

ORIGINAL ARTICLE

AWARENESS AND WILLINGNESS TO PAY FOR HIV SELF-TEST AMONG MEN WHO HAVE SEX WITH MEN FROM METRO MANILA, PHILIPPINES

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ABSTRACT

HIV self-testing (HIVST) is a new innovation in HIV testing where one can conduct an HIV test and interpret results secretly. However, the kit used for HIVST is not yet available in the Philippine market. This formative study aims to identify the awareness of men who have sex with men (MSM) from Metro Manila, Philippines towards HIVST as well as their willingness to pay for a self-test kit. Two-hundred fifty MSM who received a non-reactive HIV screening test result from a community-based voluntary counseling and testing center were recruited. Results indicated that slightly more than half of the respondents (56%) have heard about HIVST, indicating moderate level of awareness among MSM. The social media and the internet were the most prominent source of awareness about it. Frequent testers and being exclusively or more attracted to the same sex are more likely to be aware of HIVST. Median price one is willing to pay is 500 Pesos (roughly 10 US Dollars) and preference for saliva test that blood was reported. Willingness to pay was not related with any personal characteristic. Over-all, results implicate that efforts to inform MSM about HIVST should be initiated to increase awareness. Should it be available, HIVST services can be optimized if done through saliva test and if provided at low price.

Keywords: HIV self-testing, MSM, awareness, willingness to pay

INTRODUCTION

There has been a rising incidence of Filipinos diagnosed with human immunodeficiency virus (HIV). According to the Department of Health (DOH), an average of one case of HIV infection per day were documented in 2008 which increased to 7 cases in 2011, 16 cases in 2014, 32 cases in 2018, and 36 cases in 2019¹. Only on September 2019, 1,038 new cases of HIV seropositive individuals were recorded. Most of them were males (95%). Median age was 28 years old where half of the cases belonged to the 25-34 age cohort; while more than a quarter was aged 15 to 24 (31%) at time of diagnosis. The highest incidence was recorded in the National Capital Region (33%) as well as its peripheral regions, CALABARZON (i.e., Region IV-A) with 17% and Central Luzon (i.e., Region III) with 11%. These demonstrate that individuals who tested positive come from the youth sector and metropolitan areas. Furthermore, sexual contact among men who have sex with men (MSM) is the most predominant mode of transmission of the virus since January 1984 to September 2019.

One factor that increases the incidence of a particular disease is engagement of a population in disease screening. Voluntary counseling and testing (VCT) for HIV in the Philippines is available through community centers, hospitals, and social hygiene clinics (SHC). However, in a recent report by DOH, 78% of MSM have never been tested for

HIV². Moreover, only 30% reported to be comfortable to go to an SHC to get tested for HIV. A systematic review by Lorenc et al. revealed that the perception of stigma against undergoing VCT is a barrier to HIV testing³. In the Philippines, a report by the United Nations Development Programme stated that the worry about the high volume of testers is a factor related to the uptake of VCT because it affects confidentiality and privacy of the test result⁴. These implicate that individuals seeking HIV testing would benefit from community-based testing with high degree of confidentiality.

HIV self-testing (HIVST) is a new approach towards knowing one's HIV status. It is the process where an individual collects his or her own specimen, performs a test, and finally interprets the result in private⁵. Thus, the process of knowing one's status is conducted secretly. In a systematic review and meta-analysis, Zhang, Li, Brecht, & Koniak-Griffin concluded that HIVST could increase uptake of HIV testing⁶.

Research involving awareness towards HIVST has been conducted in other countries. For instance, almost all participants (MSM, transgendered women, and female entertainment workers) from a qualitative study by Pal et al. revealed not having heard of HIVST⁷. Meanwhile, Dean et al. reported that more than half of survey participants composed of Australian gay and bisexual men (58%) had never heard of HIVST⁸. In

a survey of MSM in Jiangsu Province, China, about 70.9% reported to have heard about HIVST⁹. HIVST is not yet available commercially in the Philippines. Moreover, literature involving Filipinos' awareness and intention to avail self-testing is very limited. In fact, studies about acceptability, values, and preferences of key populations towards self-testing are generally from high-income countries¹⁰. Thus, this formative research aims to fill this gap by shedding light on the awareness of Filipino MSM from Metro Manila towards HIVST as well as their purchase preferences. It aims to address following research questions: 1) What is the proportion of recruited MSM who are aware of HIVST; 2) Among HIVST-aware MSM, what is the proportion of those who are willing to purchase it?; 2a) Among those willing to purchase a self-test kit, what is the preferred method of getting specimen?; 2b) Among those who are willing to purchase, how much are they willing to pay for an HIVST?; 3) What are the correlates of awareness towards HIVST?; and 4) What are the correlates of the price MSM are willing to pay to avail HIVST?

METHODS

This research was part of a prospective cohort study that aimed to identify the incidence and determinants of a repeat VCT for HIV among MSM. Data for this current study was extracted from the baseline data gathering of the said project. A pre-tested self-administered questionnaire was handed over to all eligible clients of the project. It contained items pertaining to their socio-demographic profile, intention to repeat HIV test, and finally the one relevant to this research, questions related to self-testing.

Research Participants

The study was conducted at a community-based HIV testing center in Mandaluyong City, Philippines. For the pre-screening of participants, MSM who received a non-reactive HIV screening test result were invited by their respective counselors to participate in the study. If affirmative, the principal investigator explained further the procedures of the study and performed the participant screening process to determine eligibility. Two-hundred and fifty samples took part in the study. Client must be aged 18 years or older; studying, working, or residing in Metro Manila; and has at least one risk factor for acquiring HIV for the past twelve months (unprotected anal sexual intercourse, multiple anal sex partners, multiple oral sex partners, sex under the influence of alcohol, sex under the influence of drugs, or trading money for sex).

Data Analysis

The response variables were 1) awareness about HIVST which was coded binary, and 2) the price HIVST-aware MSM are willing to pay to avail one should it be available. Continuous independent

variables are age and number of HIV tests in lifetime. Those in the ordinal scale are educational attainment and income; while those in the nominal scale are relationship status, and sexual orientation.

Descriptive statistics were performed first to profile the research participants and to present aggregate awareness and preferences towards HIVST. Independent sample t-test was performed to determine if MSM who have heard and have not heard of HIVST differ by age and testing history. Categorical factors associated with awareness were tested using Chi-Square test of independence. One-Way ANOVA and Independent Sample t-test were performed to identify differences in price MSM are willing to pay among categories of sexual orientation and relationship status, respectively. Pearson and Spearman-rank correlation coefficients were computed to examine relationship of price with quantitative variables.

All data was encoded to a spreadsheet and analyzed through SAS University Edition (SAS Institute Inc., 2018). Significance was set at $\alpha = 0.05$.

Ethics Statement

Prior to data gathering, ethics clearance was obtained from the University of the Philippines Manila Research Ethics Board Panel 1 (2018-021-01). All potential participants underwent an informed consent procedure before engaging in the research. Written consent was obtained from all participants prior to the screening process. Data were treated with utmost confidentiality and all participants were kept anonymous.

RESULTS

The respondents had an average age of 26 years old (SD = 4.39) which indicates that they are in their productive years and in the high HIV-incidence age cohort. Average number of HIV tests in lifetime was 4 (SD = 3.30). In terms of sexual orientation, majority was exclusively or more attracted to the same sex (63%) while more than a quarter of the respondents indicated to be equally attracted to both sexes (32%). The remaining minority said that they were exclusively or more attracted to the opposite sex (5%). About 90% reported that they attended college while a few (6%) reported that they attended post-graduate education. Typical income ranged from 30,001 to 40,000 (31%) followed by 20,001 to 30,000 (26%). Most of the participants were not in relationship (82%). Table 1 presents the awareness of MSM towards HIVST, sources of awareness about it, and purchase preferences.

Slightly more than half of the respondents (56%) reported to have heard about self-testing for HIV. Among all stated source of awareness about

HIVST, the most prominent was the social media and the Internet (44%) followed by friend(s) (25%), testing centers including during HIV counseling (21%), and romantic or sexual partners (3%). Among those who have heard about HIVST, about 87% reported willingness to purchase it. Among those who indicated willingness to avail HIVST kits, slightly more than three-fourths (78%) preferred to conduct it through oral swab. Finally, the median price MSM are willing to pay was 500 Pesos (IQR = 700) or roughly 10 US Dollars.

Table 2 presents the cross tabulation of the profile of the participants and awareness on HIVST. Across various personal characteristics, only testing history and sexual orientation were

found to be related with awareness on HIVST, at $\alpha = 0.05$. Particularly, MSM who have heard of HIVST had significantly higher number of HIV testing engagements; $t(242.53) = -3.01, p < 0.01$. Furthermore, they were more likely exclusively or more attracted to the same sex, $X^2(2, N = 250) = 6.39, p = 0.04$. Table 3 presents the differences in willingness to pay among various respondents' characteristics; while Tables 4 and 5 illustrate correlation matrices to illustrate correlation of quantitative variables with willingness to pay. In the last two tables, each cell represents correlation coefficient among variables. However, in this study, only the correlates of price one is willing to pay is of interest.

Table 1: Awareness towards HIVST, sources of awareness, and purchase preferences

Variables	N	%
Awareness on HIVST (N=250)		
Have not heard about it	109	43.60
Have heard about it	141	56.40
Source of awareness*		
Social media/Internet	55	43.65
Friends	31	24.60
Testing centers	26	20.63
Romantic/sexual partners	4	3.17
Others	10	7.93
Willingness to purchase HIVST among those who have heard of it (N =141)		
No	18	12.77
Yes	123	87.23
Preferred method of HIVST among those willing to avail it (N =123)		
Saliva	95	78.24
Blood	28	22.76
Price MSM are willing to pay (N=122)**		
0-250 Pesos	29	23.77
251-500 Pesos	57	46.72
500-750 Pesos	3	2.46
751-1000 Pesos	26	21.31
More than 1000 Pesos	7	5.74
Median	500 Php (IQR = 700)	

*Multiple answers **Does not sum to 123 because of 1 missing response

Table 2: Cross tabulations for awareness on HIV self-test and various personal characteristics

Variables	Heard about self-test (N = 141)	Have not heard about self-test (N = 109)	p
Age	$\bar{x} = 25.62$ (SD = 4.27)	$\bar{x} = 26.11$ (SD = 4.54)	0.88
HIV Testing History	$\bar{x} = 4.11$ (SD = 3.75)	$\bar{x} = 2.92$ (SD = 2.48)	< 0.01
Sexual Orientation			0.04
Exclusively or more attracted to opposite sex	9 (6.38%)	4 (3.67%)	
Equally attracted to both sexes	53 (37.59%)	27 (24.77%)	
Exclusively or more attracted to same sex	79 (56.03%)	78 (71.56%)	
Relationship Status			0.16
Not in any form of relationship	112 (79.43%)	94 (86.24%)	
In a relationship	29 (20.57%)	15 (13.76%)	
Education			0.49
Below college level	5 (3.55%)	7 (6.42%)	
College level/graduate	129 (91.49%)	95 (87.16%)	
Post-graduate	7 (4.96%)	7 (6.42%)	
Income (in Pesos)			0.26
< 10,000	16 (11.35%)	16 (14.68%)	
> 10,000 to 20,000	39 (27.66%)	26 (23.85%)	
> 20,000 to 30,000	50 (35.46%)	27 (24.77%)	
> 30,000 to 40,000	17 (12.06%)	20 (18.35%)	
> 40,000 to 50,000	6 (4.26%)	9 (8.26%)	
> 50,000	13 (9.22%)	11 (10.09%)	

Table 3: Mean differences in prices MSM are willing to pay

Variable	\bar{x} (SD)	Test Statistic (df)	p
Sexual Orientation		1.08 (2,119)	0.34
Exclusively or more attracted to opposite sex	471.43 (309.38)		
Equally attracted to both sexes	521.74 (367.67)		
Exclusively or more attracted to same sex	702.17 (875.73)		
Relationship Status		.830 (120)	0.41
Not in any form of relationship	648.44 (762.80)		
In a relationship	519.23 (412.57)		

Table 4: Pearson correlation coefficients for price and continuous variables

	Price	Age	Testing History
Price	1		
Age	0.08	1	
Testing History	0.32	0.14*	1

* $p < .05$

Table 5: Spearman-rank correlation coefficients for price and ordinal variables

	Price	Education	Income
Price	1		
Education	0.09	1	
Income	0.17	0.14*	1

* $p < .05$

Table 3 reveals that willingness to pay for HIVST did not significantly differ across different categories of sexual orientation and relationship status. Similarly, Tables 4 and 5 demonstrate that price MSM are willing to pay to purchase an HIVST kit was not related with the age, testing history, educational attainment, and monthly income of MSM.

DISCUSSION

The Joint United Nations Programme on HIV/AIDS's 90-90-90 campaign states that by 2020, 90% of all people living with HIV should know their status; 90% of those diagnosed should be undergoing antiretroviral therapy; and 90% of those having therapy should have viral suppression¹¹. This means that the frontline target is geared towards HIV testing. However, with perceived stigma of undergoing such in testing centers as barrier to VCT, new innovative ways must be taken to further promote testing. One way is the introduction of HIVST. This study serves as a formative research by providing patient-centered information and client concerns that may be used inform health policy.

The findings of this study demonstrated moderate level of awareness towards HIVST among MSM, with the social media and Internet as most prominent sources of awareness regarding it. Those who are more likely or exclusively attracted to the same sex and those with higher mean testing history were more aware of HIVST. Among those who have heard of HIVST, many MSM expressed interest in purchasing it with purchase

preferences reflecting low cost and saliva-based kits. No significant relationships were unearthed between willingness to pay and various respondents' characteristics.

The computed percentage of MSM who have heard HIVST was below reported percentages in similar quantitative studies^{8, 9}. This suggests that policy makers and HIV/AIDS program officers should create avenues to disseminate educational and information campaigns (EIC) to raise awareness about the screening tool. The social media and internet being the most prominent sources of awareness about HIVST complements the report of DOH that many MSM had social media accounts and mobile applications to meet sex partners². Thus, these channels can be used to reach MSM to inform about HIVST. In fact, evidence to support effectiveness of social media in promoting HIV testing has been documented in literature¹².

Those who have not heard about HIVST have significantly lower mean testing history compared to those who have heard of it. Results indicated that testing centers were also a source of awareness about HIVST. One plausible explanation is that clients seeking VCT might have heard HIVST among HIV testing centers during counseling sessions. In a study on the opinion of attendees of a street-based HIV rapid-testing program towards over-the-counter HIVST, it was found out that those with previous testing experience were more likely to have greater interest in purchasing a self-test¹³. This finding suggests that testing centers can also be utilized as potential source of awareness about the screening tool; and non-frequent testers should

be targeted in raising awareness about HIVST. Also, the proportion of those who were aware about HIVST were significantly higher among MSM who are more or exclusively attracted to the same sex compared to bisexual and heterosexual men. This suggests that heterosexual and bisexual MSM should be targeted for awareness interventions.

Willingness to pay did not significantly differ across various personal characteristics. This suggests that MSM of different socio-demographic backgrounds have the same level of willingness to pay for an HIVST. In terms of purchase preferences, the median cost derived from the clients was lower than its market price the US which was 40 US Dollars¹⁴. The study's samples reported higher prices compared to other studies analyzing willingness to pay for HIVST in low-income countries¹⁵. Meanwhile, it falls within the price range Brazilian men and women are willing to pay¹⁶. Knowing the price MSM are willing to pay implies that when the proposed market price of HIVST becomes higher, cost as barrier could emerge; especially that developing countries are more likely to have cost as barrier towards access to HIVST¹⁷. Provision of a low-cost kit is expected to provide an inclusive HIVST approach by helping access to HIVST to increase.

Preference was given to oral-based tests.

Different populations gave varying preferences on the method of HIVST. For instance, in a study by Indravudh et al., oral-fluid tests were preferred by young people in Malawi and Zimbabwe¹⁸. A study by Strauss and colleagues among truck Drivers in Kenya revealed that oral-testing is preferred for those who prefer HIVST while finger-prick testing is preferred among those who prefer provider administered test¹⁹. On the other hand, young black, Hispanic, and white MSM was reported to prefer finger stick than oral fluid rapid HIVST²⁰.

Only one study on HIVST among Filipino MSM and transgender women has been found²¹. In this qualitative study, results were similar with the current research. Focus group discussion participants who were MSM and transgender women were positive about HIVST and are welcoming its provision of convenience and privacy. In terms of cost, they also preferred HIVST to have no to low cost. Both the study and the present one regard HIVST as a driving factor to increase uptake of HIV testing among MSM.

CONCLUSION

HIV testing is a gateway towards prevention of HIV transmission. With barriers towards HIV testing like stigma, discreet and convenient ways to get tested in the Philippines particularly among MSM should be promoted. Results suggest that awareness campaigns about HIVST should be implemented first prior to implementing its

availability particularly to non-frequent testers to increase awareness on HIVST. Willingness to pay was not correlated with any personal characteristic suggesting that the amount one is willing to pay does not vary within the MSM population. If HIVST will be available in the market, it may be optimized if provided through oral test at a low cost.

LIMITATION

This study is not one without limitations. First, the samples are only MSM who were living, studying, or working in Metro Manila. These are also MSM who were seeking HIV testing and counseling. The results of the study may not be true to other key populations such as persons who inject drugs and sex workers, nor to other MSM not living, studying, or working in the region. Second, the study did not take into account knowledge on how to use HIVST and attitude of MSM towards HIVST as it only offers to shed light on Filipino MSM's awareness on self-testing as a starting point for HIVST research in the Philippines. Identifying their knowledge and attitude towards HIVST would help programs construct effective messages to promote self-testing and clarify issues that MSM intend to address. These gaps should be addressed by future studies.

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CONFLICT OF INTEREST

Authors declare no conflict of interest

REFERENCES

1. Department of Health. 2019. HIV/AIDS & ART registry of the Philippines. Department of Health | Epidemiology Bureau. September 2019. Retrieved from https://www.doh.gov.ph/sites/default/files/statistics/EB_HARP_September_AIDS_reg2019.pdf on April 6, 2020.
2. Department of Health. 2015. Integrated HIV behavioral & serologic surveillance. Retrieved from: https://www.doh.gov.ph/sites/default/files/publications/Philippines_2015_IHBSS_Fact_Sheets_Nov2017_22JUN2016.pdf on September 9, 2019.
3. Lorenc T, Marrero-Guillamón I, Llewellyn A, et al. HIV testing among men who have sex with men (MSM): Systematic review of qualitative evidence. *Health Educ Res* 2011; 26(5):834-846. doi: <https://doi.org/10.1093/her/cyr064>.

4. UNDP. 2017. Missing in Action - Loss of clients from HIV testing, treatment, care and support services: Case studies of gay men and other men who have sex with men in Manila. Bangkok, UNDP. Retrived from: https://www.undp.org/content/dam/philippines/docs/HIV/UNDP_PH_Manila_Case%20Studies%20170511.pdf.
5. World Health Organization. 2014. March 2014 supplement to the 2013 consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection Recommendations for a public health approach. Retrieved from: https://www.who.int/hiv/pub/guidelines/arv2013/arv2013supplement_to_chapter05.pdf.
6. Zhang C, Li X, Brecht M, & Koniak-Griffin D. Can self-testing increase HIV testing among men who have sex with men: A systematic review and meta-analysis. *PLoS ONE* 2017; **12**(11): e0188890. <https://doi.org/10.1371/journal.pone.0188890>.
7. Pal K, Ngin C, Tuot S, et al. Acceptability study on HIV self-testing among transgender women, men who have sex with men, and female entertainment workers in Cambodia: A qualitative analysis. *PLoS ONE* 2016; **11**(11): e0166129. <https://doi.org/10.1371/journal.pone.0166129>.
8. Dean J, Lui C, Mutch A, et al. Knowledge and awareness of HIV Self-testing among Australian gay and bisexual men: a comparison of never, sub-optimal and optimal testers willingness to use. *AIDS Care* 2019; **31**(2):224-229. doi: 10.1080/09540121.2018.1524120.
9. Yan H, Yang H, Raymond, HF, et al. Experiences and correlates of HIV Self-testing among men who have sex with men in Jiangsu Province, China. *AIDS Behav* 2015; **19**(3): 485-491. doi: 10.1007/s10461-014-0968-8.
10. Figueroa C, Johnson C, Verster A, et al. Attitudes and Acceptability on HIV Self-testing Among Key Populations: A Literature Review. *AIDS Behav* 2015; **19**(11):1949-65. doi: 10.1007/s10461-015-1097-8.
11. Joint United Nations Programme on HIV/AIDS. (2014). 90-90-90 An ambitious treatment target to help end the AIDS epidemic. Joint United Nations Programme on HIV/AIDS.
12. Rhodes SD, McCoy TP, Tanner AE et. al. Using Social Media to Increase HIV Testing Among Gay and Bisexual Men, Other Men Who Have Sex With Men, and Transgender Persons: Outcomes From a Randomized Community Trial. *Clin Infect Dis* 2016; **62**(11): 1450-1453, <https://doi.org/10.1093/cid/ciw127>.
13. Rosales-Statkus ME, de la Fuente L, Fernández-Balbuena S, et al. Approval and potential use of over-the-counter HIV self-tests: the opinion of participants in a street based HIV rapid testing program in Spain. *AIDS Behav* 2015; **19**(3):472-84. doi: 10.1007/s10461-014-0975-9.
14. Jennings L, Conserve DF, Merrill J, et al. Perceived Cost Advantages and Disadvantages of Purchasing HIV Self-Testing Kits among Urban Tanzanian Men: An Inductive Content Analysis. *J AIDS Clin Res* 2017 Aug; **8**(8): 725. doi: 10.4172/2155-6113.1000725.
15. Thirumurthy H, Masters SH, & Agot K. Willingness to Pay for HIV Self-Tests Among Women in Kenya: Implications for Subsidy and Pricing Policies. *J Acquir Immune Defic Syndr* 2018; **78**(2):e8e11.doi:10.1097/QAI.0000000000001659.
16. World Health Organization. 2016. Annex 29: Report on the values and preferences on HIV self-testing in Brazil. Guidelines on HIV self-testing and partner notification: supplement to consolidated guidelines on HIV testing services.
17. Ng O & Tan M. HIV Self-Testing: Money Matters. *Clin Infect Dis* 2013; **57**(5): 771-772, <https://doi.org/10.1093/cid/cit361>.
18. Indravudh PP, Sibanda, EL, d'Elbe´e M, et al. 'I will choose when to test, where I want to test': investigating young people's preferences for HIV self-testing in Malawi and Zimbabwe. *AIDS* 2017, **31** (Suppl 3):S203-S212.
19. Strauss M, George G, Mantell J, et al. Stated and revealed preferences for HIV testing: can oral self-testing help to increase uptake amongst truck drivers in Kenya?. *BMC Public Health* 2018. doi: <https://doi.org/10.1186/s12889-018-6122-1>.
20. Merchant RC, Clark MA, Liu T, et al. Preferences for oral fluid rapid HIV self-testing among social media-using young black, Hispanic, and white men-who-have-sex-with-men (YMSM): implications for future interventions. *Public Health*

2017 Apr; 145:7-19.
doi:10.1016/j.puhe.2016.12.002. Epub
2017.

21. Gohil J, Baja ES, Sy TR et al. Is the Philippines ready for HIV self-testing? *BMC Public Health* 2020; 20(34). doi: <https://doi.org/10.1186/s12889-019-8063-8>.