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Perceptions and Behavioural Adoptions of Preventive Strategies for Person-To-Person Transmission of COVID-19 among the Public in China: An Online Cross-Sectional Survey

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Abstract

Background and Objectives: COVID-19 is still spreading rapidly around the world. At present, the main strategies adopted to prevent spreading are quarantine, social distancing and isolation of infected cases. This study investigated perceptions and behavioural adoptions of COVID-19 prevention strategies among the Chinese public and identified factors predicting individual health behaviour.

Methods: We conducted a cross-sectional online survey between 22 February and 5 March, 2020. We approached urban residents through snowball sampling method using Chinese social media. The Health Belief Model (HBM) was adopted to guide the analysis. Bivariate and multivariate logistic regressions were used to examine the impact of modifying factors and individual beliefs on individual health behaviour.

Results: Of 5675 valid questionnaires, 95.8% of the respondents well understood the knowledge of preventive measures from COVID-19 transmission, while 79.9% of the respondents adopted the behaviour advised. Of which, the adoption of wearing face mask was the highest (98.5%). Multivariate logistic regression results showed that the respondents who were female, had better income, and better knowledge, perceived benefits, and did not feel anxious were more likely to adopt Behaviors advised.

Conclusion: The respondents of this study highly accepted and adopted behaviours advised to slow down the COVID-19 epidemic. The policy support should target socially vulnerable groups. The psychological support should be disseminated through different means, and the consultation should be provided to those who are in need.

Keywords: COVID-19 • Individual belief • Behavioural adoption • Health Belief Model

Abbreviations: COVID-19: Coronavirus Disease 2019; HBM: Health Belief Model; MERS: Middle East Respiratory Syndrome; H1N1: Influenza A; CDC: Centre for Disease Control and Prevention; SARS: Severe Acute Respiratory Syndrome.

Introduction

Coronavirus disease 2019 (COVID-19) is a novel respiratory infectious disease and has been spreading globally. As of August 2020, about 30 million confirmed cases of COVID-19 have been reported worldwide, and the cumulative total number of deaths is about 1 million [1]. Currently, the most common transmission routes include droplet and aerosol transmission through the respiratory tract, close contact transmission, fecal-oral transmission [2,3].

China is the first country hit by the COVID-19 outbreak and facing challenges of grappling with the scope and nature of both physical and mental health impact. China had implemented stringent measures including quarantine, social distancing and isolation of infected cases to slow down COVID-19 transmission [4,5]. All provinces of Chinese mainland launched the highest level of emergency public health response by the end of January 2020. Self-protection measures, such as face masks, hands wash, indoor ventilation, respiratory hygiene habits, and social distancing were advocated and disseminated through the official public media, social media and community-based approaches [6,7]. How individuals respond to these advices on how to prevent COVID-19 transmission is critical, as currently there lack effective antiviral drugs and vaccine [8-10].

Previous studies on the public responses to emerging infectious diseases have reported poor adherence to the recommendations, despite the relatively

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high knowledge of the disease prevention among the public [11,12]. In Korea, around half of the study participants adhered to suggestions to preventing Middle East Respiratory Syndrome (MERS) [12]. In the Netherlands, the online survey in the general population found that 95% of the respondents had good knowledge of the Influenza A (H1N1), but only 36% of the respondents had taken preventive measures recommended [11]. In this study, older age, high perceived severity, high anxiety and high perceived efficacy of measures were positively associated with the behaviour adoption [11].

The Health Belief Model (HBM) has been widely used in health behaviour research to guide interventions for health behaviour changes [13-16]. The HBM has three main components: modifying factors, individual factors and action [17]. Modifying factors include socio-demographic characteristics and knowledge on disease. Individual factors include perceived severity, susceptibility, benefits, barriers and self-efficacy. Modifying factors influence on individual beliefs and the combination of beliefs further affects individual action. According to the conceptual framework of the HBM, this study investigated perceptions and behavioural adoptions of the preventive strategies for person-to-person transmission of COVID-19 among the public in China and identified factors predicting individual health behaviour.

Materials and Methods

Methods and data collection

The target population of this study was Chinese urban residents aged over 18 years who were not diagnosed with COVID-19. We conducted the online survey between 22 February and 5 March, 2020, which was the peak period of the COVID-19 outbreak in China. During this period, the lockdown strategy was strictly implemented. We approached the target population using snow-ball sampling method through Wechat and Weibo, two of the most popular Chinese social media. The information was disseminated through two networks: 1) social media of medical students and faculty in Tongji Medical College in Wuhan, Hubei Province, and Chongqing Medical University in Chongqing; 2) social media of health professionals at Wanzhou District Centre for Disease Control and Prevention (CDC) in Chongqing.

The research team developed the questionnaire based on the literature and collected public opinions, and it was finalized after pilots. The questionnaire included several sections and had questions on individual and household socio-demographic characteristics, individual knowledge on COVID-19 prevention, individual beliefs and response to advised strategies. The link of online survey was shared through social media. Each IP address was allowed to fill out the questionnaire only once. The research team received a total of 5819 responses. Given the quality of the response, we excluded the questionnaires filled within 2 minutes. We also checked the completeness of each questionnaire. After data cleaning, a total of 5675 (97.5%) questionnaires were valid and were thus included in the analysis. Although the respondents were found from 31 provinces (Figure 1) of mainland China and 240 cities, the majority of the respondents were in Chongqing where the research team is located. Chongqing is the neighbouring municipality to Hubei Province, the center of COVID-19 epidemic in China, and has a population of 30 million.

Data analysis

We developed the analysis framework, and studied the relationship between modifying factors and individual beliefs, and how they further predicted individual Behaviors (Figure 2). Modifying factors included respondent's sex, age, educational attainment (junior and senior high school and below, college, university and above), occupation (health professional, government or public institution staff, factory worker, students (both medical students and non-medical students) and others (including self-employed persons, retired person and unemployed)), annual household income (lower, lower middle, upper middle and upper), having family member who was health professional (yes, no), living area at risk level of COVID-19 prevalence (high, middle, low) and knowledge on preventive measures. Annual household income category was generated by the inter-quartile range, lower income group having less than $5143 annually, lower middle group at the range of $5143~$8570 annual

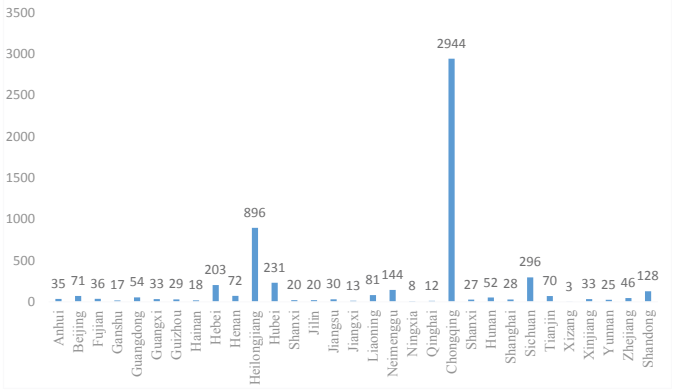

Figure 1. Respondent area distribution map.

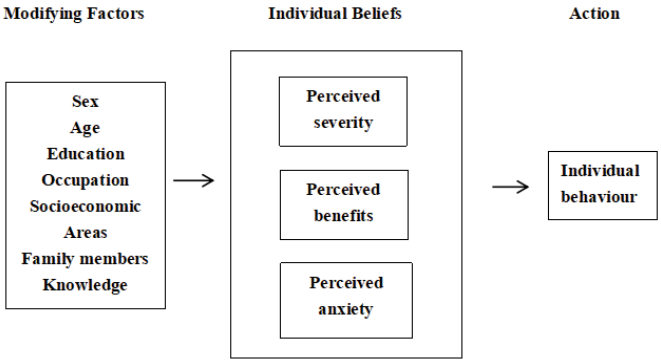

Figure 2. Analysis framework adapted from the Health Belief Model.

income, upper middle group at the range of $8571~$17141 annual income and was defined as upper middle group having more than $17,141 annually. We defined the risk level of living areas according to the number of COVID-19 cases diagnosed. Hubei Province was the centre of COVID-19 outbreak and referred to high-risk epidemic area; outside Hubei province, the area with the diagnosed cases more than 100 referred to middle-risk epidemic area, and the area with less than 100 cases referred to low-risk epidemic area. We asked five questions on face mask, hand wash, indoor ventilation, respiratory hygiene habits and social distancing. If participants answered all five questions correctly, they were grouped into "well known" preventive measures.

We measured three domains of individual beliefs: perceived severity, perceived benefits and perceived anxiety. We asked a question "Do you feel severity of the disease when you hear the following event: 1) the first death caused by COVID-19 announced by the Wuhan Health Committee; 2) "human-to-human" transmission confirmed and announced." If participants answered "yes" either of them, we grouped them into "perceived severity". In addition, we asked a question "what measures you think would be beneficial in your living area?" There were three alternatives: "a) mandatory wearing face mask when going out; b) suspending operation of public transportation; c) community lock-down". If participants ticked all three, we grouped them into "perceived benefits". We also asked "do you feel anxious during the epidemic of COVID-19?" If participants answered "yes", we grouped them into "perceived anxiety".

We examined participant's adoptions of advised behaviors. We asked five questions: after the COVID-19 outbreak, 1) do you increase the frequency and length of hand wash? 2) do you keep indoor ventilation for more than 2 hours per day? 3) do you cover your mouth and nose with a tissue when coughing/sneezing, then throw away the tissue and wash your hands? 4) do you keep away from people when you went out or never went out? 5) do you wear face mask when you go out? Every question could be answered "yes or no". If participants answered "yes" for all five questions, we grouped them into "full adoption" category. Otherwise, they were grouped into "partial adoption".

Descriptive analysis was used to present modifying factors, individual beliefs and adoptions of advised preventive measures. We examined the relationship between modifying factors and individual beliefs using bivariate

logistic regression analysis. Bivariate and three multivariate logistic regressions model were used to examine the impact of modifying factors and individual beliefs on individual health behaviour. Model 1 was used to examine the associations between modifying factors and behaviour adoptions; Model 2 was used to examine the associations between three domains of individual beliefs and behaviour adoptions; Model 3 was used to examine the associations between all modifying factors and individual beliefs and behaviour adoptions at the same time. All data analyses were performed using SPSS-21.0. $P<0.05$ was considered statistically significant.

Ethical statement

This study obtained the approval by the Ethics Committee of Chongqing Medical University, P.R. China.

Results

Modifying factors: Socio-demographic characteristics and knowledge on preventive measures

Of 5675 respondents, most were female accounting for 65.3%. The mean age of the participants was 36 years old, and the age ranged between 18 years old and 85 years old. Around half of the respondents received university and above education. In addition, 14.1% of the respondents were health professionals and 36.0% reported having health professional in the family. Few respondents (4.1%) lived in the high-risk epidemic area and 38.8% of them lived in the middle-risk epidemic area. A vast majority of the respondents (95.8%) well understood COVID-19 relevant protection measures (Table 1).

Individual beliefs and behavioural adoptions of advised measures

Around half of the respondents (45.7%) reported perceived severity of COVID-19 epidemic. Most of them (75.6%) thought suspending operation of public transportation, mandatory wearing face mask when going out and community lock-down would have benefits to slow down epidemic of COVID-19. More than half (62.7%) of the respondents reported anxiety during the epidemic of COVID-19. A vast majority of the respondents (79.9%) adopted the all five basic protection measures advised. Of which, the adoption of wearing face mask when going out was the highest (98.5%), followed by increase of the frequency and length of hand wash (97.6%), having good respiratory hygiene habits (93.6%) and keeping indoor ventilation for more than 2 hours per day (93.3%). Comparing to these measures, the proportion of keeping social distance was relatively low that was 87.1% (Table 2).

Factors associated with individual beliefs

We studied the association between individual beliefs and modifying factors using bivariate logistic regression analysis. Compared to male, female

Table 1. Modifying factors: socio-demographic characteristics and knowledge on preventive measures (N=5675).

Characteristics	Count	Percentage (%)
Sex		
Male	1970	34.7
Female	3705	65.3
Age (years)		
18-29	2177	38.4
30-49	2463	43.4
≥50	1035	18.2
Educational attainment		
Junior and senior high school and below	1375	24.2
College	1607	28.3
University and above	2693	47.5
Occupation		
Health professionals	798	14.1
Government or public institution staff	2169	38.2
Factory workers	483	8.5
Students	1202	21.2
Others	1023	18.0
Annual household income		
Lower	994	17.5
Lower middle	1287	22.7
Upper middle	1886	33.2
Upper	1508	26.6
Having family member who was health professional		
Yes	2042	36.0
No	3633	64.0
Living area at risk level of COVID-19 prevalence		
High	230	4.1
Middle	2201	38.8
Low	3244	57.2
Knowledge		
Wear face mask when you went out	5669	99.9
Wash hands frequently	5667	99.9
Indoor ventilation for more than 2 hours per day	5661	99.8
Maintain good respiratory hygiene habits	5531	97.5
Deliberately keep away from people when you went out	5577	98.3
Well known	5439	95.8

respondents were more likely to perceive severity of the disease, perceive benefits of social restriction measures and feel anxious during the epidemic of COVID-19. Young and middle age respondents did not feel much severity of the disease than the respondents aged over 50 years, but they were more likely to perceive benefits of the social restriction measures and feel anxious than the older respondents. We found similar perceptions among the respondents with high education attainment and upper level annual household income. The respondents who were health professional or family member of health professional and those living in middle and high-risk areas of COVID-19 prevalence were more likely to perceive benefits of social restriction measures and also feel anxious during the period. Those who well understood all five basic protection measures advised did feel severity of the disease and benefits of social restriction measures, but the perceived anxiety was not significant (Table 3).

Factors associated with behavioural adoptions

According to the bivariate analysis, the respondents who were female, aged at 30-49 years, had college education, had better income and lived in areas at the middle level risk of the epidemic were more likely to take all five protection measures advised. Those who were health professional or family member of health professional had better behaviour adoption than others. Moreover, those who had good knowledge on the protection measures were more likely to accept and adapt to the advices. In terms of individual belief, those who perceived severity and benefits were more likely to take measures advised (Table 4).

Multivariate logistic regression analysis Model 1 results showed that female (OR=1.312; 95% CI=1.118-1.540) and those who had better income (upper middle: OR=1.290; 95% CI=1.031-1.613; upper: OR=1.305; 95% CI=1.026-1.661) were more likely to follow the measures advised. Compared to health professionals, factory workers (OR=0.589; 95% CI=0.400-0.867) and students (OR=0.562; 95% CI=0.383-0.824) were less likely to adopt to the measures advised. Knowledge on the protection measures were strongly associated with behaviour adoption (OR=7.194; 95% CI=5.300-9.765). Model 2 results showed that perceived severity (OR=1.172; 95% CI=1.011-1.359) and perceived benefits (OR=2.056; 95% CI=1.757-2.405) were significantly associated with behaviour adoption. In Model 3, we found very similar results, but the association between perceived severity and behaviour adoption was not statistically significant. Those who did not feel anxious were positively associated with the behaviour adoption (feel anxiety: OR=0.840; 95% CI=0.714-0.989) (Table 4).

Discussion

In this study, a vast majority of the respondents knew relevant preventive measures during the period of COVID-19 outbreak in China and most of them adopted preventive behaviour according to the advises. Those who were female, young and middle age, with higher education attainment and better annual household income were more likely to perceive benefits of the social restriction measures and feel anxious during the epidemic of COVID-19. Likewise, female, the respondents with better household income and good knowledge on preventive measures were more likely to adopt the advised behaviors in response to the COVID-19 epidemic. Individual beliefs on benefits of the social restriction measures were also positively associated with the behavioural adoption.

There are a wide array of factors that influence the public behavioural adoption in response to the pandemic of emerging infectious diseases including the government responses, media's portrayal and social culture and values. Compared to the previous studies on the public behaviour in response to Severe Acute Respiratory Syndrome (SARS), H1N1 and MERS epidemic in Hong Kong and other countries [11,12,18,19], our study found behavioural adoption to prevent person-to-person transmission of COVID-19 among the respondents was relatively high. The outbreak of COVID-19 in China occurred around the time of the Chinese New Year with massive population travels. When Wuhan city, the epicentre of COVID-19 was locked down, the number of reported confirmed cases increased rapidly and spread nationwide. All Chinese mainland provincial governments launched the highest level of response to the emergent public health event including closure of schools, public services, retail business and restaurants as well as constraints of individual movement and social interactions. The official public media, various social media and community-based approaches widely disseminated the COVID-19 related information and health education. The awareness of the disease severity and benefits of the social restriction measures among the public may be high during the lock-down period in China. That is also the period the survey was carried out. The study in the Netherland investigated the public response to H1N1 at several time points and found the level of knowledge on H1N1 prevention increased over time, while perceived severity, perceived self-efficacy, and intention to comply with preventive measures decreased [11]. Given a high risk of the recurring epidemic of COVID-19, it will be critical to understand the change of attitudes and behaviour response to the epidemic of COVID-19 over time to inform strategy sequencing.

Table 2. Individual beliefs and behavioral adoptions of advised measures.

Constructs	Count	Percentage (%)
Perceived severity		
The first death caused by COVID-19 announced by the Wuhan Health Committee	353	6.2
"human-to-human" transmission confirmed and announced	2239	39.5
Answered "yes" either of them	2592	45.7
Perceived benefits		
Suspending operation of public transportation	4680	82.5
Mandatory wearing face mask when going out	5340	94.1
Community lock-down	4615	81.3
Ticked all 3 items	4290	75.6
Perceived anxiety		
Feel anxious during the epidemic of COVID-19	3558	62.7
Action		
Increase the frequency and length of hand wash	5536	97.6
Keep indoor ventilation for more than 2 hours per day	5292	93.3
Maintain good respiratory hygiene habits a	4235	93.6
Keep social distance (home isolation and deliberately keep away from people when you went out)	4942	87.1
Wear a mask when you went out b	3705	98.5
Adoption all 5 basic protection knowledge c	3613	79.9

Note: a: There were 1152 respondents who reported never cough/ sneeze during this period, the denominator of this item was 4523.
b: 1913 respondents never went out since the outbreak occurred, the denominator was 3762.
c: Exclude 1152 respondents who reported never coughed/ sneezed during the period, the denominator was 4523.

Table 3. Bivariate logistic regression analysis of individual beliefs (N=5675).

Factors	Groups	Perceived severity		Perceived benefits		Perceived anxiety	
		Crude OR	95% CI	Crude OR	95% CI	Crude OR	95% CI
Sex	Male	1		1		1	
	Female	1.122*	1.006-1.253	1.304***	1.151-1.478	1.806***	1.614-2.020
Age (years)	≥50	1		1		1	
	18-29	0.478***	0.411-0.555	1.336***	1.136-1.572	1.394***	1.199-1.620
	30-49	0.699***	0.604-0.810	1.840***	1.562-2.167	1.443***	1.244-1.673
Education attainment	Junior and senior high school and below	1		1		1	
	College	0.650***	0.562-0.751	2.086***	1.758-2.475	1.548***	1.336-1.793
	University and above	0.508***	0.446-0.580	1.372***	1.188-1.584	1.653***	1.447-1.887
Occupation	Health professionals	1		1		1	
	Government or public institution staff	0.967	0.821-1.138	0.467***	0.367-0.594	1.105	0.932-1.309
	Factory workers	1.628***	1.296-2.044	0.297***	0.222-0.398	0.639***	0.508-0.804
	Students	0.662***	0.552-0.795	0.293***	0.228-0.376	0.962	0.799-1.159
	Others	1.499***	1.245-1.806	0.293***	0.227-0.379	0.775**	0.640-0.937
Annual household income	Lower	1		1		1	
	Lower middle	0.865	0.733-1.021	1.423***	1.175-1.724	1.326**	1.120-1.571
	Upper middle	0.752***	0.645-0.878	1.304**	1.095-1.553	1.303**	1.114-1.524
	Upper	0.609***	0.518-0.716	1.12	0.936-1.341	1.467***	1.245-1.730
Having family member who was health professional	No	1		1		1	
	Yes	0.968	0.868-1.079	2.176***	1.895-2.500	1.202**	1.073-1.345
Living area at risk level of COVID-19 prevalence	Low	1		1		1	
	High	1.037	0.793-1.356	2.105***	1.474-3.005	1.462*	1.097-1.949
	Middle	1.047	0.940-1.168	1.917***	1.678-2.188	1.294***	1.156-1.448
Do you know all 5 basic protection measures?	No	1		1		1	
	Yes	2.008***	1.513-2.665	1.561**	1.182-2.061	0.944	0.719-1.238

Note: ***: P＜0.001, **: P＜0.01, *: P＜0.05.

Table 4. Factors analysis associated with behavioral adoptions (N=4523).

Factors	Groups	Adoption all 5 advised measures		Bivariate analysis		Modifying factors (Model 1)		Individual beliefs (Model 2)		Modifying factors and individual beliefs (Model 3)	
		Full adoption (%)	Partial adoption (%)	Crude OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Modifying factors											
Sex	Male	1249 (77.0)	373 (23.0)	1		1				1	
	Female	2364 (81.5)	537 (18.5)	1.315***	1.133-1.526	1.312**	1.118-1.540			1.303**	1.107-1.534
Age (years)	≥50	668 (79.4)	173 (20.6)	1		1				1	
	18-29	1254 (76.6)	384 (23.4)	0.846	0.691-1.036	1.229	0.922-1.638			1.198	0.897-1.599
	30-49	1691 (82.7)	353 (17.3)	1.241*	1.013-1.519	1.114	0.895-1.387			1.068	0.856-1.333
Education attainment	Junior and senior high school and below	820 (77.9)	232 (22.1)	1		1				1	
	College	1115 (85.4)	190 (14.6)	1.660***	1.343-2.052	1.275	0.986-1.649			1.222	0.942-1.584
	University and above	1678 (77.5)	488 (22.5)	0.973	0.815-1.161	0.987	0.763-1.277			0.970	0.748-1.257
Occupation	Health professionals	596 (87.0)	89 (13.0)	1		1				1	
	Government or public institution staff	1468 (82.1)	320 (17.9)	0.685**	0.532-0.883	0.788	0.598-1.038			0.829	0.628-1.095
	Factory workers	292 (72.6)	110 (27.4)	0.396***	0.290-0.542	0.589**	0.400-0.867			0.618*	0.419-0.913
	Students	613 (70.1)	261 (29.9)	0.351***	0.269-0.457	0.562**	0.383-0.824			0.607*	0.413-0.893
	Others	644 (83.2)	130 (16.8)	0.740*	0.553-0.990	1.054	0.729-1.523			1.116	0.771-1.615

Annual household income	Lower	579 (75.4)	189 (24.6)	1		1				1	
	Lower middle	818 (80.4)	200 (19.6)	1.335*	1.066-1.673	1.220	0.961-1.549			1.209	0.950-1.538
	Upper middle	1226 (81.0)	288 (19.0)	1.390**	1.128-1.712	1.290*	1.031-1.613			1.308*	1.044-1.638
	Upper	990 (80.9)	233 (19.1)	1.387**	1.116-1.724	1.305*	1.026-1.661			1.359*	1.065-1.734
Having family member who was health professional	No	2179 (77.0)	651 (23.0)	1		1				1	
	Yes	1434 (84.7)	259 (15.3)	1.654***	1.411-1.939	1.168	0.954-1.431			1.123	0.915-1.377
Living area at risk level of COVID-19 prevalence	Low	1934 (77.0)	579 (23.0)	1		1				1	
	High	150 (79.4)	39 (20.6)	1.151	0.800-1.658	0.995	0.674-1.469			0.919	0.620-1.363
	Middle	1529 (84.0)	292 (16.0)	1.568***	1.341-1.832	1.140	0.948-1.371			1.121	0.932-1.350
Do you know all 5 basic protection knowledge?	No	73 (34.9)	136 (65.1)	1		1				1	
	Yes	3540 (82.1)	774 (17.9)	8.521***	6.345-11.442	7.194***	5.300-9.765			7.237***	5.313-9.859
Individual beliefs											
Perceived severity	No	1934 (78.8)	521 (21.2)	1				1		1	
	Yes	1679 (81.2)	389 (18.8)	1.163*	1.004-1.346			1.172*	1.011-1.359	1.078	0.921-1.261
Perceived benefits	No	788 (70.5)	330 (29.5)	1				1		1	
	Yes	2825 (83.0)	580 (17.0)	2.040***	1.744-2.385			2.056***	1.757-2.405	1.845***	1.561-2.182
Perceived anxiety	No	1327 (80.6)	319 (19.4)	1				1		1	
	Yes	2286 (79.5)	591 (20.5)	0.930	0.799-1.083			0.905	0.776-1.055	0.840*	0.714-0.989

Our findings also suggest that individual protective behaviours, such as wearing a face mask when going out, more frequent hand wash and other personal and family hygiene habit were more likely to be widely adopted than social distancing behaviours, which is consistent with findings in other studies [12, 20]. In response to the 2009 influenza A H1N1 pandemic, the previous study proposed to combine non-pharmaceutical interventions and vaccination program to achieve better preventive effects [20]. When the vaccine against COVID-19 is not available, approaches adapted to local culture and social value to promote non-pharmaceutical interventions, particularly social distancing behaviours will be effective to mitigate the burden of COVID-19 in various settings.

Consistent with the other studies on the public responses to emerging infectious diseases [21-23], we found female and those with better household income and good preventive knowledge were more likely to behave in accordance to health advices. In this study, they were also more likely to perceive the benefits of social restriction measures, which was positively associated with the behavioural adoption. The households with low income may face financial pressure and/or difficulty due to loss of income or work opportunity during the lock-down period. This vulnerable group may be at a high risk of infection given poor behavioural adoption, and even fall in poverty because of the illness. Hence, targeted health policy and other related public policy should pay close attention to socially vulnerable groups to improve equity in health.

In this study, we found that the people who did not feel anxious during the epidemic were more likely to adopt the behaviour advised than those who feel anxious. Studies on public psychological behaviour responses to SARS in Hong Kong and H1N1 in the Netherland found that moderate level of anxiety were positively associated with adopting preventive behaviours [24-26]. We did not measure the level of anxiety in this study. Our study suggests that psychological support for the public during the epidemic of emerging infectious diseases is highly important to guide the release of negative emotions and improve healthy behaviour.

This study investigated the public responses to the pandemic of COVID-19 during the most lock-down period in China. There are also several limitations to bear in mind. Due to various constraints during the study period, we used snow-ball sampling methods through the social network of the research team. The respondents were unevenly distributed geographically, and most of them are well educated. Some of them are health professional or have family members who are health professional. In addition, the link of the online survey was distributed through social media. Those who were not able to access social media due to user unfriendly (e.g. the elders) or infrastructure limitations could be reached. Thus, this study suffers from sampling bias and the research results do not represent the overall Chinese public response to the COVID-19 pandemic. However, our findings indicated that socio-economic status was associated with behaviour adoption. It is reasonable to assume that socially vulnerable groups may face more challenges and need targeted supports.

Conclusion

When the outbreak of COVID-19 in China occurred, the respondents of this study highly accepted and adopted behaviours advised to slow down the epidemic, although the behaviour adoption of personal protective measures was better than social distancing behaviour. People with low income or feeling anxious were less likely to adopt the behaviour advised. The policy support should target socially vulnerable groups. Psychological support should be provided through different means, and consultation should be provided to those who are in need. Further study with a longitudinal design should investigate public reactions to the policy recommendations in response to emerging infectious diseases at different stages in order to adjust relevant strategies in shaping public response.

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Conflict of Interest

None declared.

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