

## Supporting Materials

### Perception, Attitude and Behavioral Response toward the Risk of COVID-19 Transmission

This questionnaire is designed by the School of Environment, Tsinghua University, China, with the aim to investigate and understand the public's perception and behavior responses toward the risk of COVID-19 environmentally-mediated transmission (air, waste, and solid waste etc.), and to analyze the potential risk of COVID-19 transmission during public's daily life in community, so as to support the implementation of effective risk management strategies during future epidemics.

We will keep your information strictly confidential. Thank you for your contribution!

#### A. Perception of COVID-19 Transmission Risk

A01. Do you think the SARS-CoV-2 virus will be spread through the following ways?

**Aerosol transmission:** refers to droplets mixed in the air to form small particles that can be suspended in the air, causing infection after inhalation.

**Fecal-oral transmission:** After the virus is excreted through feces of the infected person, the formation of aerosol containing the virus will cause infection of other people through breath or contamination of food, etc. Formation of aerosols and transmission through sewers is one form of fecal-oral transmission.

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	0	1	2	3
	Not very clear	Not likely to be a way of transmission	Maybe, but it has little effect on myself	Yes, I will have corresponding protection
Touching patients' skin				
Touching contaminated surfaces				
Respiratory droplets of patients				
Aerosol transmission				
Fecal-oral transmission				

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A02. When the epidemic situation is severe, are you concerned about the possible transmission risks that the following **daily events** may cause?

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	0	1	2	3	4	5
	Unknown			Worried		

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	Not worried at all	Not too worried	Relatively worried	Very worried
Going to the supermarket without a mask				
Going to the supermarket with a mask				
Taking public transportation without a mask				
Taking public transportation with a mask				
Someone is tested positive in your building (no direct contact in private)				
Someone is tested positive in your community (no direct contact in private)				
Going to outdoor public places (such as parks) without a mask				
Going to outdoor public places (such as parks) with a mask				
Working in the office				

A03. When the epidemic situation is severe, are you concerned about the following possible transmission risks **from the water supply or drainage?**

**Reclaimed water** refers to water converted from wastewater after proper treatment and used for other purposes. It is mainly used for toilet flushing, garden irrigation, landscape water, vehicle flushing, and industrial cooling water. At present, many buildings or communities are equipped with **building reclaimed water systems**. After the proper treatment, the domestic sewage and wastewater used in the buildings or communities are reused in the buildings or communities as miscellaneous water for toilet flushing.

	0 Unknown	1 Not worried	2 Not too worried	3 Worried	4 Relatively worried	5 Very worried
Freshwater may be contaminated						

Wastewater plumbing system within the housing block

Community septic tank and the drainage pipeline

Reclaimed water used within the residential buildings

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A04. When the epidemic situation is severe, are you concerned about the following possible transmission risks from waste disposal in the community?

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	0	1	2	3	4	5
	Unkno wn	Not worried at all	Not too worrie d	Worri ed	Relative ly worried	Very worried

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Not timely cleared and transported in community

Improper treatment of solid waste in community

Improper disposal of discarded masks in community

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A05. Along with the development of the epidemic, how much did the following events affect you and your family members' emotions?

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	0	1	2	3	4	5
	Not sure	No at all	Not very much	A little	Much	Very much

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It's confirmed that the new virus could be transmitted via human-to-human (January 20th, 2020)

Wuhan lockdown (January 23rd, 2020)

The extension of the Spring Festival holiday (January 27th, 2020)

The number of accumulative total confirmed cases exceeds 10000 (January 31st, 2020)

It's reported that the virus may be transmitted via fecal-oral (February 2nd, 2020)

A cluster of infections occurred in a department store in Tianjin. 23 people were diagnosed and nearly 10000 were isolated (February 7th, 2020)  
 It's reported that the virus may be spread through aerosols (February 8th, 2020)  
 The number of newly confirmed cases jumped to more than 15000 in a single day after the diagnose procedure changed (February 12th, 2020)  
 World Health Organization (WHO) declared COVID-19 as a global pandemic (March 11th, 2020)

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A06. What do you think is the main source of your emotional stress during the epidemic? (please select and sort according to your situation)

- (a) I have no emotional stress
- (b) Fear of being infected
- (c) Fear of the long-term harm in case the epidemic gets out of control
- (d) Trouble due to unable to go out
- (e) Worry about work/assets/education is affected

**B. Daily Behavioral Response**

B01. Regarding the potential risks of **droplets, contact and other major human-to-human transmission**, how effective do you think is the following precautions?

	0	1	2	3	4	5
	Not sure	Not effective	Not so effective	Neutral	Effective	Very effective
Not take public transportation						
Minimize the time and frequency of going out						
Wear a mask when going out						
Wash hands after going out						

Disinfect clothes, mobile phones and so on after going out  
 Wash hair, clothes or take a shower after going out  
 Increase the frequency of room ventilation  
 Disinfect regularly at home

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B02. What measures have you taken regarding the potential risks of **droplets, contact and other major human-to-human transmission**? (Multiple choices)

- (1) Not take public transportation
- (2) Minimize the time and frequency of going out
- (3) Wear a mask when going out
- (4) Wash hands after going out
- (5) Disinfect clothes, mobile phones and so on after going out
- (6) Wash hair, clothes or take a shower after going out
- (7) Increase the frequency of room ventilation
- (8) Disinfect regularly at home
- (9) None of the above
- (10) Other \_\_\_\_\_

B03. Regarding the potential risks of **fecal-oral transmission**, how effective do you think is the following protective measures?

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	0	1	2	3	4	5
	Not sure	Not effective	Not so effective	Neutral	Effective	Very effective

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Check and keep the sewer water seal intact  
 Regularly disinfect the water seal of the sewer at home  
 Close the toilet lid when flushing

Avoid using reclaimed  
water

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B04. What measures have you taken regarding the potential risks of **fecal-oral transmission**?  
(Multiple choices)

- (1) Check and keep the sewer water seal intact
- (2) Regularly disinfect the water seal of the sewer in the home
- (3) Close the toilet lid when flushing
- (4) Avoid using reclaimed water
- (5) None of the above
- (6) Other\_\_\_\_\_

B05. Regarding the potential risks caused by **residential waste**, how effective do you think is the following protective measures?

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	0	1	2	3	4	5
	Not	Not	Not so	Neutral	Effective	Very
	sure	effective	effective			effective

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Properly dispose of used masks (such as disinfection, folding before discard)

Discard used masks to specified place

Classify waste as required

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B06. What measures have you taken regarding the potential risks caused by residential waste?  
(Multiple choices)

- (1) Properly dispose of used masks (such as disinfection, folding before discard)
- (2) discard used masks to specified place
- (3) Classify waste as required
- (4) None of the above
- (5) Other\_\_\_\_\_

B07. During the epidemic, which of the following descriptions of **ordinary medical masks** (shown below) is most suitable for you? (Multiple choice)



- (1) Discard after single use
- (2) Discard after the accumulative total time of wearing reach up to 2–4 h
- (3) Discard until the mask is obviously dirty and out of shape
- (4) Put the used mask in a ventilated place for some time and reuse it

B08. During the epidemic, how has your frequency of **online shopping** changed comparing to the past?

- (1) Significantly decrease (2) Slight decrease (3) No significant change
- (4) Slightly increase (5) Significantly increase (6) I never shop online

B09. During the epidemic, how suitable do the following descriptions of **handwashing behavior** for you?

	1	2	3	4	5
	Not at all	Not very suitable	A little suitable	Suitable	Very suitable
I will wash my hands after going out					
I will wash my hands after going to the toilet					
I will wash my hands before eating					
I use the “seven-step hand washing method” every time I wash my hands					
I use the “seven-step hand-washing method” only after going out. In other cases, I just simply wash my hands					
I use hand sanitizer or soap every time I wash my hands					
I will turn off the faucet while rubbing the hand sanitizer or soap					
I wash my hands for no less than 20 s					

C. Community and public place management

C01. How much do you agree with the following measures to **control the movement of people** during the epidemic?

	0	1	2	3	4	5
	Unknown	Disagree	Less agree	Not sure	Agree	Very agree
Prohibit entering and exiting the community						
Issue passes certificate to limit the number of times of entering and leaving the community						
People who are not local residents are prohibited from entering the community, including couriers and takeaways						
People who are not local residents are prohibited from entering the community, but special occupations such as couriers and takeaways are allowed						
To enter and exit public places, one must apply for an online electronic voucher “health code”						
When entering and public places, masks must be placed, body temperature measured, and information registered						

C02. How much do you agree with the following measures to **control the return of migrants (person from other provinces and cities) to communities** during the epidemic?

	0	1	2	3	4	5
	Unknown	Disagree	Less agree	Not sure	Agree	Very agree
All migrants, no matter where they come from, will be quarantined for 14 days, not returning to the community						

Allow migrants from non-severe epidemic areas to have home quarantine (in this community) for 14 days; migrants who come to severely affected areas are quarantined in specific places

Allow all migrants, including that come from severely affected areas to have home quarantine (in this community) for 14 days

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C03. Do you agree with that the use of **disinfectants** during the epidemic will have environmental impact?

(1) Strongly agree (2) Agree (3) Not sure (4) Disagree (5) Strongly disagree

C04. How much do you agree with the following measures about **reclaimed water in your community and public areas** during the epidemic?

**Reclaimed water** refers to water converted from wastewater after proper treatment and used for other purposes. It is mainly used for toilet flushing, garden irrigation, landscape water, vehicle flushing, and industrial cooling water. At present, many buildings or communities are equipped with **building reclaimed water systems**. After proper treatment, the domestic sewage and waste water used in the buildings or communities are reused in the buildings or communities as miscellaneous water for toilet flushing.

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0	1	2	3	4	5
Unknown	Disagree	Less agree	Not sure	Agree	Very agree

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The reclaimed water could still be used for toilet

The reclaimed water used in residential buildings should be replaced by freshwater

The reclaimed water could still be used for recreation

The reclaimed water use for recreation should be replaced by freshwater

It can still be used for urban landscape, river supply, etc., but warning signs should be set

The reclaimed water should be completed  
forbidden during the pandemic

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C05. How much do you agree with the following measures about **residential waste** during the epidemic?

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0	1	2	3	4	5
Unknown	Disagree	Less agree	Not sure	Agree	Very agree

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The solid waste should be cleared more frequently

Waste in the community should be cleaned once a day

The solid waste should be sanitized everyday

The waste masks should be disposal and treated separately

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C06. Please select and sort the main path for you to obtain information about the epidemic in the order of how much information is obtained (sorting questions)

- (1) TV news
- (2) Mobile/computer online news reports
- (3) WeChat public account
- (4) WeChat group or circle of friends
- (5) Weibo or other similar social platforms
- (6) Newspaper or other traditional media
- (7) Daily communication with family or friends

#### **D. Personal and community information**

D01. What is your gender?

- (1) Male (2)Female

D02. What is your age?

- (1) Under 18 years old (2) 18-30 years old (3) 30–40 years old
- (4) 40–50 years old (5) 50–60 years old (6) over 60 years old

D03. What is your education level?

- (1) Elementary school

- (2) Junior high school
- (3) Technical secondary school/technical school
- (4) High school/high vocational school
- (5) College degree
- (6) Bachelor degree
- (7) Graduate student and above

D04. What's your occupation?

- (1) Students (2) Retired (3) Unemployed/unemployed
- (4) Public officials of state agencies, party organizations
- (5) Public employees of enterprises and institutions
- (6) Non-medical-related professional and technical personnel
- (7) Commercial service personnel
- (8) Farming, forestry, animal husbandry, fishery and water conservancy production personnel
- (9) Production and transportation equipment operators (workers)
- (10) Soldiers (11) Medical staff (12) None of the above

D05. What is your political profile?

- (1) CPC members (2) Reserve party members
- (3) Communist Youth League members (4) Other parties (5) None of the above

D06. Do you participate in the following community management work during the epidemic?

- (1) Administrative management (2) Street, township management
- (3) Community service (4) Residential property management
- (5) None of the above

D07. Your current location is: (Regarding privacy issue, you can locate to nearby public areas)

(GPS positioning)

D08. Are you at your current location most of the time during the epidemic? (Yes/No)

If not, your main location during the epidemic is \_\_\_\_\_ province \_\_\_\_\_ city \_\_\_\_\_ county (district).

D09. Have you returned to work (excluding work from home)? (Yes/No)

If so, the day when you return to work is .

D10. How is your health condition?

- (1) Very healthy
- (2) Occasionally unwell, but generally healthy

(3) Weak physique, sometimes discomfort

(4) Weak and sick, pay attention to daily recuperation

D11. Are there any elderly people over 60 years old, children under 12 years old, or family members who have long-term illnesses in your family?

(Yes/No)

D12. Are there any residents in the community where you live have **been isolated due to close contact or other reasons?**

(Yes/No/Not sure)

D13. Are there any residents in the community where you live have **been diagnosed?**

(Yes/No/Not sure)

D14. Are there any residents in the residential building where you live have **been isolated due to close contact or other reasons?**

(Yes/No/Not sure)

D15. Are there any residents in the residential building where you live have **been diagnosed?**

(Yes/No/Not sure)

Thank you for your cooperation, wish you good health and a happy life!