

# The effects of recruitment method on demographics, psychosocial variables, and drug use among a sample of men who have sex with men in Shanghai, China.

Jessica Harnisch, MPH

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Background

# The Context Surrounding MSM in China

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- Men who have sex with men (MSM) in China are unified by the term, *tongzhi*. It describes a political and cultural context that unifies individuals amongst the heteronormative culture. <sup>1</sup>
- In 1997, same-sex sexual behavior was decriminalized. <sup>1</sup>
- In 2001, the updated CCDM-3 de-pathologized “homosexuality,” but *tongzhi* that experience distress are still considered in a diagnostic category. <sup>1</sup>
- MSM are disproportionately affected by mental illness and psychosocial health problems. <sup>2</sup>

# Psychosocial Health Problems Affecting MSM

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- *Depression*: rates among several samples of urban MSM range from 20-80%. <sup>2, 3, 4</sup> A 2012 study in Foshan found that 34.8% of their sample exhibited depressive symptoms. <sup>5</sup>
- *Intimate partner violence*: Cross sectional studies of urban MSM in America found that men experiencing IPV were at a 1.6 times greater odds of experiencing depression than those not abused by their partners. <sup>6, 7</sup>
- *Drug Use*: History of drug use is associated with high levels of depression, and MSM are more likely to have risky sexual behavior. <sup>8</sup>
- *Sexual concurrency*: Among a sample of MSM in Chennai, India, for every additional male sexual partner in the last three months, there was a 4% increase in the existence of depressive symptoms. <sup>9</sup>

# Effect of Recruitment Methods among MSM Populations

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- The large majority of sampling techniques utilized for studies conducted with MSM are convenience samples that contain an over-representation of bar patrons.<sup>10</sup>
- Guo et al. in 2011 utilized four sampling methods; peer outreach, informal social network, Internet, and venue-based, with the goal to recruit a more representative sample of MSM in Beijing.
  - ▣ They analyzed: sociodemographic and behavioral factors, as well as the rate of HIV and Syphilis infections among young migrant MSM.
  - ▣ Characteristics that varied significantly across the four recruitment methods were: nearly all demographic characteristics, prevalence of Syphilis, number of sexual partners in their lifetime, involvement in commercial sex work in the last six months, and drug use differed significantly across the four recruitment methods.<sup>11</sup>

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## Methodology

# Study Aims

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This study seeks to extend these findings by understanding the effects of recruitment method on:

1 sample demographics,

2 psychosocial variables,

3 substance use,

4 and sexual risk behaviors among a highly marginalized population of MSM and money boys in Shanghai, China.



# Population of MSM in Shanghai, China

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- General men who have sex with men (MSM).
  - 11.1% of MSM in Shanghai self-identified as openly gay/bisexual, **85.3% identified as closeted gay/bisexual**, and **3.4% are heterosexual**.<sup>12</sup>
- Money boys are a unique sub-population of rural-to-urban migrants that engage in transactional sex.
  - 13.2% are openly gay/bisexual, **73.5% closeted gay/bisexual**, and **13.5% are heterosexual**.<sup>12</sup>

# Data Collection

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- Data Collection Procedures:
  - ▣ Shanghai Men's Study was initiated in July of 2008 and continued for five years.
  - ▣ Pencil-and-paper survey, in Chinese, that consisted of three sections:
    - (1) **basic information and social support,**
    - (2) experience as a gay or bisexual person, attitudes about sex, **CES-D Short Form Depression Screening Questionnaire,** and
    - (3) attitudes about health issues, health status, treatment for STDs, **sexual behaviors, and substance use/abuse.**

# Shanghai Men's Study Recruitment Methods

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- All participants of the Shanghai Men's Study were recruited voluntarily by networking within the MSM and money boy communities at various venues in Shanghai that are frequented by MSM and money boys. Recruitment methods:
  - (1) respondent driven sampling (RDS),
  - (2) community popular opinion leader (CPOL),
  - (3) venue-based sampling (VBS).

# (1) Respondent Driven Sampling

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- For RDS, study staff initially recruited eight seeds<sup>13, 14</sup>:
  - **4 MSM** (2 gay-identified and 2 non-gay-identified)
  - **4 money boys** (two gay-identified and two non-gay-identified)
  - Each seed recruited up to **three peers** and gave them each three recruitment coupons to distribute to their peers. Coupons were used to track recruitment, affirm relationships, and prevent recruitment overlap.

## (2) Community Popular Opinion Leader

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- 40 community popular opinion leaders (CPOs) from different segments of the money boy and MSM populations by a local NGO, Shanghai Piaoxue Cultural Media Limited.<sup>15, 16</sup>
  - 20 were money boys and 20 were general MSM
  - Each CPO was asked to recruit 10-15 money boys or general MSM. If interested, the recruited participant would be contacted by study staff to determine eligibility and privately complete the survey.

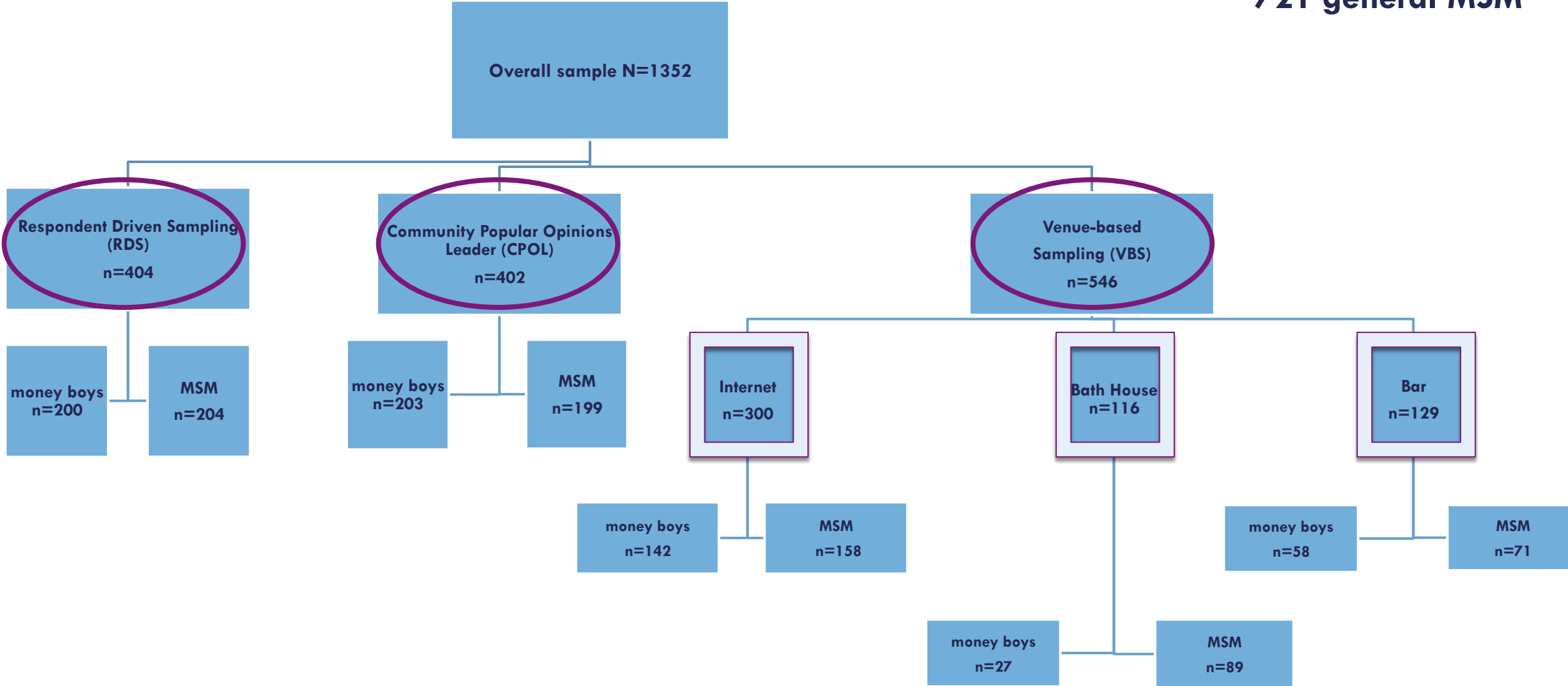
# (3) Venue-Based Sampling

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- VBS was conducted at each of the three following venues:
  - ▣ 1) **Internet applications**, such as “QQ” which is a short messaging service, JACKD and GRINDR
  - ▣ 2) **Bath houses**, and
  - ▣ 3) **Bars**
- Fliers were hung at bath houses and bars, and participants could call a hotline to learn more of the study
- Semi-private rooms were reserved in order to speak with and determine the preliminary eligibility of the participants
- If the participant was interested in the study, staff followed up with an appointment at the central office of Shanghai Piaoxue Cultural Media Limited, where the participant was consented and ask to complete the survey.

# Recruitment Methods:

In Total: 1,352 MSM  
631 money boys  
721 general MSM



# Analysis

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1. Descriptive statistics and frequencies for the survey items were conducted and stratified by recruitment method
2. In order to test for significant differences between comparison groups ANOVAs were conducted for continuous variables, and Chi-square tests for categorical variables.
3. Simple linear regressions were conducted to assess the correlation between depression and demographics, IPV, gender role beliefs, drug use, and sexual concurrency.
  - a. Pearson correlation coefficients were used for continuous variables.
  - b. Spearman correlation coefficients for categorical variables.





Characteristic	RDS n= 404	CPOL n= 402	VBS n= 546	Overall N=1,352	Sig. (F or X <sup>2</sup> , p)
Mean (SD)					
Age (years)	29.7 (10.4)	27.7 (7.9)	30.8 (9.9)	29.5 (9.6)	F=12.2, p=.000
Age at first sexual contact with men (years)	19.9 (6.1)	18.9 (5.5)	21.0 (6.1)	20.0 (6.0)	F=14.2, p=.000
Age at first sexual contact with women (years)	20.4 (4.5)	19.5 (3.9)	21.1 (4.4)	20.4 (4.3)	F=9.0, p=.000
n (%)					
Ethnicity					
Han	386 (95.5)	400 (100)	517 (94.7)	1303 (96.4)	X <sup>2</sup> =259.4, p=.000
Other	16 (4.0)	0 (0)	29 (5.3)	45 (3.3)	
Hukou					
Shanghai	82 (20.3)	96 (23.9)	129 (23.6)	307 (22.7)	X <sup>2</sup> =2.0, p=.372
Other	322 (79.7)	304 (75.6)	417 (76.4)	1043 (77.1)	
Level of Education					
Middle School or less	148 (36.6)	119 (29.6)	157 (28.8)	424 (31.4)	X <sup>2</sup> =19.2, p=.014
High School or equivalent	161 (39.9)	150 (37.3)	150 (27.5)	516 (38.2)	
College or more	93 (23.0)	133 (33.1)	133 (24.4)	410 (30.3)	
Monthly Income (Yuan)					
<1000	25 (6.2)	29 (7.2)	14 (2.6)	68 (5.0)	X <sup>2</sup> =91.5, p=.000
1000-2999	204 (50.5)	112 (27.9)	169 (31.0)	485 (35.9)	
3000-4999	115 (28.5)	164 (40.8)	177 (32.4)	456 (33.7)	
≥5000	59 (14.6)	95 (23.6)	186 (34.1)	340 (24.2)	
Sexual Orientation					
Openly gay/bisexual	49 (12.1)	31 (7.7)	41 (7.5)	121 (9.0)	X <sup>2</sup> =60.9, p=.000
Closeted gay/bisexual	321 (79.5)	332 (82.6)	485 (88.8)	1138 (84.2)	
Other	34 (8.4)	39 (9.7)	20 (3.7)	93 (6.9)	
Marital Status					
Married	59 (14.6)	47 (11.7)	115 (21.1)	221 (16.4)	X <sup>2</sup> =45.7, p=.000
Other	345 (85.4)	348 (86.6)	431 (78.9)	1124 (83.1)	

# Demographic results

## RDS:

- Lowest monthly income
- Largest proportion of openly gay/bisexual

## CPOL:

- Youngest age at 1<sup>st</sup> sexual contact with men or women
- Smallest proportion of married participants

## VBS:

- Oldest
- Largest proportion of closeted gay/bisexual
- Greatest proportion of married participants

## What is the rate of depression and intimate partner violence among the sample?

**Description of Depressive Symptoms amongst the Sample, Stratified by Recruitment Method**

Recruitment Method	RDS n=404 n (%)	CPOL n=402 n (%)	Venue-based n=546 n (%)	Overall N=1352 n (%)	F-value, p-value
Variable					
Minimal Depressive Symptoms	259 (64.1)	249 (61.9)	384 (70.3)	892 (66.0)	F=4.31, p=.014
Somewhat Elevated Depressive Symptoms	100 (24.8)	92 (22.9)	105 (19.2)	297 (22.0)	F=0.85, p=.429
Very Elevated Depressive Symptoms	32 (7.9)	31 (7.7)	32 (5.9)	95 (7.0)	F=3.64, p=.030
Overall CES-D sum score ( $\mu$ , $\sigma$ )	20.9 (6.1)	20.6 (6.7)	19.7 (6.2)	20.4 (6.3)	F=5.1, p=.006

**Description of Intimate Partner Violence amongst the Sample, Stratified by Recruitment Method**

Recruitment Method	RDS n=404 n (%)	CPOL n=402 n (%)	Venue-based n=546 n (%)	Overall N=1352 n (%)	X <sup>2</sup> , p-value
Variable					
IPV: 1 – 2 forms of abuse	146 (36.1)	110 (27.4)	187 (34.2)	443 (32.8)	8.0, .019
IPV: 2+ forms of abuse	58 (14.4)	45 (11.2)	83 (15.2)	186 (13.8)	3.3 .191

# What is the rate of drug use among the sample?

RDS: Greatest use of Ecstasy and smallest quantity of drugs/day

CPOL: Lowest use of methamph. and Ecstasy. Greatest quantity of drugs/day

VBS: Greatest use of drugs ever, with large proportion using stimulants

Rate of Drug Use among the Sample, Stratified by Recruitment Method

Participant Type	RDS	CPOL	Venue-based	Overall	X <sup>2</sup> or F, p-value
Variable	n= 402	n= 400	n=546	N=1,352	
n (%)					
Have used drugs	69 (17.1)	67 (16.7)	132 (24.2)	268 (19.8)	10.9, .004
Have used ice or methamphetamine	38 (9.4)	18 (4.5)	52 (9.5)	108 (8.0)	9.6, .008
Have used stimulants	28 (6.9)	56 (13.9)	175 (32.1)	259 (19.2)	104.7, .000
Have used Ecstasy	32 (7.9)	4 (1.0)	14 (2.6)	50 (3.7)	30.4, .000
Have used drugs other than stimulants, Heroin, Ecstasy or Ice	29 (7.2)	9 (2.2)	12 (2.2)	50 (3.7)	19.6, .000
Mean (SD)					
Quantity of drugs used per day in the last 3 months	0.05 (0.48)	8.2 (17.2)	5.7 (15.7)	1.8 (8.9)	F=34.8, p=.000

# What is the rate of sexual concurrency among the sample?

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## Sexual Concurrency in the Last 30 days, Stratified by Recruitment Method

# Partners	No partners			1-3 partners			4-6 partners			7-9 partners			10+ partner			X <sup>2</sup> , p
	RDS	CPOL	VBS	RDS	CPOL	VBS	RDS	CPOL	VBS	RDS	CPOL	VBS	RDS	CPOL	VBS	
Variable	n (%)															
MSM 30 days	40 (9.9)	45 (11.2)	52 (9.5)	199 (49.3)	169 (42.0)	303 (55.5)	55 (13.6)	41 (10.2)	70 (12.8)	20 (5.0)	28 (7.0)	38 (7.0)	90 (22.3)	122 (30.3)	83 (15.2)	70.7, .000
MSF 30 days	313 (77.5)	360 (89.6)	437 (80.0)	81 (20.0)	37 (9.2)	100 (18.3)	2 (.50)	4 (1.0)	3 (.55)	1 (.25)	0 (0)	0 (0)	1 (.25)	0 (0)	0 (0)	19.9, .000
	No partners			Only male partners			Only female partners			Male and female partners						X <sup>2</sup> , p
	RDS	CPOL	VBS	RDS	CPOL	VBS	RDS	CPOL	VBS	RDS	CPOL	VBS	RDS	CPOL	VBS	
	n (%)															
MSM+ MSF 30 days	32 (7.9)	42 (10.4)	41 (7.5)	289 (71.5)	319 (79.4)	402 (73.6)	8 (2.0)	3 (.75)	11 (2.0)	75 (18.6)	38 (9.5)	92 (16.8)				15.0, .001

RDS: Highest proportion of 1-3 female sexual partners in the last 30 days

CPOL: Highest proportion of 10+ male sexual partners in the last 30 days and only male concurrent sexual partners

VBS: Highest proportion of 1-3 male sexual partners in the last 30 days

# What is the rate of condomless (unprotected sex) among the sample?

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Description of Condom Use amongst the Sample, Stratified by Recruitment Method						
Variable	Recruitment Method	RDS n=402 n (%)	CPOL n=400 n (%)	Venue-based n=546 n (%)	Overall N=1348 n (%)	χ <sup>2</sup> , p
Unprotected Sex with a Man and a Woman Ever	Yes	377 (93.3)	158 (39.5)	233 (42.9)	768 (57.0)	χ <sup>2</sup> = 311.4, p=.000
	No	27 (6.7)	242 (60.5)	310 (57.1)	579 (43.0)	
Unprotected Anal Sex without a Condom Ever	Yes	308 (76.2)	334 (84.3)	409 (75.7)	1051 (78.4)	χ <sup>2</sup> = 11.6, p=.003
	No	96 (23.8)	62 (15.7)	131 (24.3)	289 (21.6)	
Unprotected Sex with a Casual Partner (man or woman) Ever	Yes	171 (42.9)	84 (40.2)	232 (44.5)	487 (43.1)	χ <sup>2</sup> = 1.2, p=.056
	No	228 (57.1)	125 (59.8)	289 (55.5)	642 (56.9)	

RDS: Highest proportion of unprotected sex with a man and a woman ever

CPOL: Highest proportion unprotected anal sex without a condom ever

VBS: Highest proportion unprotected sex with a casual partner (man or woman) ever



# CONCLUSIONS

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- Recruitment method affected nearly every variable assessed in this study.
- The varying **rates of depression, sexual concurrency, and drug use**, confirm that multiple recruitments should be utilized in order to gather a more representative sample of MSM.
  - RDS participants reported the highest rate of depression, intimate partner violence, and greatest proportion of male and female sexual partners in the last 30 days
  - CPOL participants reported the greatest quantity of drugs in the last 30 days and highest proportion of 10+ male sexual partners in the last 30 days and only male concurrent sexual partners
  - VBS reported the greatest use of stimulants and the highest proportion unprotected sex with a casual partner ever
- MSM and money boys in Shanghai are **at risk of depression, violent relationships, risky sexual behavior, and substance abuse problems**.
  - **Because these risks still exist among this population**, additional research and interventions are required in order to reduce these risks among the MSM population in Shanghai, China.



# STRENGTHS AND LIMITATIONS

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## STRENGTHS

1. The utilization of multiple recruitment methods allowed for a more representative sample of MSM in Shanghai, China.
2. This is the first study is assess the existence of co-existing psychosocial variables among MSM and money boys in Shanghai.
3. This sample recruited a large sample size of both **money boys and general MSM**.

## LIMITATIONS

1. This study relied on self-reported behaviors, which no doubt yielded some bias in the results.
2. This study was based upon data gathered in Shanghai, and the results do not apply to various MSM communities across China.
3. This study utilized purposive sampling. This sampling technique is prone to researcher bias and is not representative of the entire MSM population of China.

# Implications for future research

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- Future research of the health issues facing MSM and money boys should utilize multiple methods of recruitment in order to gather a more representative sample.
- Future studies should focus on the high rates of intimate partner violence, sexual concurrency, and drug use among MSM in Shanghai.
  - If a study were to be designed for the purpose of understanding the rate of psychosocial correlates, then we could have a greater understanding of the severity and associations between psychosocial health problems.
- Depression remains underreported in China, and mental illness is highly stigmatized in China. A study should be designed to understand the stigma behind depression among the MSM population in Shanghai.



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Questions?

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