

Behavioural insights and attitudes on community masking during the initial spread of COVID-19 in Hong Kong

Victor CW Tam, SY Tam, ML Khaw, Helen KW Law, Catherine PL Chan, Shara WY Lee *

ABSTRACT

Introduction: Community face mask use during the coronavirus disease 2019 (COVID-19) pandemic has considerably differed worldwide. Generally, Asians are more inclined to wear face masks during disease outbreaks. Hong Kong has emerged relatively unscathed during the initial outbreak of COVID-19, despite its dense population. Previous infectious disease outbreaks influenced the local masking behaviour and response to public health measures. Thus, local behavioural insights are important for the successful implementation of infection control measures. This study explored the behaviour and attitudes of wearing face masks in the community during the initial spread of COVID-19 in Hong Kong.

Methods: We observed the masking behaviour of 10 211 pedestrians in several regions across Hong Kong from 1 to 29 February 2020. We supplemented the data with an online survey of 3199 respondents' views on face mask use.

Results: Among pedestrians, the masking rate was 94.8%; 83.7% wore disposable surgical masks. However, 13.0% wore surgical masks incorrectly with 42.5% worn too low, exposing the nostrils or mouth; 35.5% worn 'inside-out' or 'upside-down'. Most online respondents believed in the efficacy of wearing face mask for protection (94.6%) and prevention

of community spread (96.6%). Surprisingly, 78.9% reused their mask; more respondents obtained information from social media (65.9%) than from government websites (23.2%).

Conclusions: In Hong Kong, members of the population are motivated to wear masks and believe in the effectiveness of face masks against disease spread. However, a high mask reuse rate and errors in masking techniques were observed. Information on government websites should be enhanced and their accessibility should be improved.

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¹VCW Tam, PgDPH

¹SY Tam, PhD

²ML Khaw

¹HKW Law, PhD

³CPL Chan, MB, ChB

¹SWY Lee *, PhD

¹ Department of Health Technology and Informatics, Faculty of Health and Social Sciences, The Hong Kong Polytechnic University, Hong Kong

² Tasmanian School of Medicine, University of Tasmania, Hobart Tasmania 7001, Australia

³ Department of Otorhinolaryngology, Head and Neck Surgery, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong

* Corresponding author: shara.lee@polyu.edu.hk

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New knowledge added by this study

- A high mask reuse rate was observed during the initial spread of coronavirus disease 2019 in Hong Kong.
- Masking errors were observed among 13.0% of the pedestrians wearing surgical masks in this study, while mask reuse was reported by 78.9% of respondents in an online survey.
- Although official government websites were regarded as reliable, they were less popular than social media for the acquisition of health-related information.

Implications for clinical practice or policy

- Increased efforts are needed to educate the general public regarding the correct use and handling of masks.
- Manufacturers are encouraged to provide clear instructions on their packaging and print a symbol on each mask to prevent users from wearing masks inside-out.
- Because of the popularity of social media, authorities should utilise these platforms as a supplement to their standard websites for better public exposure and communication concerning health-related information.

Introduction

The rapid and devastating spread of the coronavirus disease 2019 (COVID-19) pandemic caught the global community unprepared and overwhelmed the disease control measures of many nations. Measures deployed in Hong Kong to control the

spread of COVID-19 were less stringent than those adopted in other nations; however, they proved to be effective.¹ Territory-wide lockdowns, curfews, and the controversial surveillance of smartphone data for contact tracing purposes were all avoided. A recent local study showed that behavioural changes were

the key factors associated with limiting the spread of COVID-19 and seasonal influenza.¹

Community masking by healthy individuals is controversial and opinions on its effectiveness or necessity differ among health authorities worldwide.² Since the severe acute respiratory syndrome (SARS) epidemic in 2003, the population of Hong Kong has maintained a strong masking culture. Although masking in crowded areas has always been voluntary in Hong Kong, rates of 61% and 79% during the SARS outbreak were recorded in two previous studies.^{3,4} In the present study, we aimed to explore the masking behaviour of pedestrians in crowded areas, as well as the attitude of the population towards community masking, during the initial spread of COVID-19 in Hong Kong.

Methods

Study design

This study protocol was approved by the Human Subjects Ethics Application Review board of The Hong Kong Polytechnic University and complied with the Declaration of Helsinki. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist for cross-sectional studies was implemented in the drafting of this article. The study protocol consisted of two parts: an observational study (Part 1) and an online survey (Part 2).

Part 1: Observational study approach

The masking behaviour of pedestrians in Hong Kong was observed between 1 and 29 February 2020. Eleven well-populated locations across Hong Kong were selected for observation. Observation sites on the main street of each location were chosen based on pedestrian throughput, and the ability to observe pedestrians in a clear, unhindered manner without interrupting the flow of traffic. Three observation sessions per day were conducted at 12:00-14:30 (lunch time), 14:30-17:00 (afternoon), and 17:00-19:30 (evening). To reduce selection bias, the location and observation times were randomly preselected on the evening before each study by drawing two sets of shuffled opaque envelopes containing the session time and locations.

On days with sufficient rain to warrant umbrella use, further observations were terminated. The data collected until the occurrence of rain were included for analysis. One observer was allocated to each session and the following data were collected: frequency of masking, type of mask worn, and number and type of erroneous masking practices. Only pedestrians walking in one direction were observed to prevent duplicate counting. The criteria for seven common types of masking errors were based on deviations from the surgical mask use guidelines published by the Hong Kong Centre for

2019冠狀病毒病爆發初期香港市民戴口罩的行為洞察和態度

譚志榮、譚丞佑、許美玲、羅嘉慧、陳寶玲、李泳怡

引言：自2019冠狀病毒病（COVID-19）全球大流行以來，各地民眾戴口罩的情況大為不同。疫情爆發期間，亞洲人戴口罩的比率較高。雖然香港人煙稠密，但在COVID-19爆發初期相對未受太大影響。過往的傳染病爆發影響市民的戴口罩行為和對公共衛生措施的反應。因此，本地民眾面對疫情的行為洞察對於成功實施感染控制措施非常重要。本研究探討COVID-19爆發初期香港市民戴口罩的行為和態度。

方法：2020年2月1日至29日期間觀察香港多個地區共10211名行人的戴口罩行為，並以3199名線上問卷受訪者對使用口罩的觀點作為補充數據。

結果：在行人群組中，戴口罩比率為94.8%，當中戴一次性手術口罩的佔83.7%。戴錯口罩的佔13.0%，其中口罩戴得太低露出鼻孔或口部的佔42.5%，將口罩上下倒轉或內外反轉的佔35.5%。另外，大多數線上受訪者認為戴口罩有保護作用（94.6%）和預防病毒在社區擴散（96.6%）。令人感到意外的是，78.9%受訪者表示會重用口罩。較多受訪者從社交媒體獲得相關資訊（65.9%），從政府網站取得資訊的則佔23.2%。

結論：香港市民普遍願意戴口罩，並相信口罩能有效阻止病毒傳播。然而，不少受訪者表示會重用口罩或戴錯口罩。政府網站應加強宣傳和便利市民獲取有關資訊。

Health Protection.⁵ The definitions for masking errors were standardised before the study by consensus among the observers after a field test.

Part 2: Online survey approach

Members of the Hong Kong population were included in an online survey of behaviour and views on community masking, which was conducted between 23 March and 14 April 2020. Consent was implied in the voluntary participation and completion of the survey. Personal information was not collected; however, demographic details (eg, age, gender, education level, and whether the respondents were healthcare students or professionals [HCSPs]) were recorded. Short-term visitors were excluded by targeting only respondents who had lived in Hong Kong for the preceding 6 months.

A link to the online survey was distributed via various means such as social media and email. The survey required approximately 5 minutes to complete. A 5-point Likert scale was used to grade respondents' perceptions of mask efficacy for protection and the prevention of community spread, evaluation of mask performance, and confidence in mask selection and correct use of mask. Respondents were also asked about mask reuse habits and storage, and information sources for COVID-19-related health matters, including their perceived reliability of those sources. A sample questionnaire is shown in the online supplementary Appendix.

Statistical analysis

Statistical analysis was performed by an independent statistician using IBM SPSS Statistics (Windows version 21.0, IBM Corp. Armonk [NY], United States). Univariate logistic regression and univariate ordinal regression were used to explore associations with binary and ordinal outcomes, respectively. Crude odds ratios (ORs) for each demographic variable were calculated from univariate analysis. Multivariate regression analyses were then performed, including all demographic variables, and the adjusted OR was estimated for each demographic variable. Descriptive statistics were used to provide an overview of the observations; the findings of regression analysis were presented as ORs and 95% confidence intervals (CIs). A P value of <0.05 was considered statistically significant.

Results

Part 1: Observational study

In total, 10211 pedestrians were observed over 25 sessions. The masking rate was 94.8%; most pedestrians wore disposable surgical masks (83.7%), and a small number wore N95 respirators (0.7%). The remaining pedestrians wore an assortment of face masks made of fabric or neoprene rubber; a few wore gas masks.

Among pedestrians wearing surgical masks, masking errors were observed in 1113 (13.0%) individuals (Table 1). The most common errors observed included: mask worn too low, exposing the nostrils and mouth (42.5%), or mask worn inside-out/upside-down (35.5%). A less common but serious error was the absence of hand hygiene after touching their masks (16.4%).

Part 2: Online survey

A total of 3199 respondents completed the survey. Data from 74 non-residents were excluded, and the remaining 3125 responses were analysed. Female

respondents comprised a larger proportion (65.7%), education status was at diploma level or above for 76.9% of the respondents, and 18.6% were HCSPs (Table 2).

Views on face mask performance

Most online respondents were confident of using a face mask correctly (96.9%) and believed in its efficacy for protection (94.6%) and the prevention of community spread (96.6%). Most respondents indicated that they clearly understood the functions of the different types of masks available (83.6%) and were confident of their ability to evaluate those masks (77.1%). Multivariate ordinal regression analyses showed that HCSPs were associated with greater confidence (OR=1.62; 95% CI=1.34-1.95; P<0.001) of using a face mask correctly; while increasing age was associated with lower confidence (OR=0.87; 95% CI=0.81-0.94; P<0.001 for each successive age-group). However, no significant associations were found with education level or gender.

Reuse of mask

In all, 78.9% of the respondents reused their face masks and stored them using a variety of methods:

TABLE 1. Masking errors observed among pedestrians in Hong Kong

	No. (%) of pedestrians observed (n=1113)
Mask inside-out	383 (34.4%)
Mask under the chin	262 (23.5%)
Nose, mouth, or chin not fully covered	211 (19.0%)
Touching the mask without performing hand hygiene immediately afterwards	183 (16.4%)
Metallic strip not moulded	41 (3.7%)
Inappropriate size of mask used	21 (1.9%)
Mask upside-down	12 (1.1%)

TABLE 2. Demographic characteristics of online survey respondents in Hong Kong

	No. (%) of respondents (n=3125)
Gender	
Male	1036 (33.2%)
Female	2054 (65.7%)
Other	3 (0.1%)
Refuse to answer	32 (1.0%)
Age, y	
<18	137 (4.4%)
18-30	978 (31.3%)
31-45	776 (24.8%)
46-65	1073 (34.3%)
>65	125 (4.0%)
Refuse to answer	36 (1.2%)
Healthcare professional or student	
Yes	580 (18.6%)
No	2545 (81.4%)
Education level	
Primary school	27 (0.9%)
Secondary school	677 (21.7%)
Diploma	434 (13.9%)
Bachelor's degree	1386 (44.4%)
Master's degree or higher	582 (18.6%)
Refuse to answer	19 (0.6%)

between tissue papers (74.1%), in paper envelopes (46.5%), in plastic bags (22.9%), left on table (6.5%), and in plastic containers (6.0%) [Table 3]. Multivariate logistic regression analyses concerning reuse of face masks showed greater likelihood among respondents with higher education level (OR=1.14; 95% CI=1.05-1.24; P=0.003 for each successive education level), older age (OR=1.48; 95% CI=1.35-1.62; P<0.001 for each successive age-group), and HCSP status (OR=1.61; 95% CI=1.26-2.07; P<0.001). Gender was not associated with mask reuse.

Sources of health information

More respondents reported the acquisition of information on mask usage via social media (65.9%) and online newspapers (47.9%), compared with official government websites (23.2%) [Table 4]. Ratings for reliability were highest for government websites (69.9%), followed by online (64.6%) and printed (64.5%) newspapers (Table 5).

Subanalysis of healthcare students or professionals

Compared with other respondents, HCSPs had a better understanding of mask types and indications for each type (multivariate ordinal regression: OR=1.93; 95% CI=1.60-2.34; P<0.001). They were more likely to choose surgical masks (multivariate logistic regression: OR=2.43; 95% CI=1.04-5.72; P=0.041) and less likely to choose N95 respirators (OR=0.54; 95% CI=0.44-0.68; P<0.001) for community use. They were also more likely to reuse their face masks (OR=1.61; 95% CI=1.26-2.07; P<0.001) and store them between tissues (OR=1.80; 95% CI=1.47-2.21; P<0.001), but less likely to use paper envelopes (OR=0.80; 95% CI=0.65-0.98; P=0.030).

Discussion

Our study investigated pedestrian mask use and public perceptions of community masking during the initial spread of COVID-19 in Hong Kong. The masking rate was high, and the public was confident in mask efficacy for protection and the prevention of community spread. Most pedestrians wore a surgical mask, but a small proportion of these masks were worn incorrectly. Surprisingly, the mask reuse rate was high, and varying methods were used for storage. Although government websites were considered reliable, social media was more popular as the source of information regarding masking and health-related matters.

Face mask use in Hong Kong: general perceptions and behaviours

Population-level behavioural insights are essential for coordinating an effective and coherent

infection control strategy.⁶ Previous events and disease outbreaks have considerably influenced the masking culture in Hong Kong. Similar to covering up when coughing or sneezing, wearing a mask in the community or workplace when unwell became a part of recent social etiquette following the SARS outbreak. During the SARS epidemic, a public hospital became a source of community spread, prompting the government to enforce

TABLE 3. Mask reuse and storage among online survey respondents in Hong Kong

Mask reuse	No. (%) of respondents (n=3125)	
Always	754 (24.1%)	
Sometimes	1711 (54.8%)	
Never	660 (21.1%)	
Method of storage between use, for respondents who answered 'Always' or 'Sometimes' to the question on mask reuse	No. (%) of respondents (n=2465)	
Between tissues	1826 (74.1%)	
Inside a paper envelope	1147 (46.5%)	
Inside a plastic bag	565 (22.9%)	
On the table	159 (6.5%)	
Inside a plastic food storage box	149 (6.0%)	
Factors associated with mask reuse (n=3125)	OR _u (95% CI)	OR _m (95% CI)
Female gender	1.12 (0.93-1.34)	1.14 (0.95-1.38)
Age	1.43† (1.31-1.57)‡	1.48† (1.35-1.62)‡
Being HCSP	1.37 (1.09-1.74)§	1.61 (1.26-2.07)‡
Education level	1.17 (1.08-1.27)‡	1.14 (1.05-1.24)§

Abbreviations: 95% CI = 95% confidence interval; HCSP = healthcare student or professional; OR_m = adjusted odds ratio obtained from multivariate logistics regression analysis; OR_u = crude odds ratio obtained from univariate logistic regression analysis
 † Odds ratio for each successive age level
 ‡ P<0.001
 § P<0.01
 || Odds ratio for each successive education level

TABLE 4. Sources of health information among online survey respondents in Hong Kong

	No. (%) of respondents (n=3125)
Social media	2059 (65.9%)
Online newspapers	1497 (47.9%)
Non-governmental organisation promotions	915 (29.3%)
Television advertisements	850 (27.2%)
Printed newspapers	726 (23.2%)
Government websites	726 (23.2%)
Radio advertisements	465 (14.9%)
Posters in public areas	417 (13.3%)

TABLE 5. Perceived reliability of sources of health information among online survey respondents in Hong Kong

	No. (%) of respondents (n=3125)			
	Positive	Neutral	Negative	Missing
Government websites	2183 (69.9%)	594 (19.0%)	337 (10.8%)	11 (0.4%)
Online newspapers	2018 (64.6%)	853 (27.3%)	243 (7.8%)	11 (0.4%)
Printed newspapers	2017 (64.5%)	856 (27.4%)	241 (7.7%)	11 (0.4%)
Radio advertisements	1923 (61.5%)	993 (31.8%)	198 (6.3%)	11 (0.4%)
Posters in public areas	1640 (52.5%)	1155 (37.0%)	319 (10.2%)	11 (0.4%)
Non-government organisation promotions	1624 (52.0%)	1235 (39.5%)	255 (8.2%)	11 (0.4%)
Television advertisements	1500 (48.0%)	1080 (34.6%)	534 (17.1%)	11 (0.4%)
Social media	1463 (46.8%)	1179 (37.7%)	472 (15.1%)	11 (0.4%)

and promote community protective behaviour thereafter, particularly in public hospitals. These efforts included strong recommendations for hospital visitors to wear masks, as well as the widespread availability of hand sanitisers in strategic areas. Whilst evidence supporting these practices remains controversial, these recommendations have positively influenced the attitude and behaviour of the general public towards mass masking and hand hygiene for protection during disease outbreaks. These events may explain the high voluntary masking rate that we have recorded in this study. A high masking rate was also previously noted during the SARS outbreak in Hong Kong.^{2,3} Notably, face masks are also commonly used to protect against air pollution, particularly during hazy weather and within high traffic areas.

The issue of community masking was controversial particularly during the early stages of the COVID-19 pandemic, such that conflicting recommendations were issued by various health authorities and public figures worldwide. At the time of this study, the World Health Organization recommended against community masking because of insufficient evidence regarding its effectiveness, the potential for a false sense of security, and the stressed supply of surgical masks for hospital use.⁷ However, this stance on effectiveness should have been considered in the context of clinical outcome studies,⁸ which were based largely on the spread of influenza and would not necessarily be applicable to the spread of COVID-19. Furthermore, reports of disease spread involving pre-symptomatic carriers of COVID-19 were not considered.

Although the surgical mask was originally designed for the protection of patients during surgery, its role in reducing wound infection is not fully established and has been contentious.⁹ The rationale for masking later shifted to protection for the wearer, although evidence to support this perspective is equally tenuous.¹⁰ Under standardised simulated conditions, laboratory studies have shown

that surgical masks are effective in limiting both inbound and outbound transmission of aerosol particles.¹¹ Thus, wearing a face mask will limit the spread of droplets during coughing or sneezing from both symptomatic and asymptomatic carriers; it will also protect the mucosa of the nostrils and mouth of the wearer from droplets and aerosols.¹² Contrary to the claims by the World Health Organization⁷ that wearing a mask may create a false sense of security leading to the abandonment of other protective behaviours, voluntary mask use in crowded areas was shown to encourage protective behaviour and performance of hand hygiene.¹³ The high masking rate in Hong Kong may be an intangible factor that enabled indirect control of community spread by preventing viral shedding from asymptomatic carriers. Multiple clusters of infections have occurred in locations with poor masking or social distancing,^{14,15} suggesting that these measures are important. Since April 2020, the World Health Organization¹⁶ has updated its guidelines to recommend the use of non-medical masks among the general public when there is a limited capacity to implement other containment measures.

Errors, reuse, and storage

A substantial proportion of pedestrians (13.0%) wore their surgical face masks incorrectly, which may have limited the protective efficacy of these masks. Most commonly, they were worn too low, ‘upside-down’ or ‘inside-out’. A surgical mask consists of an inner water-absorbing layer and an outer water-repelling filter, which are horizontally pleated to create rows of gutters for expansion and to catch moisture. A mask worn inside-out accumulates moisture on the facial side, which is uncomfortable. This increases the likelihood that users will touch and rub their faces, leading to self-contamination or temporary mask removal. Additionally, a mask worn inside-out may trap droplets from surrounding people within the outward-facing water-absorbing layer. A mask worn too low on the face exposes the nostrils

or mouth, which are mucosal surfaces vulnerable to droplets and airborne contamination. Although unlikely, this error may arise from semantics—the Chinese term for ‘face mask’ literally means ‘mouth cover’, which may have misled users into believing that this type of coverage was its sole purpose. We examined the packaging of various brands of surgical masks sold locally and found that very few provided instructions for correct use. Instructions were previously considered unnecessary because surgical masks were intended for use by HCSPs; however, many users now are members of the general public. Manufacturers are encouraged to provide clear instructions on their packaging and print a symbol on each mask to prevent users from wearing masks inside-out.

We were alarmed by the high reuse rate of disposable masks. Some reasons were obvious, such as a supply shortage, compounded by panic buying that leads to price inflation. However, the masking rate might have been lower if the masks were not reused. Many users were probably aware that the masks should not be reused, but our findings should serve as a ‘reality check’.¹⁷ Surprisingly, mask reuse was more common among HCSPs; this may have been related to greater confidence in their ability to handle a potentially contaminated mask, as well as the belief that the causative virus (severe acute respiratory syndrome coronavirus 2) will degrade on non-living surfaces over time.¹⁸ Although there is no evidence of increased disease spread, the potential for contamination from poor handling is obvious.

Various mask storage methods, such as within tissue papers, in paper envelopes, in plastic bags, and in containers, were described. Recent evidence suggests that the severe acute respiratory syndrome coronavirus 2, which causes COVID-19, is more stable on smooth non-porous surfaces; thus, it may be safer to store masks in paper material (eg, tissues or envelopes) where it will dry effectively.^{18,19} It has also been reported that the virus can be inactivated at 70°C in approximately 5 to 30 minutes.^{18,20} This information will be useful should the reuse of surgical masks be necessary during an exceptional shortage; moreover, input from infectious disease experts on the appropriate handling techniques is likely to provide considerable value. Recently, Hong Kong residents were issued reusable face masks with antimicrobial properties for community use.^{19,21} Despite the high cost of such masks, this may be the solution to face mask shortage issues; it may also preserve medical face masks for hospital use, as recommended by the World Health Organization.¹⁶

Sources of information regarding face masks

Social media was the most common source of health information but was regarded as the least reliable source. Although official government websites

were regarded as the most reliable sources, many respondents chose convenience over perceived reliability when sourcing health information. However, the potential for misinformation is an important concern and conflicting advice may create distrust, thereby interfering with the establishment of a coherent response to the pandemic. Because of the popularity of social media, authorities should utilise these platforms as a supplement to their standard websites for better public exposure and communication concerning health-related information. There is a clear need to address the issues that we have identified. Correct masking technique will reduce wastage and prevent self-contamination through mishandling.

Limitations

There were several limitations to this study. First, because of its observational nature, we were unable to determine why some pedestrians did not wear masks (eg, whether this was related to availability or choice). Second, our findings may not be sufficiently representative of other less crowded areas in Hong Kong. Third, the respondents to our online survey were limited to those with internet access, which might have prevented inclusion of individuals who were older, less educated, or more vulnerable. Telephone and face-to-face interviews may provide sufficient data concerning older people and individuals with low socio-economic status. Lastly, we did not identify the respondents of our survey; thus, multiple responses could have been submitted by some users. Nevertheless, this is the largest behavioural study thus far to explore some of the issues on the use of face masks during the initial spread of COVID-19 in Hong Kong.

Conclusion

This study provided behavioural insights and attitudes on community masking in a region that has successfully managed the initial spread of COVID-19 through a combination of public health and behavioural interventions. Members of the Hong Kong population are highly motivated to engage in masking practices and believe in its effectiveness for protection and the prevention of disease spread. However, a high face mask reuse rate and incorrect masking techniques were observed. Information on government websites should be enhanced and linked to social media to improve accessibility and provide suitable guidance for the general public.

Author contributions

Concept or design: VCW Tam, CPL Chan, HKW Law, SWY Lee.

Acquisition of data: VCW Tam, HKW Law, SWY Lee.

Analysis or interpretation of data: VCW Tam, SWY Lee.

Drafting of the manuscript: VCW Tam, SY Tam, ML Khaw, SWY Lee.

Critical revision of the manuscript for important intellectual content: All authors.

All authors had full access to the data, contributed to the study, approved the final version for publication, and take responsibility for its accuracy and integrity.

Conflicts of interest

All authors have disclosed no conflicts of interest.

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Declaration

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Ethics approval

This study was approved by the Human Subjects Ethics Application Review Board of Hong Kong Polytechnic University (Ref HSEARS20200213002-01). Participation in the survey was voluntary, and consent was implied from completion of the survey.

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APPENDIX. Questionnaire on mask-wearing behaviour in Hong Kong during the pandemic of the novel coronavirus (COVID-19)

We would like to invite you to participate in a study conducted by the Department of Health Technology and Informatics, The Hong Kong Polytechnic University. The questionnaire will take about 5 minutes to complete and is carried out under the Human Subjects Ethics Sub-committee of The Hong Kong Polytechnic University. Our objective is to investigate the mask-wearing pattern and perception in Hong Kong during the pandemic of the Novel Coronavirus. The findings from this research may help to provide insights for public health specialists in the education of the correct use of masks.

Please put an ✓ inside the □.

1. Demographics

1.1 Gender (Single answer)

M F Others Refuse to answer

1.2 Age (Single answer)

<18 18-30 31-45 46-65 >65 Refuse to answer

1.3 Are you studying/working as a healthcare professional?

Yes No

1.4 Education level (Single answer)

Not at all Primary school Secondary school Diploma Bachelor Master or above
 Refuse to answer

1.5 Are you living in Hong Kong for the past 6 months?

Yes No

1.6 Nationality

Answers:

2. Perceptions towards mask-wearing

Please pick an ✓ in the □ with the most appropriate answer.

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
2.1	I understand clearly there are several types of face masks serving different purposes.	<input type="checkbox"/>				
2.2	I understand clearly how to evaluate the effectiveness of the masks.	<input type="checkbox"/>				
2.3	I understand clearly how to use a mask.	<input type="checkbox"/>				
2.4	I think that wearing a mask in the public area is effective to prevent infection.	<input type="checkbox"/>				
2.5	I think that wearing a mask in public areas can reduce the chance of community outbreak.	<input type="checkbox"/>				

APPENDIX. (cont'd)

3. Mask choosing

3.1 Which type(s) of masks do you think is/are appropriate to wear in a public area during a disease outbreak?

(Multiple answers)

- Surgical masks Respirators (eg, N95) Activated carbon masks
 Cotton masks Others (please specify: _____)

3.2 I understand clearly the following terms:

Please put an ✓ in the with the most appropriate answer.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
BFE	<input type="checkbox"/>				
VFE	<input type="checkbox"/>				
PFE	<input type="checkbox"/>				
KF94	<input type="checkbox"/>				
N95	<input type="checkbox"/>				

4. Reuse of mask

4.1 Do you usually reuse the masks?

- Always Sometimes Never

4.2 If you reuse the mask, where do you put the mask temporarily? **(Multiple answers)**

- Put into a plastic bag Put into a paper envelope Put between two tissues
 Put on the table Put into plastic food storage box
 Others (please specify: _____)

5. Information sources

5.1 What channels do you attain information about the use of the mask? **(Multiple answers)**

- Printed newspapers Television advertisements
 Radio advertisements Online newspapers Posters in public areas Social media
 Government websites (eg, DH, CHP) Non-governmental organisations promotion
 Others (please specify: _____)

APPENDIX. (cont'd)

5.2 I think that the information from the following channels is reliable:

Please pick an in the with the most appropriate answer.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Printed newspapers	<input type="checkbox"/>				
Television advertisements	<input type="checkbox"/>				
Radio advertisements	<input type="checkbox"/>				
Online newspapers	<input type="checkbox"/>				
Posters in public areas	<input type="checkbox"/>				
Social media	<input type="checkbox"/>				
Government websites (eg, DH, CHP)	<input type="checkbox"/>				
Non-governmental organisations promotion	<input type="checkbox"/>				
Others (please specify: _____)	<input type="checkbox"/>				

5.3 Will you verify the information about the masks?

Yes No

5.4 How do you verify the information received?

Answers: