HIV counseling and testing during antenatal care in Vietnam: who received it and who didn't?

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INTRODUCTION

Health policy makers often promote the integration of health services as a way to better meet health care needs of families, while maximizing scare resources. The integration of HIV counseling and testing, and antenatal care (ANC) services among pregnant women serves a third, and perhaps the most critical purpose: to help prevent the transmission of HIV from mothers to babies. If a woman, who is unknowingly HIV positive, and therefore not treated, gives birth, she has a 30% chance of transmitting the virus to the child. But if she follows a full course of prophylaxis and precautions during pregnancy, childbirth and breastfeeding, the risk of transmission can be reduced to less than 2%. Therefore, it is essential that pregnant women know their HIV status, for the health of her child as well as her own.

This paper aims to examine the integration and use of voluntary counseling and testing (VCT) for HIV with antenatal care services in Vietnam. The study is timely as there is evidence that the epidemic has started making its way from concentrating among some specific population groups to the general population in the country and that women are at increasing risk of infection through heterosexual activities, but many remain undetected (MOH, 2004).

A recent review of existing, published and unpublished, studies in Vietnam shows that the HIV epidemic has been seen as focused among high risk populations, mainly injecting drug users (IDUs) (Nguyen et al., 2008; UNAIDS, 2008). The epidemic affects mainly young men: nearly two-thirds of people who are HIV positive are men under 29 years of age (UNAIDS, 2004). HIV prevalence studies have confirmed the increase of HIV infection among the high risk groups, as well as the transmission to the general population. The majority of the transmission now occurs through sexual activities, in which women are at increased risk – either because they are sex workers, or because they are at risk of infection through their partners (MOH, 2004; Nguyen et al., 2008). Husband-to-wife transmission increasingly grows in importance in the epidemic dynamics. The male-to-female ratio of HIV infected people was estimated to decrease to 2.3 in 2003 and 2.0 in 2005 (MOH, 2004). The prevalence of HIV among women of reproductive age was expected to be .34% in 2005, and reached 1.1% among young women aged 25-29 in some provinces, which is indicative of a generalized epidemic (MOH, 2004; General Statistical Office (GSO) and National Institute of Hygiene and Epidemiology (NIHE), 2006). The HIV prevalence among pregnant women also reached .37% in 2006 (UNAIDS, 2008), and was as high as 2% in some provinces (National Committee for AIDS, Drug and Prostitution Control, 2006).

However, the continued focus on high risk groups means that other population groups are left under-protected or unprepared for the risks and consequences of HIV infection. In particular, women do not receive sufficient attention as long as the belief that the epidemic is among young males persists. Only 16% of the estimated number of HIV infected women were reported, compared to 40% of HIV infected of men (Nguyen et al., 2008). The majority of HIV infected women, which is estimated to be around 83,000, go undetected. While most pregnant women obtain ANC services, the percentage of them who reported to have an HIV test during ANC visits remain low, and has slightly decreased from 22.4% in 2004 to 16.5% in 2006 (UNAIDS, 2008). Meanwhile, the number of HIV infected women who deliver remains on the rise: of the

1.8-2 million women who give birth annually, about 3,000 of them gave birth in 2000, 6,000 in 2002 and 7,000-8,000 in 2005 (Nguyen et al., 2005).

The evidence suggests that if program efforts remain unchanged, the number of HIV infected women and children who are not detected will keep rising. The number of VCT sites, in fact, has notably increased from 157 in 2005 to 228 in 2006, nationwide (UNAIDS, 2008). However, their clients remain largely members of high risk population groups. The Vietnam's law, in addition, states that any pregnant woman who volunteers for HIV testing should be provided with a test at no charge (MOH, 2006). It is reinforced with detailed guidelines on the provision of VCT services (MOH, 2007). In spite of laws and regulations, the low usage of VCT services among women, and particularly pregnant women, reflects the widespread belief that the epidemic remains concentrated, as well as potential stigma associated with getting an HIV test (Morch et al., 2006; Nguyen et al., 2008).

The specific objectives of this paper are to answer the following questions: 1) what is the current use of VCT services at ANC visits?, 2) who are using such VCT services and who are not?, and 3) why are some women not using the services?

DATA AND METHODS

Data for this study come from the Vietnam Population and AIDS Indicator Survey 2005, which was designed to obtain program indicators of knowledge, attitudes and sexual behavior related to HIV/AIDS. Two-stage sampling was employed to obtain a nationally representative sample of men and women aged 15-49. Household and individual questionnaires were administered to selected households and eligible men and women. A total of 6,707 men and 7,289 women were interviewed. The study is necessarily limited to women who had given at least one birth within the two years preceding the survey (i.e. since January 2003) and received ANC services during the pregnancy. 933 women in the total sample comprised the sample for this study.

Outcomes of interest include: whether a pregnant woman received counseling about HIV during her ANC visits, whether she was offered an HIV test, whether she was actually tested, and if so, whether she were counseled after receiving the test result, regardless of what the result was. Every woman who had ANC visits during the 2 years before the survey was asked if anyone talked to her during the visits about mother-to-child transmission of the virus, prevention and getting tested. Information for the other outcome indicators comes directly from responses to questions that women who had given birth in the previous 2 years were asked: "Were you offered a test for the AIDS virus as part of your antenatal care?", "I don't want to know the results, but were you tested for the AIDS virus as part of your antenatal care?", and "After you have received your results, did the doctor or the counselor give you any advice and answer any question you have?".

Independent variables include individual socio-demographic characteristics, household wealth, knowledge of HIV/AIDS, knowledge of mother to child transmission, knowing someone with HIV/AIDS, and stigma attitudes. Socio-demographic characteristics include women's age, education, ethnicity, and rural/urban residence. Household wealth is constructed based on

ownership of household assets, and materials of floor, ceiling and walls; the sample is divided into tertile groups based on their household wealth. Knowledge of HIV/AIDS is an additive score of correct responses to 12 individual questions, and knowledge of mother to child is similarly constructed from 3 individual questions. Both of these two knowledge measures are dichotomized at the mean to classify individual women as having high or low level of knowledge. Four measures of stigma attitudes include responses to the following questions: "Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had the AIDS virus?", "…if a female teacher has the AIDS virus but is not sick, should she be allowed to continue teaching in the school?", and agreement or disagreement with the following statements: "People with the AIDS virus should be ashamed of themselves" and "People with the AIDS virus should be blamed for bringing the disease into the community".

Univariate analysis is carried out to assess the level of use of VCT services at ANC visits by pregnant women. Bivariate and multivariate logistic regressions are employed to examine who the users or non-users of VCT services were. We also compare between women who were offered but declined the test and women who volunteered for the test to shed lights on their different characteristics and motivations for taking or not taking the test.

FINDINGS

As seen in Figure 1, the vast majority of pregnant women in the sample were not offered or obtained HIV counseling and testing at ANC visits. Only 13% of the women were counseled about HIV transmission, prevention and testing; 11.6% were offered the test. However, 14% of women did take the test, which means that some women were not offered but had probably asked for the test. Among these 136 women who were tested, most were not counseled by anyone about the test or its result. Merely 7% did have someone, either a doctor or a counselor, to talk to. It is unclear, however, about the content of such a talk.

Figure 1 about here

Factors associated with receiving HIV counseling and testing services during ANC visits

Table 1 presents the distribution of the sample and results of the bivariate analysis of the association between individual characteristics and three outcomes: whether women were counseled about HIV during ANC visits, whether they were offered the test and whether they actually took the test. The fourth outcome: whether those who were tested were counseled after the test is not included because the number of women who took the test and later received counseling was too small.

Overall, the study sample is not significantly different from the entire survey sample in terms of socio-demographic characteristics (not shown). About 80% of women in the sample were from rural areas, nearly 90% of them belonged to the Vietnamese (Kinh) group. Because the study is limited to women who had given birth within the 2 years before the survey, the age distribution of these women naturally peaked at 25-29, the prime age for childbirth. Three-quarters of the women had gone to at least secondary school, only one in four women had no schooling or only primary school. A small, but significant proportion of them personally knew

someone who had HIV or died of AIDS. Knowledge of AIDS, as well as knowledge of mother-to-child transmission (MTCT) seemed high in this study sample. Nearly two-thirds had a high level of AIDS knowledge and 85% was highly knowledgeable about MTCT. Despite high knowledge of AIDS, stigma attitudes remained common. Half of the women refused to buy vegetables from an HIV infected vendor and 44.8% did not want a teacher who was infected with HIV to continue teaching. More than half (53%) agreed that people with HIV should be ashamed of themselves for getting infected, and even more (62%) agreed that they (i.r.HIV infected people) should be blamed for bringing the virus to the community. Clearly, there remain extremely wide gaps between HIV related knowledge, attitudes, and counseling and testing service use among pregnant women.

Table 1 about here

The probabilities that pregnant women received HIV counseling, were offered an HIV test and received the test during ANC visits vary significantly by women's socio-demographic characteristics. Women who lived in urban areas, who were wealthier or more highly educated were markedly more likely to be counseled about HIV, to be offered an HIV test or to take the test. There are also some differences between age groups: the youngest women (15-24 years of age) were the least likely to receive counseling or testing compared to the two older age groups. Less than 10% of 15-24 year old women received counseling or HIV test offer or actually took the test. Belonging to an ethnic minority group also seems to be a barrier to receiving HIV counseling and testing services during ANC.

Among HIV related knowledge and awareness variable, knowledge of MTCT and knowing someone with HIV/AIDS have strong, significant associations with all three outcomes. Pregnant women with high MTCT knowledge were between two to three times as likely as those with low MTCT knowledge to receive counseling or testing services; those who knew someone with HIV/AIDS were also much more likely than those who did not to receive these services during ANC. Among stigma attitudinal measures, attitude towards a teacher who had HIV is the only measure that distinguishes between those who received counseling and testing services and those who did not: women who held a stigma belief against HIV infected teachers were much less likely than others to receive counseling and testing services.

In table 3, we examine factors that are associated with receiving HIV counseling and testing services in multivariate regression models. Household wealth is the only socio-demographic characteristic that is strongly and positively related to all three outcomes. Women in the rich tertile were three times as likely as women in the poor tertile to receive HIV counseling during ANC visits ($p<.01$). They were also between 7 and 8 times as likely as the poor women to be offered or to take an HIV test ($p<.001$ in both cases). It is possible that women of higher socio-economic status went to ANC clinics that offered a wider range of reproductive health services, including HIV counseling and testing services. Therefore, they were more likely to be offered the services. In other words, it may not be household wealth *per se* that affects VCT service utilization, but it is the self-selection of pregnant women to ANC clinics with different availability of and accessibility to VCT services. Nevertheless, the result indicates that while VCT service availability is limited at the present time, perhaps it is not reaching the majority of women who may be at high risk of infection. Similarly, the likelihood that pregnant women were

offered or received an HIV test was increased nearly two-fold just by living in urban, compared to rural areas ($p<.05$ in both cases). It is likely to reflect the differences in service availability at ANC clinics between rural and urban areas, and indicates that VCT services remain inaccessible to most pregnant women in rural.

Table 2 about here

Knowledge of MTCT is the strongest predictor of VCT service utilization, among knowledge indicators. Pregnant women with a high level of MTCT were nearly five times as likely as women with low level of MTCT knowledge to receive HIV counseling during ANC visits (OR=4.83, $p<.01$). Similarly, they were also significantly more likely than the others to be offered an HIV test or actually take it (OR=4.21, $p<.01$ and OR=3.58, $p<.01$, respectively). It is not clear, however, whether it was higher knowledge of MTCT that led to increased chance of receiving counseling and testing, especially taking the test among these women, or if it was the opposite. Questions about getting counseling and testing services pertained to any ANC visits during the two years before the survey, whereas MTCT knowledge was measured at the time of interview. The relationship could be reciprocal.

The chance of being offered an HIV test or actually taking one during ANC visits was also increased by more than two-fold among pregnant women who personally knew someone with HIV/AIDS (OR=2.35, $p<.001$ and OR=2.30, $p<.001$, respectively). It is possible that knowing someone with HIV/AIDS in some way heightened the women's perception of their own vulnerability, which in turn made them more likely to go to ANC clinics where VCT services were available, or to actually ask for the test. However, the data available do not allow us to test this hypothesis.

Surprisingly, while stigma attitudes related to HIV were common, they did not seem to clearly distinguish pregnant women who received or did not receive counseling and testing services. There are only few exceptions. The chance of receiving HIV counseling is reduced by nearly half among pregnant women who believed that HIV infected people should be ashamed of themselves, compared to pregnant women who did not believe so ($p<.05$). On the other hand, pregnant women who believed that HIV infected people should be blamed for bringing the virus to the community were more likely than others to receive HIV counseling (OR=1.77, $p<.05$), although they were not more likely to be offered or to take an HIV test.

Differences between pregnant women who were offered but did not take an HIV test and those who volunteered for a test

Table 3 about here

As mentioned before, 14% of pregnant women who had ANC visits took an HIV test, while only 11.6% of them were offered the test. It seems that some women volutarily asked for a test. As shown in Table 3, 25 pregnant women were offered an HIV test during ANC visits but did not take it, while 29 women were not offered but did take a test during ANC visits. The survey did not ask why women did not take an HIV test although it was offered to them. It is plausible that although they were offered the test, it was not available at the ANC clinics, at least

at the time of their visit. As a result, some women were reluctant to go back to the clinics, or to go to other clinics for an HIV test, for various reasons. Or the test could be available but was declined by women for some reason. However, regardless of the availability to and accessibility of HIV test, the results suggest that there may be important differences between the 25 women who were offered but did not take the test and the 29 women who volunteered for the test in terms of individual characteristics and motivations.

Table 4 presents the distribution of individual characteristics among these two groups of pregnant women. It shows that the majority (80%) of pregnant women who asked for the test resided in rural areas. In addition, half of the women who were offered but did not take the test were in the rich tertile, while women in the middle tertile, as well as women who had gone to secondary school were likely to volunteer for a test. The findings suggest, again, that women of higher socio-economic status (SES) may be likely to be offered the services than women of lower SES. They also suggest that women who were offered the services may not see themselves at risk of HIV, and therefore may not see the needs for such services, whereas many women who may see themselves vulnerable to HIV infection do not necessarily have ready access to the same services.

Table 4 about here

Knowledge of HIV/AIDS is another factor that seems to distinguish between these two groups of women. While just over half of the women who were offered but did not take an HIV test had a high level of HIV knowledge, more than 80% of women who volunteered for a test did so. It could be indicative of the importance of HIV related knowledge to motivation and behavior. On the other hand, the proportions of women that held a stigma attitude against an HIV infected teacher and who believed that HIV infected people should be blamed were much higher among those who asked for a test than among those who were offered but did not take a test. One possible explanation is that stigma attitudes may actually be a motivation for women who asked to take an HIV test during ANC visits because they might have perceived that potential stigma associated with their taking test may be reduced by the virtue of taking an HIV test at the same time of an ANC visit, which would argue for the integration of services in an environment where stigma is still prevalent.

DISCUSSION

This paper examines factors associated with the use of VCT services at ANC clinics among pregnant women. While the current policy in Vietnam is to provide services to anyone who volunteers for them, it is important that pregnant women be offered the services routinely in order to help prevent the mother-to-child transmission of the virus. We find that in most cases, however, pregnant women who came to ANC clinics were not offered HIV counseling and testing. Undoubtedly, it contributes to the fact that a large number of HIV infected women remain undetected. Data available from the survey, unfortunately, do not allow us to assess the availability of VCT services at ANC clinics in Vietnam. It is likely that the availability of such services remains limited, particularly at district or lower level health facilities (MOH, 2003). In 2006, it was found that only one in five ANC clinics provided the minimum prophylaxis package of PMTCT services (MOH, 2008). The availability of HIV test, perhaps, is not much different:

very few ANC facilities currently offer VCT services (Nguyen et al., 2008). Nevertheless, one would expect that HIV counseling should be offered more routinely, regardless of the availability of HIV test. This is yet to be the case.

The analysis also shows that HIV counseling and testing are strongly related to socio-economic characteristics. Pregnant women from wealthier households and those who resided in urban areas were more likely to receive VCT services during ANC visits. Knowledge of mother-to-child transmission is also associated with VCT service utilization, although it is unclear if the relationship is causal. The results suggest that pregnant women, who may not be at high risk of HIV infection, are the ones who were getting VCT services during ANC visits. Many women in rural areas, and those who might be at risk of infection, were not routinely offered services. Some had to ask for an HIV test in order to get one. At the same time, there is no clear, definite evidence that stigma related to HIV, while prevalent, was a major barrier to VCT service utilization at ANC clinics. It is possible that the integration of VCT and ANC services helps relieve some of the burden associated with obtaining an HIV test. These findings argue for expanding the availability of VCT services at ANC clinics in order to reach the general population, as the epidemic makes its way from a concentrated to a generalized one. HIV infected women particularly form the first line of transmission of the virus to the general population. Currently, nearly nine out of ten pregnant women have at least one ANC visit and ANC service utilization is near universal in urban areas (Committee for Population, Family and Children, and ORC Macro, 2003). It would be missed opportunities not to expand VCT service availability at health facilities that provide ANC services.

While the present study indicates that VCT services at ANC clinics remain extremely limited and they perhaps miss the majority of the female population that may be at risk of HIV transmission, the limited data available do not shed lights on the actual or perceived risk, or factors associated with it, among pregnant women as motivation for getting VCT services. Among all women sampled in the survey, none reported having more than one partner, and only 5% reported a sexually transmitted infection within the year preceding the survey (GSO and NIHE, 2006). It is possible that these percentages were vastly under-reported in a population survey and may be better obtained through an in-depth, targeted study. The data also do not allow us to explore the cost-effectiveness of VCT service utilization among pregnant women. Given the limited resources that can be invested in VCT and PMTCT services, it is important that available resources be invested in the most cost-effective way and that the most at risk population can be reached.

In conclusion, the study highlights the limited availability and utilization of VCT services at ANC clinics, despite the fact that nearly all pregnant women obtain ANC services and they are among gatekeepers of the transmission of HIV virus to the general population. When they are in use, VCT services also seem to miss the majority of women who may be at risk of HIV infection. Stigma associated with HIV testing did not seem a constraint to VCT service utilization in this study. The study argues for an expansion of VCT services at health facilities that offer ANC services to help prevent the transmission of the virus from mothers to babies, and the growth of the epidemic to a generalized one.

Acknowledgement

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TABLES AND FIGURES

Table 1. Distribution of women's characteristics, HIV-related knowledge and stigma attitudes, Vietnam, 2005.

Characteristics	Distribution %	HIV counseling %	HIV test offered %	HIV test received %
Residence		(p<.001)	(p<.001)	(p<.001)
Rural	80.5	10.8	7.1	9.9
Urban	19.5	22.2	30.2	30.9
Household wealth		(p<.001)	(p<.001)	(p<.001)
Poor	37.2	8.8	4.0	4.7
Middle	42.7	11.2	7.8	11.6
Rich	20.1	24.8	33.6	36.1
Age		(p<.01)	(p<.01)	(p<.05)
15 - 24	32.7	8.7	6.5	9.5
25 - 29	29.4	13.7	14.5	16.0
30 - 49	37.9	16.3	13.7	16.3
Education		(p<.10)	(p<.01)	(p<.01)
None/Primary school	24.4	11.8	7.1	7.7
Secondary school	64.9	12.3	11.8	15.2
Higher	10.8	20.1	20.3	20.6
Ethnicity		(p<.05)	(p<.05)	(p<.05)
Vietnamese (Kinh)	88.6	13.8	12.5	14.9
Ethnic minority	11.4	6.9	4.6	6.6
Knowledge of AIDS		(p<.10)		(p<.05)
Low	38.1	10.4	10.9	10.8
High	61.9	16.1	12.0	15.9
Knowledge of MTCT		(p<.01)	(p<.01)	(p<.05)
Low	14.6	3.3	4.8	7.6
High	85.4	14.7	12.8	15.1
Knows someone with HIV/AIDS		(p<.01)	(p<.001)	(p<.001)
No	87.4	11.7	9.9	11.3
Yes	12.7	22.4	23.3	32.3
Would NOT by fresh vegetables from a vendor who has HIV		(p<.10)		
Disagree	50.2	14.9	13.0	15.4
Agree	49.9	11.2	10.1	12.6

Characteristics	Distribution %	HIV counseling %	HIV test offered %	HIV test received %
A teacher who has HIV should NOT be allowed to teach		(p<.05)	(p<.01)	(p<.05)
Disagree	55.2	15.5	14.4	16.4
Agree	44.8	9.9	8.1	10.9
People with HIV SHOULD be ashamed of themselves		(p<.10)		
Disagree	46.6	15.1	12.1	14.8
Agree	53.4	11.2	11.1	13.3
People with HIV SHOULD be blamed				
Disagree	38.0	11.7	12.9	14.4
Agree	62.0	13.8	10.8	14.4

Table 2. Associations between women's characteristics, HIV-related knowledge and stigma attitudes and HIV counseling and testing, Vietnam, 2002.

Characteristics	HIV counseling OR	HIV test offered OR	HIV test received OR
Residence			
Rural	1.00	1.00	1.00
Urban	1.06	1.85*	1.80*
Household wealth			
Poor	1.00	1.00	1.00
Middle	1.38	2.40*	2.31*
Rich	3.07**	7.55***	6.78***
Age			
15 - 24	1.00	1.00	1.00
25 - 29	1.03	1.14	1.17
30 - 49	1.03	1.06	1.06
Education			
None/Primary school	1.00	1.00	1.00
Secondary school	.83	1.22	1.22
Higher	1.14	1.43	1.51
Ethnicity			
Vietnamese (Kinh)	1.00	1.00	1.00
Ethnic minority	.50†	.44†	.63
Knowledge of AIDS			
Low	1.00	1.00	1.00
High	1.23	.87	1.02
Knowledge of MTCT			
Low	1.00	1.00	1.00
High	4.83**	4.21**	3.58**
Knows someone with HIV/AIDS			
No	1.00	1.00	1.00
Yes	1.42	2.35***	2.30***
Would NOT by fresh vegetables from a vendor who has HIV			
Disagree	1.00	1.00	1.00
Agree	.77	.92	.78

Characteristics	HIV counseling OR	HIV test offered OR	HIV test received OR
A teacher who has HIV should NOT be allowed to teach			
Disagree	1.00	1.00	1.00
Agree	.74	.73	.86
People with HIV SHOULD be ashamed of themselves			
Disagree	1.00	1.00	1.00
Agree	.52*	1.20	1.28
People with HIV SHOULD be blamed			
Disagree	1.00	1.00	1.00
Agree	1.77*	.78	.84

*p<.05; ** p<.01; *** p<.001; † p<.10

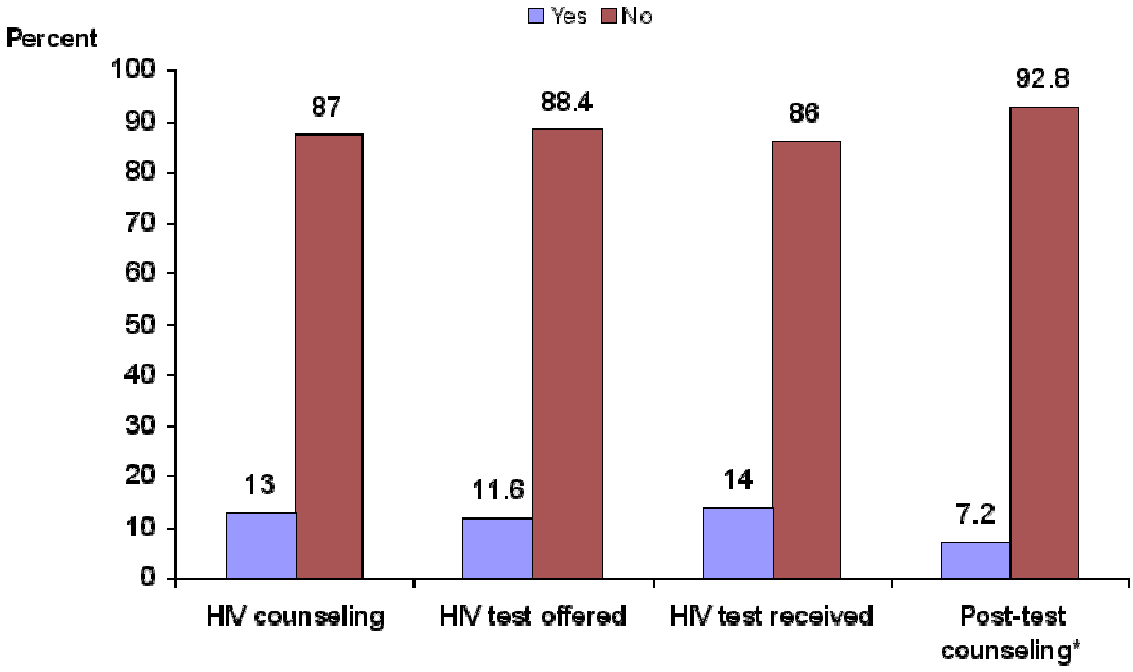
Table 3. Pregnant women who were offered and received HIV test, Vietnam, 2002.

		HIV test received		**Total**
		No	Yes	
HIV test offered	No	721	**29**	750
	Yes	**25**	158	183
Total		746	187	933

Table 4. Differences between women who refused the test and women who volunteered for the test, Vietnam, 2002.

Characteristics	HIV test offered but declined %	HIV test not offered but volunteered %
Urban residence	44.6	20.6
Household wealth		
Poor	30.1	18.1
Middle	20.1	50.0
Rich	49.8	32.0
Age		
15 - 24	35.4	39.3
25 - 29	21.2	19.1
30 - 49	43.5	41.7
Education		
None/Primary school	20.6	11.8
Secondary school	51.7	77.0
Higher	27.7	11.2
Ethnic minority	14.1	11.3
High knowledge of AIDS	53.9	83.8
High knowledge of MTCT	80.8	82.0
Knows someone with HIV/AIDS	23.6	38.8
Would NOT by fresh vegetables from a vendor who has HIV	51.4	51.1
A teacher who has HIV should NOT be allowed to teach	20.8	41.4
People with HIV SHOULD be ashamed of themselves	52.9	50.0
People with HIV SHOULD be blamed	57.9	73.2

Figure 1. Prevalence of the use of HIV counseling and testing services as part of ANC, Vietnam, 2002.



* Based on 136 women who received HIV test.