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Keep talking about it: HIV/AIDS-related communication and prior HIV testing in Tanzania, Zimbabwe, South Africa, and Thailand

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Abstract

Informal, interpersonal communication within a community about HIV and AIDS, or lack of such communication, may influence community members' uptake of voluntary counseling and testing. Drawing from Noelle-Neumann's spiral of silence theory, this study examined the association between communication about HIV/AIDS and prior HIV testing in communities in Tanzania, Zimbabwe, South Africa, and Thailand. Participants (N=14,818) in 48 communities across 5 sites throughout the 4 countries completed a behavioral survey assessing communication, prior VCT uptake, social norms, stigma, and sexual risk. Site-specific logistic regression models demonstrated that frequent conversations about HIV were significantly associated with prior HIV testing at every site. Odds ratios for each site ranged from 1.885 to 3.085, indicating a roughly doubled or tripled chance of past VCT uptake. Results indicate that verbal communication may be an important mechanism for increasing health behaviors and inclusion in future interventions should be considered.

Keywords

HIV; AIDS; communication; VCT; public opinion

INTRODUCTION

Communication is broadly defined as the exchange of information between people.1 Communication about sex, HIV and AIDS, and HIV testing is necessary to teach and learn about HIV and AIDS and its prevention, treatment, and care. Informal, interpersonal communication about HIV and AIDS has been shown to exert positive changes in HIV knowledge and stigma2 and possibly even risk behaviors.[3] On a larger scale, media campaigns

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including World AIDS Day (1988 theme: "Communication"), South Africa's loveLife project ("Talk about it"), Australia's 2005 World AIDS Day promotions (HIV/AIDS: Let's talk about it'), and many more have been based on the notion that communication is helpful and have promoted communication as a major component of behavior change intervention.

Voluntary counseling and testing (VCT) has been shown to be an effective strategy for HIV prevention because it enables people to know their HIV status and can promote reduction of risky sexual behavior based on this knowledge.[4,5] Uptake of VCT varies considerably across different communities, often due to availability and logistical barriers,[6] but also the prevailing community climate of norms and stigma[7,8,9] which may inhibit VCT uptake.

Noelle-Neumann's[10,11] theory of the spiral of silence partially illustrates this latter process. This theory states that individual perception of the distribution of public opinion, as gleaned from social interactions, affects willingness to communicate further about a topic or to express opinions. Attitudes and opinions with vocal or prominent supporters appear to be more prevalent than they may be in actuality. The appearance of popularity becomes a self-fulfilling prophecy, as those whose side is supported become more vocal, while those whose opinions appear to be unsupported remain silent. Applied to HIV-related conversations, the spiral of silence may perpetuate a highly stigmatized environment and inhibit people coming forward for VCT.

This study takes the opportunity to examine, cross-sectionally, the relationship between VCT and communication in 48 communities across 5 sites in 4 countries. The data were collected as a baseline assessment before a community-based intervention designed to remove barriers to VCT, reduce stigma, and reduce HIV incidence commenced. The study explores whether the nature of communication and VCT in these communities is best characterized as a vicious cycle of lack of communication and lack of uptake, or a virtuous cycle of frequent communication and increased uptake of testing. Aggregated over a community, do HIV-related conversations facilitate VCT uptake and other health-promoting behaviors? Do silence and lack of testing go hand in hand?

This report addresses four questions: 1) to what extent is past VCT uptake associated with constructive communication about HIV and AIDS across these communities? 2) How might gender, stigma, perceived social norms about testing, and sexual risk additionally affect past VCT uptake? 3) What communities and groups have lower proportions of past VCT uptake? And 4) what interventions or actions may increase future VCT uptake in groups where testing uptake is low?

METHOD

Sample

From March 2003 to October 2006, a baseline assessment questionnaire covering demographic and behavioral topics was administered throughout 48 selected communities across the five sites—Tanzania, Zimbabwe, Thailand, and Vulindlela and Soweto, South Africa. A detailed explanation of the sampling procedure, including household enumeration and individual participant selection, has been published elsewhere.[12] In sum, however, a two-stage probability sample of eligible community residents was selected. In the first stage, households were selected with equal probability from all households in each community. Communities ranged in size from 864 to 6760 households. In the second stage, one individual age 18–32 was sampled randomly from each selected household that included at least one eligible person. The assessment was translated from English into site-specific local languages and then back-translated to ensure accuracy. All assessments were performed face-to-face with an

interviewer, but no identifying information was collected, so participants remained anonymous. The final sample was 14,818 individuals.

Measures

The outcome variable—past HIV testing—was assessed with the question "Have you ever been voluntarily tested for HIV?" followed by number of tests and reasons for testing. Participant responses were coded as never tested, tested only due to pregnancy, tested once, non-voluntary, and repeated testing.

HIV status was assessed by asking past testers "What were the results of your last HIV test (or the last test from which you received results)?" Answer choices included HIV-negative, HIV-positive, don't know, and refused to answer.

Conversations about HIV and AIDS were assessed by asking participants if they had talked to anyone about HIV/AIDS in the last 6 months. Talking about HIV/AIDS was operationally defined as talking about how to prevent getting HIV/AIDS, ways of protecting oneself from HIV/AIDS such as abstinence or faithfulness, whether or not one feels at risk for getting HIV/AIDS, behaviors that may cause HIV infection, how to find out if one is infected with HIV or getting an HIV test, whether or not involvement with HIV activities in the community is appropriate, and whether or not it's a good idea to help people living with HIV/AIDS. By suggesting topics, the questionnaire attempted to screen out gossip or speculation. Specifically, participants were asked to whom they had talked in the last 6 months across 9 categories of people. The categories include spouse, other sex partners, immediate family, other relatives, friends, health care professionals, religious leaders, employer, and other. Responses were coded into three ordinal factors: "never," "some" conversations and "common" conversations about HIV.

Social norms around HIV testing were assessed with 6 questions, each with response choices on a four-point Likert scale. Examples of the six questions included "Most people in (site name) who want to get tested for HIV are afraid to get tested" and "Most people in (site name) get tested for HIV only if they are sick." Since this variable is a discrete ordinal variable, where intervals between scale points may be uneven, an overall social norms score, ranging from 0–18, was calculated, with higher social scores indicating conditions in which HIV testing is more normative and accepted. Scores were then divided into three categories—unfavorable, intermediate, and favorable—such that approximately 25% of people were grouped in the unfavorable and favorable categories and about 50% of people fell into the intermediate category. This split yielded ranges of 0–6 for unfavorable, 7–9 for intermediate, and 9–18 for favorable.

Stigma was assessed with a 19-item scale developed specifically for measuring HIV stigma in developing countries.[13] The scale measures three dimensions—negative attitudes towards people living with HIV/AIDS, perceived discrimination, equity—each with response choices on a five-point Likert scale. The first two subscales had good internal consistency, with Cronbach's alphas of .82 and .81, respectively. The third subscale had acceptable internal consistency, with a Cronbach's alpha of .68. Examples of questions from each subscale included, respectively, "Families of people living with HIV/AIDS should be ashamed," "People living with HIV/AIDS in this community face rejection from their peers," and "People with AIDS should be treated similarly by health care professionals as people with other illnesses." Due to the fact that stigma is a discrete ordinal variable where intervals between scale points may be uneven, it was decided for the sake of simplicity to calculate an overall stigma score ranging from 0–92, with a higher score indicating higher stigma. Next, the score was split into three categories—low, intermediate, and high—such that approximately 25% of people were grouped in the low and high categories and about 50% of people fell into the

intermediate category. This split yielded ranges of 0–25 for low, 26–38 for intermediate, and 39–92 for high. In a second, alternative analysis (data not shown), the three subscales detailed by Genberg and colleagues[13] were broken out and analyzed separately. Results of this deeper analysis were not significantly different from the first analysis; therefore, for the sake of simplicity the model using the total score was retained.

Finally, sexual risk behavior over the past 6 months was assessed by inquiring about sexual frequency (regardless of number of partners) and overall frequency of condom use. Risk was then calculated by multiplying the estimated number of acts by the proportion of unprotected acts, where 1.0=condom use never, 0.8=condom use rarely, 0.5=condom use sometimes, 0.3=condom use frequently, and 0.1=condom use always. The sexual risk value 0.0 was assigned only to those who reported being sexually inactive.

Data Analysis

For the purposes of our analysis, the dependent variable—past HIV testing—was dichotomized into ‘never voluntarily tested’ and ‘voluntarily tested.’ The sample was weighted to account for differential sampling probabilities. The open-source software R version 2.3.1 (http://www.r-project.org) was used in conducting all analyses. Less than 1% of observations were removed casewise due to missing data.

In terms of analyses, the sample was described, both overall and by site, by gender. Next, the final logistic regression model examined the potential correlates of past HIV testing in site-specific models.

RESULTS

Characteristics of the sample, across sites and by site, are shown in Table 1. Overall, the sample contained more women (55.2%) than men. Mean age was 25 years for women, 24 years for men, with a range of 18–32.

Across sites, 28.5% (range 6.2–43.8%) of women had been tested for HIV due to pregnancy and 15.6% (range 5.9–25.2%) had been tested voluntarily once or more, but 55.5% (range 35.6%–87.9%) had never been tested and 0.5% (range <0.1–1.5%) of women had been tested involuntarily. Among men, fully 80.3% (range 65.9–94.3%) had never been tested, though 19% (range 5.3%–32.6%) had been tested voluntarily at least once.

For self-reported HIV status, a notable difference occurs between men and women. While the majority of both genders don’t know their status, far more men are uninformed about their status (58.8% of women versus 82.1% of men). Indeed, for men, the percentage that does not know their status ranges from 69.7% in Thailand to 95.1% in Zimbabwe. A gender discrepancy also exists among those who self-reported being HIV-positive (2.6% of women and 0.5% of men across sites). For example, in Soweto, SA, 4.9% of women reported being HIV-positive, while only 0.6% of men did. Likewise, in Vulindlela, 6.6% of women reported knowing they were HIV-positive, while only 1.4% of men did.

In terms of conversations about HIV, about half of all participants (50.1% of women, 46.3% of men) had not spoken about HIV in the past 6 months. “Some” conversation was reported by 24.7% of women and 31.7% of men, and “common” conversation was reported by 25.3% of women and 22.1% of men. Across sites, conversation frequency ranged widely, with few Thai participants (12.8% for women, 10.9% for men) reporting common conversations. By contrast, in Soweto, 38.2% of women and 31.5% of men reported common conversations.

Finally, in terms of sexual risk, among participants who reported any sexual activity in the last 6 months, women were calculated to average 4.4 occasions of unprotected sex per month over the last 6 months, while men were calculated to average 3.2 occasions. Within sites, this discrepancy persisted, as in Soweto women reported an average of 3.9 occasions of unprotected sex per month compared to 2.8 for men. In Tanzania, women reported an average of 4.2 occasions per month to men's 2.9. Finally, in Zimbabwe, women reported an average of 6.4 occasions per month while men averaged 3.7.

The logistic regression models for each site are shown in Table 2, and t-values (the test of nullity of the coefficient) and corresponding p-values are shown in Table 3. Notably, only one variable—common conversations about HIV—was significantly and consistently associated with past HIV testing at every site. Those who spoke often about HIV or AIDS were significantly more likely to have been tested for HIV in the past. Odds ratios ranged from 1.885 (CI 1.094, 3.248) in Zimbabwe to 3.085 (CI 2.239, 4.249) in Soweto, SA.

In other variables, higher levels of stigma against people living with HIV/AIDS (PLWHA) were significantly associated with lower levels of past HIV testing in Thailand (OR 0.432; 95% CI 0.290,0.642). Greater reported occasions of unprotected sex in the last month were significantly associated with past HIV testing specifically in Thailand (OR=1.076; 95% CI 1.055, 1.098) and Soweto, SA (OR= 1.031; 95% CI 1.008,1.054).

In terms of gender, compared to non-testers, testers in Thailand were almost 3 times as likely to be women (OR 2.825; 95% CI 1.116, 7.153), nearly 5 times as likely in Soweto, SA (OR 4.971; 95% CI 3.145, 7.856), twice as likely in Vulindlela (OR 2.012; 95% CI 1.133, 3.572), SA, and 2.5 times as likely in Tanzania (OR 2.515; 95% CI 1.084, 5.832). Only in Zimbabwe was gender a non-significant predictor.

Finally, a series of interaction effects based on gender were tested. Within specific sites, Tanzania alone showed a significant interaction of some conversations × female gender (OR=2.410; 95% CI 1.375, 4.224) and intermediate social norms × female gender (OR=2.750; 95% CI 1.394, 5.427).

DISCUSSION

The only variable that was significantly and consistently associated with past HIV testing at every site was common conversations about HIV. The consistency for this variable is particularly notable given the geographic and cultural diversity of the five sites. In revisiting our research questions we first ask to what extent communication about HIV or AIDS is associated with past VCT uptake within the five sites. Due to the cross-sectional nature of this study, the directionality of the relationship between common communication and past HIV testing is unclear. One possible explanation, however, is that increased communication may lead to a greater acceptance and uptake of testing. Another explanation is that those who elect to test may then be more likely to speak openly about HIV or testing to others, thereby reducing stigma. Both scenarios have potential to be harnessed for intervention. Indeed, in either case, verbal communication may be an important mechanism for reducing stigma and increasing health behaviors.

For the second question, the roles of gender, stigma, perceived social norms around testing, and sexual risk in past VCT uptake were also investigated. With regard to gender, in four out of the five sites, women were more likely to have been tested in the past than men. It is notable, however, that a high percentage of women report being tested due to pregnancy. This may indicate that routine prenatal testing nets the largest proportion of testers, which in turn supports either the integration of routine opt-in or opt-out testing for all individuals, not just pregnant women,14,15 or the expansion of community-based, barrier-free voluntary counseling and

testing.16,[6] Also notable is the fact that sites with highest HIV prevalence among women (Soweto, Vulindlela) also had the highest rates of non-pregnancy-related voluntary testing (both one-time and repeated testers). This may indicate that prevalence itself may drive testing; voluntary uptake may be high in areas where prevalence is high.

Site-by-site, the interaction of female gender with other factors was more limited; only in Tanzania was the combination of female gender with, respectively, some conversations and intermediate social norms, powerful enough to significantly predict prior testing. This may be due to the large number of women tested due to pregnancy and the wide discrepancy of prior testing between men and women.

In terms of stigma, high levels of HIV stigma were associated with lower odds of past HIV testing in Thailand. For intermediate levels of stigma, however, confidence intervals at each site included 1.00, indicating an unclear relationship between stigma and past testing.

Finally, sexual risk was not a consistent correlate of past HIV testing; instead, sexual risk was associated with past HIV testing only in Thailand and Soweto, and then only at a statistically significant, but not practically significant, level. Throughout the literature, the effect of VCT on sexual risk taking and vice versa remains inconclusive. Some studies have demonstrated that individuals at high risk are less likely to present for VCT and that VCT does not impact subsequent risk taking,[17] unless the tester receives a positive result.[5]

In addressing our third question—what communities and groups have lower proportions of past VCT uptake?—our analyses determined that, while the proportion of individuals who have been tested and know their status should be increased overall, a number of groups should be specially targeted. One of the goals of Project ACCEPT is to test more than 50% of community members in each intervention community. Across sites, total combined uptake of past VCT (once, repeated, and due to pregnancy) exceeded half the sample (>50%) only among women in Thailand and Soweto. A group where VCT uptake is particularly low was men, as 80% of men across sites had never been tested; indeed, in Zimbabwe, where HIV prevalence is declining but remains 20%[18] the proportion of untested men reached 94%. While it is important for all men to know their status, married men in particular should be targeted. Frequently, a married woman's only risk is the risky behavior and HIV status of her husband.19 Additionally, at no site did the proportion of repeat testers exceed 16%. Up-to-date testing for those who have previously tested negative is vital in order to know one's current status as accurately as possible.

This study demonstrates that common conversations about HIV are associated with increased VCT uptake. Therefore, to address our fourth question regarding increasing future VCT uptake in groups where testing uptake is low, we recommend future interventions focusing on increasing conversations among men and encouraging repeat testing. Such actions may enable more individuals to know their current HIV status and thereby make choices about risk and care.

There are a number of limitations to this study and to the current analysis. First, in addition to frequency of conversations, it is important to more closely analyze with whom conversation occurs and the associated impact on testing. For example, communication between spouses or other sexual partners has been shown to encourage testing,[20,21] although husband-wife agreement about whether HIV communication occurred can be poor.[21] Likewise, among members of a peer network, opinion leaders are often regarded as more credible sources of information about HIV, perhaps leading to a greater impact on others' testing behavior.[22] Second, it is unclear whether individuals surveyed talked about HIV as a general social issue or as a personal issue. This difference may have a substantial impact on resultant behavior change. For instance, the person with whom women in Bombay, India, were least likely to

discuss AIDS as a personal issue relating to their sexual relationship was their husband.[23] Likewise, communication about HIV in a social network is often centered on rumor or gossip about who might be infected, rather than care or prevention-related topic.[24] In order to harness peer and family networks to promote health behavior change, including increasing HIV testing, it is necessary to be familiar with multiple dimensions of existing HIV-related conversation, including frequency, participants, topic, etc.

In conclusion, this study demonstrates that the self-fulfilling prophecy illustrated by the spiral of silence theory might also work in reverse, moving towards a tolerant environment for PLWHA and increasing VCT uptake. It is possible that the spiral of silence may be inoculated against, tempered, or reversed,[25,26] though more research is needed. If this is the case, it is possible that, accumulated over a community, higher numbers of conversations about HIV and HIV testing may contribute to the development of a social environment that facilitates HIV testing. Regardless, communication must continue to be considered as an important variable in increasing HIV testing uptake.

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Table 1

Characteristics of the sample, overall and by site

	All sites N=14818		Thailand N=2993		Soweto, SA N=3346		Vulindlela, SA N=2573		Tanzania N=3066		Zimbabwe N=2840	
	Female N=8174	**Male N=6644**	**Female N=1572**	**Male N=1421**	**Female N=1831**	**Male N=1515**	**Female N=1506**	**Male N=1067**	**Female N=1648**	**Male N=1418**	**Female N=1617**	**Male N=1223**
Gender	55.2%	44.8%	52.5%	47.5%	54.7%	45.3%	58.6%	41.4%	53.8%	46.2%	56.9%	43.1%
Age (mean)	24.93	23.96	25.80	24.85	24.76	24.20	24.19	23.25	25.03	24.27	24.86	22.89
HIV testing history												
Never	55.5%	80.3%	47.1%	65.9%	35.6%	71.4%	56.9%	83.7%	52.4%	89.5%	87.9%	94.3%
Due to pregnancy	28.5%	-	43.8%	-	38.4%	-	17.8%	-	34.9%	-	6.2%	-
Once [a]	7.3%	10.2%	4.3%	16.7%	9.2%	13.5%	10.5%	8.9%	7.5%	6.3%	4.6%	3.9%
Non-voluntary [a]	0.5%	0.7%	0.3%	1.4%	1.5%	1.0%	0.1%	0.2%	0.3%	0.3%	<0.1%	0.4%
Repeated	8.3%	8.8%	4.5%	15.9%	15.2%	14.0%	14.7%	7.2%	4.9%	3.9%	1.3%	1.4%
Self-report HIV status												
HIV-positive	2.6%	0.5%	1.0%	0.4%	4.9%	0.6%	6.6%	1.4%	0.1%	0	0.5%	0.3%
HIV-negative	37.5%	16.8%	48.3%	29.9%	55.3%	24.7%	31.3%	12.3%	40.2%	9.0%	9.6%	4.6%
Don't know status	58.8%	82.1%	50.7%	69.7%	37.2%	73.2%	59.5%	84.7%	59.7%	91.0%	89.7%	95.1%
Refused to answer	1.1%	0.6%	0	0.05%	2.6%	1.5%	2.6%	1.6%	0	0	0.2%	0
Conversations about HIV												
Never	50.1%	46.3%	66.1%	66.5%	24.1%	26.2%	43.9%	41.5%	68.7%	53.0%	50.4%	43.9%
Some	24.7%	31.7%	21.1%	22.6%	37.7%	42.3%	33.0%	41.6%	14.1%	27.4%	16.3%	25.5%
Common	25.3%	22.1%	12.8%	10.9%	38.2%	31.5%	23.1%	16.9%	17.2%	19.6%	33.3%	30.6%
Sexual risk [b]	4.4	3.2	4.8	4.1	3.9	2.8	2.5	2.3	4.2	2.9	6.4	3.7

[a] Testing not associated with pregnancy

[b] Estimated *monthly* number of unprotected acts averaged over past 6 months

Table 2

Cross-site comparisons of logistic regression model predicting history of HIV testing

	Thailand (N=2993) OR [95% CI]	**Soweto, SA (N=3346) OR [95% CI]**	**Vulindlela, SA (N=2573) OR [95% CI]**	**Tanzania (N=3066) OR [95% CI]**	**Zimbabwe (N=2840) OR [95% CI]**
HIV Conversations					
Some	1.103 [0.834,1.460]	1.574 ** [1.148,2.159]	1.661 ** [1.130,2.442]	0.598 * [0.370,0.967]	0.758 [0.366,1.573]
Common	2.041 *** [1.426,2.922]	3.085 *** [2.239,4.249]	2.474 *** [1.572,3.895]	1.955 ** [1.310,2.916]	1.885 * [1.094,3.248]
Stigma					
Intermediate	0.985 [0.759,1.280]	0.868 [0.670,1.125]	0.753 [0.500,1.132]	0.870 [0.531,1.425]	0.725 [0.356,1.480]
High	0.432 *** [0.290,0.642]	0.852 [0.572,1.267]	0.855 [0.459,1.594]	0.705 [0.423,1.173]	0.555 [0.246,1.249]
Social Norms					
Intermediate	0.829 [0.443,1.551]	0.823 [0.634,1.068]	0.829 [0.566,1.213]	0.700 [0.403,1.216]	0.917 [0.510,1.647]
Favorable	1.012 [0.536,1.913]	0.815 [0.532,1.250]	0.565 [0.261,1.222]	0.767 [0.396,1.484]	1.819 [0.807,4.101]
Sexual Risk	1.076 *** [1.055,1.098]	1.031 ** [1.008,1.054]	1.008 [0.968,1.050]	1.026 [0.995,1.057]	1.023 [0.989,1.058]
Female Gender	2.825 * [1.116,7.153]	4.971 *** [3.145,7.856]	2.012 * [1.133,3.572]	2.515 * [1.084,5.832]	1.323 [0.465,3.765]
Conversations ‘some’ × Female	0.974 [0.666,1.425]	0.997 [0.667,1.492]	1.347 [0.854,2.125]	2.410 ** [1.375,4.224]	2.206 [0.946,5.143]
Conversations ‘common’ × Female	1.247 [0.760,2.046]	0.709 [0.471,1.069]	1.196 [0.705,2.030]	0.770 [0.475,1.248]	1.022 [0.538,1.940]
Stigma intermediate × Female	0.796 [0.557,1.137]	1.035 [0.734,1.459]	1.469 [0.920,2.345]	1.337 [0.742,2.411]	1.306 [0.557,3.065]
Stigma high × Female	0.681 [0.403,1.149]	0.976 [0.565,1.686]	0.960 [0.451,2.045]	1.427 [0.780,2.611]	1.500 [0.574,3.920]
Social intermediate × Female	1.068 [0.433,2.637]	0.921 [0.654,1.297]	1.362 [0.872,2.126]	2.750 ** [1.394,5.427]	1.466 [0.733,2.935]
Social favorable × Female	0.961 [0.383,2.409]	1.040 [0.579,1.869]	1.864 [0.766,4.537]	2.020 [0.912,4.477]	0.751 [0.278,2.031]
Risk × Female	0.974 [0.947,1.003]	1.013 [0.984,1.043]	1.016 [0.968,1.067]	0.972 [0.939,1.006]	0.977 [0.940,1.017]

* indicates p<.05

** indicates p<.01

*** indicates p<.001

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Table 3

Cross-site comparisons of logistic regression model predicting history of HIV testing

	Thailand (N=2993)	**Soweto, SA (N=3346)**	**Vulindlela, SA (N=2573)**	**Tanzania (N=3066)**	**Zimbabwe (N=2840)**
	t-value (p-value)	**t-value (p-value)**	**t-value (p-value)**	**t-value (p-value)**	**t-value (p-value)**
HIV Conversations					
Some	0.687 (0.492)	2.814 (0.004 **)	2.583 (0.0098 **)	−2.097 (0.036 *)	−0.743 (0.458)
Common	3.900 (< 0.001 ***)	6.893 (< 0.001 ***)	3.912 (< 0.001 ***)	3.284 (0.001 **)	2.283 (0.022 *)
Stigma					
Intermediate	−0.110 (0.912)	−1.069 (0.285)	−1.364 (0.173)	−0.553 (0.580)	−0.882 (0.378)
High	−4.147 (< 0.001 ***)	−0.792 (0.429)	−0.492 (0.623)	−1.346 (0.178)	−1.423 (0.155)
Social Norms					
Intermediate	−0.586 (0.558)	−1.467 (0.142)	−0.967 (0.333)	−1.267 (0.205)	−0.291 (0.771)
Favorable	0.037 (0.970)	−0.937 (0.349)	−1.451 (0.147)	−0.788 (0.430)	1.442 (0.149)
Sexual Risk	7.227 (< 0.001 ***)	2.682 (0.007 **)	0.403 (0.687)	1.657 (0.098)	1.308 (0.191)
Female Gender	2.191 (0.028 *)	6.866 (< 0.001 ***)	2.386 (0.017 *)	2.148 (0.032 *)	0.524 (0.600)
Conversations ‘some’ × Female	−0.135 (0.893)	−0.014 (0.989)	1.281 (0.200)	3.074 (0.002 **)	1.831 (0.067)
Conversations ‘common’ × Female	0.873 (0.383)	−1.641 (0.101)	0.663 (0.507)	−1.061 (0.289)	0.067 0.947
Stigma intermediate × Female	−1.255 (0.209)	0.194 (0.846)	1.609 (0.108)	0.966 (0.334)	0.614 (0.539)
Stigma high × Female	−1.440 (0.150)	−0.086 (0.931)	−0.106 (0.916)	1.154 (0.248)	0.827 (0.408)
Social intermediate × Female	0.143 (0.886)	−0.472 (0.637)	1.358 (0.175)	2.918 (0.004 **)	1.082 (0.279)
Social favorable × Female	−0.086 (0.932)	0.131 (0.896)	1.371 (0.170)	1.732 (0.083)	−0.564 (0.573)

	Thailand (N=2993) t-value (p-value)	Soweto, SA (N=3346) t-value (p-value)	Vulindlela, SA (N=2573) t-value (p-value)	Tanzania (N=3066) t-value (p-value)	Zimbabwe (N=2840) t-value (p-value)
Risk × Female	−1.774 (0.076)	0.846 (0.398)	0.651 (0.515)	−1.620 (0.105)	−1.142 (0.253)

* indicates p<.05

** indicates p<.01

*** indicates p<.001