Original Article

Uptake of HIV Self-testing among Men Who have Sex with Men in Beijing, China: a Cross-sectional Study*

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Abstract

Objective To examine HIV self-testing uptake and its determinates among men who have sex with men (MSM) in Beijing, China.

Methods A cross-sectional online survey was conducted in Beijing, China in 2016. Participants were users of a popular Chinese gay networking application and had an unknown or negative HIV status. Univariate and multivariate logistic regression analyses were conducted to examine factors associated with HIV self-testing based on adjusted odds ratio (*AOR*) and 95% confidence interval (*CI*).

Results Among the 5,996 MSM included in the study, 2,383 (39.7%) reported to have used HIV self-testing kits. Willingness to use an HIV self-test kit in the future was expressed by 92% of the participants. High monthly income (*AOR* = 1.49; *CI* = 1.10-2.02; *P* = 0.010), large number of male sex partners (≥ 2: *AOR* = 1.24; *CI* = 1.09-1.43; *P* = 0.002), sexual activity with commercial male sex partners (≥ 2: *AOR* = 1.94; *CI* = 1.34 -2.82; *P* = 0.001), long-term drug use (*AOR* = 1.42; *CI* = 1.23-1.62; *P* < 0.001), and long-term HIV voluntary counseling and testing (VCT) attendance (*AOR* = 3.62; *CI* = 3.11-4.22; *P* < 0.001) were all associated with increased odds of HIV self-testing uptake.

Conclusion The nearly 40% rate of HIV self-testing uptake among MSM in our sample was high. In addition, an over 90% willingness to use kits in the future was encouraging. HIV self-testing could be an important solution to help China achieve the global target of having 90% of all people living with HIV diagnosed by 2020.

Key words: Men who have sex with men; HIV self-testing; Associated factors; Beijing

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INTRODUCTION

An estimated 40% of people living with HIV (PLHIV) were unaware of their HIV-positive status in 2016 at a global level, suggesting that as an international community, we are not on track to meet the first of the Joint United Nations Programme on HIV and AIDS (UNAIDS) 90-90-90 targets-having 90% of infected individuals diagnosed by 2020[1-2]. Performance toward this target varies at the individual country level[3]. In China, official joint estimates conducted by UNAIDS, WHO, and China's National Health and Family Planning Commission place the country's

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estimated total number of PLHIV at 850,000 as of the end of 2015. China's National Center for AIDS/STD Control and Prevention (NCAIDS) reported a total of 550,000 cases nationwide indicating a 65% diagnostic rate[4]. Although these estimates place China at a similar level with the international community as a whole, the figures are off track to meet the 'First 90' with less than four years to go.

To hit the First 90, China must introduce new methods to increase testing rates. HIV voluntary counseling and testing (VCT) has been available nationwide since 2002 and provider-initiated counseling and testing (PICT) since 2007[5]. However, these services have clearly not been enough and new strategies must be explored and embraced. Sexual contact has become the dominant route of transmission, with men who have sex with men (MSM) being the population making the most substantial contribution to the annual tally of new infections. Among newly diagnosed cases in 2014 in China, 26% were MSM, a substantial increase from the 2.5% reported in 2006. In addition, HIV prevalence among MSM increased from 2% in 2007 to 8% in 2015[6-7]. However, the testing rate among MSM has historically been low despite national guidelines that recommend testing every six months[7-8].

There are well-documented barriers to HIV testing in Chinese MSM, including inconvenience (testing facility locations or house), concern over confidentiality and privacy, fear of stigma and discrimination (both socially and by medical personnel at testing facilities), poor service quality, and long waiting times to obtain the results[7,9-11]. However, worldwide evidence[12-14] as well as recent experience in China[7,15-16] suggest that HIV self-testing may help reach key populations who do not choose to access conventional facility-based testing services such as VCT or PICT or do not access them frequently enough. HIV self-testing kits provide a non-discriminatory and highly confidential way to test for HIV.

In China, a very broad variety of HIV test products are easily accessible for purchase online and at HIV/AIDS clinics, hospitals, pharmacies, and Chinese Centers for Disease Control and Prevention (CDC) offices. These products are not regulated by the State Food and Drug Administration (SFDA) and they are not officially promoted nor restricted[7,17-18]. Although several studies have recently examined HIV self-testing among MSM in China[9-11,16-21], further characterization is required to better inform the development and broad-scale implementation of HIV self-testing programs for MSM in China. Therefore, the primary aim of this study was to examine self-testing uptake among a large sample of online MSM in Beijing, China as well as factors associated with self-test use.

METHODS

Study Design and Setting

A cross-sectional study design was used to conduct an online survey among MSM in Beijing from May 14th to May 17th 2016. Figure 1 contains a flow diagram showing the study design as well as the development of the final study population.

Participants

Potential participants were users of a popular gay networking smart phone application (App) who met the following geographical criteria: (a) had previously registered in the App with their region being Beijing; (b) had a smart phone global positioning satellite (GPS) signal located in Beijing; and (c) had answered the question 'Currently, which city do you live in?' as Beijing. Each user identified as being located in Beijing was given a unique identifier based on their IP address. Potential participants were then required to provide informed consent. Only those who did so were further selected if were ≥ 18 years old and had had anal sex with a man at least once during their lifetime. Lastly, potential participants were excluded if they had a known HIV-positive status or had never heard of HIV-self testing.

Questionnaire

The questionnaire was adapted from that of Wong et al.[20] and consisted of the following sections: (a) demographics, (b) sexual behavior, (c) history of HIV VCT, (d) knowledge of and attitudes toward HIV self-testing, (e) personal HIV self-testing experience, (f) drug use, and (g) sexual health history. HIV self-testing was defined for participants as the use of an HIV testing kit on oneself without supervision from a professional medical worker, where the user chooses the time and place for testing and completes the whole testing process without any professional consultation, inclusive of sample collection, testing, and result interpretation[14,18,20].

Participants were presented with each question one at a time and were allowed to select from a finite number of provided scripted answer choices. For most questions, participants were only allowed