

Appendix

Survey Questionnaire

Hello, and welcome to this research survey jointly conducted by Chengdu Tongle Social Work Service Center and the School of Public Health, Sun Yat-sen University.

We are conducting a study on “*drug-enhanced sex*” among men who have sex with men (MSM). The term “*Sexualized drug use*”, ” or “*SDU*” refers to the use of psychoactive substances or sexual enhancement drugs (such as Rush, O-capsules, “fairy water,” ecstasy, or “high-inducing e-cigarettes”) before or during sexual activity. It is also known as “*Drug-fueled sex,*” “*High sex,*” “*Hi FUN,*” or “*Hooking up on drugs.*”

This behavior has become increasingly common within the MSM community and may pose certain health risks. Therefore, this survey aims to better understand the characteristics and motivations related to *drug-enhanced sex* among gay men in Chengdu, with the goal of informing more effective healthcare strategies and promoting healthier sexual behaviors.

Please note that this questionnaire contains some sensitive questions. The survey is completely anonymous and focuses solely on the overall characteristics of the study population. It will not collect or link any personal identifying information. All data will be treated strictly confidentially and used exclusively for academic research. We encourage you to answer honestly and without hesitation.

Participation in this study is entirely voluntary. You may refuse to participate or withdraw from the survey at any time without any consequences. As a token of appreciation, participants who complete the questionnaire will receive a 20-yuan (RMB) survey compensation.

We sincerely thank you for your trust, time, and support in this research project.
Wishing you all the best!

Chengdu Tongle Social Work Service Center
Research Team, School of Public Health, Sun Yat-sen University

0: Inclusion and Exclusion Criteria

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0-1: Are you currently 18 years of age or older?

(1) Yes (2) No (End of questionnaire)

0-2: What is your gender assigned at birth: (1) Male (2) Female (End of questionnaire)

0-3: 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)

(1) Yes (2) No (End of questionnaire)

0-4: I have read and understood the information above and agree to participate in this survey.: (1) Yes (2) No
(End of questionnaire)

1: Basic Information

1-1: Your Ethnicity:

(1) Han (2) Tibetan (3) Qiang (4) Yi (5) Hui (6) Other:

1-2: Your Current City of Residence: (1) Chengdu (2) Other City

1-3: Your Educational Level:

(1) Elementary School or Below (2) Junior High School (3) High School/Vocational School (4) College/Technical School (5) Bachelor's Degree (6) Master's Degree (7) Doctoral Degree

1-4: Your Marital Status:

(1) Unmarried (2) Married (3) Divorced (4) Widowed

1-5: Your current employment status is:

(1) Full-time (2) Part-time (3) Unemployed/Jobless (4) Retired (5) Student (6) Other, please specify *

1-6: Your current average monthly personal income:

(1) <3000 (2) 3001~6000 (3) 6001~9000 (4) 9001~12000 (5) >12000

1-7: Have you experienced financial hardship in the past 6 months?

(1) No (2) Occasionally (3) Frequently

1-8: What do you consider your sexual orientation to be?

(1) Gay/Lesbian (2) Heterosexual (3) Bisexual (4) Unsure (5) Other (please specify):

2: Survey on Sexualized Drug Use (SDU) SDU refers to the use of synthetic hallucinogens, aphrodisiacs, or illicit substances before or during sexual activity. Examples include rush poppers, ecstasy pills, "magic water," MDMA, Viagra, "high-inducing e-cigarettes," methamphetamine, etc. (Note: This questionnaire includes sensitive topics. Participation is completely voluntary. You may refuse or withdraw at any time without any consequence. The survey is anonymous and aims solely to understand group-level characteristics, not individual identities. All information will be kept strictly confidential and used exclusively for research purposes. Please answer truthfully and without concern)

2-1: In the past 6 months, have you engaged in SDU? If yes, which of the following substances did you use before or during sexual activity? (*Multiple selections allowed*)

- Rush Poppers (Amyl Nitrite)
 - Ecstasy Capsules (also known as Rhino Liquid or G-Spot Liquid, containing MDMA)
 - Viagra/Cialis (Sildenafil Citrate)
 - GHB/GBL (gamma-hydroxybutyric acid/gamma-butyrolactone, butanediol)
 - Ketamine
 - Methamphetamine (including Amphetamine)
 - Ecstasy (MDMA/3,4-Methylenedioxymethamphetamine)
 - Cannabis or "High-Inducing E-Cigarettes"
 - LSD (Lysergic Acid Diethylamide)
 - Cocaine or Heroin
 - Other (please specify):
-

2-2: Did you use any of the above substances before or during your most recent sexual encounter?

(1) No (2) Yes

2-3: What are your main reasons for engaging in SDU? Please rank up to three reasons in order of importance (1 = most important).

- Alleviate anal intercourse pain
- Stimulate libido or enhance sexual performance
- Boost sexual confidence
- Delay ejaculation or prolong stamina
- Attract sexual partners
- Seek more intense sexual sensations
- Experience extreme sexual behaviors
- Enhance emotional intimacy with partners
- Peer influence
- Curiosity
- Meet partner's requests or gain approval
- Other (please specify): _____

2-4: If you engaged in SDU within the past 6 months, which best describes your experience?

- (1) Voluntary use (2) Forced use (3) Without my knowledge (4) Other (please specify): _____

2-5. If you engaged in SDU within the past 6 months, which best describes your experience?

- (1) Voluntary use (2) Forced use (3) Without my knowledge (4) Other (please specify): _____

2-6: Typical frequency of "pharmacological sex" in the past 6 months:

- (1) 1-2 times/month (2) 3-5 times/month (3) 6-10 times/month (4) More than 10 times/month

2-7: During your most recent SDU experience, how would you rate the amount of drugs used (based on self-estimation)?

- (1) Very small (2) Small (3) Moderate (4) Fairly large (5) Very large

2-8: In the past 6 months, have you used multiple drugs simultaneously during a single SDU session?

- (1) No (2) 2 drugs (3) 3 drugs (4) More than 3 drugs

2-9: In months when you engaged in SDU, your typical monthly drug expenditure was approximately _____ yuan (RMB).

2-10: How long ago did you first engage in SDU?

- (1) <1 year (2) 1 year (3) 2 years (4) 3 years (5) 4 years (6) 5 years (7) >5 years

2-11: Over the past 6 months, where have you typically engaged in SDU? (*Multiple selections allowed*)

- (1) Private residence (2) Hotel/Guesthouse (3) Sauna (4) Bar/KTV
(5) Park/Restroom (6) Party/Event (7) Other (please specify): _____

2-12: How did you usually obtain these SDU drugs? (*Multiple selections allowed*)

- (1) Purchased from friends
(2) Purchased via friends on WeChat Moments, Weibo, or other social media
(3) Purchased through e-commerce platforms (e.g., Taobao, JD.com)
(4) Purchased at pharmacies
(5) Purchased from on-site vendors (e.g., parties, bathhouses, bars, or parks)
(6) Given by friends
(7) Given by sexual partners
(8) Other (please specify): _____

2-13: How difficult was it for you to obtain these drugs?

- (1) Extremely difficult (2) Somewhat difficult (3) Moderately difficult (4) Fairly easy (5) Very easy

2-14: How strong is your craving for SDU?

- (1) Not at all (2) Slight (3) Mild (4) Neutral (5) Somewhat strong (6) Strong (7) Very strong

2-15: Over the past 6 months, how often have you experienced the following?

	Never	Sometimes	Often	Always
Uncontrollable urge to SDU	1	2	3	4
Anxiety due to drug unavailability	1	2	3	4
Worry about consequences of drug use	1	2	3	4

Desire to quit using drugs 1 2 3 4

2-16: How severe are the problems caused by your SDU (e.g., addiction, physical/mental discomfort after use, or impact on daily life, work, or study)?

- (1) No impact (2) Very slight (3) Mild (4) Moderate (5) Moderately severe (6) Severe
(7) Extremely severe

2-17: How difficult do you believe it would be to overcome your SDU?

- (1) Not difficult at all (2) Slightly difficult (3) Moderate (4) Quite difficult (5) Extremely difficult

2-18: In the past 6 months, have you attempted to quit SDU behavior?

- (1) Not addicted (*Go to Question 2-21*) (2) No (3) Yes, successfully quit (*Go to Question 2-21*)
(4) Yes, currently trying to quit

2-19: How strong is your desire to quit SDU behavior?

1—2—3—4—5—6—7

Not at all *Very much*

2-20: How confident are you in your ability to quit SDU?

1—2—3—4—5—6—7

Not at all confident *Very confident*

2-21: Please reflect on your initial decision to try SDU behavior. Indicate how much you agree with the following statements:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I believe engaging in SDU was the right decision	1	2	3	4	5
I regret trying SDU	1	2	3	4	5
If given another chance, I would still try SDU	1	2	3	4	5
SDU has caused me significant harm.	1	2	3	4	5

2-22: How often have you consumed alcoholic beverages (beer, wine, or spirits) in the past 6 months?

- (1) Never (*Go to Question 3-1*) (2) Once a month or less (3) 2–4 times a month (4) 2–3 times a week (5) 4 or more times a week

2-23: How much do you typically drink per occasion? (*Please specify*)



Beer: ____ bottle(s) (500 ml each)



Red wine: ____ glass(es) (240 ml each)



Spirits: ____ glass(es) (15 ml each)

2-26: In the past 6 months, have you engaged in same-sex sexual activity after drinking alcohol?

- (1) No (2) Yes

3: TPB-Related Scales**3-1: SDU Attitudes** Please indicate your level of agreement with the following statements about SDU:

	Strongly Disagree	Disagree	Agree	Strongly Agree
SDU allows a temporary escape from reality	1	2	3	4
SDU can result in longer-lasting and more intense sexual experiences	1	2	3	4
SDU makes it easier to find sexual partners	1	2	3	4
Sexual behavior remains controllable even when using SDU	1	2	3	4
SDU impairs cognitive function	1	2	3	4
SDU negatively affects partner relationships	1	2	3	4
SDU does not harm the body	1	2	3	4
During SDU, individuals are more likely to engage in unprotected sex, group sex, or sex with partners of unknown HIV status	1	2	3	4
SDU increases the risk of HIV infection	1	2	3	4

3-2: SDU Subjective Norms To what extent do the following statements reflect your actual situation regarding drug-facilitated sex?

	Strongly Disagree	Disagree	Agree	Strongly Agree
Your same-sex partners would support SDU	1	2	3	4
Your family would oppose SDU	1	2	3	4
SDU is socially acceptable among your friends	1	2	3	4
Many people in your social circle support SDU	1	2	3	4
You believe there is nothing wrong with SDU	1	2	3	4

3-3: SDU Perceptual Control Below are statements about your ability to respond to situations involving SDU. Please indicate your level of agreement:

	Strongly Disagree	Disagree	Agree	Strongly Agree
I will definitely never engage in SDU in the future	1	2	3	4
In bars, parties, or similar venues, if someone of the same sex invites me to engage in SDU, I am fully capable of refusing	1	2	3	4
I am fully capable of refusing requests for SDU from sexual partners	1	2	3	4
As long as I refuse, no one can force me into SDU	1	2	3	4
I can obtain drugs used for SDU whenever I want	1	2	3	4

3-4: SDU Behavioral Intentions

	Absolutely Not	Probably Not	Probably Yes	Absolutely Yes
Will you engage in SDU in the next month?	1	2	3	4
Will you engage in SDU in the next six months?	1	2	3	4

3-5: SDU Environmental constraints Below are statements about the environment related to SDU in your community. Please indicate your level of agreement:

	Strongly Disagree	Disagree	Agree	Strongly Agree
Society provides limited education about SDU	1	2	3	4

There is a lack of information about the harms of SDU	1	2	3	4
It is easy to obtain drugs used for SDU in daily life	1	2	3	4
I have friends who have experienced SDU	1	2	3	4
Society lacks adequate regulation of the use and trade of drugs for SDU	1	2	3	4
People in my social circle consider SDU to be normal	1	2	3	4
Using “rush” (poppers) is illegal	1	2	3	4

3-6: Skills to solve problems When facing difficulties in life, please indicate your level of agreement with the following statements:

	Strongly Disagree	Disagree	Agree	Strongly Agree
I have the ability to resolve various challenges.	1	2	3	4
I usually find effective solutions to problems.	1	2	3	4
When unable to solve a problem, I analyze the causes.	1	2	3	4
Before addressing a problem, I prepare multiple possible solutions.	1	2	3	4

4: Sexual Behavior

4-1: In the past 6 months, through which channels did you seek sexual partners? (*Multiple selections allowed*)

- (1) Online social apps or websites (2) Gay venues (e.g., bars, saunas, clubs) (3) Gay social gatherings or community events (4) Introductions by friends (5) Other channels (please specify): _____
 Did not seek partners because I have a boyfriend or steady partner

4-2: Age at first same-sex sexual activity: _____ years old. (*Includes anal sex, oral sex, and other acts for sexual stimulation or gratification, such as kissing or mutual masturbation*)

4-3: In the past 6 months, your sexual activity with men involved:

- (1) Mainly insertive (top) partner (2) Mainly receptive (bottom) partner (3) Both insertive and receptive roles (4) No insertive or receptive sexual activity (*Go to Question 4-11*)

4-4: In the past 6 months, which types of male sexual partners have you had? Please indicate the number of each.
[Multiple selections allowed]

- (1) Regular partner — boyfriend or sexual partner in a committed relationship or lasting ≥ 3 months: _____
(2) Casual partner — one-time or short-term partner (<3 months): _____
(3) Commercial partner — sexual partner involving exchange of money, drugs, or other material benefits: _____

4-5: Condom use during anal intercourse with regular male partners in the past 6 months?

- (1) Never used (2) Sometimes used (3) Often used (4) Always used
(5) No anal intercourse occurred

4-6: Condom use during anal intercourse with casual male partners in the past 6 months?

- (1) Never used (2) Sometimes used (3) Often used (4) Always used
(5) No anal intercourse occurred

4-7: In the past 6 months, were any of your male sexual partners with whom you had anal intercourse HIV-positive?

- (1) None (*Go to Question 4-11*) (2) One partner (3) More than one partner
(4) Uncertain / Don't know (*Go to Question 4-10*)

4-8: Condom use during anal intercourse with HIV-positive male partners in the past 6 months?

- (1) Never used (2) Occasionally used (3) Often used
(4) Always used (*Go to Question 4-10*)

4-9: In the past 6 months, how many times did you engage in unprotected anal intercourse with an HIV-positive partner, as the receptive partner?

- (1) 0 times (2) 1–4 times (3) 5 or more times

4-10: In the past 6 months, have you had unprotected anal sex with a male partner whose HIV status was unknown, as either the insertive or receptive partner? (1) No (2) Yes

4-11: In the past 6 months, have you engaged in group sex (involving three or more people)? If yes, how many people (including yourself) were involved in your most recent experience?

- (1) No (2) Yes, 3 people (3) Yes, 4 people (4) Yes, 5 people
(5) Yes, more than 5 people
-

4-12: In the past 6 months, have you been diagnosed with any of the following conditions? (*Multiple selections allowed*)

- (1) None (2) Gonorrhea (3) Syphilis (4) Genital warts (5) Genital herpes
(6) Hepatitis B (7) Hepatitis C (8) Other (please specify):
-

4-13: Have you undergone an HIV test within the past 6 months?

- (1) No (2) Yes, all results were negative (3) Yes, most recent result was positive (*Go to Question 5-1*)
(4) Yes, latest test result unknown (5) Already infected within the past 6 months, no further testing needed (*Go to Question 5-1*)
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4-14: How likely do you think it is that you will become infected with HIV within the next year?

(Please select a number from 1 to 9, where 1 = Definitely not and 9 = Definitely yes.)

Likelihood of HIV infection: 1 2 3 4 5 6 7 8 9

5: Impact of Dating App/Website Use and Peer Behavior on SDU

5-1: In the past 6 months, have you encountered any information about SDU on social media platforms or websites? (*Multiple selections allowed*)

- (1) Information promoting SDU (e.g., positive effects, pleasurable sensations, such as claims that drugs can reduce pain during intercourse, enhance sexual performance, prolong duration, or increase pleasure).
(2) Information discouraging SDU (e.g., health risks, increased risk of HIV transmission).
(3) Invitations to participate in SDU from sexual partners, friends, online acquaintances, or strangers.
(4) Information about obtaining SDU, including purchasing channels and prices (e.g., online agents, offline vendors).
(5) No exposure to any of the above information.
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5-2: In the past 6 months, have you shared any of the following types of information about SDU through different channels? (*Multiple selections allowed*)

- (1) Posted or shared online (e.g., social media feeds, online forums, or private groups) information supporting SDU or its perceived benefits.
(2) Expressed supportive views about SDU in social settings or conversations with friends.
(3) Posted or shared online information about the harms or risks of SDU or other discouraging content.
(4) Expressed views about the harms or risks of SDU in social settings or conversations with friends.
(5) Have not shared any of the above information.
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5-3: In the past 6 months, have you invited others to engage in SDU? (*Multiple selections allowed*)

- (1) Have not invited anyone.
(2) Invited online acquaintances or strangers via apps or websites to engage in SDU.
(3) Invited acquaintances or strangers met in person (e.g., at parties or social gatherings) to engage in SDU.
(4) Invited sexual partners to engage in SDU.
(5) Invited friends (non-sexual partners) to engage in SDU.
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6: Mental Health

6-1: **The Sexual Sensation Seeking scale** The following statements describe different attitudes toward sex. Please select the degree to which each reflects your personal views.

	Does not match at all	Somewhat matches	Mostly matches	Completely matches
I enjoy passionate and uninhibited sex	1	2	3	4
The physical sensations during sexual activity are what matter most to me	1	2	3	4
I like the feeling of having sex without using a condom	1	2	3	4
My sexual partners view me as someone who enjoys taking risks	1	2	3	4

When it comes to sex, physical attraction matters more to me than emotional closeness or familiarity	1	2	3	4
I enjoy being with people I find physically attractive or "sexy."	1	2	3	4
I enjoy watching sexually explicit (X-rated) videos	1	2	3	4
I have said things that were not entirely true in order to persuade someone to have sex with me	1	2	3	4
I am interested in trying new sexual experiences	1	2	3	4
I want to explore my sexual orientation. (or) I want to explore my sexual preferences and capabilities	1	2	3	4
I enjoy having new and exciting sexual experiences and sensations	1	2	3	4

6-2: Minority Stress Four Scales for Sexual Minorities (Sexual Orientation–Related Discrimination, Expectation of Rejection, Internalized Homophobia, and Concealment of Sexual Orientation) Please read each statement carefully and respond based on your actual life experiences. Indicate whether each situation applies to you and how often it occurs.

6-2-1: Sexual orientation-related stigma	Never	Occasionally	Frequently	Very often	
I often hear people say that homosexuality is abnormal.	1	2	3	4	
I feel that my gay identity brings shame or embarrassment to my family.	1	2	3	4	
I have been labeled, mocked,+ or called derogatory names because of my sexual orientation.	1	2	3	4	
I feel rejected by my family because of my sexual orientation.	1	2	3	4	
I have been excluded from groups or organizations because of my sexual orientation.	1	2	3	4	
I have received poor treatment or service because of my sexual orientation.	1	2	3	4	
6-2-2: Rejection expectation	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	
When meeting new people, I worry they secretly dislike me because I'm gay	1	2	3	4	
I mentally prepare myself for possible disrespect due to my gay identity	1	2	3	4	
I expect that others will not accept me because I'm gay	1	2	3	4	
I worry about what might happen if others find out that I'm gay	1	2	3	4	
6-2-3: Internalized homophobia	Never	Sometimes	Often	Always	
If I had the chance not to be gay, I would take it	1	2	3	4	
I wish I were not gay	1	2	3	4	
I envy people who are not gay	1	2	3	4	
6-2-4: Identity concealment	Always	Often	Usually	Sometimes	Not at all
I avoid discussing parts of my life that might reveal my sexual orientation	1	2	3	4	5
I avoid sharing details about my romantic life so others won't know I'm gay	1	2	3	4	5
I don't bring my boyfriend to social events because I don't want others to know I'm gay	1	2	3	4	5
Because I don't want others to know I'm gay, I limit what I share on social media or restrict visibility to certain people only	1	2	3	4	5

6-3: Depression Over the last 2 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things	1	2	3	4
Feeling down, depressed, or hopeless	1	2	3	4
Trouble falling or staying asleep, or sleeping too much	1	2	3	4
Feeling tired or having little energy	1	2	3	4
Poor appetite or overeating	1	2	3	4
Feeling bad about yourself — or that you are a failure or have let yourself or your family down	1	2	3	4
Trouble concentrating on things, such as reading the newspaper or watching television	1	2	3	4
Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	1	2	3	4
Thoughts that you would be better off dead or of hurting yourself in some way	1	2	3	4

6-4: In the past three months, have you had any thoughts about ending your life?

(1) Yes (Jump to **6-4-1**)

(2) No

6-4-1: In the past three months, have you made any specific plans to end your life?

(1) Yes (Jump to **6-4-2**)

(2) No

6-4-2: In the past three months, have you attempted to take your own life?

(1) Yes

(2) No

Your HIV status for this test: _____