy to smoke whilst a much smaller proportion (12.5%) felt the same of a girl who smoked. About a quarter of current smokers perceived a boy who smoked as "grown up". This

opinion fell significantly among the two other categories of smokers, falling to 3.7% among non-smokers. The proportions who felt the same of a girl who smoked were approximately half that given for their male counterparts, by every category of respondents.

#### Reasons for Giving Up Smoking by Ex-Smokers

An attempt was also made during the survey to try to find out what motivated ex-smokers to give up smoking, as a possible pointer towards what persuades young smokers to give up the habit. Almost half of all ex-smokers discontinued smoking to safeguard their health as they became convinced of the health risks of smoking (Table VI). The proportions of girls who stopped because of this reason was markedly less (39.4%) than that for boys (50.5%).

**Table VI**  
Reasons For Stopping Smoking %

	All Ex-Smokers	Boys	Girls
Total	1035	893	142
Affects health	48.8	50.5	39.4
No 'kick'	15.6	14.1	24.0
Friends disapproved	13.4	12.3	19.7
Parents/Teachers disapproved	13.0	14.0	7.1
Could not afford	2.7	2.6	3.5
Others	6.5	6.5	6.3

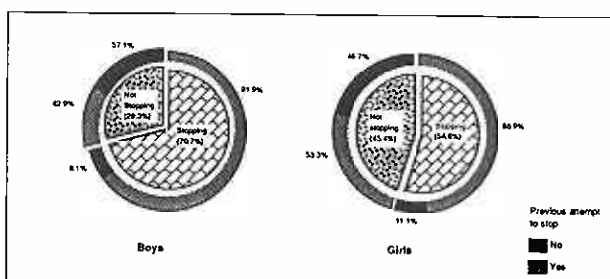
Approximately one quarter of girls and 14.1% of boys indicated that they no longer derived any pleasure out of smoking, whilst a slightly smaller percentage (19.7% girls and 12.3% boys) gave up smoking because of peer pressure. This has also illustrated that for the girls social reasons to give up smoking were more powerful when compared with the boys.

Disapproval from parents or teachers was the fourth most influential factor for 13.0% of ex-smokers (14.0% boys and 7.1% girls) to give up the habit.

#### Intentions to Stop Smoking Among Current Smokers

More than two thirds of boys who were currently smoking indicated that they would like to stop smoking whilst slightly more than half the girls felt likewise (Fig 3). Of those who wished to stop smoking, the majority had tried to do so in the past but had failed in their attempts (91.9% boys and 88.9% girls). Of the one third of male smokers and almost half of female smokers who did not intend to give up smoking, half had tried to kick the habit in the past but had failed. This had probably led them to abandon the idea of trying again to give up smoking.

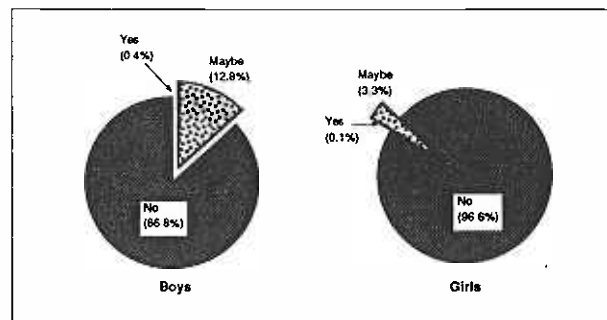
**Fig 3 - Previous and Future Intentions of Current Smokers to Stop Smoking**



#### Smoking Intentions of Non-Smokers

Only 0.4% of boys and 0.1% of girls who were currently non-smokers indicated that they might take up smoking in the future. Although the greater majority of non-smokers were emphatic that they would never smoke, about 12.8% boys and 3.3% girls were undecided and felt that they could be influenced to take up the habit (Fig 4). Peer pressure (35.7%) was cited as the main factor that might influence them to smoke, followed by depression (7.1%) and "work" pressure (7.1%).

**Fig 4 - Smoking Intentions of Non-Smokers**



#### DISCUSSION

This study has shown that a relatively high proportion of school-going children realised that smoking was bad for health, although those who smoke or have smoked before appeared to be more ignorant, in general, than non-smokers. A great proportion of smokers did not highlight the potential harm that smoking poses to non-smokers. Attitudes, too, differed greatly among the various categories of respondents with regard to their smoking status. A greater proportion of smokers, not unexpectedly, thought positively about smokers and smoking than non-smokers or even experimenters. It may well be that smokers, in the light of the general high level of knowledge about the ill effects of smoking among school children, have resorted to justify their behaviour by choosing to ignore the harmful effects of smoking. Girls appeared less knowledgeable about the ill effects of smoking perhaps due to their lesser interest in the subject. Outreach programmes need to be more selectively tailored to reach out to the special groups identified by this study.

At least a quarter of current smokers had no intention of giving up the habit in the future. It would seem that this group of children had drifted into a habit which they find extremely difficult to break<sup>(5)</sup>. The fact that they had attempted and failed in the past could be the reason for their pessimism regarding giving up smoking. There is the possibility that they could slowly become entrenched in the habit. Balanced against this is the fact that the majority of smokers still intended to give up smoking and form a potential pool for carefully planned and appropriate intervention strategies.

It is clear that children are impressionable and vulnerable and they require help to overcome peer pressure and to support their efforts to give up smoking once they have been initiated into the habit. Being young, however, the habit cannot be too strongly entrenched to be irreversible. The help should be timely and in the form of sensitive and appropriate programmes addressing the various findings that this study has shown. Children should be able to identify with the messages relayed, understand them and be convinced. This will provide them with the capacity to resist overtures to smoking and even induce appropriate behaviour modification among experimenters and current smokers, enabling them to give up, while still relatively early in their lives, what could prove to be a very harmful lifestyle to their health.

More than a quarter of ex-smokers had identified "the disapproval of friends, parents and teachers" as the factor which motivated them to give up smoking. This highlights the powerful influential role that these special persons play in moulding a growing child's life along the correct path. This responsibility should be consciously remembered by those concerned and its positive role actively exercised.

#### ACKNOWLEDGEMENT

The authors wish to thank the Ministry of Education (MOE) and the VITB for kindly agreeing to allow their students and trainees to participate in this first national survey to gauge the smoking levels and behaviour among the school-going population in Singapore. We also wish to acknowledge the ready and kind assistance of the MOE and VITB, particularly with regard to administrative support for the conduct of the survey. Special thanks to the twelve nurses from the Primary

Health Division of the Ministry of Health who successfully conducted the fieldwork in the schools.

Special thanks too, to Ms Jane Ma and Low Bee Geok for their dedicated assistance in preparing this manuscript.

#### REFERENCES

1. Pierce JP, Dwyer T, Chamberlain A, Aldrich RN, Shelley JM. Targeting the smoker in an anti-smoking campaign. *Prev Med* 1987; 16: 816-24.
2. Bewley BR, Bland JM, Harris R. Factors associated with the starting of cigarette smoking in Primary school children. *Br J Prev Med* 1974; 28: 37-44.
3. Emmanuel SC, Ho CK, Chen AJ. Cigarette smoking school children in Singapore. Part I - Smoking prevalence. *Singapore Med J* 1990; 31: 211-6.
4. Emmanuel SC, Ho CK, Chen AJ. Cigarette smoking among school children in Singapore. Part II - Development of the smoking habit. *Singapore Med J* 1991; 32: 146-50.
5. Cartwright A, Thomson JG, et al. Young smokers - An attitude study among school children touching also on parental influences. *Br J Prev Soc Med* 1960; 14: 28-34.

## 1ST COMBINED SCIENTIFIC MEETING OF SINGAPORE THORACIC SOCIETY & MALAYSIAN THORACIC SOCIETY

UPDATE ON MANAGEMENT OF RESPIRATORY DISEASES  
7 - 8 DECEMBER 1991

#### Programme Highlights:

An exciting programme of lectures, symposia and free papers with participation of invited speakers from United Kingdom, Australia, Malaysia and Singapore.

- \* Chronic Obstructive Pulmonary Disease
- \* Asthma
- \* Respiratory Infections
- \* Lung Cancer
- \* Obstructive Sleep Apnoea
- \* Interstitial Lung Disease

For further details, contact:

Dr Sin Fai Lam  
c/o Singapore Thoracic Society  
Rotary Clinic  
Tan Tock Seng Hospital  
Moulmein Road  
Singapore 1130  
Tel: 2566011