

Appendix I

Survey Questionnaire

Hello, and welcome to this research survey conducted by the School of Public Health at Sun Yat-sen University in collaboration with the Chengdu Tongle Social Work Service Center. This survey aims to understand HIV testing-related behaviors and influencing factors among men who have sex with men (MSM), with the goal of helping relevant organizations provide better HIV testing services.

This survey is anonymous. We focus solely on the overall characteristics of the target population, and no responses will be linked to individual participants. All information you provide will be treated confidentially and used exclusively for research purposes. We hope you feel comfortable providing honest responses.

Participation in this survey is entirely voluntary. You may refuse to participate or withdraw at any time without any consequences. By proceeding, you confirm that you have read and understood the above information and agree to participate in this project.

Eligible participants who successfully complete the questionnaire will receive a survey subsidy of 20 yuan (RMB) as a token of our appreciation.

Inclusion and Exclusion Criteria

Inclusion

- (1) I have read and understand the above information and voluntarily agree to participate in this survey.
- (2) Are you currently 18 years of age or older?
- (3) What is your gender assigned at birth?
- (4) In the past six months, have you engaged in sexual activity with a male partner? (This includes penetrative acts such as oral or anal sex, as well as non-penetrative acts such as mutual rubbing or masturbation.)
- (5) How/where did you receive this survey?

Exclusion

Participants who answer “No” to any of the first four questions will not be eligible to participate.

1. General Information [Response coding: Item 1-1: Record the actual age as entered; Items 1-2 to 1-8: Use the option numbers as codes; multiple selections can be coded where applicable]

1-1: Age: _____ years old (Enter a number between 18 and 85)

1-2: Ethnicity: (1) ☐ Han Chinese (2) ☐ Tibetan (3) ☐ Qiang (4) ☐ Yi (5) ☐ Hui (6) ☐ Other: _____

1-3: Current city of residence: (1) ☐ Chengdu (2) ☐ Other city

1-4: Current/highest level of education:

(1) ☐ Junior high school or below (2) ☐ High school or vocational school (3) ☐ College diploma (4) ☐ Bachelor's degree (5) ☐ Master's degree or above

1-5: Current marital status:

(1) ☐ Married (2) ☐ Unmarried (3) ☐ Divorced or widowed

1-6: Current employment status:

(1) ☐ Full-time (2) ☐ Part-time (3) ☐ Unemployed (4) ☐ Retired (5) ☐ Student

1-7: Current average monthly personal income (RMB):

(1) ☐ 0–2,500 (2) ☐ 2,501–5,000 (3) ☐ 5,001–7,500 (4) ☐ 7,501–10,000 (5) ☐ 10,001 or above

1-8: Sexual orientation:

(1) ☐ Homosexual (2) ☐ Heterosexual (3) ☐ Bisexual (4) ☐ Unsure

2. Sexual Activity Status [Response coding: Item 2.2 is a multiple-choice question; select 1 if chosen and 0 if not. Items 2.3 and 2.4 should record the actual number entered. All other options use their sequence number as the code. Logical branching: answer items 2.3 and 2.5 only if item 2.2 includes “Regular Partner” and answer items 2.4 and 2.6 only if item 2.2 includes “Casual Partner”]

2-1: In the past 6 months, your sexual activities with male partners involved:

(1) ☐ Top/insertive partner (2) ☐ Bottom/receptive partner (3) ☐ Both (insertive and receptive) (4) ☐ No penetrative sex

2.2: In the past 6 months, which types of male sexual partners did you have?

(1) ☐ Regular partner (i.e., boyfriend or sexual partner for ≥ 3 months)
(2) ☐ Casual partner (i.e., one-night stand, casual encounter, or sexual partner < 3 months)
(3) ☐ Commercial sex partner (sexual encounters involving payment, drugs, or other material benefits)

2.3: In the past 6 months, how many male regular partners did you have? _____

2.4: In the past 6 months, how many male casual partners did you have? _____

2.5: Condom use during anal intercourse with male regular partners in the past 6 months:

(1) ☐ Never (2) ☐ Occasionally (3) ☐ Often (4) ☐ Every time (5) ☐ No anal intercourse

2.6: Condom use during anal intercourse with male casual partners in the past 6 months:

(1) ☐ Never (2) ☐ Sometimes (3) ☐ Often (4) ☐ Every time (5) ☐ No anal intercourse

2.7: In the past 6 months, have you had any HIV-positive sexual partners?

(1) ☐ Yes (2) ☐ No (3) ☐ Unknown

2.8: In the past 6 months, have you used recreational drugs (e.g., RUSH, methamphetamine, cocaine, ketamine) during sexual activity?

(1) ☐ Yes (2) ☐ No

2.9: In the past 6 months, have you experienced symptoms of or been diagnosed with a sexually transmitted infection (STI) such as gonorrhea, syphilis, genital warts, or genital herpes?

(1) ☐ Yes (2) ☐ No

2.10: In the past 6 months, have you participated in group sex involving three or more men?

(1) ☐ Yes (2) ☐ No

3. HIV Testing Behavior [Response coding: Items 3.1 to 3.10 use option numbers as codes. Items 3.11 and 3.12 use actual scores ranging from 0 to 10. Some items have logical branching relationships, which are indicated in the scale]

3.1: Have you ever undergone HIV testing (excluding this current test)? [For on-site participants at Tongle only]

(1) ☐ Yes (2) ☐ No (Skip to Section 4)

3.2: Have you ever undergone HIV testing? [For volunteers and participants recruited at activity venues only]

(1) ☐ Yes (2) ☐ No (Skip to Section 4)

3.3: How did you previously undergo HIV testing?

(1) ☐ Facility-based testing (including hospitals, CDC, HIV prevention NGOs, etc.) (2) ☐ Self-testing (3) ☐ Both

3.4: Approximately how many times have you previously undergone HIV facility-based testing? [Answer if 3.3 = 1 or 3]

(1) ☐ 1 time (2) ☐ 2–4 times (3) ☐ 5–7 times (4) ☐ More than 7 times

3.5: Approximately how many times have you previously conducted HIV self-testing? [Answer if 3.3 = 2 or 3]

(1) ☐ 1 time (2) ☐ 2–4 times (3) ☐ 5–7 times (4) ☐ More than 7 times

3.6: In the past 6 months, have you undergone HIV testing (excluding this current test)? [For on-site participants at Tongle only]

(1) ☐ Yes (2) ☐ No (Skip to 3.11)

3.7: In the past 6 months, have you undergone HIV testing? [For volunteers and participants recruited at activity venues only]

(1) ☐ Yes (2) ☐ No (Skip to 3.11)

3.8: In the past 6 months, how did you get tested for HIV?

(1) ☐ Facility-based testing (including hospitals, CDC, Tongle, etc.) (2) ☐ Self-testing (3) ☐ Both

3.9: In the past 6 months, how many times did you undergo HIV facility-based testing? [Answer if 3.8=1 or 3]

(1) ☐ 1 time (2) ☐ 2–4 times (3) ☐ 5–7 times (4) ☐ More than 7 times

3.10: In the past 6 months, how many times did you perform HIV self-testing? [Answer if 3.8=2 or 3]

(1) ☐ 1 time (2) ☐ 2–4 times (3) ☐ 5–7 times (4) ☐ More than 7 times

3.11: How satisfied were you with your most recent HIV test at a professional institution? (0–10) [Answer if 3-3=1 or 3]

3.12: How satisfied were you with your most recent HIV self-test? (0–10) [Answer if 3.3=2 or 3]

4. HIV Related Information: Please assess the accuracy of the following statements about HIV based on your understanding. [Response coding: Code 1 for correct answers and 0 for incorrect or unclear responses. Higher scores indicate greater HIV-related knowledge; By dimension: Items 1–3 and 12–14 cover HIV prevention; items 4–7 cover HIV identification and testing; items 8–11 cover HIV treatment and prognosis; and items 15–18 cover HIV self-testing]

	Yes	No	Unclear
At risk of HIV infection from daily contact with an people living with HIV (e.g. eating, shaking hands, etc.)	0	1	0
Reducing the number of sexual partners can lower the risk of HIV infection.	1	0	0
Pre-exposure prophylaxis (PrEP) can reduce the risk of HIV infection	1	0	0
People living with HIV may appear perfectly healthy.	1	0	0
People living with HIV all develop visible symptoms quickly	0	1	0
HIV infection can be detected immediately after high-risk behavior	0	1	0
During the window period, even if living with HIV, the test result may be negative	1	0	0
If the HIV test is positive, starting treatment immediately is the best option	1	0	0
When the amount of HIV in a people living with HIV blood reaches an undetectable level, they cannot transmit the virus to others	1	0	0
People living with HIV can stop taking their medication if they feel better after starting treatment	0	1	0
With proper treatment, HIV does not affect life expectancy	1	0	0
Consistent and correct condom use can reduce the risk of HIV infection	1	0	0
Use of new drugs such as methamphetamine, ecstasy and ketamine will increase the risk of HIV infection	1	0	0
Sexually transmitted infections, such as syphilis and gonorrhea, increase the risk of HIV infection	1	0	0
HIV self-testing kits are available through pharmacies, internet, etc.	1	0	0
Fingertip blood can be collected for HIV self-testing	1	0	0
HIV self-tests can be performed using oral mucosal fluid, saliva, or urine samples.	1	0	0
HIV self-testing usually takes 15-30 minutes to read results	1	0	0

5. HIV Risk Perception and Testing Intentions [Response coding: All items are scored from 0 to 10, with higher scores indicating a greater likelihood]

5.1. How likely do you think it is that you will contract HIV in the next 6 months? _____

5.2. How likely are you to get tested for HIV at a hospital, VCT testing site, or similar facility within the next 6 months? _____

5.3. How likely are you to conduct an HIV self-testing within the next 6 months? _____

5.4. How likely are you to undergo regular HIV testing—defined as testing at least twice within a year, with intervals of no more than six months—at hospitals, VCT testing sites, or similar institutions within the next year? _____

5.5. How likely are you to conduct regular HIV self-testing within the next year? _____

6. Social norms related to HIV testing Below are several statements regarding HIV testing behaviors among MSM. Please rate your attitude toward each statement based on your direct experience. [Response coding: 1–5 points, ranging from Strongly Disagree to Strongly Agree. Items shown in red are reverse-scored. Higher scores indicate stronger perceived social norms supporting HIV testing]

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Most gay men want to get tested for HIV, but they are afraid of testing positive.	1	2	3	4	5
Most gay men do not want others to know that they have been tested for HIV.	1	2	3	4	5
Most gay men think it's important to get tested for HIV	1	2	3	4	5
Most gay men tell their partners they want to get tested for HIV	1	2	3	4	5
Most gay men get tested for HIV after having unprotected sex	1	2	3	4	5
Most gay men get tested for HIV when they have new boyfriends or sex partners	1	2	3	4	5
Most gay men think it's important to get tested regularly for HIV	1	2	3	4	5
Most gay men have been tested for HIV	1	2	3	4	5

7. Attitudes Toward Facility-Based HIV Testing: Below are several statements regarding undergoing HIV testing at a facility. Please indicate your attitude toward each statement based on your direct experience [Response coding: 1–5 points, ranging from Strongly Disagree to Strongly Agree. Items shown in red are reverse-scored. Higher scores indicate a more negative attitude toward facility-based testing]

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
HIV-antibody testing information is kept very confidential by the medical staff who do the testing	1	2	3	4	5
My family and friends would support me getting tested for HIV	1	2	3	4	5
If I get tested for HIV, I don't want anyone to know	1	2	3	4	5
Anyone who is tested for HIV is dirty	1	2	3	4	5
I'm afraid to get tested for HIV because a positive result would disqualify me from certain health insurance plans	1	2	3	4	5
Admitting I should get tested for HIV implies admitting to immoral behavior	1	2	3	4	5
I am afraid that if I were to be tested for HIV, my name would go into public records	1	2	3	4	5
HIV test results obtained at an agency are accurate	1	2	3	4	5
Anyone who is tested for HIV is disgusting	1	2	3	4	5
I would not consider getting an HIV test because I would be asked about things I have done that could get me into trouble	1	2	3	4	5
I am willing to discuss my HIV risk behaviors with a counselor	1	2	3	4	5
People would assume I have HIV if I decided to get tested.	1	2	3	4	5
If I get tested for HIV, my family and friends won't treat me differently	1	2	3	4	5
Anyone who gets tested for HIV is being smart	1	2	3	4	5
I would not get tested for HIV because I would be asked information that was too personal	1	2	3	4	5
It would not bother me if someone I know sees me going to get an HIV test.	1	2	3	4	5
I could easily discuss HIV antibody testing with my family	1	2	3	4	5
If my boss finds out I went to a facility for an HIV test, I might lose my job.	1	2	3	4	5

8. Attitudes Toward HIV Self-Testing vs. Facility-Based Testing Below is a comparison between HIV self-testing and facility-based testing. Please rate each item based on your direct experience. **[Response coding: Scores range from 1 to 5, with higher scores indicating a more favorable attitude toward self-testing]**

	Facility-based testing is better	Facility-based testing is slightly better	Both are the same	Self-testing is slightly better	Self-testing is better
Accuracy of test results	1	2	3	4	5
Confidentiality of the testing process	1	2	3	4	5
Convenience of testing	1	2	3	4	5
Time required for testing (shorter)	1	2	3	4	5
Cost of testing (lower)	1	2	3	4	5
Reduction of psychological anxiety associated with testing	1	2	3	4	5

9. Testing Behavior Skills **【Response coding: Items 9.1 and 9.2 are scored from 1 to 5, ranging from Strongly Disagree to Strongly Agree, with higher scores indicating greater self-efficacy or testing skills. Item 9.3 is scored from 1 to 5, ranging from Very Easy to Very Difficult, with higher scores indicating greater overall perceived difficulty】**

9.1 (Testing Self-Efficacy) For each statement below, please indicate the extent to which it reflects your own feelings and abilities:

	Strongly disagree	Disagree	Agree	Strongly agree
I am comfortable discussing HIV testing with potential sexual partners	1	2	3	4
I am confident that I can refuse sexual activity with partners who refuse HIV testing	1	2	3	4
I am confident that I can persuade partners to get tested for HIV	1	2	3	4
I can get tested for HIV whenever I choose to	1	2	3	4
I'm willing to get tested for HIV even if I'm worried about the testing results	1	2	3	4
I can get tested regularly for HIV	1	2	3	4

9.2 (Behavioral skills) For each statement below, please indicate the extent to which it reflects your own feelings and abilities:

	Strongly disagree	Disagree	Agree	Strongly agree
I know when to get tested for HIV	1	2	3	4
I know where to get tested for HIV	1	2	3	4
If I test positive, I am willing to be followed up and have active subsequent treatment	1	2	3	4
I am confident that I can complete the HIV self-testing process independently and correctly	1	2	3	4
I am confident that I can interpret the HIV self-testing results accurately	1	2	3	4
I know where to get the advice and guidance I need before and after the HIV self-testing	1	2	3	4

9.3 (Perceived Difficulty) Based on your actual circumstances, please rate how easy or difficult it would be for you to do each of the following:

	Very Easy	Easy	Neutral	Difficult	Very Difficult
Suggest to a sexual partner that they get an HIV testing	1	2	3	4	5
Request that your partner undergo HIV testing	1	2	3	4	5

问卷编号: _____

Avoid sexual activity with partners who refuse HIV testing	1	2	3	4	5
Manage conflicts with sexual partners arising from suggesting HIV testing	1	2	3	4	5

10. Social Support : The following items assess your social support. Please respond based on your own experiences and select the option that best describes your situation. **[Response coding: This scale covers emotional, material, informational, and companionship support. Each item is scored from 0 to 10, with higher scores indicating greater levels of perceived social support]**

10-1: When you need emotional support (e.g., respect, care, encouragement, understanding, affection), how much support do you receive from family, friends, or colleagues?

10-2: When you need material assistance (e.g., financial aid or goods during economic hardship), how much support do you receive from family, friends, or colleagues?

10-3: When facing difficulties or requiring information and guidance for important decisions, how much support do you receive from family, friends, or colleagues?

10-4: When you need someone to socialize with, relax with, or enjoy leisure activities with, how much support do you receive from family, friends, or colleagues?

11. Anticipated stigma towards HIV infection: For each of the following statements, please indicate the extent to which it reflects your own feelings. **[Response coding: Responses are scored from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate greater anticipated HIV stigma. Items shown in red are reverse-scored]**

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
If I get HIV, I am worried that people will discriminate against me	1	2	3	4	5
If I get HIV, no one will want to fall in love or date me	1	2	3	4	5
If I get HIV, no one will want to have sex with me	1	2	3	4	5
If I get HIV, I would try to keep it a secret	1	2	3	4	5
If I knew I get HIV, I would feel isolated from the whole world	1	2	3	4	5
I would feel inferior if I get HIV	1	2	3	4	5
I would not feel any sense of shame if I were to contract HIV	1	2	3	4	5

12: Internalized Homophobia : For each of the following statements regarding sexual orientation, please indicate the extent to which the views, opinions, and feelings expressed reflect your own experiences. **[Response coding: Items are rated on a 1–5 scale, from strongly disagree to strongly agree. Items shown in red are reverse-scored. Higher scores indicate greater internalized Homophobia. This scale comprises three dimensions: Dimension 1 – Internalized Heteronormativity: Items 1–3; Dimension 2 – Society-Oriented Identity: Items 4–7; Dimension 3 – Family-Oriented Identity: Items 8–11. Scores could be calculated separately for each dimension]**

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
If possible, I would prefer to be a heterosexual	1	2	3	4	5
If I were a heterosexual, I would be happier	1	2	3	4	5
Although there are some ways to change my sexual orientation, I am reluctant to try	1	2	3	4	5
It is forbidden to reveal your sexual orientation in the civil service system	1	2	3	4	5
If you reveal your sexual orientation in the workplace, it will endanger your career	1	2	3	4	5
In most situations, I do not care about whether other people know about my sexual orientation	1	2	3	4	5
I am worried that my sexual orientation will disgrace my family	1	2	3	4	5
I cannot do intimate things like heterosexual couples do in public	1	2	3	4	5
Any mentions of the word “homosexuality” make me feel panic	1	2	3	4	5
Most homosexuals will end up living alone	1	2	3	4	5

问卷编号: _____

I cannot fulfill traditional filial piety, which makes me feel impious	1	2	3	4	5
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13: HIV Negative Reaction Scale: Please indicate how closely each statement reflects your own feelings and views based on your personal experience. [Response coding: 1–5 points, ranging from strongly disagree to strongly agree; This scale comprises three dimensions: Dimension 1 – Reinforced Safety: Items 1, 3, 4, and 8; Dimension 2 – Luck: Items 5, 6, and 14; Dimension 3 – Low Risk Perception: Items 2, 7, 9, 10, 11, 12, and 13; Scores should be calculated and reported separately for each dimension]

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
A negative HIV test means that my safe sex behaviors are working	1	2	3	4	5
A negative HIV test means that my past sexual behaviors may not have been that risky after all	1	2	3	4	5
A negative HIV test encourages me to keep practicing safer sex	1	2	3	4	5
A negative HIV test reinforces my safe sex behaviors	1	2	3	4	5
After a negative HIV test, I feel lucky that I did not get HIV	1	2	3	4	5
After a negative HIV test, I feel like I dodged a bullet	1	2	3	4	5
After a negative HIV test, I feel like it is ok to have more unprotected sex with casual partners (“hookups”)	1	2	3	4	5
After a negative HIV test, I feel like I should have protected sex every time	1	2	3	4	5
After a negative HIV test, I feel like it’s to have sex with more people	1	2	3	4	5
The more times I test negative for HIV, the less worried I am about contracting it	1	2	3	4	5
The more times I test negative for HIV, the more I feel that I am immune against HIV	1	2	3	4	5
The more times I test negative for HIV, the more I feel that it is difficult for me to become infected	1	2	3	4	5
The more times I test negative for HIV, the more I feel invincible against the disease	1	2	3	4	5
The more times I test negative for HIV, the more I feel like my luck will run out	1	2	3	4	5

Your HIV status for this test: _____

Your mobile phone number: _____