Sexually transmitted infection testing practices among 'money boys' and general men who have sex with men in Shanghai, China: objective versus self-reported status

Lavinia Lin, Emory University
Eric J. Nehl, Emory University
Alvin Tran, Emory University
Na He, Fudan University School of Public Health
Tony Zheng, Shanghai Piaoxue Cultural Media Ltd
Frank Y Wong, Emory University

Journal Title: Sexual Health
Volume: Volume 11, Number 1
Publisher: CSIRO Publishing | 2014-03, Pages 94-96
Type of Work: Article | Post-print: After Peer Review
Publisher DOI: 10.1071/SH13199
Permanent URL: http://pid.emory.edu/ark:/25593/gjbv2

Final published version: http://www.publish.csiro.au/?paper=SH13199

Copyright information:
© CSIRO 2014

Accessed December 25, 2019 7:15 PM EST
Sexually transmitted infection testing practices among ‘money boys’ and general men who have sex with men in Shanghai, China: objective versus self-reported status

Lavinia Lin, Eric J. Nehl, Alvin Tran, Na He, Tony Zheng, and Frank Y. Wong

A Department of Behavioral Sciences and Health Education, Emory University Rollins School of Public Health, Atlanta, GA 30322, USA.

B Department of Nutrition, Harvard School of Public Health, Boston, MA 02115, USA.

C Department of Epidemiology, Fudan University School of Public Health, Shanghai 200032, China.

D Shanghai Piaoxue Cultural Media Ltd, Shanghai, China.

Abstract

Little is known about sexually transmitted infection (STI) testing among Chinese men who have sex with men (MSM). This study describes the prevalence of STI testing, associated factors and the validity of STI self-reporting among Chinese MSM. Findings indicated a high prevalence of STIs and low testing rates among MSM in Shanghai. Monthly income was significantly associated with STI testing (odds ratio: 0.37, 95% confidence interval (CI): 0.18 to 0.76). Depression was significantly associated with STI testing for general MSM (odds ratio: 1.09, 95% CI: 1.01 to 1.17). Syphilis self-reported status had the highest validity ($k = 0.33$, $\chi^2 = 3.76$, 95% CI: −0.003 to 0.65). Efforts are needed to ensure that STI testing services are accessible to MSM in China. Future HIV and STI interventions should be tailored to the needs of different subsets of MSM.

Keywords

associations; male sex workers; prevalence; testing rates

Introduction

In China, men who have sex with men (MSM) are at increased risk for sexually transmitted infections (STIs) and testing remains suboptimal. Among MSM, male sex workers or ‘money boys’ (MBs) represent an important subgroup, with 28.5% of MBs and 50.5% of general MSM never testing for HIV. However, little is known about STI testing among Chinese MSM. This study describes the prevalence of STI testing, associated factors and the validity of STI self-reporting among Chinese MSM.
Methods

In our study, 404 MSM (200 MBs, 204 general MSM) were recruited via respondent-driven sampling and completed a self-administered questionnaire. Alongside demographics and sexual risk behaviours, measures included: the lesbian, gay, and bisexual identity scale (Cronbach’s alpha ($\alpha$) = 0.60 for MBs, 0.64 for general MSM); the sexual attitudes scale ($\alpha$ = 0.75 for MBs, 0.81 for general MSM); the Center for Epidemiologic Studies Depression Scale ($\alpha$ = 0.83 for MBs, 0.85 for general MSM); intimate partner violence and the loss of face scale ($\alpha$ = 0.71 for MBs, 0.78 for general MSM). HIV knowledge was also calculated. Participants previously tested for STIs were asked to report their status (syphilis, gonorrhoea (Neisseria gonorrhoea) and/or herpes simplex virus Type 2 (HSV-2)). Results for each STI were also verified with laboratory testing at the Shanghai Municipal Center for Disease Control and Prevention. Syphilis screening involved an initial screening with a nontreponemal test and confirmation of positives using a treponemal assay. For this analysis, syphilis infection was defined as seropositivity on both treponemal and nontreponemal tests. Penile fluid specimens (swabbing from urethra) were tested to detect gonorrhoea infection. The low testing rate may be attributed to the physical discomfort of the procedure. Antibody testing was used to screen for HSV-2. All participants who tested positive for STIs received standard treatment regimens and care in the STI clinic.

Social network size and homophily (i.e. measure of preference for connections to one’s own group) were computed using RDSAT ver. 7.1. Multiple logistic regressions were conducted to explore the associations between STI testing status and demographics, sexual risk behaviours and psychosocial variables. Kappa statistics were used to assess the agreement between self-reported and objective STI status.

Results

The average social network size was 6.5 for MBs and 6.9 for general MSM who had tested for STIs, and 6.9 for MBs and 4.2 for general MSM who had not been tested. MBs and general MSM who had tested for STIs were more likely to be recruited by others who had tested (homophily = 0.47 and 0.26, respectively) compared with those who had not tested (homophily = 0.45 and 0.21, respectively).

The findings indicated a high prevalence of STIs among both MBs and general MSM in Shanghai: syphilis, 19.0%; gonorrhoea, 20.2%; HSV-2, 16.7%. Only 42.6% of the sample had ever tested for STIs. Regression analysis suggested that monthly income was significantly associated with STI testing (Table 1); overall participants with a monthly income less than ¥5000 were 0.6 times less likely to receive STI testing than those with incomes greater than ¥5000 (odds ratio (OR): 0.37, 95% confidence interval (CI): 0.18 to 0.76). For general MSM, those with greater depression were more likely to have tested for STIs (OR: 1.09, 95% CI: 1.01 to 1.17).

Kappa statistics showed the agreement between self-reported and objective syphilis status was 70.0% ($k = 0.33$, $\chi^2 = 3.76$, 95% CI = −0.003 to 0.65), and agreement for gonorrhoea
status was 47.8% ($k = 0.086, \chi^2 = 0.41, 95\% \text{ CI} = -0.16 \text{ to } 0.34$). The number of HSV-2 infections was too low to assess agreement.

**Discussion**

There is a high prevalence of STIs and low testing rates among MSM in Shanghai. Income was the only significant predictor for STI testing among MBs and general MSM. Unlike HIV testing, STI screening is not free at clinics in China. Efforts are needed to ensure STI testing services are affordable and accessible to MSM in China. Home-based screening with self-collected urine could be useful in improving STI screening uptake. Since depression was a significant predictor of STI testing among general MSM, effective integration of psychological services into STI screening programs at health clinics in China is warranted.

Syphilis self-reported status had the highest validity. Given that syphilis is the most commonly reported STI in Shanghai, MSM may be more knowledgeable of syphilis than other infections. This emphasises the need to include other types of STI information in health education efforts. In summary, it may be essential for public health agencies to offer free or low-cost STI testing for MSM. Future HIV and STI interventions should be tailored to the needs of different subsets of MSM.

**Acknowledgments**

Preparation of this article was supported in part by grants from the National Institutes of Health (R01HD046354 to FYW) and the Emory Center for AIDS Research (P30 AI050409 to FYW and EJN).

**References**


Table 1
Logistic regression models for any sexually transmitted infection (STI) testing among 404 men who have sex with men (MSM) in Shanghai, China, 2008

STI testing was defined as self-reports of any STI (syphilis, gonorrhoea or herpes simplex virus Type 2) testing in an individual’s lifetime. Participant type refers to if they were money boys (male sex workers) or general MSM (reference group). SAS, sexual attitudes scale; IPV, intimate partner violence; CES-D, Center for Epidemiologic Studies Depression Scale; LOF, loss of face scale; CI, confidence interval; OR, odds ratio; AOR, adjusted odds ratio

<table>
<thead>
<tr>
<th>Income</th>
<th>n (%)</th>
<th>Univariate logistic regression analysis</th>
<th>Multiple logistic regression analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>OR (95% CI)</td>
<td>P-value</td>
</tr>
<tr>
<td>≥¥5000</td>
<td>37 (62.7)</td>
<td>Referent</td>
<td>0.36</td>
</tr>
<tr>
<td>&lt;¥1000</td>
<td>13 (52.0)</td>
<td>0.64 (0.25–1.66)</td>
<td>0.36</td>
</tr>
<tr>
<td>¥1000–¥2999.99</td>
<td>74 (36.3)</td>
<td>0.34 (0.19–0.62)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>¥3000–4999.99</td>
<td>48 (41.7)</td>
<td>0.43 (0.22–0.81)</td>
<td>0.009</td>
</tr>
</tbody>
</table>

Number of male sexual partners in past 30 days

<table>
<thead>
<tr>
<th></th>
<th>n (%)</th>
<th>Univariate logistic regression analysis</th>
<th>Multiple logistic regression analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>OR (95% CI)</td>
<td>P-value</td>
</tr>
<tr>
<td>0–6</td>
<td>112 (38.1)</td>
<td>Referent</td>
<td>0.003</td>
</tr>
<tr>
<td>More than 7</td>
<td>60 (54.5)</td>
<td>1.95 (1.25–3.04)</td>
<td>0.02</td>
</tr>
<tr>
<td>Sexual risk index (15 items) (mean ± s.d.)</td>
<td>8.45 (2.24)</td>
<td>1.11 (1.02–1.21)</td>
<td>0.02</td>
</tr>
<tr>
<td>SAS overall sum score (mean ± s.d.)</td>
<td>75.73 (17.37)</td>
<td>1.02 (1.01–1.03)</td>
<td>0.004</td>
</tr>
<tr>
<td>IPV sum score (mean ± s.d.)</td>
<td>1.30 (1.52)</td>
<td>1.26 (1.09–1.46)</td>
<td>0.002</td>
</tr>
<tr>
<td>CESD score (mean ± s.d.)</td>
<td>11.59 (6.97)</td>
<td>1.04 (1.01–1.08)</td>
<td>0.006</td>
</tr>
<tr>
<td>LOF overall sum score (mean ± s.d.)</td>
<td>101.56 (12.37)</td>
<td>0.98 (0.97–1.00)</td>
<td>0.036</td>
</tr>
<tr>
<td>HIV knowledge score (mean ± s.d.)</td>
<td>4.26 (1.59)</td>
<td>1.25 (1.10–1.43)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Participant type × number of male sexual partners – 2.16 (0.48–9.67) 0.32
Participant type × sexual risk index – – 0.99 (0.82–1.20) 0.94
Participant type × SAS – – 0.98 (0.95–1.00) 0.032
Participant type × IPV – – 1.12 (0.79–1.58) 0.54
Participant type × CESD – – 1.09 (1.01–1.17) 0.035
Participant type × LOF – – 1.00 (0.97–1.02) 0.63
Participant type × HIV knowledge – – 1.27 (0.96–1.69) 0.095