



# A mixed methods approach to identifying factors related to voluntary HIV testing among injection drug users in Shanghai, China

Jiang Du<sup>a</sup>, Christina Lombardi<sup>b</sup>, Elizabeth Evans<sup>c</sup>, Haifeng Jiang<sup>a</sup>, Min Zhao<sup>a,\*</sup>, Ying-Ying Meng<sup>b,\*</sup>

<sup>a</sup> Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, 600 Wan Ping Nan Road, Shanghai 200030, China

<sup>b</sup> Center for Health Policy Research, UCLA, 10960 Wilshire Blvd, Suite 1550, Los Angeles, CA 90024, USA

<sup>c</sup> Integrated Substance Abuse Programs, UCLA, Los Angeles, California, USA

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## SUMMARY

**Objectives:** Injection drug use is a major route of HIV transmission in China, yet relatively little is known about why so few injection drug users utilize free HIV testing services. This study aimed to examine barriers to HIV testing and voluntary counseling and testing (VCT) service utilization among injection drug users in Shanghai, China.

**Methods:** Utilizing mixed methods, we analyzed data from a survey of 540 compulsory drug abuse treatment patients and data from focus groups with 70 service providers and patients.

**Results:** Only 24.4% of patients expressed willingness to be tested for HIV. Willingness to be tested was associated with younger age and more positive attitudes towards condom use. Patients reported several barriers to utilization of voluntary HIV testing services, including lack of information about these services, perceptions of no risk or low-risk for HIV infection, fear of positive results, and the stigma or discrimination that may be experienced by the patient or their family. Having limited skills related to HIV counseling was reported by service providers as the primary barrier to encouraging patients to utilize HIV testing/VCT services.

**Conclusions:** Special intervention programs targeting injection drug users, their family members, and service providers may increase HIV testing in China.

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## 1. Introduction

China faces the dual challenge of drug abuse and HIV/AIDS. In late 2009, approximately 1.33 million opiate addicts, mainly injection drug users (IDUs), were officially registered, but the actual number was estimated to be three times greater.<sup>1</sup> At the end of 2007, the number of people living with HIV had reached 700 000, and 42% of the 50 000 new HIV infections occurred among IDUs.<sup>2</sup> Urgent prevention and control measures are clearly needed to stop the growing epidemic of HIV/AIDS in China.

In response to the rapid spread of HIV/AIDS, the Chinese government adopted new strategies targeting both HIV/AIDS and drug abuse. One of these strategies, the HIV Voluntary Counseling and Testing (VCT) program, was established in 2003. By 2007, more than 4000 VCT clinics had been established throughout the country.<sup>3</sup> Research shows that if implemented appropriately, VCT is an effective intervention for reducing HIV risk behaviors and

increasing HIV-related knowledge among high risk populations in China.<sup>4</sup> Studies conducted in the Anhui and Urumqi provinces found that participants showed significant improvement in HIV knowledge compared to baseline after receiving VCT services.<sup>4–6</sup> Although VCT has been shown to be effective for HIV intervention and prevention, many at-risk individuals do not seek VCT services, especially drug users. For example, Zheng et al. reported that out of the 1251 clients receiving VCT services in a general hospital in Shanghai, only 1.2% of them were IDUs. Alarming, the HIV seroprevalence among this population of IDUs was 53.3%.<sup>7</sup>

To enhance utilization of VCT services, it is critical to identify barriers that prevent at-risk individuals from using these services, as well as factors that motivate individuals to seek VCT services. Fear of a positive HIV test result is a major reason for not being tested for HIV, whereas HIV knowledge is a main motivation for seeking VCT services.<sup>8,9</sup> Other barriers to utilization of VCT services include the stigma and discrimination associated with HIV/AIDS and the failure to focus prevention and intervention efforts on high-risk populations such as drug users and sex workers.<sup>10,11</sup>

Although the few existing studies on this topic provide useful information to improve China's VCT program, they have some

\* Corresponding author.

E-mail addresses: [Drminzhao@gmail.com](mailto:Drminzhao@gmail.com) (M. Zhao), [yymeng@ucla.edu](mailto:yymeng@ucla.edu) (Y.-Y. Meng).

limitations. First, these studies focus on the perspective of patients, but omit the viewpoint of service providers. Service providers meet patients regularly and provide intervention and counseling during their routine work, thus positioning them to provide a valuable perspective on VCT services utilization. Second, qualitative methods are useful for gathering a wide range of information from diverse drug-using populations,<sup>12</sup> but few studies have used these techniques to explore barriers to VCT services utilization among drug users in China. Finally, due to the large regional variation in both the prevalence of injection drug use and the prevalence of HIV/AIDS in China, findings from studies in other regions may not be applicable to Shanghai. Overall, the number of studies on this topic is too limited to keep pace with the growing epidemic of HIV/AIDS and drug abuse in China.

To address these knowledge gaps, we used quantitative and qualitative methods to examine the barriers to voluntary utilization of HIV testing/VCT among IDUs in China, with the goal of providing evidence-based recommendations for the improvement of HIV testing services utilization. Study activities involved a diverse set of local stakeholders, including patients and service provider staff from methadone maintenance treatment (MMT) clinics, the Shanghai Anti-drug Social Worker Consortium, and the Shanghai Municipal Center for Disease Control and Prevention (CDC). To our knowledge, this is the first study conducted in China that used mixed methods to explore the barriers to HIV testing/VCT services use among IDUs from both patient and provider perspectives. Study findings can be used to facilitate the development of VCT intervention programs in the future.

## 2. Methods

### 2.1. Participants

#### 2.1.1. Quantitative study

This study utilized baseline survey data from a 5-year longitudinal epidemiological study of IDUs in Shanghai. The main aim of the longitudinal study was to estimate gender differences in the prevalence of HIV risk behaviors and the prevalence of HIV, hepatitis C virus (HCV), and hepatitis B virus (HBV) among IDUs. The study samples were recruited from April to September 2007. Study inclusion criteria included: (1) meeting the *Diagnostic and statistical manual of mental disorders* fourth edition (DSM-IV) diagnostic criteria for substance dependence, as assessed by the structured clinical interview for DSM-IV axis I disorders (SCID-I); (2) being at least 18 years of age; and (3) being mentally capable of giving consent.

At each study site, potential participants were identified from a computerized database of heroin addicts. Individuals were approached by trained interviewers from the Shanghai Mental Health Center. After an interviewer explained the study procedures, the potential participant reviewed a consent form on her/his own and then was asked to repeat the main points of the study from her/his understanding. After consenting, each participant signed two copies of the consent form. One was kept in a secured place by the research team and the other was kept by the participant.

#### 2.1.2. Qualitative study

A total of six focus group discussions, three with drug users (one group for males, one group for females, and one for both males and females) and three with service providers (one with MMT clinic staff, one with CDC staff and social workers, and one with nurses) were conducted in November 2010 at the Shanghai Mental Health Center.

Drug abuse treatment staff who currently work at Shanghai MMT clinics and the Shanghai Voluntary Drug Abuse Treatment

Center and staff from the Shanghai Municipal CDC were invited to participate via flyers posted in their offices and mailed to their institutes. Because the individuals participating in the 5-year follow-up project were hard to reach, we invited current MMT patients to participate in the focus group discussions for this study. Based on our previous data, more than 60% of MMT clients received compulsory treatment before admission.<sup>13</sup> Recruitment flyers were posted in areas of the participating MMT clinics that are frequented by patients. Both the patient and service provider recruitment flyers asked interested individuals to call or e-mail research staff for more information and for verification of MMT involvement. To be eligible, service providers and health administrators had to have been working in a Shanghai health institution for at least 1 year. There were no other screening criteria for patient or service provider focus groups.

The groups included study participants, one facilitator, two observers, and other study staff. Each focus group lasted approximately 2 h and addressed several topics: (1) knowledge about HIV testing/VCT services; (2) barriers that prevent drug users from receiving HIV testing/VCT services; and (3) how to improve the acceptability of HIV testing/VCT services to drug users.

With regard to obtaining consent, all focus group participants were given an information sheet that did not require a signature. An information sheet that describes the aims of the study and emphasizes the voluntary nature of participation was considered appropriate for this research, because the research was minimal risk and did not involve any procedures for which written consent is normally required. The verbal consent process for all participants occurred prior to each focus group. The research protocols and consent process were approved by the Ethics Committee of the Shanghai Mental Health Center and the UCLA Institutional Review Board. All focus group participants received a 100 Yuan gift card for participation.

### 2.2. Survey measures

#### 2.2.1. Willingness to be tested for HIV

Participants were asked whether they would be willing to be tested for HIV after release from the compulsory drug abuse treatment center. Responses were recorded as 'yes' or 'no'.

#### 2.2.2. Demographic characteristics and HIV risk behaviors

The questionnaire collected information on demographic characteristics, such as age (in years), education level, and marital status, as well as information on HIV risk behaviors, including sharing of injection equipment, having multiple sex partners, and engaging in unsafe sexual behaviors during the 12 months prior to treatment admission.

#### 2.2.3. HIV knowledge

HIV knowledge was measured using a 45-item set of statements developed by Carey et al.<sup>14</sup> This instrument includes items concerning HIV transmission, prevention, and treatment. Participants rated each statement as true, false, or unknown, and one point was given for each correct answer with a possible score ranging from 0 to 45. Higher scores indicate higher levels of HIV knowledge. The instrument was translated into Chinese by one psychiatrist and back-translated by another psychiatrist to assure accuracy of translation. Twenty patients were invited to do a pilot test of the translated instrument. Based on results from the pilot test, some items were modified to ensure that the questionnaires were culturally appropriate.

#### 2.2.4. Perceived vulnerability to HIV infection

Perceived vulnerability was measured with the following question: Do you think you have been infected or will be infected

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