A evaluation of tobacco control policy in Hong Kong

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Abstract. Hong Kong has implemented multiple smoking control policies over the past 40 years, including legislation, taxation, education, and smoking cessation services. This review analyzes data on smoking rates, daily cigarette consumption, smoking related diseases, and law enforcement, summarizes the policy tools used by the Hong Kong government in tobacco control, to evaluate and analyzes the effectiveness of these policies. After collection and analysis, it was found that people's smoking rate has decreased from 23% in 1982 to 10% in 2021, and daily smoking volume is also decreasing over time. In particular, the new smoking ban implemented in 2007 has led to a general decline in the incidence rate and mortality of lung cancer. During this period, the government is also using different means, such as continuously expanding smoking prohibition zones and strengthening law enforcement, to promote and educate the public on the importance of smoking prohibition. Overall, over the past 40 years, Hong Kong has made positive progress in reducing tobacco use and smoking hazards through comprehensive and gradual policies aimed at maintaining and strengthening tobacco control, promoting public health.

1 Introduction

Decades of evidence suggests that smoking, either in an active or passive way, causes considerable range of health and economic issues. Despite more than half a century of tobacco control effortsIn 2019, The number of deaths caused by smoking is 7.7 million, and one fifth of male deaths worldwide are caused by smoking [1], which following the high blood pressure, the second high-risk factor for death and disability. In addition, second-hand smoke (SHS) was also related to 1.2 million death worldwide according to the nearly study. Among all the causes, coronary heart disease (CHD), respiratory cancer, chronic obstructive pulmonary disease(COPD), and brain stroke accounted for more than two third of the death attributable to tobacco consumption [2]. World Health Organization (WHO) reported recently that economic expend relevant to tobacco smoking were estimated to be around 1.4 trillion USD annually [3], including health care expenditures for treating the disease and human productivity reduction, accounted for about 2% of the global yearly GDP. Rapidly reduction of tobacco smoking does not only lessen the burden on personal health, but also on the society and the economics.

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It was claimed that the compositive tobacco control measures were broadly advocated and effected in progress with the introduction of the world’s first public health treaty, the WHO Framework Convention on Tobacco Control (WHO FCTC), in 2003. Aimed to control the use of cigarette, WHO called for member states to achieve a global targets of reducing 30% prevalence in tobacco use by 2025 [4]. Numerous anti-smoking interventions like taxation, restriction on public places, prohibition on advertising, warnings on coverage etc. were employed to address the prevalence of tobacco. WHO reported in 2019, 136 countries covering 5 billion people benefited from the FTCT interventions. Nevertheless, even if and the global attention of anti-tobacco is taken more seriously, the war is far from won.

In 1982, there was around 23% Hong Kong residents with tobacco dependence, when the first smoking (public health) ordinance was published and approved by the low, according to a special topic report of the government survey [5]. Hong Kong began to prohibit smoking in public places, restrict cigarette retail and promotion, and put health warning on tobacco advertisements. McGhee S M and her colleagues [6] estimated that in 1988 there were 5596 death attributable to active smoking and 1324 death related to SHS, which totally accounted for 21.1% of the yearly mortality of Hong Kong. At then, the proportion of people addicted to cigarette was 15%. With the expansion and reinforcement of the ordinance subsequently, the government set up the Tobacco Control Office in 2001. Associated with the WHO FCTC, as a signatory member, Hong Kong implemented an amendment of the ordinance in 2006 by passing a bill to prohibit smoking in all indoor public area. In 2009, anyone smoked in statutory no smoking places might get a fixed penalty of HKD1,500. The statutory no smoking areas kept on enlarging from open-air public to tunnel portal areas. The pictorial health warnings on cigarette products were standardized by at least covering 85% of the package, and the number of health warning forms were added to 12 from 21 June 2018 [7].

After nearly 40 years of tobacco control efforts through legislation, taxation, publicity, education, cessation service and law enforcement etc., the proportion of daily smokers dropped to 10% of all Hong Kong citizens aged 15 and over [5]. Evidence has shown that the immediate and long-term health benefits for smoking cessation are significantly positive (WHO). However, smoking continues to be the leading preventable dangerous factor relevant to the main causes of death and chronic diseases [7]. A retrospective review estimated that in 2011 there were still 6154 and 672 death related to active and passive smoking, and the related economic damage reached to HKD 4.7 billion, which is around 1.8% of Hong Kong GDP in the year [8-11].

2 Method

Hong Kong has made an effort in tobacco control for nearly 4 decades. And according to a report by Hongkong [11] 2011, tobacco consumption still caused about 6826 death, and HKD4.7 billion of economic loss, which is around 1.8% of Hong Kong GDP in 2011. The methodology we performed in this review followed a posttest-only analysis approach with the data and evidence collected mainly from local government departments from 1982 to date. We estimated that the effectiveness of smoking control ordinance was relevant with the smoking population, daily cigarette consumption, mortality of lung cancer, legal smoking-free areas, and the enforcement figures against the smoking offence. With the destination of evaluating the effectiveness of smoking control ordinance, a set of comparison concerning above-mentioned themes were conducted.
2.1 Identification and selection of sources

In this study, we made the delimitation of sources range within the Hong Kong government website and statistical yearbook, including Census and Statistics Department, Centre for Health Protection, Hong Kong Council on Smoking and Health, Customs and Excise Department, Hong Kong Cancer Registry.

A data analysis from 1990-2015 had carried out that smoking was the most important hazards for lung cancers and chronic respiratory diseases [12, 13]. We selected the period from 2003 to up-to-date on study of lung cancer and COPD associated to the world’s first adoption of WHO FCTC. For the smoking population proportion we located the web sites of Census and Statistics Department to go through related surveys on local smoking patterns since 1982. Followed the 2009 fixed penalty ordinance, we collected all data from Customs and Excise Department to analyze the offence situation. After detailed examination, we delivered a comprehensive analysis with the data and articles.

3 Data collection and analysis

3.1 Lung cancer

Like many countries and regions, Hong Kong faces an increasingly serious threat of non-communicable diseases. These diseases are driven by a variety of factors. Among them, smoking is one of the main factor, and one in five deaths is related to smoking. Among all smokers, half of them are expected to die from various diseases caused by smoking. Local statistics show that about 14% of the elderly in Hong Kong still have long-term smoking habits. (Elderly Health Service, Health-ageing) Though the smoking rates are decreasing, smoking still has a negative impact on the economy and public health of Hong Kong. Smoking directly led to the death of 6,826 people in Hong Kong and economic losses amounted to HK$5.6 billion [14-27]. Among them, the incidence and mortality of lung cancer have hit the top ten cancers in Hong Kong. The smoking ban, enacted in 2006, aims to create a smoke-free Hong Kong. The Hong Kong Department of Health and related health care providers provide free, effective and universal smoking cessation services to all those who want to quit smoking, in addition to providing medical services to the public. Under the influence of the smoking ban, the smoking rate of Hong Kong people has declined.

With the implementation of the smoking ban, the incidence rate and mortality of cancer are on the decline. The newly revised Smoking (Public Health) Ordinance in Hong Kong has been implemented since 2007. By 2016, the incidence rate of cancer for both men and women had declined in the past ten years, as shown below (Table 1).

### Table 1. Average Annual Percent Change (AAPC)

<table>
<thead>
<tr>
<th>Cancer site (part)</th>
<th>Incidence</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Breast</td>
<td>-</td>
<td>+2.5%*</td>
</tr>
<tr>
<td>Cervix</td>
<td>-</td>
<td>+0.9%</td>
</tr>
<tr>
<td>Colorectum</td>
<td>+0.6%*</td>
<td>-0.4%*</td>
</tr>
<tr>
<td>Corpus uteri</td>
<td>+3.4%*</td>
<td>-</td>
</tr>
<tr>
<td>Liver</td>
<td>-2.3%*</td>
<td>-3.0%*</td>
</tr>
<tr>
<td>Lung</td>
<td>-2.3%*</td>
<td>+0.1%</td>
</tr>
</tbody>
</table>

Generally, the promulgation of the anti-smoking regulations has had a positive effect on lung cancer patients in Hong Kong. Effectively promoted the work of Hong Kong residents...
to prevent lung cancer. Therefore, the smoking ban regulations play a positive role in targeting diseases caused by smoking.

### 3.2 Proportion of smoking population

Since the tobacco control work in Hong Kong for more than 30 years, through the government and communities to support and promote tobacco control, the smoking rate in Hong Kong has continued to decline, becoming one of the lowest smoking rates in the world, and has seen significant results in different tobacco control categories. Since 1982, the Hong Kong Government has conducted regular household surveys on the smoking situation of the population of Hong Kong to capture the overall smoking rate, the sex ratio of smokers, the age distribution and the average daily smoking volume in Hong Kong.

According to the "Thematic Household Survey Report No. 75" of the Census and Statistics Department, it shows that from the beginning of the Tobacco Control Ordinance in 1982 to 2021 (Fig. 1). The proportion of daily smokers aged 15 and over in Hong Kong can see a clear downward trend, whether it is from the whole, or from males and females. Overall, the daily smokers over the age of 15 in Hong Kong accounted for 9.5% of the total population in 2021, which is the lowest level since records began in 1982. Obviously, the decline in males fell most significantly from 39.7% in 1982 years to 16.7% in 2021. The women also fell from 5.6% in 1982 years to around 3%.

*Fig. 1. Percentage of daily smokers aged 15 and over in Hong Kong (%)*

Therefore, from the results of the above analysis, whether it is the proportion of daily smokers over the age of fifteen, or the current proportion of smoking in the population since 1982 years and we saw the proportion of people who used to smoke every day is on a downward trend. We can get a consistent conclusion is that since the implementation of the
Tobacco Control Ordinance in 1982, Hong Kong has experienced a significant decline in the proportion of smokers.

3.3 Daily consumption of cigarettes

The proportion of smokers is controlled, and the next step is to look at the changes in the average daily smoking number of people who are used to smoking daily (Fig. 2), from 16 sticks per day in 1982 years to 12.7 sticks per day in 2021 years. It is not difficult to conclude that people who are accustomed to daily smoking have not been able to change their daily smoking habits, but their daily average number of cigarettes has also been controlled.  

![Daily cigarette consumption](https://example.com/daily_cigarette_consumption.png)

Fig. 2. Daily cigarette consumption. Source: Thematic Household Survey Report No. 75, The Census and Statistics Department, HKSAR(2023).

3.4 Expansion of statutory No smoking areas

In 1983, the governance first designation a no-smoking area. The government began to implement the smoking ban in phases. Initially, smoking bans were imposed on the lower decks of public lifts and public transport land vehicles. In 1992, the government expanded the statutory no-smoking areas. Smoking bans have been implemented in cinemas, theaters, concert halls, public elevators, amusement game centre and all modes of transportation. In the following years, various indoor public areas were designated as non-smoking places one by one. Until 2007, the statutory smoking ban has been extended to schools, hospitals, all indoor public places (such as restaurants), workplaces and some outdoor areas, including beaches and parks. All indoor public places were classified soaking venues where smoking is prohibited, and 55 indoor public transport interchanges in Hong Kong were designated as no-smoking areas.

On July 1, 2009, the smoking ban has been extended to all bars, clubs, night clubs, bathrooms, massage parlors, and mahjong pavilions. On September 1st of the same year, 48
public transportation facilities with covered buildings have been classified as non-smoking areas.

By December 1, 2010, the smoking ban has been further extended to 129 open-air public transport interchanges and the rest of the superstructure, indicating the government has restricted smoking at all public transport interchanges. In 2010, the no-smoking areas contained the open public transport facilities too. Eight tunnel toll plaza interchange stations have been listed as no-smoking areas from March 31, 2016. On August 31, 2018, the smoking ban has been expanded to cover three new bus interchanges that lead to expressways or tunnels.

Since the 1980s, the Hong Kong Government has continuously expanded the statutory no-smoking area through legislation. This has been supported by the general public. With the continuous expansion of the no-smoking area, the public not only reduces the harm of secondhand smoke but also create a favorable social atmosphere and encourage smokers to quit smoking, thereby improving the air quality of Hong Kong. Reflected in the following three aspects:

1. Public awareness of tobacco control legislation is increasing. With the promotion of tobacco control regulations in recent years, the public's awareness of tobacco control legislation has increased, the number of reports of smoking ban violations to the tobacco control legislation by the public has increased. Smokers have to abide by rules and only smoke in smoking areas. The general public also actively monitors and reports illegal smokers in the no-smoking areas, and requests to further expand the no-smoking areas to protect the health rights of citizens.

2. The way of reporting is also gradually diversified. The public can call the 24-hour inquiry and complaint hotline set up by tobacco control legislation to report violations. They can also send complaints by mail or by email, or fill out a complaint form online.

3. Increased law enforcement intensity and law enforcement efficiency. On September 1, 2009, the Department of Health introduced the Fixed Penalty System to replace the cumbersome court summons, which greatly improves the efficiency of law enforcement. From then on, anyone who violates the smoking ban is subject to an HK$1500 fixed penalty. To increase the implementation of smoking bans. The law enforcement agencies have been increasing their inspections of non-smoking areas since 2009.

4 Policy instruments

The main contents of Hong Kong's Tobacco Control Regulations include definitions of tobacco, control of tobacco, a list of no-smoking areas and regulations on tobacco and e-cigarettes. The Hong Kong government has adopted various policy tools in implementing tobacco control policies, which are mainly divided into four modules: regulations, expenditures, taxes and information. The government has integrated these four types of policy tools, covering the pre-, post-, and post-smoking phases to maximize government tobacco control policies. These policy tools are mainly reflected in the following aspects:

A. Prohibition - These three rules are used to define the no smoking area and the amount of the fine. Smoking (including e-cigarettes) or carrying lit cigarettes in a designated area, cigars or pipes may violate regulations and be punished. Through this regulation, it is possible to regulate the smoking behavior of smokers and protect the rights of non-smokers.

B. Permission - No one may sell cigarettes unless certain conditions are met. The operator or seller of cigarettes must meet certain conditions before they have the opportunity to obtain a tobacco sales license. This measure better regulates the tobacco industry and guarantees the legitimacy of the tobacco industry.
C. Standard - Set standards to adjust the tar content of each cigarette. To reduce the harm of smoking to the public.

D. Dissuasion - According to the regulations, some health advice must be printed on the pack to serve as a warning and advice. In addition, the coverage of health advice should meet different requirements depending on the situation.

E. Taxation - In the current regulations, a tax of HK$1,906 will be imposed on every thousand cigarettes to limit and reduce tobacco consumption.

F. Direct provision of goods - government health departments fund different institutions to establish smoking cessation clinics and set up several telephone lines for smoking cessation, such as Tung Wah Group of Hospitals, the Hospital Authority, Pok Oi Hospital. To help people reduce smoking behaviors and quit smoking.

G. Publicity information campaign - The COSH has been committed to tobacco control in Hong Kong, including advocate health life, community education, promotion of smoking cessation and make suggestions to the Government, which aim is to build a Hong Kong without smoking.

H. Monitoring - According to the “Going to 2025: Hong Kong Strategy and Action Plan for the Prevention and Control of Noncommunicable Diseases”, Hong Kong will monitor three indicators: “current smoking rates for adolescents” and “daily smoking rates for people aged 18 or over” "Annual standardized smoking rate" and "Daily smoking rate for people over 15 years old". Better regulations are improved through monitoring.

I. Voluntary Agreement - Since 2006, the Framework Convention on Tobacco Control (FCTC) signed by China will be extended to Hong Kong. The Convention is initiated by the World Health Organization. Paying attention to the possible problems caused by tobacco from the perspective of global public health will definitely affect the control of tobacco in Hong Kong to a certain extent.

5 Conclusion

This review states a comparable examination of changes of smoking population and daily cigarette consumption, smoking-related disease and mortality, smoking-related behavior. In nearly 40 years, Hong Kong government kept taking a comprehensive approach in tobacco control policies through incremental legislation to lessen the damage of tobacco on people's health and the community. The daily smoking percentage of Hong Kong citizens successfully declined to 10%, making Hong Kong one of regions with the lowest tobacco-smoking prevalence. People gradually raised the awareness on tobacco hazards and consider the expectations and acceptance of the tobacco control operation in Hong Kong. According to the data analysis, the incidence and mortality of lung cancer decreased since the anti-smoking regulations enacted in 2006. The number of people smoking in public area was decreasing and the tobacco trading market was strengthened and regulated. In addition, the government punishment system was constantly improving. It could be seen that the implementation of this policy had reduced the number of cigarettes per day for residents over years, regulated the tobacco trade and improved the smoking cessation service. The ordinance combined with the implementation of the policies not only enhanced the physical and mental health of residents, but also encourage residents to stay away from tobacco and effectively reduced the morbidity and mortality of high-risk diseases. At the same time, the government's continuous improvement of the illegal fines policy and the jurisdiction of public areas had also enabled Hong Kong residents to better understand the law and comply with the law.

In general, Hong Kong yielded a positive progress in safeguarding and improving public health through the tobacco control ordinance. The Government should stick to its
successful experience and keep revising and improving the content of anti-smoking laws to reduce tobacco consumption for the public health.

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