Trends in Youth Smoking from 1994 to 2003/4, Respiratory Health and Tobacco Advertising

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Introduction

The Hong Kong Council on Smoking and Health (COSH) funded the Department of Community Medicine, the University of Hong Kong (CMD) to conduct two youth smoking surveys from May to July 1994 and from May to December 1999. 6,304 Forms 1 to 3 students from 61 schools in the 1994 survey and 21,044 Forms 1 to 3 students from 64 schools in the 1999 survey completed an anonymous self-administered structured questionnaire providing information on their smoking status, respiratory health and other aspects. 4,539 students from the 1994 survey and 8,737 students from the 1999 survey were selected to form a comparable and representative sample for analyses.

The third Youth Smoking and Health Survey, also by an anonymous self-administered structured questionnaire, was conducted from February 2003 to April 2004 by the CMD and funded by COSH and the Department of Health, HKSAR (DH). Responses of 36,812 Forms 1 to 5 students from 86 schools were analysed with a response rate of 98.1%. The 2003/4 surveys included students from Forms 4 and 5 and from new schools. Instead of selecting students to form a representative sample which was comparable to earlier survey, data weight was applied in the analyses. Comparisons of findings between the 1994, 1999 and 2003/4 surveys were performed only in Forms 1 to 3 students. Data weight was calculated from the distributional differences of sex, age, district and form between the sample and the population. Furthermore, age by form distributional differences between the 1999 and 2003/4 samples were considered in the data weight for the calculation of prevalence by age.

Students answered questions on their smoking status and current use of cigarettes. The overall and sex specific prevalence and trends of ever and current smoking in Hong Kong secondary school students were presented by form. The sex specific prevalence and trends by age were presented only in the sample of Forms 1 to 3 students. Other aspects of smoking, such as age of initiation and respiratory symptoms, were compared between Forms 1 to 3 students in the 1994, 1999 and 2003/4 surveys. Respiratory symptom of often having phlegm or cough for three months continuously in the past 12 months in student was recorded and their associations with smoking status and exposure to secondhand smoke (SHS) in family were reported. Tobacco advertising is a factor of ever and current smoking in youths and students were exposed to a variety of tobacco advertising. We collected information on students' participation in cigarette promotion activities, places where they were given free publicity cigarettes, types of media on which they were exposed to cigarette advertisements and their perceived attractiveness of cigarette brands. Prevalence of these tobacco advertising in students were compared across 3 surveys and their associations with ever and current smoking in 2003/4 were presented.

Definition of ever and current smoking

Current smoking was defined by the question "During the past 30 days (one month), on the days you smoked, how many cigarettes did you usually smoke?" Respondents who indicated "I did not smoke cigarettes during the past 30 days (one month)" were classified as non-current smokers whereas those who selected other options which indicated the number of cigarettes taken were classified as current smokers. Ever smoking was defined by a question asking respondents to select the most appropriate description of their smoking status from six descriptions. Respondents who selected "I have never smoked." were classified as never smokers. Respondents who were neither never nor current smokers were classified as ex-smokers.

Trends in youth smoking

1. The overall prevalence of current smoking in Forms 1 to 5 students in 2003/4 was 9.6% and the prevalence for boys and girls were 11.5% and 7.6% respectively. In Forms 1 to 3 students, the prevalence for overall, boys and girls was 8.7%, 10.4% and 6.9%. The respective overall, boys and girls prevalence of current smoking in 1994 were 9.5%, 13.1% and 6.2% and were 12.7%, 13.7% and 11.5% in 1999.
2. The overall prevalence of ever smoking in Forms 1 to 5 students in 2003/4 was 25.7% and the prevalence for boys and girls was 27.5% and 24.0% respectively. In Forms 1 to 3 students, the prevalence for overall, boys and girls was 22.8%, 24.8% and 20.8%. The respective overall, boys and girls prevalence of ever smoking in 1994 were 28.0%, 32.0% and 24.2%, and in 1999 were 26.0%, 28.1% and 24.2%.

3. After the sharp rise in the prevalence of current smoking in 1999, the 2003/4 survey showed that the overall and sex specific rates had dropped to below 1984 level in Form 1 and near 1994 level in Form 2 (Figure 1). The Form 3 prevalence was lower in 2003/4 but only by 1% point since 1999, and was still 2% points above that in 1994. The combined and form specific prevalence in Forms 1 to 3 boys and girls were a few percentage points lower than that in the 1999 except in Form 3 boys (Figure 2-3).

Figure 1

Figures 2

Figure 3

4. The overall and sex specific prevalence of ever smoking in Forms 1 and 2 students was lower in 2003/4 than that in 1999, which was lower than that in 1994. However, the 2003/4 rates in Form 3 were close to that in 1999 (Figure 1-3). Prevalence of ever and current smoking in boys and girls peaked at Form 3 in 1994, 1999 and 2003/4.

5. Forms 4 and 5 students were surveyed for the first time in 2003/4 and the rates in these forms were similar to that in Form 3, except for the prevalence of current smoking in Form 5 boys which showed a drop of 3% points (Figure 2). The rates of current and ever smoking in Forms 4 and 5 were not higher because after Form 3, when the 9 years of compulsory education had been completed, some students left schools and they were more likely to be current smokers.

6. Prevalence of current and ever smoking were higher in older students (Figure 4). Prevalence of current smoking was 4% in students aged 12 or below and 16% in students aged 16 or above, whereas the respective prevalence for ever smoking were 12% and 49%. Prevalence of current smoking by age in 2003/4 was close to the level in 1999, which was 1% to 5% points higher than that in 1994. Prevalence of ever smoking in students aged 14 or below was lower than that found in earlier surveys but caught up to the 1994 level, which was higher than the 1999 level in older students.

Figure 4

7. Compared to 1999, the 2003/4 prevalence of current and ever smoking in boys were lower for students aged 13 or below but higher for age 15 or above (Figure 5). Similarly, the 2003/4 prevalence of ever smoking by age in Forms 1 to 3 girls were lower than that in 1999 for students aged 13 or below but higher for age 15 or above (Figure 6). The 2003/4 prevalence of current smoking by age in this group was lower than that in 1999 but higher than that in 1994.

Figure 5
Profile of smoking

8. Most Forms 1 to 3 ever smoking students in 1994, 1999 and 2003/4 started smoking at age from 10 to 13 (59%, 62% and 52%, respectively) (Figure 7). The mean ages in year of first smoking were 10.6 in 1994, 10.9 in 1999 and 10.7 in 2003/4.

9. There was a big difference between the mean age of first smoking and the mean age of first smoking habitually in Forms 1 to 5 ever smoking students in 2003/4 (Figure 8). About half of the ever smoking students first smoked before age 12; over 80% of the students first smoked habitually age 12 or older. For current smokers, the difference between the mean age of first smoking and the mean age of first smoking habitually was 1.1 years (Figure 9).

10. The majority of Forms 1 to 3 current smoking students smoked less than 6 cigarettes daily (62%, 71% and 70% in 1994, 1999 and 2003/4, respectively) (Figure 10). The percentage of current smoking students smoked more than 20 cigarettes daily were 14%, 2% and 6%, respectively.

11. Over 40% of the current smoking students usually smoked at public places such as parks, shopping centres and street corners, and the percentage was much higher in girls (53%) than in boys (41%) (Figure 11). 17% of the current smoking students usually smoked at home. Fewer current smoking girls usually smoked at school or work. A majority of youth smokers did not feel inhibited to smoke in the public or at home.
12. About 50% of the current smoking boys and girls bought their own cigarettes in a store, shop or from a street vendor (Figure 12), even retailers are prohibited by law to sell cigarettes to people age below 18. Over 20% of the current smoking students got their cigarettes from other people. Fewer current smoking students in 2003/4 bought broken pack cigarettes and suspected smuggled cigarettes when compared to the 1994 and 1999 surveys (Figure 13).

Figure 12

Sources of cigarettes in Forms 1 to 3 current smoking students in 2003/4

<table>
<thead>
<tr>
<th>Source of Cigarettes</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>I bought them in a store, shop or from a street vendor</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>I gave someone else money to buy them for me</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>I borrowed them from someone else</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>I stole them</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>An older person gave them to me</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>I got them some other way</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Percentage (%)</td>
<td>50</td>
<td>69</td>
</tr>
</tbody>
</table>

13. 37% of the Forms 1 to 5 current smoking students wanted to stop smoking immediately and the percentages were higher in senior forms (Figure 14).

Figure 13

Percentages of Forms 1 to 3 current smoking students buying broken pack and suspected smuggled cigarettes: 1994, 1999 and 2003/4

<table>
<thead>
<tr>
<th>Year</th>
<th>Broken pack cigarettes</th>
<th>Suspected smuggled cigarettes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>1999</td>
<td>23</td>
<td>34</td>
</tr>
<tr>
<td>2003/4</td>
<td>31</td>
<td>31</td>
</tr>
</tbody>
</table>

14. In non-current smoking Forms 1 to 5 students, 7% will smoke if they were offered cigarettes from their friends (Figure 15). 3% of them indicated they will smoke next year and 8% will smoke five years later. In middle Forms, the percentages of students showing intention to smoke were higher, with Form 3 the highest.

Figure 15

Smoking intention by form in Forms 1 to 5 non-current smoking students in 2003/4

Smoking and health

15. The prevalence of a respiratory symptom (often have phlegm or cough for three months continuously) was highest in Forms 1 to 3 students in 2003/4, then in 1999 and lowest in 1994 (Figure 16). Prevalence of this respiratory symptom was also highest in current smoking students, then ex-smoking students and lowest in never smoking students.

Figure 16

Prevalence of “Often have phlegm or cough for 3 months continuously in previous year” by smoking status: 1994, 1999 and 2003/4

16. The association between often have phlegm or cough for three months continuously and smoking status in Forms 1 to 3 students were strongest in 1999 (age and sex adjusted prevalence rate ratio (PRR) of 1.3 for ex-smoking and 3.4 for current smoking, when compared to never smoking with PRR of 1.0), then in 2003/4 (age and sex adjusted PRR of 1.3 for ex-smoking and 2.5 for current smoking) and lowest in 1994 (age and sex adjusted PRR of 1.3 for ex-smoking and 2.2 for current smoking) (Figure 17). The excess risk in 2003/4 of respiratory symptoms due to smoking was about 150%.
17. The prevalence of father smoking was similar across 3 surveys (Figure 18). The prevalence of siblings smoking, grandparents, relatives and other persons smoking in the family were smallest in 2003/4, then 1999 and highest in 1994. The difference was largest in siblings smoking. Among never and ex-smoking students, the prevalence of respiratory symptoms (often have phlegm or cough for three months continuously) were higher in those with exposure to SHS (Figure 19).

18. In Forms 1 to 3 students, the association between often have phlegm or cough for three months continuously and exposures to SHS were similar in the 3 surveys (age and sex adjusted PRR of 1.1 in 1994, 1.2 in 1999 and 2003/4) (Figure 20). The excess risk of respiratory symptoms due to SHS was about 20%.

19. There were big decreases in 2003/4 in the percentage of Forms 1 to 3 students using cigarette packs to exchange for tickets / gifts / goods and watching or participating in cigarette promotional activities such as concerts and sports events sponsored by tobacco companies (Figure 21).

20. About 10% of the students were given free cigarettes for sale promotion in different places in 2003/4, which was similar to the 11% in 1999 and 8% in 1994 (Figure 22). Students were given free publicity cigarettes mostly in streets (4% to 6%) and in pubs, bars or karaoke lounges (2% to 3%).
21. Students exposed to tobacco advertisements through many media but the exposure had been a lot less in 2003/4 than the earlier surveys (Figure 23). In 1994 and 1999, students mostly saw tobacco advertisements from television, public transportation vehicles (buses, minibuses, taxis, trams and ferries), railways (MTR, KCR and LRT stations), printed materials (newspapers and magazines) and public promotions (outdoor billboards, posters and hand bills). In 2003/4, television, printed materials and public promotions were still the main media of exposure but the percentage of students exposed to tobacco advertisements from these media was below 30%. Just 1% of the students reported seeing tobacco advertisements from media other than those listed in 1994 but in 1999 and 2003/4, the Internet was categorized into this category and the percentage became 17% and 22% respectively. Students also exposed to logos of cigarette brands on different items such as lighters, ashrays and clothes. The percentage of students exposed to these items in 2003/4 were less than that in 1994 but higher than that in 1999.

Figure 23

Media on which Forms 1 to 3 students were exposed to cigarette advertisements recently: 1994, 1999 and 2003/4

![Graph showing media exposure]

22. Fewer students found tobacco advertisements from several common cigarette brands attractive in 2003/4 when compared to 1994 and 1999 (Figure 24). One brand of cigarette was usually smoked and liked by about 50% of current smoking Forms 1 to 3 students (Figure 25). One fourth of these students did not have a brand they usually smoked or liked.

Figure 24

Cigarette advertisements perceived to be attractive in Forms 1 to 3 students: 1994, 1999 and 2003/4

![Graph showing brand attractiveness]

23. Strong associations between tobacco advertising and smoking status were found in Forms 1 to 3 students in 2003/4 (Figure 26 and 27). Exposures to tobacco advertisements from the media was associated with 20% and 50% excess risk in ever and current smoking. Participation in cigarette promotional activities produced excess risk of 120% and 330% for ever and current smoking. Perceived attractiveness of cigarette advertisements showed the strongest association with ever and current smoking, with PRR of 3.2 and 9.4 respectively (i.e., excess risks of 220% and 840% respectively).

Figure 25

Brand of cigarettes Forms 1 to 3 current smokers usually smoked and liked to smoke in 2003/4

![Graph showing brand preference]

Figure 26

Prevalence rate ratio of ever smoking by tobacco advertising in Forms 1 to 3 students in 2003/4

![Graph showing advertising prevalence]

Figure 27

Prevalence rate ratio of current smoking by tobacco advertising in Forms 1 to 3 students in 2003/4

![Graph showing current smoking prevalence]
Discussions

24. The 2003/4 survey included students from Forms 1 to 5 in schools in every district of Hong Kong. The sample was weighted by sex, form, age and district distributions of students in Hong Kong to provide representative overall estimates. The questionnaire items we used were obtained from our previous Youth Smoking Surveys (YSS) questionnaires. Good validity of these items were demonstrated and the results of the associations between smoking and factors for smoking, as well as the association between smoking and health consequences supported the validity of the measurements. Standardized sampling, anonymity and administrative procedures used in the YSS ensured good quality of data for studying youth smoking prevalence and its associated factors. This database can provide the best evidence for prevalence of youth smoking and the effect of the health consequences from smoking.

25. The prevalence of youth smoking found from this survey was 9.6%, which was similar to the smoking rate of 9.7% in a sample of 95,788 students from ordinary secondary day schools, international schools and Institute of Vocational Education (IVE), reported in a drug survey by the Narcotics Division, Security Bureau in 2002 (Lau, 2002). Our prevalence for boys (11.5%) and girls (7.6%) were also similar to those found in the drug survey (11.1% and 8.1%, respectively).

26. The overall prevalence of current smoking by form was a few percentage points lower when compared with the 1999 survey but was still higher than that of 1994, especially in boys. In 2003/4, about 1 in 12 male students was a current smoker at age of 12 or below and the rate increased sharply to 1 in 6 at age 16. Prevalence of current smoking by age from 12 or below to 15 in Forms 1 to 3 boys or girls did not show significant difference between 1999 and 2003/4. These results suggest that there was not much, if any, change in age specific prevalence of current smoking in Forms 1 to 3 students during the past 4 years. The rate at age 15 and above could have been higher because some students of the poorest academic performance dropped out from schools after studying Form 3 (which is the last year of the 9 year compulsory education in Hong Kong) at the age of 15. Female smoking in adolescence became slightly lower but was still high.

27. Smoking prevalence and trends in youth can change rapidly variably by age and sex, and regular monitoring of youth smoking helps to understand the problem and inform the prevention policy. Most smoking begins during adolescence and smoking prevention in youth is needed. However, there is a lack of information on smoking and related factors in adolescents aged 15 to 19. About 15% of adolescents in this age group are out of formal schooling and cannot be covered by school-based surveys. They are more disadvantaged in terms of academic achievement, and are not protected by the school environment, and hence are exposed to more pro-smoking influences. More research is urgently needed in this area.

28. More stringent youth smoking prevention strategies must be taken. About half of current smoking students aged below 18 bought their own cigarettes directly from stores, shops or street vendors and also reported smoking in public places such as parks, shopping centres and street corners. These suggested that the young smokers were less frightened of being seen smoking, and our society could be perceived by young people as receptive to youth smoking. Effective and comprehensive tobacco control measures should include increase in tobacco tax, complete ban of all forms of tobacco advertisements, promotion and sponsorship, including brand stretching, displaying tobacco products at points of sale, plain packaging and extension of designated no smoking outdoor areas. The family can also play an important role in the intervention because as much as 15% of the current smokers usually smoked at home.

29. About 40% of the current smokers wanted to quit smoking and the percentage was about 50% in Forms 4 and 5 current smokers. Smoking cessation services have to be made readily available to young current smokers to promote quitting.

30. The cross-sectional associations between smoking and the respiratory symptom were observed in the 1994, 1999 and 2003/4 surveys. Acute health problems including continuous cough and phlegm should also be included into the burden and costs of smoking in addition to chronic health problems such as lung cancer and heart diseases. Parents, teachers and health professionals should pay attention to such symptoms and try to find out if the symptoms could be due to smoking, and to help the smoking students quit smoking.

31. Although fewer youths had contacts with tobacco advertising and perceived tobacco advertisements as attractive in 2003/4 when compared to 1994 and 1999, many students were still at risk of being influenced by tobacco advertisements. A complete banning of tobacco advertisements and display of tobacco products at points of sale is needed to protect youths from the influence.

32. Smoking is the single most preventable cause of diseases and deaths and many current smoking adults started smoking in adolescence. Furthermore, the excess risks of respiratory symptoms due to smoking were great. Secondhand smoking also increased the risk of respiratory symptoms by 20%. The majority of youth smokers wanted to quit smoking. Although about 90% students do not smoke, the prevalence of current and ever smoking in youth were still high. Extra effort must be placed on deterring youth from smoking and promoting smoking cessation in the future.

33. Our society should be a smoke-free society and smoking, especially in youth, must not be accepted
in the public. The responsibility of denormalising smoking lies not just in the family, schools and health professionals, but also the media and advertisements, and the government. Amendments to the existing laws and regulations on this aspect are urgently needed.

Key Points

1. The overall prevalence of ever and current smoking in Forms 1 to 5 students in 2003/4 were 25.7% and 9.6% respectively.

2. The overall prevalence of ever and current smoking in Forms 1 to 3 students in 2003/4 were 22.8% and 8.7% respectively. The prevalence of current smoking was 4% points and 1% point lower than that in 1999 and 1994 respectively. The prevalence of ever smoking was 3% points and 5% points lower than that in 1999 and 1994 respectively.

3. The prevalence of both current and ever smoking in boys and girls were lower than the earlier survey but in older boys, the prevalence was close to or even above the level at 1999.

4. About 40% of the current smokers wanted to quit smoking and in Forms 4 and 5 the percentage was close to 50%.

5. Compared with never smoking students, ex-smoking students and current smoking students reported more respiratory symptoms of often have phlegm or cough for 3 months continuously. The excess risk in 2003/4 of respiratory symptoms was 30% in ex-smokers and 150% in current smokers. Never smoking students with exposure of family secondhand smoke had an excess risk of 20% of having respiratory symptoms.

6. Students in 2003/4 had fewer contacts with tobacco advertising but the associations between tobacco advertising and smoking in adolescents remained very strong. Students who perceived cigarette advertisements as attractive, participated in cigarette promotional activities and exposed to cigarette advertisements from media had excess risk of 220%, 120% and 20% of being an ever smoker, and 840%, 330% and 50% of being a current smoker, respectively.

7. The lower prevalence of ever and current smoking, and the prevalence of contacts with tobacco advertising in adolescents could be due to the tobacco control measures in the past 4 years. Youth smoking however is still a worrying problem, especially in older boys. Influences from tobacco advertising on youth smoking are strong and adverse health effects from smoking and second-hand smoke are avoidable. Comprehensive tobacco control measures should include increase in tobacco tax, complete ban of all forms of tobacco advertisements, promotion and sponsorship, and complete ban of smoking in public areas and workplaces, including restaurants, bars and karaoke.

References


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