



Published in final edited form as:

*AIDS Behav.* 2020 July ; 24(7): 2220–2226. doi:10.1007/s10461-020-02809-1.

## Few Aggressive or Violent Incidents are Associated with the Use of HIV Self-Tests to Screen Sexual Partners among Key Populations

Alex Carballo-Diéguez<sup>1</sup>, Rebecca Giguere<sup>1</sup>, Iván C. Balán<sup>1</sup>, Curtis Dolezal<sup>1</sup>, William Brown III<sup>1,2,3,4</sup>, Javier Lopez-Rios<sup>1,5</sup>, Alan Sheinfil<sup>6</sup>, Timothy Frasca<sup>1</sup>, Christine Rael<sup>1</sup>, Cody Lentz<sup>1</sup>, Raynier Crespo<sup>7</sup>, Catherine Cruz Torres<sup>7</sup>, Cheng-Shiun Leu<sup>1</sup>, Irma Febo<sup>7</sup>

<sup>1</sup>HIV Center for Clinical and Behavioral Studies, Division of Gender, Sexuality and Health, NY State Psychiatric Institute and Columbia University, New York, USA

<sup>2</sup>Center for AIDS Prevention Studies, Department of Medicine, University of California San Francisco, San Francisco, USA

<sup>3</sup>Center for Vulnerable Populations at Zuckerberg San Francisco General Hospital and Trauma Center, Department of Medicine, University of California San Francisco, San Francisco, USA

<sup>4</sup>Bakar Computational Health Science Institute, University of California San Francisco, San Francisco, USA

<sup>5</sup>Department of Community Health and Social Sciences, CUNY Graduate School of Public Health and Health Policy, New York, USA

<sup>6</sup>Department of Psychology, Syracuse University, Syracuse, US

<sup>7</sup>Department of Pediatrics, University of Puerto Rico Medical Sciences Campus, San Juan, USA

### Abstract

Men who have sex with men and transgender women who had multiple sexual partners in the prior three months participated in ISUM, a randomized, controlled trial of self- and partner-testing in New York City and San Juan, PR. Only 2% of screened participants were ineligible to enroll due to anticipating they would find it very hard to avoid or handle violence. The intervention group received free rapid HIV self-test kits. During the trial, 114 (88%) of intervention participants who were assessed at follow-up used self-tests with at least one potential partner. Only 6% of participants who asked a partner in person to test reported that at least one of their partners got physically violent, some in the context of sex work. In total, 16 (2%) partners reacted violently. Post-trial, only one participant reported finding it very hard to handle violence, and none found it very hard to avoid potential violence.

### Resumen

Hombres que tienen sexo con hombres y mujeres transgénero que habían tenido múltiples parejas sexuales en los tres meses previos participaron en “Te lo enseño”, un ensayo aleatorio controlado

del uso del autotest con parejas sexuales en Nueva York y San Juan, PR. Sólo un 2% de los participantes resultó inelegible para inscribirse debido a anticipar que les sería muy difícil evitar o manejar una situación violenta. El grupo de intervención recibió gratis los autotest rápidos para el VIH. Durante el ensayo, 114 (88%) de los individuos asignados a la intervención que fueron evaluados en el seguimiento usaron el autotest con al menos una posible pareja sexual. Sólo un 6% de los participantes que le pidieron en persona a una pareja que se haga el test reportó que al menos una de sus parejas se puso violento a causa del pedido, algunos en el contexto del trabajo sexual. En total, 16 (2%) de las parejas tuvieron una reacción violenta. Después del ensayo, sólo un participante reportó que le fue muy difícil manejar la violencia y ninguno reportó dificultades para evitar la posible violencia.

## Keywords

HIV self-test; MSM; transgender women; violence

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## Introduction

HIV self-testing (HIVST) is gaining worldwide popularity. It has been endorsed by the World Health Organization (1–2), and studies conducted in countries with diverse cultures, income levels and health infrastructures attest to the interest that this technology has generated (3–28). Advances in HIVST assays have improved accuracy and shortened window periods (29). Moreover, the availability of self-test kits that allow simultaneous testing for HIV and other STIs (30) is likely to further stimulate their widespread use. Yet, various stakeholders have expressed concerns that HIVST may lead to unintended harm (31). This concern, previously raised for other self-tests despite very little evidence of any harm occurring from their use, has encouraged researchers to request “that HIV self-testing not be restricted based on fears of harm, but rather that, as self-testing is expanded, researchers and policy makers pay particular attention to monitoring and measuring for unintended harm” (31).

Violent reactions from partners could be one potential harm in the context of self- and partner-testing. Yet, studies have identified few violent incidents from partners related to HIVST. Two studies conducted in Malawi and Kenya in which participants were given HIVST to use for themselves and their partners found few to no cases of intimate partner violence related to HIVST use (32,33), and another study among female sex workers in Zambia found only three cases of intimate partner violence among 965 participants (34).

There is a dearth of literature on violence related to HIVST use among men who have sex with men (MSM) and transgender women (TGW) who propose it to their sexual partners. Our qualitative research study with 57 MSM in New York City (NYC) (35) found that, beyond refusal to take the home test, most participants did not anticipate that the invitation to use a rapid home test would generate any violent reactions. Referring to one-night-stands, many participants stated that they trusted their skills to judge a situation and would not bring up the idea of using home tests if there were a potential for violence. Most participants felt they could handle aggression or violence in the event it might occur. However, the study was

hypothetical: participants pondered the outcomes of proposing self-testing to their sexual partners but did not actually do it (35).

Ethics committees that review research proposals at academic institutions often take a conservative approach to any situations that may involve risk for participants. Although it is impossible to completely rule out risks in most situations, in the case HIV self- and partner-testing using rapid tests it is important to go beyond hypothetical considerations and explore what happens in “real-world” situations. The present manuscript contributes to the scientific literature presenting results from a study in which HIV-negative MSM and TGW in the United States were given HIV self-tests to use with potential sexual partners over the course of three months. We describe the frequency of violence associated with self-test kit use with partners as well as participants’ assessment of their ability to handle or avoid violent situations.

## Methods

The study’s field name was ISUM (“I’ll show you mine”), a pun on the idea of potential sexual partners showing each other their HIV self-test results. It was a 5-year, randomized, controlled trial with the primary aim of exploring the effectiveness of HIVST as a risk-reduction tool for individuals at high-risk of HIV infection by comparing rates of condomless anal intercourse with sero-discordant or unknown status partners among participants who had access to HIVST compared to those who did not (see Carballo-Diéguez et al. for further details) (36). An exploratory aim of the study was to assess frequency of violence and participants’ ability to handle or avoid violence related to HIVST use with partners. To focus on individuals at high infection risk, participants had to be HIV-negative and 18 years of age or older, identify as a man or TGW who has sex with men, report three or more occasions of condomless anal intercourse with sero-discordant or unknown status partners in the prior three-months, have had two or more sexual partners in the previous three months, and not be on oral PrEP at the time of recruitment. The study took place in NYC and San Juan, Puerto Rico (PR), and participants could choose English or Spanish when responding to surveys and interviews.

Participants were sampled through venue-, online- and referral-based recruitment (37). Recruitment included word-of-mouth through other participants who were given a \$30 incentive for referring friends who enrolled in the study, for a maximum of \$90.

Participants responded to a brief pre-screening survey by phone or in-person. Those who qualified were invited to an in-person screening (Visit 1) in which they completed a baseline behavioral questionnaire via computer administered self-interview (CASI), and also completed a rapid HIV self-test (OraQuick® Rapid HIV Test) followed by a confirmatory test (Alere Determine™ HIV-1/2 Ag/Ab Combo Test) administered by staff. Eligible individuals were invited to return for enrollment (Visit 2) within one week and were randomized to either intervention or control group. The intervention group participants, who are the focus of this manuscript, received ten rapid oral HIV self-test kits to take home and viewed a video that included key points to consider when using the tests to screen sexual partners or clients (<https://www.youtube.com/watch?v=uq6Qb4BJLdM>), including

references to potentially aggressive or violent partner reactions when suggesting self-testing. The control group was neither given self-test kits nor shown the video at Visit 2. Both intervention and control group participants received HIV-counseling and were offered condoms. All participants received daily text messages (SMS) asking them to report on sexual behavior and remaining self-test kits (see Brown III et al. for further details) (38). Participants in the intervention group could request up to 20 additional kits before the end of the trial period.

After three months, participants returned for a follow-up visit (Visit 3), in which they were re-tested for HIV and completed a follow-up CASI. In addition, a subsample of 30 participants in the intervention—selected based on having used more than ten test kits with partners, having any partner test positive, or being of transgender identity—underwent an in-depth interview to explore test use among participants whose unique risk profiles would add to the understanding of use of HIVST with partners. Interviews were conducted face-to-face in NYC and by phone with participants from PR (see Giguere et al., Rael et al., Balán et al., Lentz et al., and Iribarren et al. for further details) (39–43). At Visit 3, those in the control group were given six HIV test kits to take home, were shown the video about test use, and finished study participation. The intervention group participants continued follow-up for three additional months with no further provision of kits. Participants were compensated in cash for the clinic visits and received a modest incentive for responding to the SMS. In total, the compensation for study participation could amount to \$445.

## Measures

**Baseline (Visit 1)**—Among others, the baseline CASI questionnaire included sections on demographics, sexual behavior, and skills to judge and manage HIVST-associated violence. By study design, respondents who reported that it would be very hard for them to judge whether a partner could become violent or handle a violent situation were deemed ineligible for study participation.

**Follow-up questionnaire (Visit 3)**—A section of this questionnaire repeated the questions on skills to judge and manage HIV-self test associated violence, this time formulated retrospectively. Among other topics, the follow-up questionnaire inquired about sexual behavior and use of rapid home tests during the prior three months, including how many partners got angry or upset and how many got physically violent due to the request to use an HIVST. All procedures were approved by the Institutional Review Boards at the New York State Psychiatric Institute and the University of Puerto Rico Medical Sciences Campus.

## Data Analysis

Data from the baseline and follow-up CASI questionnaires were analyzed using descriptive statistics in SPSS (v25).

## Results

The baseline CASI was completed by 368 individuals. Of the 299 respondents to questions on violence at baseline, only 5 (2%) were ineligible due to anticipating they would find it

very hard to avoid or handle violence (other ineligibility reasons are reported elsewhere) (37). Two hundred and seventy-two study candidates (including 27 TGW) met enrollment eligibility criteria and returned for 1:1 randomization/enrollment. The 136 intervention group participants (which included 13 TGW) are the main focus of this manuscript (Table 1); of them, 130 completed the Visit 3 follow-up assessment (of the six who did not complete Visit 3, five were in NYC and one in PR; all six identified as African American and four also identified as Latino; two were TGW). Of note, two separate manuscripts emerging from this study focus exclusively on TGW (39,40).

Table 1 shows that, on average, participants were in their mid-30s and had some college education. The majority belonged to an ethnic minority group and identified as gay men; 10% were TGW. Two-thirds of participants were employed.

At baseline, of the 272 enrolled participants, 59 (22%) reported having used self-tests themselves, and 13 (5%) had used self-tests to test a partner. Focusing next on the 130 participants who returned for Visit 3, Table 2 shows results to similar questions asked pre- and post-trial to assess participants' confidence in their skills to judge and manage HIV self-test-associated violence.

At the Visit 3 follow-up, 130 intervention group participants reported having been sexually active during the three-month intervention period. Of them, 114 (88%) participants used the self-test with at least one potential sexual partner. There were 79 participants who had sex with at least one partner whom they did not ask to test (detailed elsewhere (36)). Only 15 (19%) of them feared that the partner might react negatively. A total of 870 partners were asked in person to self-test. Seven (6%) of the participants reported that they had found it very hard to judge whether a sexual partner could become violent over taking a rapid HIV test. None reported that it had been very hard to avoid violent situations that might have arisen over taking a rapid home HIV test. Only one respondent (1%) said it had been very hard to handle a violent situation that occurred as a result of using or proposing to use a rapid home HIV test.

### **Upset or angry partner reactions**

At Visit 3, 71/130 (55%) participants reported asking a potential sex partner to use self-tests via chat, text, etc. Thirty-two (45% of 71) reported that potential partners got angry or upset (n=18 reported "a few," n=7 reported "some," n=1 reported "many," n=4 reported "most," n=2 reported "all partners"). One hundred-and-eleven (85% of 130) participants asked a potential sex partner to use HT in person. Thirty-eight (34% of 111) reported that at least one partner got angry or upset. In total, 113/870 (13%) of partners got angry or upset. (Mean=2.97, Mdn=2.00, range 1–8 partners).

### **Aggressive or violent partner reactions**

Seven (6%) participants (6 in PR and 1 in NYC) said that at least one of their partners (PR: Mean=2.33, Mdn=1.50, range 1–7; NYC: Mean/Mdn=2.00) got physically violent due to their request to use the HIV self-test. In total, 16/870 (2%) partners reacted violently.

## Discussion

In this study, mainly ethnic minority MSM and TGW at high-risk of HIV infection, due to unprotected sexual behavior with multiple partners, had the opportunity to use HIV self-tests with potential sexual partners as an HIV risk-reduction approach. Before the trial, between 87 and 91% of study candidates felt confident that it would be fairly or very easy for them to avoid or handle potential violent situations. Only 2% of all potential study participants screened out because they felt it would be very hard to avoid or handle potential partner violence related to self-testing. Furthermore, during the 3-month trial period in which participants had HIV test kits available, 88% actually proposed test use to a partner and, for the most part, partners agreed to take the test. Although one-third of the partners were upset or annoyed at the proposition, only 6% of partners became aggressive or violent. Nevertheless, no incident resulted in serious injury and only one participant retrospectively evaluated the incident as very hard to handle. These results give further support to those reported by Chanda et al. (34) from their study of sex workers in Zambia, in which a surprisingly low number of sex workers reported violent incidents associated with self-test use.

Thus, from a public health perspective, our results provide further evidence to allay fears that proposing the use of self-tests to prospective sexual partners could result in a significant proportion of violent incidents that place people in danger. In our study, participants were first shown a video demonstrating how to discuss the use of self-tests with different types of partners and in different circumstances. The availability of such information could help prepare individuals by giving them strategies to use when broaching the topic with partners. Furthermore, as HIVST becomes more routine, partners may become less surprised at being asked to take the test, which may counteract aggressive reactions. Our findings demonstrate that HIVST is an additional tool to curtail the spread of HIV. In particular, its use among partners generates an opportunity to discuss HIV, present concerns, and negotiate agreements on how to proceed.

In our study, participants were given the test kits to use with partners free of cost. In the US, the \$40 market cost per kit may make their use with multiple partners unaffordable. Hence, there is a need to reduce or subsidize the price of HIV self-test kits so they can be accessible to those who want to use them with partners.

### Limitations

This study was conducted in urban areas of the USA where the human rights of MSM and TGW are supported by state and federal laws, which may increase this key population's self-confidence. Key populations at risk for HIV in parts of the world where sexual diversity is criminalized and punished will probably face additional problems that require further study and intervention.

### Conclusions

Our findings demonstrate that MSM and TGW can successfully use HIV self-tests with sexual partners with low rates of violence. In the scarce instances in which a partner became

physically violent, participants overall felt prepared to handle the situation. These results provide further evidence that the HIV self-test can be both a useful and a safe tool to aid in serosorting and HIV prevention among this population.

## Acknowledgements

We would like to thank the study participants, who took the time to complete the survey and interviews to contribute to our knowledge of self-testing.

**Conflicts of interest and sources of funding:** The authors declare no conflicts of interest. This project was supported by a grant from the NICHD (R01-HD076636; PI: Carballo-Diéguez, PhD). This work was also supported by a Center Grant from the NIMH to the HIV Center for Clinical and Behavioral Studies at New York State Psychiatric Institute and Columbia University (P30-MH43520; PI: Remien, PhD). William Brown III was supported by the National Library of Medicine (NLM) [grant numbers R01-LM012355 PI: Schillinger, T15-LM007079 PI: Hripcsak, R01-LM013045 PI: Lyles], the National Institute on Minority Health and Health Disparities (NIMHD) [grant number P60-MD006902 PI: Bibbins-Domingo], the Agency for Healthcare Research and Quality (AHRQ) [grant number K12-HS026383], and the National Center for Advancing Translational Sciences (NCATS) of the NIH [UCSF-CTSI grant number KL2-TR001870] during various stages of the research and/or preparation of the article. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

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**Table 1.**

Baseline demographic information of full sample and intervention group participants in ISUM

Demographics	Full sample (n=368 <sup>1</sup> )	Intervention group only (n=136 <sup>1</sup> )
	Mean (SD)	Mean (SD)
Age (years)	34.00 (11.01)	33.85 (11.12)
Level of education <sup>2</sup>	4.36 (1.27)	4.36 (1.26)
Annual income (US dollars)	\$22,944 (26,921)	\$24,668 (29,876)
	N (%)	N (%)
Hispanic/Latino <sup>3</sup>	200 (55%)	76 (56%)
Black/African-American	151 (41%)	64 (47%)
White	98 (27%)	39 (29%)
Asian	8 (2%)	3 (2%)
Native American	6 (2%)	1 (1%)
Other/More than one	104 (28%)	28 (21%)
Man	331 (90%)	123 (90%)
Woman/Transgender	37 (10%)	13 (10%)
Gay/Homosexual	284 (78%)	102 (75%)
Bisexual	57 (16%)	26 (19%)
Straight/Heterosexual	11 (3%)	4 (3%)
Other	14 (4%)	4 (3%)
Employed	237 (65%)	94 (70%)
Student	63 (17%)	22 (16%)

<sup>1</sup>Ns may not sum to total due to missing data.

<sup>2</sup>4= partial college, 5=college graduate

<sup>3</sup>Participants first responded whether Latino/Hispanic or not, next they could choose one or more racial/ethnic category.

**Table 2.**

ISUM participants pre-and post-trial confidence skills to judge and manage HIV-self test associated violence

	N	Very easy N (%)	Fairly easy N (%)	Fairly hard N (%)	Very hard N (%)	
<i>Baseline: How hard or easy it would be for you to ...</i>						
• Judge whether a sexual partner could become violent over taking a rapid HIV test	295	87 (30%)	119 (40%)	78 (26%)	11 (4%)	
• Avoid violent situations that might arise over taking a rapid home HIV test	299	139 (47%)	130 (44%)	26 (9%)	4 (1%)	
• Handle a violent situation that occurred as a result of using or proposing to use a rapid home HIV test	299	114 (38%)	145 (49%)	38 (13%)	2 (1%)	
<i>Follow-up: How hard or easy it was for you to do each of the following things during the past three months:</i>						
	N	Very easy N (%)	Fairly easy N (%)	Fairly hard N (%)	Very hard N (%)	N/A <sup>1</sup> N (%)
• Judge whether a sexual partner could become violent over taking a rapid HIV test	128	39 (31%)	45 (35%)	20 (16%)	7 (6%)	17 (13%)
• Avoid violent situations that might arise over taking a rapid home HIV test	128	37 (29%)	31 (24%)	9 (7%)	0 (0%)	51 (40%)
• Handle a violent situation that occurred as a result of using or proposing to use a rapid home HIV test	127	30 (24%)	25 (20%)	6 (5%)	1 (1%)	65 (51%)

<sup>1</sup>Not applicable, e.g., "I never did it."