HIV-Related Stigma and HIV Testing:
A Cross-Country Comparison in Vietnam, Tanzania, and Côte d'Ivoire

Mai Do, MD, MPH, DrPH

Tulane University, Department of International Health and Development

And

Hani Guend, MS, MPHS, PhD

Université du Québec, Institut National de la Recherche Scientifique

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INTRODUCTION

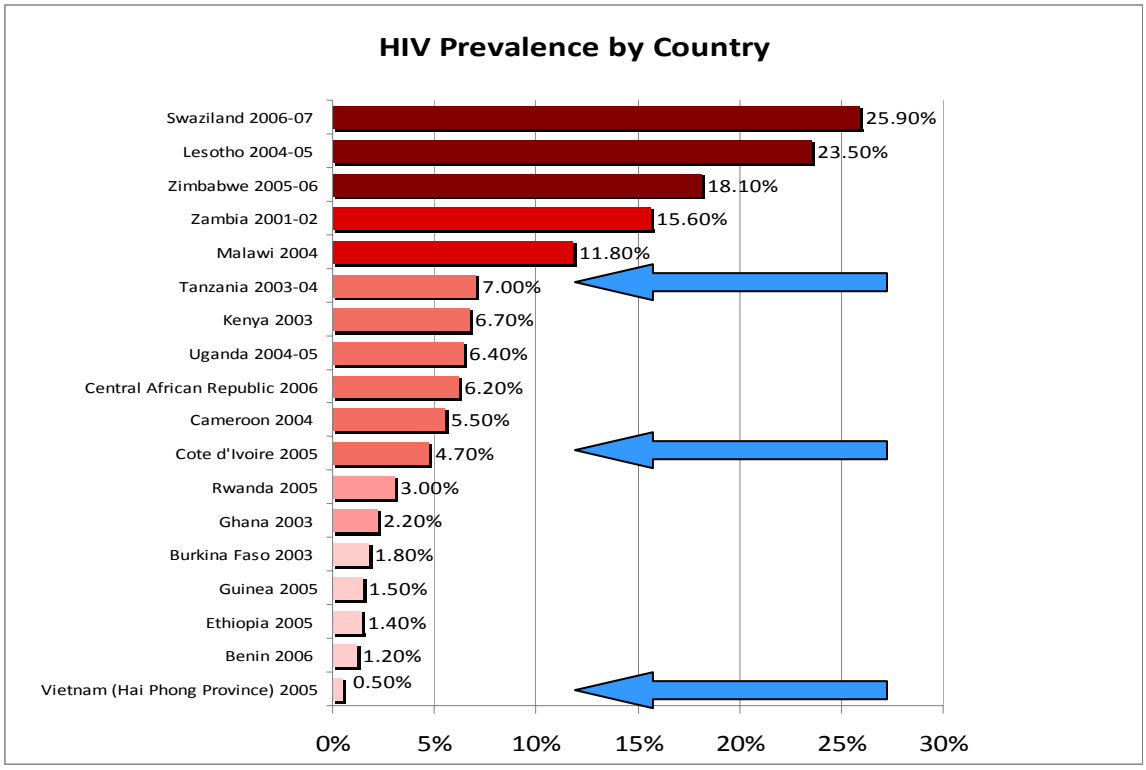
For nearly three decades, efforts to combat HIV/AIDS pandemic were faced with persistent stigma and discrimination toward people living with HIV/AIDS. HIV-related stigma seems common even in settings where HIV is widespread and affects a significant proportion of the population. There is a vast body of literature on HIV-related stigma and its impacts on HIV testing, responses to positive test results, and subsequently on the prevention of further HIV transmission in developed and in developing countries as well (see, for example, Brown et al., 2003; Chesney and Smith, 1999; Kalichman and Simbayi, 2003).

This paper examines the associations between HIV-related stigma and the first delay: delays in getting tested. Cross-country comparisons will be carried out for settings with different epidemic scenarios: Vietnam, where the epidemic remains concentrated among the adult population with a low prevalence of under one percent; Côte d'Ivoire, where the epidemic is moderate with a prevalence about 4.7 percent; and Tanzania, where the HIV epidemic among the adult population is more severe with a prevalence nearly eight percent. Figure 1 shows these countries' ranking within Sub-Saharan Africa. Stigma is often a context-specific phenomenon, tied to culture and sexual taboos. Nonetheless, evidence from an ICRW-led 2001-2004 multi-country surveys, which included Vietnam and Tanzania, showed that the key causes of stigma, its impact, and its consequences have many more similarities than differences across contexts (ICRW, 2006). This gives a rationale for our selection of the three cases. But we also selected these two countries along with Côte d'Ivoire because of the availability of national AIDS Indicator Surveys (hereafter AIS), which allow us to implement similar analyses and make more general inferences.

In Vietnam, while there has been an increasing trend of HIV infection among women through heterosexual activities, the epidemic is still seen as focused mainly among high risk groups, which include injecting drug users (IDUs) and commercial sex workers (Nguyen et al., 2008; UNAIDS, 2008). Until recently, and for a long period of time, the media and information-education-communication campaigns had portrayed these two high risk groups as 'social evils' for their behavior and lifestyle. Unintended consequences of otherwise well-intended intervention efforts fueled the wide spread of stigma and discrimination toward HIV infected

people by equating them with IDUs and commercial sex workers (Khuat, 2004). Meanwhile, the availability of HIV voluntary counseling and testing (VCT) remains limited (UNAIDS, 2008). Clients at these VCT sites also remain largely members of the two high risk groups.

Figure 1
Vietnam, Côte d'Ivoire, and Tanzania in the Context of HIV Pandemic



Source: *Demographic and Health Surveys (DHS), 2009*

Côte d'Ivoire has the highest prevalence rate of HIV/AIDS in West Africa. Evidence from surveillance studies showed that the prevalence rate has been on the rise since the first case was detected in 1985. Some studies give an estimate of as high as 10 percent among adults. The epidemic touches all ethnic groups, but the geographic distribution is markedly unbalanced with higher prevalence in the capital city Abidjan and the contiguous regions. Previous studies in Africa showed that male circumcision seems to make a difference in the risk of infection. In Côte d'Ivoire, most men (96 percent) declared being circumcised. Men generally show more tolerance toward people living with HIV/AIDS than women. However, most men (86 percent) and women (83 percent) would take care at home of an HIV/AIDS affected parent in their own household.

In Tanzania, seven percent of the 15 to 49 years old adults are infected with HIV/AIDS with a strong regional variation; the highest rates varying from 11 to 14 percent. Evidence from the 2003-2004 AIS survey showed that adults generally display accepting attitudes toward people living with HIV/AIDS. Like in Côte d'Ivoire, men show more tolerance than women and most people (9 in 10) would be willing to care for a relative who lives with AIDS in their own households. About 70 percent of men reported being circumcised, a significantly lower proportion than in Côte d'Ivoire.

In these countries, despite a large number of small-scaled studies on HIV-related stigma and testing, there has not been a study assessing the levels of, and associations between stigma and HIV testing among the general population. This study examines these associations using recent data collected from nationally representative samples in Vietnam, Tanzania and Côte d'Ivoire. In addition, the availability of AIDS Indicator Surveys allows us a unique opportunity to compare and contrast the relationships between HIV-related stigma and testing in countries at different epidemic phases. The study aims to achieve two major goals: (1) document current levels of HIV-related stigma in Vietnam, Côte d'Ivoire, and Tanzania; and (2) assess factors that may influence HIV-related stigma and HIV testing in these three countries.

DATA AND METHODS

We extracted the data for this study from the Vietnam 2005, Côte d'Ivoire 2005, and Tanzania 2003 AIDS Indicator Surveys. These are surveys conducted by ORC Macro International in collaboration with the participating countries, as part of the Demographic and Health Surveys. In these countries, the AIDS Indicator Surveys are designed to obtain program indicators of knowledge, attitudes and sexual behavior related to HIV/AIDS among a nationally representative sample of men and women aged 15 to 49 years. Household and Individual Questionnaires were administered to selected households and eligible men and women. The Individual Questionnaires include questions about HIV/AIDS-related knowledge, behavior, stigma and HIV testing. Table 1 displays basic characteristics of the survey samples. More detailed description of sampling procedures can be found in each country's final report.

Table 1
Basic Sample Information for AIS of Vietnam, Tanzania and Côte d'Ivoire

Variables	Côte d'Ivoire (2005) N=10955	Tanzania (2003) N=13350	Vietnam (2005) N=14157
Response rate (percent)	89.0	93.8	98.9
Mean age	27.8	36.0	31.3
Age distribution (percent)			
15-19	22.6	22.6	19.6
20-29	37.4	36.5	28.3
30-39	23.9	26.1	26.2
40-49	16.0	14.9	25.9
Sex (percent)			
Female	53.5	54.8	52.1
Education (percent)			
No education	52.5	17.4	4.6
Primary	23.5	73.9	17.6
Secondary & higher	24.0	8.8	77.8
Religion (percent)			
No religion	18.4	8.1	91.8
Christian	37.0	58.9	5.8
Muslim	43.6	32.2	-
Buddhist	-	-	1.4
Other	1.1	0.7	1.0
Marital status (percent)			
Never married	39.1	31.8	34.6
Married	54.6	59.3	62.6
Formerly married	6.3	8.9	3.0

We limit the analysis to individuals who ever had sex, because of extremely low likelihood of HIV testing among those who never had sex, particularly in Vietnam. This proportion is also very low in Tanzania where less than five percent of respondents who never had sex, had ever been tested. In Côte d'Ivoire only three and four percent of men and women have had a test of HIV/AIDS, and had known the result in the 12 months preceding the survey. As a result of this selection, 9389 men and women aged 15 to 49 in Vietnam, 10653 in Tanzania, and 8655 in Côte d'Ivoire are included in this study.

The two outcomes of interest are HIV-related stigma and ever testing for HIV. Because stigma can be country-specific, measures of HIV-related stigma may vary slightly between countries. In Vietnam, it is constructed based on responses to four questions related to attitudes toward food

vendors and teachers who have HIV/AIDS, and whether those who are infected should be ashamed or blame themselves for having HIV. The summative score is dichotomized at median to group individuals into high and low stigma groups. HIV testing is also a binary outcome, indicating whether an individual ever had an HIV test, regardless of test results. The same procedure is applied to define HIV-related stigma in Tanzania and in Côte d'Ivoire, except that the question related to attitudes toward teachers who have HIV/AIDS is restricted to male teachers in Côte d'Ivoire. In Tanzania, this composite indicator shows that only 27 percent of men expressed positive attitudes on all four indicators and, for all but one indicator, women are less likely than men to express accepting attitudes toward those living with HIV/AIDS.

Multivariate analysis is carried out on Vietnam's data, with structural equation modeling. Because both outcomes are binary, biprobit procedure is used to test for endogeneity; in this procedure, the number of lifetime partners and knowledge of HIV/AIDS prevention are excluded from the equation for stigma, and daily exposure is excluded from the equation for HIV testing for theoretical and empirical reasons. For Vietnam, rho = .37 and is not significant, indicating that the two outcomes, HIV-related stigma and testing, are exogenous. Once exogeneity is confirmed, multivariate logistic regression models are employed to take into account the clustering of individuals at the commune level.

The logistic regression modeling is also applied to AIS data of Tanzania and Côte d'Ivoire, and results are compared and contrasted. In the benefit of time, we left the testing for endogeneity for these two countries to later version of the paper.

FINDINGS

Bivariate Analysis

Stigma

The results of the bivariate models (Table 2) show that, in Vietnam, high stigma seemed prevalent – a third of respondents held high level of stigma attitudes toward people with HIV. Testing, on the other hand, was rare – merely 7 percent of respondents ever had an HIV test. High stigma is even more prevalent in Côte d'Ivoire where four out of ten people displayed high

level of stigma attitude; but testing is more common – about 13 percent ever had an HIV test. In Tanzania, stigma is lower than in Vietnam and Côte d'Ivoire and testing is higher. About 26 percent of respondents expressed high stigma attitudes toward people with HIV, compared to 33 percent in Vietnam and 40 percent in Côte d'Ivoire, but 17 percent of respondents in Tanzania ever had an HIV test compared to seven percent in Vietnam and 13 percent in Côte d'Ivoire.

Table 2 shows also significant variations in both outcomes cross different individual characteristics. In Vietnam, high level of stigma was significantly associated with gender but the results are not statistically significant in Côte d'Ivoire and Tanzania. In all three countries, high level of stigma was significantly associated with education, exposure to the media, knowledge of HIV prevention, and urban residence. In Vietnam, high level of stigma was significantly less common among men compared to women; the odds of men having high stigma attitude were only two-third of that of women ($p<.001$). This does not seem to be the case in both African countries; the proportions of men and women with high levels of stigma are similar and the results are not statistically significant.

Similarly, daily exposure to the media was associated with one-fourth decrease in the odds of having high stigma level ($p<.01$) in Vietnam and with more than one-third decrease in Tanzania ($p<.05$). However, against expectations, daily exposure to the media seems to increase the odds of having high stigma attitudes in Côte d'Ivoire. Also, high knowledge of HIV prevention reduces the likelihood of high stigma in both Vietnam and Tanzania, but it has the opposite effect in Côte d'Ivoire; in this country 74 percent of those who have high knowledge of HIV prevention displayed high stigma toward people with HIV, compared to only 26 percent of those who had low knowledge of HIV prevention.

As expected, urban residents were also less likely than their rural counterparts to hold strong stigma attitudes in all three countries ($p<.001$); the figures are comparables for Vietnam and Tanzania but they are significantly higher in Côte d'Ivoire. Respondents currently working were less likely to display high stigma in Vietnam. It seems to be the opposite in Tanzania and even more so in Côte d'Ivoire wherein 73 percent of those currently working held high levels of stigma, compared to 33 and 27 percent in Vietnam and Tanzania. Finally, residents in the central

part of Vietnam (not shown) were less likely than residents elsewhere to hold high stigma against HIV-infected people ($p<.001$).

Testing

As expected, high level of stigma reduces the likelihood of ever testing for HIV in all three countries, but gender is not significant with regard to this outcome. Education, daily exposure to the media, urban residence, and knowledge of HIV prevention are all positively associated with ever testing for HIV. However, a respondent currently working is less likely to have ever tested for HIV in all three countries.

Table 2
Stigma Attitude and HIV Testing by Individual Characteristics of 15 to 49 Years Old Men and Women Who Had Sex in Vietnam 2005, Côte d'Ivoire 2005, And Tanzania 2003

Characteristics		Vietnam (%)		Côte d'Ivoire (%)		Tanzania (%)	
		High stigma	Ever test for HIV	High stigma	Ever test for HIV	High stigma	Ever test for HIV
Stigma	Low	-	8.5***	-	19.0***	-	18.4***
	High	-	4.7***	-	10.0***	-	13.9***
Gender	Female	37.4***	6.9	64.4	14.3***	26.5	16.7
	Male	28.2***	7.4	65.8	11.0***	26.3	17.7
Education							
Primary school		45.0***	2.2***	48.7***	8.7***	37.6***	7.8***
Some secondary		33.7***	7.0***	29.0***	12.2***	26.0***	17.3***
Secondary or more		13.7***	13.9***	22.3***	18.6***	5.8***	36.7***
Currently working							
No		37.9***	10.2**	27.1***	14.9***	19.7***	25.0***
Yes		32.9***	6.9**	72.9***	11.7***	27.4***	16.0***
Daily exposure to the media							
No		39.9***	2.1***	43.1***	7.3***	32.9 ***	11.7***
Yes		31.7***	8.1***	56.9***	15.9***	20.0 ***	22.6***
Residence							
Rural		35.9***	5.4***	55.9***	8.5***	31.2 ***	12.0***
Urban		22.5***	14.0***	44.1***	17.1***	15.3 ***	29.2***
Number of misconceptions							
0		25.7***	7.8***	33.8***	17.0***	23.1 ***	17.5*
1		44.6***	6.6***	25.8***	13.4***	36.9 ***	16.9*
2		70.5***	3.6***	40.4***	6.8***	48.4 ***	12.1*
Knowledge HIV prevention							
Low		37.4***	5.5***	26.3***	5.2***	29.8 ***	15.2***
High		29.2***	8.6***	73.7***	14.8***	20.1***	20.9***
Lifetime number of partners							
1		33.7***	6.6***	23.5	7.0***	27.8**	15.6**
2 or more		28.3***	12.1***	-	-	-	-
2		-	-	19.5	16.0***	27.6**	18.0**
3 or more		-	-	57.0	13.7***	24.9**	17.9***
Perceived risk HIV infection		N/A	N/A				
No risk				49.0*	12.5*	30.2***	17.0
Small risk				40.0*	11.7*	22.8***	18.0
Moderate or greater risk				11.1*	16.7*	22.8***	16.6
Total		33.2	7.2	40.23	12.7	26.4	17.2
N		9,389	8,795	8,594	8,594	10,653	10,653

Note: Results omitted for marital status, age group and household wealth quintiles.
* p<.05; ** p<.01; *** p<.001

Multivariate Analysis

Stigma

The multivariate models (Table 3) control for the respondents' demographic and socioeconomic background (gender, education, currently working, residence) and for other individual behavioral and belief characteristics, such as lifetime number of sexual partners, daily exposure to the media, misconceptions about HIV positive people, and perceived risk of HIV infection. Once we control for other covariates, gender matters for high stigma. Men are less biased against HIV positive people in Vietnam, the odds are 30 percent lower compared to women ($p<.001$). However, in the two African countries, men are rather more biased toward people with HIV; the odds are 35 percent higher in Côte d'Ivoire ($p<.001$), and 18 percent higher in Tanzania ($p<.01$).

The multivariate results (Table 3) show that, in all three countries, higher education was associated with lower odds of holding high level of stigma ($p<.001$) although the effect of education is less important in Côte d'Ivoire. These results are consistent with those of the bivariate models discussed above; education reduces the odds of high stigma in all three countries and the educational gradient is maintained with $p<.001$ except for "some secondary school", which is not statistically significant category in Côte d'Ivoire.

The strong association of daily exposure to the media with high stigma, shown in the bivariate model, dissipates once we control for other covariates. The direction of the association is reversed for Vietnam and Côte d'Ivoire, and it is no longer statistically significant in both cases. Only in Tanzania did this association stand the multivariate control; daily exposure to the media reduces the odds of high stigma by about 24 percent ($p<.001$).

The association of Knowledge of HIV prevention with high stigma stands in both bivariate and multivariate models, with the same levels of statistical significance ($p<.001$), and a quite strange result for Côte d'Ivoire. In this country, more knowledge of HIV prevention is associated with higher stigma toward HIV infected people. The odds are almost double for those who have high knowledge of HIV prevention to be biased against HIV infected people than those who are less knowledgeable about HIV prevention. With regard to the perceived risk of HIV infection, the

multivariate models support the results of the bivariate models for Tanzania but dismiss the results (already with low statistical significance) for Côte d'Ivoire.

Testing

While HIV-related stigma seemed strongly associated with individual socio-economic and demographic characteristics, ever having had an HIV test also was strongly associated with several HIV-related and sexual behavior factors. The strong association of high level of stigma with "ever having had a test for HIV" detected by the bivariate models is picked up by other covariates in the multivariate models. Indeed, only in Côte d'Ivoire does high stigma impact testing negatively; the odds are 31 percent lower ($p<.001$) for a respondent with high stigma to have ever had tested for HIV compared to one with low stigma attitudes. In both the bivariate and the multivariate models, gender matters only in Côte d'Ivoire where men are 50 percent less likely to ever having had an HIV test.

As is the case for stigma, the educational gradient in ever having had an HIV test remains significant in the multivariate models except for "some secondary school" which is again not a significant category in Côte d'Ivoire. Again, higher education increases substantially the odds of ever having had HIV test. In Vietnam, the odds are more than three times for having had a test if the respondent completed secondary school or more; the corresponding figures are almost double in Côte d'Ivoire and more than double in Tanzania. Unlike the bivariate models, the multivariate models downplay the effect of "currently working" on the likelihood of ever testing for HIV. The level of significance is drastically reduced for this variable in the cases of Vietnam and Tanzania, and it is plainly not significant in the case of Côte d'Ivoire.

The Multivariate models show that daily exposure to the media increases the odds of testing for HIV in Vietnam ($p<.01$) and in Tanzania ($p<.001$), but the association is not statistically significant in Côte d'Ivoire. The association of knowledge of HIV prevention with ever having tested for HIV remains significant in the Multivariate models but with mitigated levels of statistical significance: $p<.05$ for Vietnam, $p<.001$ for Côte d'Ivoire, and $p<.01$ for Tanzania. This observation applies also to the association of urban residence and testing for HIV, but in different directions; urban residence increases the odds of testing in Vietnam ($p<.01$) and in Tanzania ($p<.001$), but it turned out not significant in Côte d'Ivoire.

Sexual behavior, as expressed by the number of life time sexual partners, impacts the propensity for ever having tested for HIV in all three countries, but with various levels of significance and various strengths of the associations. In Vietnam, the odds of ever having tested are 74 percent higher if the respondent reported having two or more sexual partners ($p<.001$), compared to having a single sexual partner. The odds of ever having tested are 81 percent higher in Côte d'Ivoire ($p<.01$) if the respondent reported two sexual partners but only 20 percent in Tanzania ($p<.05$). In both African countries, if the respondent reported three or more lifetime sexual partners she/he is 19 and 39 percent more likely to ever have had a test for HIV ($p<.05$) in Tanzania and in Côte d'Ivoire respectively.

The association of ever having tested for HIV with the "perceived risk of HIV infection" is not statistically significant in Côte d'Ivoire, and it is only marginally significant in Tanzania; only if the respondent perceived "moderate or greater risk" does she/he is 19 percent less likely to having had a test for HIV ($p<.01$). This variable is omitted from the Multivariate model of Vietnam. Furthermore, in Vietnam, knowing someone with HIV or who died of AIDS (not shown) was associated with two-fold increase in the odds of having had an HIV test ($p<.001$).

Table 3
Individual Characteristics Associated with High Stigma Attitude in Men and Women 15 to 49 Years old, Who Had Sex in Vietnam 2005, Côte d'Ivoire 2005, and Tanzania 2003

Characteristics		Vietnam Odds Ratio (s.e.)	Côte d'Ivoire Odds Ratio (s.e.)	Tanzania Odds Ratio (s.e.)
Stigma	Low	-	-	-
	High	-	-	-
Gender	Female	1.00	1.00	1.00
	Male	.70 (.04)***	1.35 (.11)***	1.18 (.06)**
Education				
Primary school		1.00	1.00	1.00
Some secondary		.67 (.05)***	.93 (.09)	.78 (.05)***
Secondary or more		.30 (.03)***	.59 (.07)***	.26 (.04)***
Currently working				
No		-	-	-
Yes		-	-	-
Daily exposure to the media				
No		1.00	1.00	1.00
Yes		1.13 (.10)	.93 (.08)	.76 (.04)***
Residence				
Rural		1.00	1.00	1.00
Urban		.88 (.07)	.98 (.11)	.83 (.07)*
Number of misconceptions				
0		1.00	1.00	1.00
1		2.17 (.15)***	2.50 (.24)***	1.76 (.11)***
2		5.68 (.71)***	5.31 (.50)***	2.43 (.27)***
Knowledge HIV prevention				
Low		1.00	1.00	1.00
High		.83 (.06)**	1.94 (.16)***	.75 (.04)***
Lifetime number of partners				
1		-	-	-
2 or more		-		
2			-	-
3 or more			-	-
Perceived risk HIV infection		N/A		
No risk			1.00	1.00
Small risk			.91 (.08)	.79 (.05)***
Moderate or greater risk			.97 (.13)	.75 (.05)***
N		9,389	8,594	10,653

Table 3 (Continued)
Individual Characteristics Associated with HIV Testing in Men and Women 15 to 49 Years old, Who Had Sex in Vietnam 2005, Côte d'Ivoire 2005, and Tanzania 2003

Characteristics		Vietnam	Côte d'Ivoire	Tanzania
		Ever test for HIV Odds Ratio (s.e.)	Ever test for HIV Odds Ratio (s.e.)	Ever test for HIV Odds Ratio (s.e.)
Stigma	Low	1.00	1.00	1.00
	High	.93 (.12)	.69 (.09)**	1.09 (.09)
Gender	Female	1.00	1.00	1.00
	Male	.95 (.11)	.50 (.08)***	.90 (.06)
Education				
Primary school		1.00	1.00	1.00
Some secondary		2.43 (.50)***	1.18 (.21)	1.65 (.17)***
Secondary or more		3.17 (.69)***	1.92 (.35)***	2.68 (.37)***
Currently working				
No		1.00	1.00	1.00
Yes		.71 (.13)*	.95 (.14)	.85 (.07)*
Daily exposure to the media				
No		1.00	1.00	1.00
Yes		1.91 (.46)**	1.32 (.23)	1.34 (.10)***
Residence				
Rural		1.00	1.00	1.00
Urban		1.44 (.15)**	1.03 (.17)	1.61 (.13)***
Number of misconceptions				
0		-	-	-
1		-	-	-
2		-	-	-
Knowledge HIV prevention				
Low		1.00	1.00	1.00
High		1.28 (.13)*	2.00 (.39)***	1.21 (.07)**
Lifetime number of partners				
1		1.00	1.00	1.00
2 or more		1.74 (.27)***		
2			1.81 (.41)**	1.20 (.10)*
3 or more			1.39 (.31)*	1.19 (.09)*
Perceived risk HIV infection		N/A		
No risk			1.00	1.00
Small risk			.92 (.15)	.89 (.06)
Moderate or greater risk			1.22 (.26)	.81 (.06)
N		8,795	8,594	10,653

Note: Results omitted for marital status, age group and household wealth quintiles.
* p<.05; ** p<.01; *** p<.001

CONCLUSIONS

The study found significant levels of HIV-related stigma in all three countries; it was highest in Côte d'Ivoire and lowest in Tanzania. It is strongly influenced by individual socio-economic characteristics. The finding that men were less likely than women to hold stigma attitudes in Vietnam is unexpected. Many believe that in a society like Vietnam, where family values are strongly held and women are usually expected by themselves and others to take care of sick family members, even those with HIV/AIDS (Khuat, 2004), women would likely have compassion toward HIV-infected people. One possible explanation for this finding is that women may be more likely than men to be home-bound because of household chores, less likely to participate in social activities and be exposed to updated information. Psychosocially, any fears that women may have with regard to HIV and HIV-infected people may also be more deeply rooted and difficult to change than those among men. Meanwhile, the media seemed to have a strong and positive effect on reducing HIV-related stigma and should be explored as a potential channel for stigma reduction interventions.

While HIV-related stigma remained widespread, our findings, however, indicate that it is not a major barrier to HIV testing, except in Côte d'Ivoire. Higher knowledge of HIV/AIDS prevention was significantly related to increased chance of HIV testing. On the other hand, there is little evidence that perceived risks of HIV were important to testing.

The finding that individual's education was a strong predictor of HIV testing, regardless of geographic region and residence, also has important implications. While HIV test supply is limited and mainly available at public sector facilities (not shown), people who were more educated are likely to be of higher socio-economic status, and likely to have means to access HIV test than those who were less fortunate. Like with many health services that are limited but supposed to be provided free-of-charge in the public sector, many clients may have to make under-the-table payments to facilities and providers in order to obtain the test. This could also be an explanation to a much higher chance of people in urban areas than those in rural areas to obtain an HIV test, besides the fact that HIV testing services are more widely available in urban than in rural areas.

In conclusion, although we found that although HIV-related stigma is widespread in these three countries, it is not necessarily a barrier to HIV testing. Strategies to reduce stigma among women should be explored since they are likely to be the main caregivers to HIV infected people in Vietnam. In addition, efforts aimed to improve the uptake of HIV testing should target individual perceptions of risks of HIV infection and take precautions to not leave out people of low socio-economic status.

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