DETERMINANTS RELATED TO THE UTILIZATION OF VOLUNTARY COUNSELLING AND HIV TESTING SERVICE IN VIETNAM

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ABSTRACT

This cross sectional research used data of the Leadership Investment in the Fighting against Epidemic – Global AIDS Program (LIFE – GAP) project in 2004. The objective of the study was to describe the socio-demographic and physical factors, risk behaviors of clients and their sex-partners, information sources which affect utilization of the Voluntary Counselling and HIV Testing (VCT) service. 1200 clients who had obtained service from selected VCT sites in 2004 were chosen by random stratified sampling from 20816 clients of 40 provinces in Vietnam. Chi-Square test was used for analysis at 0.05 confident interval.

Most (88.17%) clients had completed the VCT process. 75.5% of clients were younger than 35. The greater part (53.42%) of clients was married or lived with sex-partners. 12.92% of clients had college or higher education. Almost (79.33%) of clients were living in urban areas. Some clients had STD symptom (16.92%) and TB symptom (7.58%). 59.75% of clients had admitted some high risk behaviors such as being CSW, IDU. Many (59.25%) clients had sex-partners who had high risk behaviors. 56.33% of VCT clients had received information about the service from mass-media. The study revealed that there were associations of following variables with utilization of VCT service: marital status; residence; health problems related to HIV infection such as TB, STD; risk behaviors of client's sex-partners; and information sources of VCT service (P-value < 0.05).

Based on the above findings, health supporters should have a more important role in term of transfer clients to VCT site by building a larger network of hospitals, HIV/AIDS prevention and care programs, social unions, NGOs and local community. VCT programs should be conducted not only in urban areas but also in rural areas.

KEY WORDS: UTILIZATION/ VOLUNTARY COUNSELLING AND HIV TESTING/ VIETNAM

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LIST OF ABBREVIATIONS

AIDS	:	Acquired Immune Deficiency Syndrome
ARRM:		AIDS Risk Reduction Model
CSW	:	Commercial Sex Worker
CDC	:	Center for Disease Control and Prevention, Atlanta, Unite States
FSW	:	Female Sex Worker
HBM	:	Health-Belief Model
HIV	:	Human Immunodeficiency Virus
IDU	:	Injecting Drug User
IEC	:	Information, Education and Communication
LIFE GAP:		HIV/AIDS Prevention and Care Project.
MOH	:	Ministry of Health
MSM	:	Man who have Sex with Man
NGO	:	Non Government Organization
PLWHIV:		People Live With HIV
SCT	:	Social Cognitive Theory
STD	:	Sexually Transmitted Disease
TB	:	Tuberculosis
TRA	:	Theory of Reasoned Action
UNAIDS:		Joint United Nations Program on HIV/AIDS
USA	:	United States of America
WHO	:	World Health Organization
VCT	:	Voluntary counselling HIV testing

CHAPTER 1
INTRODUCTION

1.1 Rationale and Justification

1.1.1 HIV/AIDS Global situation

On the September 11, 2001, more than 3,000 people were killed in the New York disaster that led to the world had shocked and feared. However, every day around the world, the number of people have been infected by HIV is at least five time higher. In the World AIDS Day, December 2003, Mr. Kofi Annan, the UN Secretary-General has called for urgent action to address the increasing HIV epidemic in Asia, He stated:

"*…the epidemic is expanding most rapidly in regions which had previously been largely spared - especially Eastern Europe, and across all of Asia (1).*"

HIV is transmitted most commonly by having unprotected sex with an infected partner and by injecting drugs with contaminated equipments. The notion that those epidemics are limited to specific targets is fanciful. As most injecting drug users are young and also involved in sexual industrial, especially in Asia and Eastern Europe. Therefore, the risk of HIV infection is likely double than others. Moreover, men who have sex with men are also at high risk of infection HIV due to the sexual practices. The WHO report which can be seen in the table below shows that as of 2004, there were similar numbers between men and women have been infected HIV.

Especially, women are increasingly affected by the epidemic. Globally, just under half of all people living with HIV are female, however in most other regions women and girls represent an increasing proportion of people living with HIV, particularly in Eastern Europe, Latin America and Asia.

Table 1: General HIV data over the world 2004

Population (million)	Total	Adult	Female	Children
PLWHIV in 2004	39.4 (35.9 - 44.3)	37.2 (33.8 – 41.7)	17.6 (16.3 – 19.5)	2.2 (2 – 2.6)
People newly infected HIV in 2004	4.9 (4.3 – 6.4)	4.3 (3.7 – 5.7)		0.64 (0.57 – 0.75)
AIDS deaths in 2004	3.2 (2.8 – 3.5)	2.6 (2.3 – 2.9)		0.51 0.46 – 0.6

(Source: WHO. AIDS epidemic update 12. 2004)

The range around the estimates in this table defines the boundaries within which the actual number lie, base on the best available information (2).

1.1.2 HIV/AIDS in Asia

The number of people live with HIV (PLWHIV) has been increased in every region in comparison with the data two years ago. This increasing has clearly occurring in East Asia, Eastern Europe and Center Asia. The number of PLWHIV in East Asia has rose by almost 50% between 2002 and 2004 (2) as consequence from the economic growing in China.

In addition, although the HIV prevalence is still low but with largest populations in Asia, plus with number of factors that enhance the spread of HIV, it is rapidly growing HIV/AIDS epidemics. According to WHO, an estimate of 8, 2 million people are living with HIV/AIDS in South-East Asia and this made the number of cases is the second highest just after Sub-Saharan Africa.

1.1.3 HIV/AIDS in Vietnam

Dr Nancy Fee, chief of UNAIDS in Vietnam had considered Vietnam is facing with a serious and growing epidemic. HIV/AIDS reported as of May 31, 2004 (3)

HIV/AIDS prevalence	Number of case
Cumulative HIV infected	81,206
Cumulative AIDS patients	12,684
Cumulative AIDS deaths	7,208
Estimated number by 2005	197, 581

(Source: UNAIDS Vietnam, 2004)

By 12 September 2003, a cumulative total of 71,530 people reported as HIV positive (MOH data). The current increase in reported HIV cases is about 1,300 per month, and is continue to increase. As same as other countries, this data would be higher due to underestimate and undiagnosed of HIV.

1.1.4 Global response and voluntary counselling and testing

In order to discontinue the spread of the HIV epidemics, the highest responses from all countries in the world are required. Global Fund has increased its spending for the epidemics from US$ 2.1 billion to US$ 6.1 billion in 2004. This investment has resulted in increasing markedly access to relevant services as well as preventive activities (UNAIDS, 2004). For example, the number of secondary-school students who have equipped HIV/AIDS knowledge has rose nearly tripled, the number of voluntary counselling and testing clients has increased doubled annually, the number of women offered services to prevent mother-to-child transmission has increased by 70%, and the number of people receiving antiretroviral therapy has increased by 56%. According to a recent survey in 73 low- and middle-income countries in which represented that those treatments account for almost 90% of the global burden of HIV (Policy Project, 2004). Most people who need antiretroviral treatment in South America and some Caribbean countries now can be able to access it (2).

1.1.5 Response of Vietnam and voluntary counselling and testing

Vietnam government had showed strongly the determination by the "Decision no 36/2004/QD – TTg of March 17, 2004 approving the national strategy on HIV/AIDS prevention and control in Vietnam till 2010 with a vision to 2020. The Prime Minister (5)"

The overall objective of the decision is to control the HIV/AIDS prevalence rate among the general population to below 0.3% by 2010 and with no further increase after 2010; to reduce the adverse impacts of HIV/AIDS on social-economic development.

Specific objectives of the decision are clear and detailed:

100% of units and localities across the country shall incorporate HIV/AIDS prevention and control activities as one of priority objectives into their social economic development programs;

To raise people's knowledge about prevention of HIV/AIDS transmission;

To control HIV/AIDS transmission from high-risk groups to the community through implementing comprehensive harm reduction intervention measures;

To ensure appropriate care and treatment for HIV/AIDS-infected people;

To perfect the management, monitoring, surveillance and evaluation systems for the HIV/AIDS prevention and control program, 100% of HIV testing shall be compliant with the regulations on voluntary testing and counseling;

To prevent HIV/AIDS transmission through medical services.

1.1.6 HIV/AIDS Prevention and Care project in Vietnam (LIFE – GAP)

1.1.6.1 About Project

LIFE – GAP project is collaboration between of Vietnam government (represented by Ministry of Health) and Unite State government (represented by Center for Disease Control and prevention) with completed name is "Leadership and Investment in Fighting an Epidemic – Global AIDS Program."

The first period of LIFE – GAP project had started since 1999 with main duties: assessing the HIV prevention need of locals and building up the detailed national proposal. The second period is from 2001 up to 2007. CDC Atlanta supports technical for the project through CDC Vietnam.

Objectives of the project have been agreed between Vietnam Government and Unite State Government (4):

To reduce the HIV infection rate through basic effective preventive activities.
To improve the delivery of care and treatment for PLWHIV.
To improve the health staff capacity in HIV prevention and care.

Six programs that being conducted over Vietnam are:

Voluntary counselling and HIV testing (VCT)
Outreach program (ORP)
Care and treatment program (C&T)
Prevention mother to child transmission (PMTCT)
HIV and Tuberculosis (HIV/TB)
HIV and Sexually transmitted disease (HIV/ STD)

VCT program has been conducted on all of 40 provinces, including 15 provinces in the North; 7 provinces in Center and 18 provinces in the South. There is at least 01 VCT site per province. All VCT site of LIFE – GAP provide VCT service voluntarily, anonymously, free of charge. The Center for Disease Control and

Prevention US is supporter technical for the program as theory, practicing setting up, monitor and evaluation, client information form.

1.1.6.2 Implement of Research's author in LIFE – GAP project

Author of this research is one of first project officer those pilot, implement VCT program since beginning time with CDC's experts.

The program had been set up in 3 periods: First period from 2002 to 2003 with 4 provinces in the North and 2 provinces in the South, second period from 2003 to 2004 with 18 provinces in 3 main areas North, Center and South. Third period, the program are set up completely in 16 last provinces from 2004 to 2005.

Author took part from the beginning of building up the project's information system, including Client Information Form (Questionnaire), Province Monthly Report, Center Monthly Report and LIF – GAP software.

1.1.6.3 The role of LIFE – GAP project in this research

Facing with HIV epidemic spreading larger day by day, Vietnam government had chosen VCT as a new main weapon since 2005. Applying 100% HIV testing on VCT up to 2010, Vietnam government need much effort, knowledge and experience. Being one of the first organization conduct VCT and having largest coverage of VCT program in Vietnam, LIFE – GAP project can contribute worth experience for Government's strategy on HIV/AIDS prevention and control. With above reasons, study about VCT in Vietnam and using LIFE – GAP's data are essential.

1.2 Research question

1.2.1 What are the characteristics of utilization of Voluntary Counselling and HIV Testing (VCT) program in Vietnam?

1.2.2 What are determinants that related to the utilization of VCT program in Vietnam?

1.3 Research Objective

1.3.1 General Objective

To identify the determinants relating to the utilization of Voluntary Counselling and HIV Testing (VCT) program in selected provinces in Vietnam.

1.3.2 Specific Objectives

1.3.2.1 To identify the utilization of VCT program in Vietnam.

1.3.2.2 To determine the relationship between age factor and utilization of VCT program in Vietnam.

1.3.2.3 To determine the relationship between sex factor and the utilization of VCT program in Vietnam.

1.3.2.4 To find the association education factor and the utilization of VCT program in Vietnam.

1.3.2.5 To identify the relationship between marriage status factor and the utilization of VCT program of in Vietnam.

1.3.2.6 To determine the association between residence factor and the utilization of VCT service in Vietnam.

1.3.2.7 To find the associaton between health problem related to HIV infection of clients and utilization of VCT service in Vietnam

1.3.2.8 To identify the relationship between risk behavior factor of client and the utilization of VCT program in Vietnam.

1.3.2.9 To determine the relationship between risk behavior factor of sex-partner of client and the utilization of VCT program in Vietnam

1.3.2.10 To identify the relationship between Mass media effectiveness and the utilization of VCT program in Vietnam.

1.4 Conceptual framework

The conceptual framework of this study is a link between socio – demographic factors, risk behavior of client and sex-partner, media effect toward behavior in utilizing VCT service (Figure 1). It was set up base on modified Health Believe Model application.

Independent variables **Dependent variable**

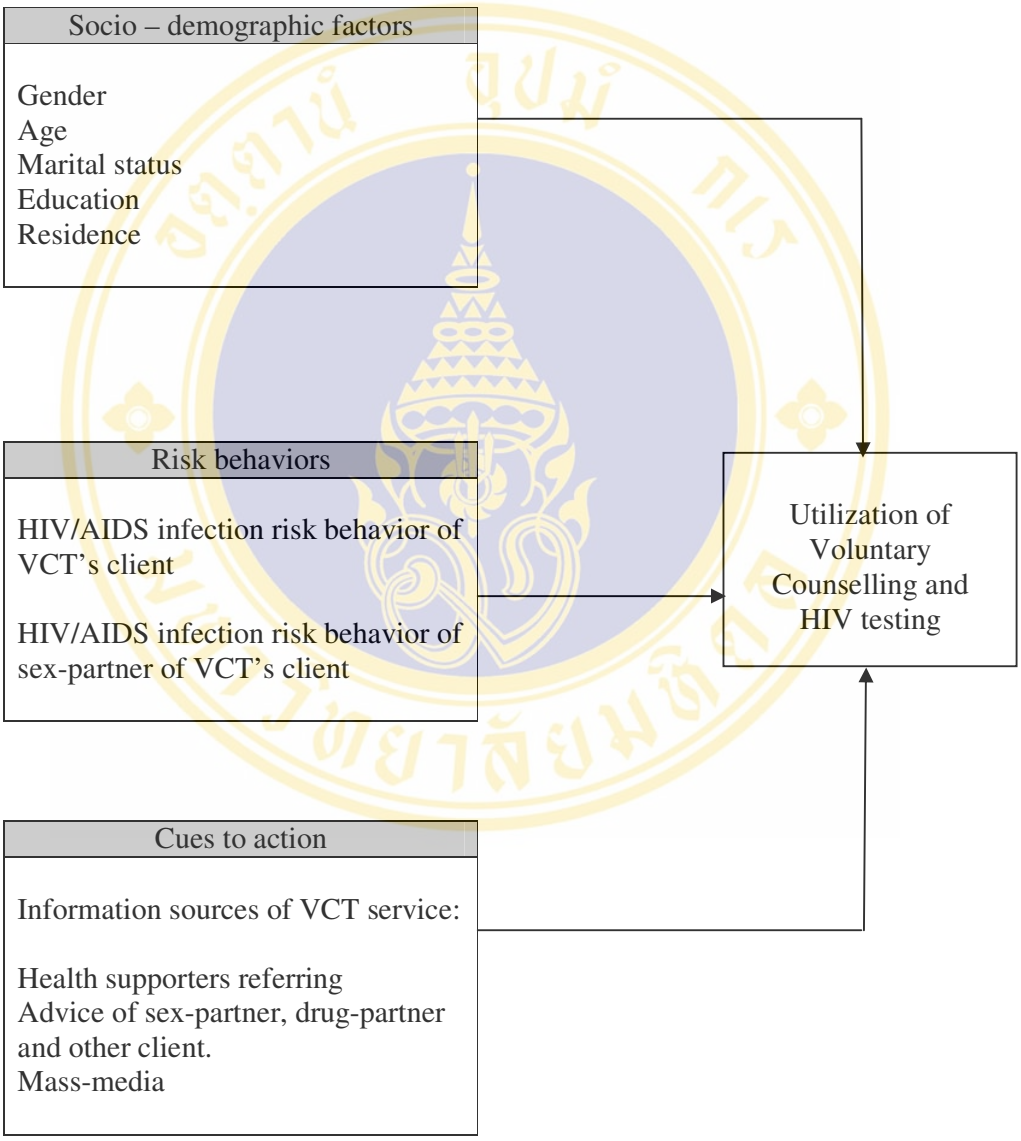


Figure 1: CONCEPTUAL FRAMEWORK

1.5 Research hypothesis

1.5.1 There is the relationship between age factor and utilization of VCT program in Vietnam.

1.5.2 There is the relationship between gender factor and the utilization of VCT program in Vietnam.

1.5.3 There is the relationship between marital status factor and the utilization in Vietnam.

1.5.4 There is the relationship between client's education and the utilization of VCT program in Vietnam.

1.5.5 There is relationship between residence factor and the utilization of VCT program in Vietnam.

1.5.6 There is the relationship between health problems related to HIV infection and utilization of VCT program in Vietnam.

1.5.7 There is the relationship between risk behavior of client and the utilization of VCT program in Vietnam.

1.5.8 There is the association between risk behavior of sex- partner and the utilization of VCT program in Vietnam.

1.5.9 There is the association between mass media effectiveness and the utilization.

1.6 Operational definition

1.6.1 Utilization of VCT service: Refer to frequency of attendance counselling by persons (clients) come for HIV blood testing. It is categorized by frequency of visit a VCT site: 01 time for pre-test counselling (mean the utilization is not completed), 02 times for both pre-test and post-test counselling (mean the utilization is completed).

1.6.2 Gender: Gender of VCT's clients includes male and female

1.6.3 Age: Age of VCT's clients referred to three dimensions including 16 - 24; 25 – 34 and ≥35

1.6.4 Marital status: Marriage status of VCT's clients, including never married, married and living with partner, separated or divorce, widowed.

1.6.5 Education level: Number of school year referred to Secondary school, High school, College and higher.

1.6.6 Residence: VCT's client's permanent addresses, including urban, rural, other province, other country.

1.6.7 Health problems related to HIV infection: Client admited that having health problems related to HIV infection such as TB, STD or not (Yes and No).

1.6.8 The risk behavior of VCT's clients in HIV infection, recognize whether they are being infected HIV, aware of their risk behaviors and of their health problems.

1.6.9 Risk behaviors of client's sex – partner including drug injection users, having sex with CSWs, being CSW, etc.

1.6.10 Information sources of VCT service: including sources that clients get information about VCT service such as Public media; advice of sex – partner, drug – partner or other client; health supporter (healthcare staff, peer educators) referring.

1.7 Limitation of the study

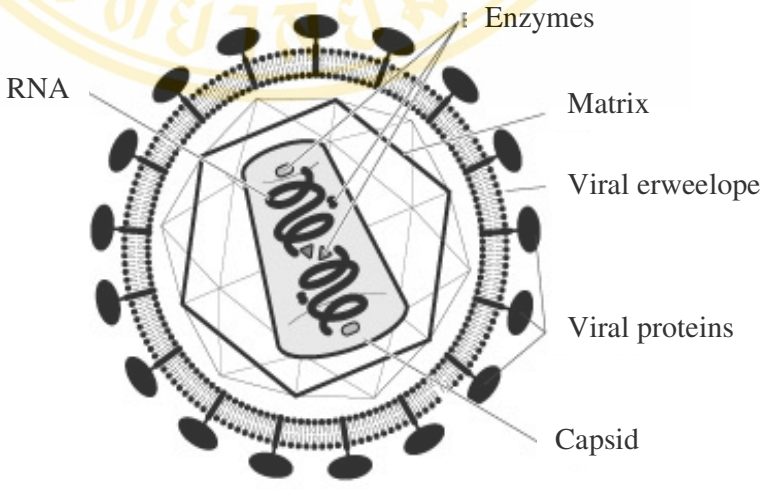
This research base on the secondary data from VCT program that LIFE – GAP project has conducted on 40 provides along Vietnam. That data is limited by the Client Information Form, hence, it is impossible to study client's perception toward susceptibility of HIV/AIDS and perception toward benefits and barriers of VCT as theory of Health Belief Model.

The data studying in the research is collected in 2004, therefore research's findings are not updated recently and may not reflect Vietnam VCT situation completely.

CHAPTER 2
LITERATURE REVIEW

2.1 HIV/AIDS in brief

The first case of AIDS was discovered in the Unite States in 1981 but until 1983, the virus causes the disease was found. It is now known as the human immunodeficiency virus (HIV). HIV infects the CD4 white blood cells- an essential element of the body's immune system. Once this system has been destroyed, the infected body becomes susceptible to a range of opportunistic infections and cancers. HIV is a retrovirus, its core consists of ribonucleic acid (RNA). When this RNA is infected into human cell, an enzyme called reverse transcriptase converts it into deoxyribonucleic acid (DNA), which is then instated into the cell DNA. Replication takes place when the infected cells are activated in fighting another disease. Although antibodies to HIV are produced in the human body, they cannot inactivate it (7).



Structure of Human Immunodeficiency Virus (HIV)

Figure 2: Human Immunodeficiency Virus knowledge

Acute HIV syndrome, associated with sero- conversion can be occurred as early as few weeks after a person is infected. The person may be asymptomatic or develop “flu like” symptom and signs. The “window period” is when a person is infected but HIV-antibody tests are not shown positive. Usually 3 – 5 years after the infection, generalized painless swelling of lymph glands develops which persists for few months to many years. The diagnosis of having AIDS is based on the occurrence of one or more of the several opportunistic infections, cancers and other infections like pneumonia, persistent diarrhea, and skin cancer called Kaposi’s Sarcoma, infection of the nervous system leading to deterioration of intellectual capacity (dementia). It is essential to demonstrate the presence of HIV in the blood with the help of sensitive blood tests. Current evidence suggests that about 20% of those infected with HIV may go onto develop full blown AIDS within five years and about 50% within ten years. Sexual intercourse is the most frequent mode of transmission of HIV; parenteral transmission also occur through the transfusion of infected blood of the use of blood – contaminated skin-piercing instrument; while perinatal transmission refers to the passing on of HIV infection from mother to child before, during of shortly after birth. Children can contact HIV infection from their mothers, sometimes through breast-feeding (7).

Due to the absence of a preventive vaccine or curative drugs, prevention is the most effective tool to battle with this disease. Prevention should be focused on sexual risk behavior including multiple or unknown sexual partners, practicing un-safety sex, and non- usage of condoms for all sexual penetration activities. Ensuring screening of blood and products related blood, and proper sterilization of all surgical equipments/ needles can reduce transmission-risks (7). Thirdly prevention of HVI infection prior, during and after pregnancy is the option that should be considered.

STDs refer to communicable, sexually transmitted diseases which have a direct relationship to HIV infection. STDs are an indicator of high - risk sexual behavior and increase the chances of HIV transmission particularly among those with genital ulcers. Thus, early and effective treatment of STDs becomes crucial to prevent HIV transmission.

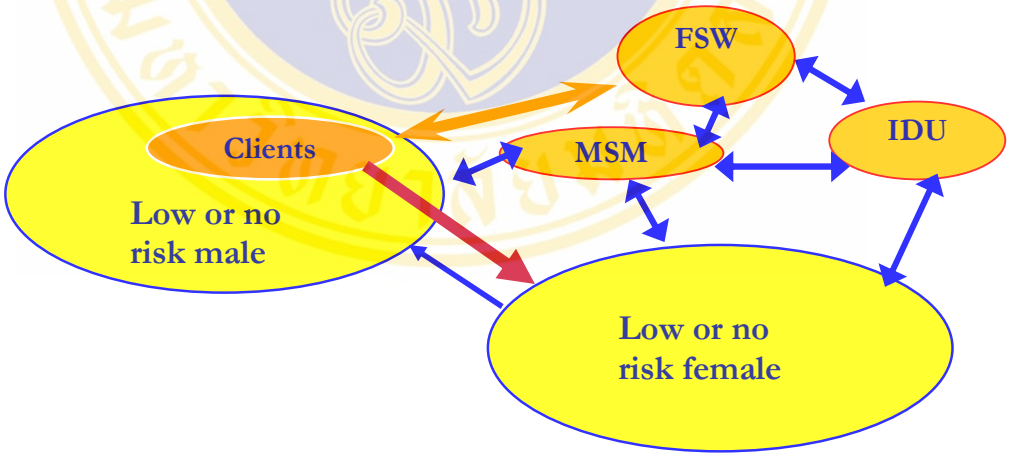
2.2 HIV/AIDS Epidemiology in Asia and Vietnam

Table 2: General HIV/AIDS data of Asia 2004 (2)

	Adult and Children living with HIV	Adult and Children newly infected HIV	HIV prevalence (%*)	Adult and Children deaths due to AIDS
In 2004	8.2 million	2.3 million	0.4	540,000
In 2002	7.2 million	1.9 million	0.4	470,000

(Source: WHO. AIDS epidemic update 12.2004)

In average, there are more than 1,100 people infected HIV every day in Asia and HIV epidemiology in Asia can be illustrated by figure 3 of UNAIDS.2004:

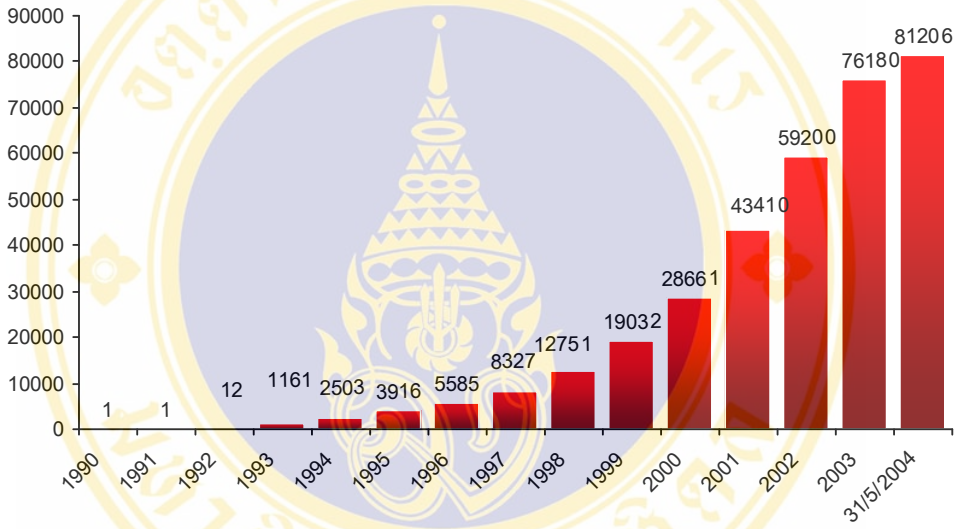


(Source: Joint United Nations Program on HIV/AIDS – UNAIDS, 2004)

Figure 3: Relationship between high risk groups and community in HIV epidemic of Asia

* Abbreviations: Man Sex Man (MSM); Female Sex Worker (FSW); Injection Drug User (IDU); Clients (Clients of Female sex workers).

In Asia, there are multiple transmissions from the high risk populations into community. Female sex workers and injection drug users and man sex man groups link tightly together, then these links are spread to community through the low or no risk females group who are wives and partners, the low or no risk males are husbands and also are clients of female sex workers, sex partner of man sex man groups (Figure 1, UNAIDS 2004).

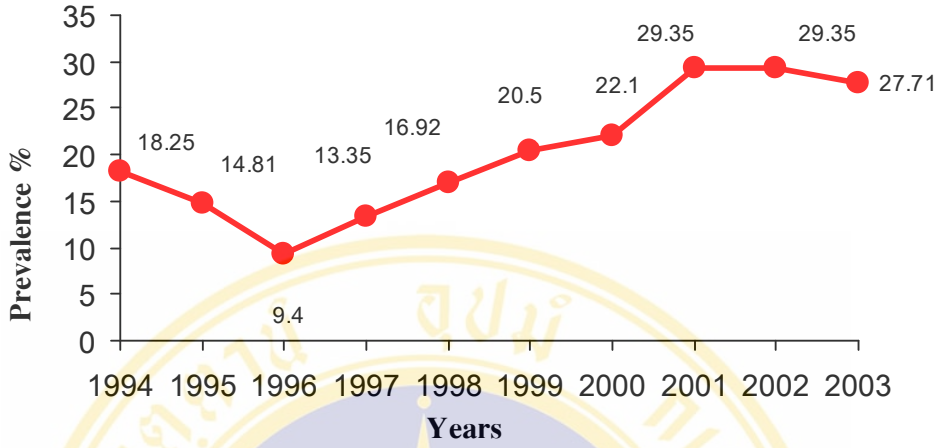


(Source: LIFE – GAP/CDC. HIV/AIDS situation, 2004)

Figure 4: Cumulative HIV/AIDS case reported in Vietnam 1990 - 2004

The developments of HIV prevalence in Vietnam from 1990 to 2004 were contributed most positively by two groups: IDUs & CSW, are illustrated in Figure 3, Figure 4 of Department of Preventive Medicine & HIV/AIDS Control, Ministry of Health Vietnam (4).

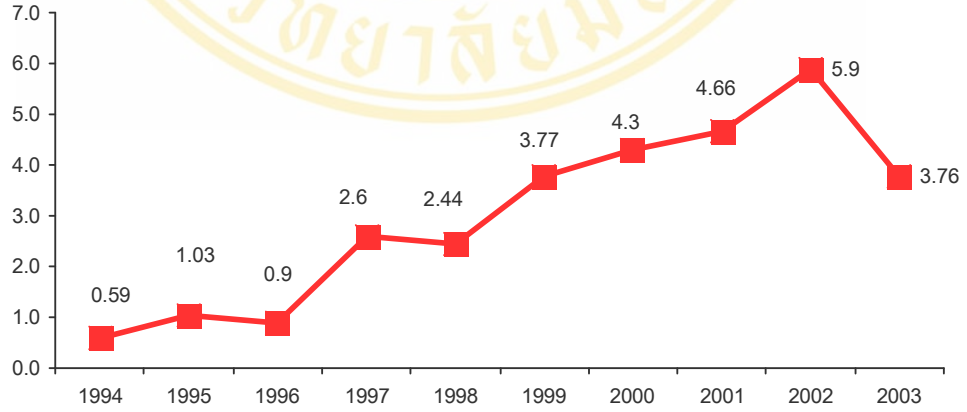
There was a serious epidemic among the injecting drug users (IDUs), accounts for 60% of reported HIV cases. Overall HIV prevalence among IDUs was 30% in 2002. 80% of IDUs in Ho Chi Minh City were already infected; and 60% in Hai Phong (2002 MOH figures). Studies showed that currently injecting drug users seem to be younger.



(Source: LIFE-GAP/CDC. HIV/AIDS situation 2004)

Figure 5: Trend of HIV infection among IDUs (Sentinel Surveillance)

The HIV prevalence trend among IDUs has increased double in the last 5 years, and parallel with it, the HIV prevalence among CSWs was also increased (figure 6). The relationship between the two high risk groups was showed in figure 1 of UNAIDS.2004.



(Source: LIFE – GAP/CDC. HIV/AIDS situation. 2004)

Figure 6: Trend of HIV infection among commercial sex workers (Sentinel Surveillance)

The complexion of HIV epidemic in Vietnam is modified by geography factor also. Top 5 provinces have the highest HIV/AIDS prevalence/ 100,000 (3).

Provinces	Prevalence/ 100,000
1. Quang Ninh	598.58
2. Hai Phong city	358.79
3. Ho Chi Minh city	245.50
4. Ba Ria Vung Tau	242.26
5. An Giang	198.75

(Source: Joint United Nations Program on HIV/AIDS – UNAIDS, 2004)

Quang Ninh and Hai Phong, two provinces in the North of Vietnam, have established strong commercial relationships with some Southern provinces in China. Together with these kinds of relationships, drug and sex industrial are also developed It is found out that the main cause that leads to HIV transmission in these areas is sharing syringe in injection drug users (IDUs) groups.

Ho Chi Minh and Ba Ria Vung Tau are two biggest cities in the South of Vietnam, and therefore, HIV situation is complicated due to there are presented all types of high risk groups such as men sex men (MSM), female sex worker (FSW), IDUs.

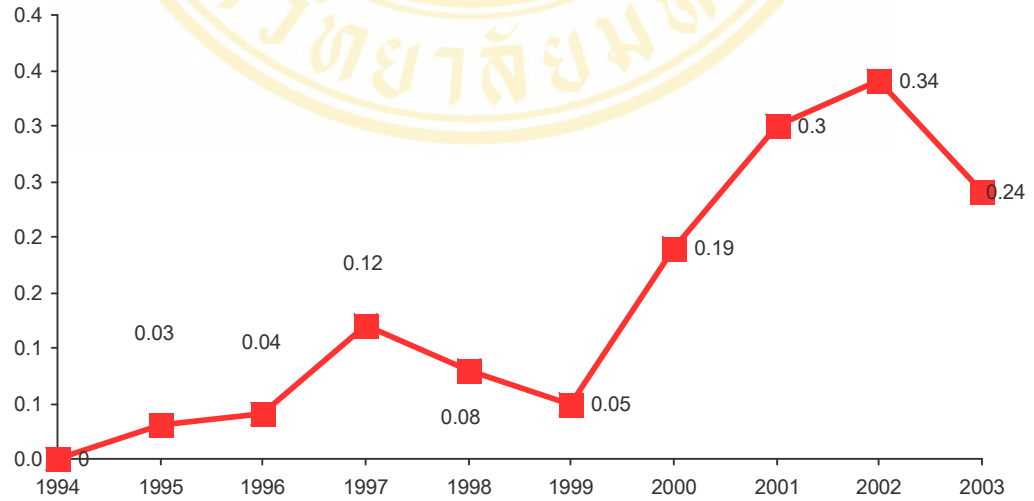
An Giang is another province in the South West of Vietnam has a long boundary with Cambodia. This demographic factor leads it to have the highest HIV rate in the FSW group.

Dr Nancy Fee, chief of UNAIDS Vietnam in her report in 2004 namely “HIV epidemiology: Asia and Vietnam” had drawn following picture (3). There was a high rate of sharing syringe & needle in IDUs group: Ha noi: 31.9%; Hai Phong: 24.2%; Da Nang: 30.6%; HCMCity: 41.7%. IDU was reported increasingly among CSWs: Ha noi: 31.9%; Hai Phong: 24.2%; Da Nang: 30.6%; HCMCity: 41.7%.

Frequency of condom use in regular clients (who have bough sex from CSW): An Giang: 17.1%; Kien Giang: 15.2%; Dong Thap: 20.3% and irregular clients: An Giang: 20.1%; Kien Giang: 14.1%; Dong Thap: 19.4%.

In PLWHIV group, using drug & sharing syringe & needle and having sex with CSWs with low rate condom use were still remained: Lai Chau: 54.8%; An Giang: 25%; Kien Giang: 55.2%; Dong Thap: 61.5%

These factors combine together and are contributing to the HIV spreading in Vietnam. As consequences, this trend can be seen by the increase of HIV prevalence among pregnant women. From beginning of 1994, the HIV prevalence in pregnant women has increased rapidly up to 0.12% during 3 years. After Vietnamese government implemented a series of HIV prevention programs as Information, Education and Communication (IEC), Condom Promotion, Injection Drug Users (IDUs) Control..., the prevalence has reduced to 0.54% in 1999. However, from that year up to 2002, HIV prevalence in pregnant women has again increased sharply 6 times higher (3). It reflects that Vietnam has to face with the risk of the HIV epidemic can be destroyed communities.



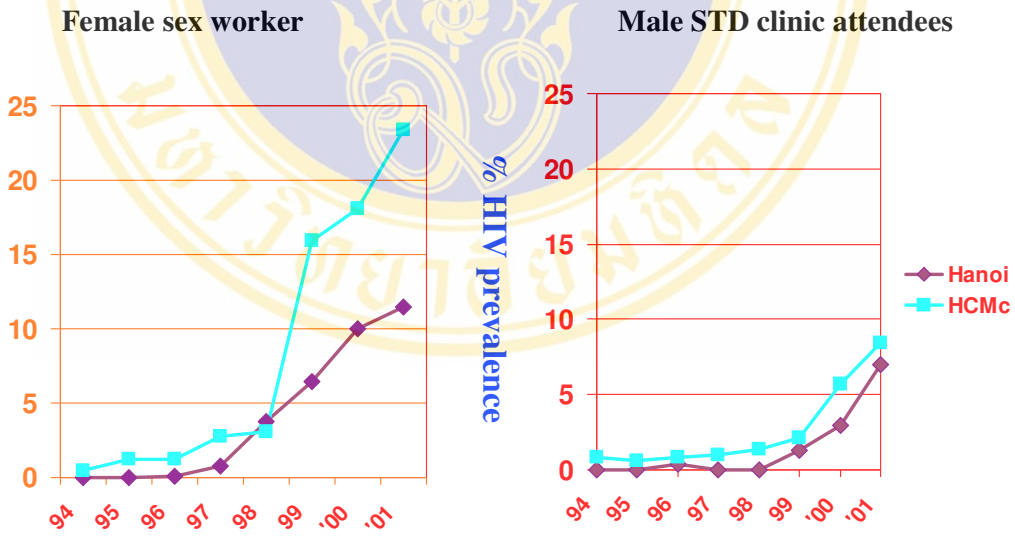
(Source: UNAIDS Vietnam. HIV epidemiology. 2004)

Figure 7: Trend of HIV infection among Pregnant Woman (Sentinel Surveillance)

The epidemic was also growing among commercial sex workers (CSWs) and their clients. In overall, the national prevalence has increased from 0.6% in 1994 to 6.6% in 2002 (Vietnam MOH data).

Evidence of increase the number of IDU among female sex workers (FSWs) in a number of cities as Ho Chi Minh City and Hanoi city is really an issue. HIV prevalence among sexually transmitted infection (STI) patients (i.e., clients of sex workers) has increased from 0.5% in 1994 to 2% in 2002. Nearly 8% of STI patients in HCM City had HIV positive (3).

Not only among high risk groups, but HIV epidemic is threatening community. HIV infection has a trend to increase in younger generation. In 1994 10% of reported cases were aged at 15 – 24, however in 2000, the percentage of HIV infection in this groups of age 40% of reported cases were aged at 15 – 24 (3).



(Source: UNAIDS Vietnam. HIV Epidemiology, 2004)

Figure 8: HIV prevalence among FSW and their clients

HIV epidemic are expanding into the general populations in some cities and areas: HIV among ante-natal women has increased from 0.03% in 1995 to 0.39 in 2002. And HIV infections among military officers has increased from 0% in 1994 to 0.7% in 2002 (Viet Nam report to UNGASS, 2004).

2.3 Voluntary Counselling and HIV testing: The gateway to treatment, care and support

2.3.1 Voluntary Counselling and HIV testing theory

HIV testing is the process by which blood or body fluids are analyzed for the presence of antibodies or antigens produced in response to HIV. HIV testing should be undertaken with informed consent and be voluntary. HIV counselling is a confidential process that enables individuals to examine their knowledge and behaviors in relation to their personal risk of acquiring or transmitting HIV infection. Counselling helps to make a decision on whether or not to be tested and provides support when receiving the test result (7).

Improving knowledge of HIV sero-status through testing and counselling is the key point of preventive services in the high risk populations and provision of care and support for people who are living with HIV/AIDS.

This service gives guidance to HIV infected people to access to HIV care and support and treatment services and to avoid to ongoing transmit to others. Similarly, with the uninfected HIV clients but have high risk behaviors; the service raises awareness of how risk they are and how to protect from HIV infection. Through this service, the status of HIV/AIDS in Vietnam is partly assessed.

HIV testing and Counselling can reduce HIV prevalence by many ways. They are increasing safe-sex practices by using condom, to value permanent relationships and safe injecting practices (8) and reducing sexually transmitted infections.

Design and implementation of VCT programs: Different program configurations may be required depending on the populations to be reached and the main outcomes sought (e.g., HIV prevention amongst vulnerable groups, prevention of HIV transmission to infants, or access to care, treatment and support). Of particular concern is reaching young people who experience the majority of new infections in developing countries but who have restricted access to program tailored to their needs.

Selection of models of service delivery: Models of service delivery vary according to needs and can include free-standing services (as exemplified by walk-in, anonymous counselling and testing centers), integrated services (for example, in antenatal care, tuberculosis clinics, or in hospitals) and outreach services for vulnerable groups (such as mobile units targeting injecting drug users). Different approaches may be used for HIV counselling. Pre- and post-test counselling is often carried out in individual sessions, though other approaches are common, such as group information-giving followed by individual-level discussion and informed consent for HIV testing and individual-level post-test counselling. Couple counselling and testing is also encouraged in many settings. Other approaches may seek informed consent for testing and limit counselling to the post-test period.

Diagnosis of HIV infection is usually through detection of antibodies. Advances in technology have led to the development of high quality simple/rapid tests. Rapid testing is quick (most rapid tests will provide results within 10-30 minutes) and does not require specialized equipment or highly technical skills. Excellent diagnostic performance is illustrated by high sensitivity and specificity ratings. Reactive results can be confirmed using combination of two or three simple rapid tests. To avoid clerical and technical errors the HIV seropositive status needs to be confirmed again on a separate blood sample. Enzyme-linked immunosorbent assay (ELISA) is most commonly used in laboratories where large numbers of samples are processed per day. ELISA requires batch testing (40-90 tests at a time) and the test takes approximately 2 hours to be carried out. ELISA tests are less suitable for some settings, where the ability to perform single tests with rapid issuing of the test results is an advantage. In the rare cases of indeterminate results, Western blot technology can be of assistance in determining the true status of HIV infection. However both ELISA and WB require skilled personnel and involve expensive equipment. WHO evaluations of commercially available tests give guidance for choosing appropriate test kits so that they can be licensed for use in-country.

HIV testing and counselling processes: The content of pre-test sessions varies according to the objectives of counselling and testing: from the simple offer to opt out

of HIV testing to discussion about HIV and its transmission, assessment of risk, the test procedure and the implications of the results, risk reduction planning and identifying available support. Postponement of testing may occur, perhaps allowing the client to discuss this more fully with family or partners (thereby offering an opportunity for engaging them in the process). In post-test counselling the test result is given and discussed. The session aims to address support needs and prevention of HIV transmission and may include further information being given, to assess the person's understanding, explore the meaning and implications of the result, formulate safer behavioral strategies, identify emotional support, and provide follow up and referral as necessary. In case of an unsafe event, with an indeterminate or a negative test result it may be necessary to repeat the test after 14 days (indeterminate) or after 6 weeks (negative result) to take into account the "window period", which can result in a negative result even though HIV infection has occurred (8).

2.3.2 Voluntary Counselling and HIV Testing practice

HIV voluntary counseling and testing has been applied in many countries over the world. Each year, approximately 17 million HIV antibody tests have been undertaken at both private and public health clinics in the United States. HIV voluntary counseling and testing (VCT) originally is a program which is funded by the Centers for Disease Control and Prevention (CDC) for HIV prevention services. This investment in counseling and testing is based on the concept is that clients who receive personal counseling have better result in reduce risk behavior. For those receiving positive results, HIV antibody testing can serve as a gateway to clinical care, support services, and counseling to reduce the chance of transmitting HIV to others.

"However, the role of VCT in behavioral change in those receiving negative test results is unclear. Research on testing behavior suggests that many repeat testers do not reduce their risk behaviors (9)".

Different with the idea above, Dr Nicolas Sheon of University of California, Gillian Fletcher in his study in Cambodia named "Voluntary Confidential Counseling and Testing in Cambodia: An Overview" concluded:

“Voluntary confidential counseling and testing (VCCT) is a crucial link in two key areas of HIV prevention and care; first, between people who perceive themselves to be at risk of HIV and prevention/behavior change programs; and second, between people who are HIV positive and care and support services. The importance of VCCT increases as options for care and support increase” (10).

February 18, 2005 (Washington) The introduction of OraQuick Rapid HIV-1 antibody testing in counseling and testing sites throughout the state of New Jersey resulted in an increased number of previously undiagnosed cases as well as an increased number of patients receiving both their test results and posttest counseling, according to Dr. Cadoff, 2005, from the Robert Wood Johnson Medical School at the University of Medicine and Dentistry of New Jersey. He presented preliminary findings of test result patterns after the introduction of rapid HIV testing here at Preventive Medicine 2005, the annual meeting of the American College of Preventive Medicine.

Most remarkably, though, the introduction of rapid HIV testing increased the percentage of newly diagnosed patients from 33% to 59%. "Whether this represents new populations of patients who were previously not being tested or improved detection rates in previously targeted populations remain to be determined "(11) concluded Dr. Cadoff in his abstract.

With the estimation in VCT roles in HIV prevention and the comfortable of new HIV testing methods as OraQuick Rapid HIV-1, many researchers and decision makers as Ndyanabangi et al, 2004, in Management Sciences for Health, Arlington, VA, United States considered in a review of policies:

“The burden of HIV is beyond what the national health systems in ECSA can handle, and efforts to scale up effective programs have intensified. VCT is recognized as central to combating the epidemic through prevention and care. Access to antiretroviral therapy is increasing; however, only about 10% of people who are infected know their status and can take advantage of therapy (12).”

Through practicing VCT over the world, many scientists, doctors, researchers, authorities in health care field have recognized VCT is an effective, important measure and it should be seen as central to combat the HIV epidemics.

2.3.3 Voluntary Counselling and HIV testing effects

In the "3 by 5 initiatives" of WHO, VCT is considered as: "HIV Testing and counselling: the gateway to treatment, care and support (13)".

HIV testing and counselling form the gateway to care, treatment and support for persons in need. To ensure people can fully understand their right to know about their HIV infection status, and to access to antiretroviral (ARV) treatment which is provided by the 3 by 5 Initiative, HIV testing and counselling service must be radically strengthened by using innovative, ethical and practical approaches. Testing and counselling services must become common place in settings where those most likely to benefit from knowledge of their HIV status can be reached, such as services for tuberculosis, sexually transmitted infections and acute medical care as well as antenatal care services. At the same time, people who want to learn their HIV status should have better access to voluntary counselling and testing in a variety of venues.

The World Health Organization (WHO) recommends that, in the context of community mobilization around the importance of learning one's HIV status, HIV testing and counselling should be offered whenever a patient shows signs or symptoms of HIV infection or AIDS (8). It should also be offered whenever this will aid their clinical diagnosis and management. Under these circumstances, the offer of testing and counselling should be considered as the standard of care.

After having been provided with sufficient information to enable informed consent, all patients can "opt out" of being tested if they do not want the test performed. All testing and counselling should be accompanied by information on prevention of future transmission of HIV, whether the patient is infected or not.

The Kenya Government has demonstrated its commitment to combat by adopting a multi-sectoral approach to Combat HIV/AIDS. One among of the

strategies that the Government of Kenya and NGOs/FBOs/CBOs conducting is an establishment of VCT centers in their communities. Mwanzia, Foundation Agency for Rural Development (FARD) - Kenya, 2004, had concluded in his article: "VCT has proved to be an effective catalyst in influencing behavioral change." And he named the article is: Wings of Survival: Bicycle-based VCT as an option for community based Organizations (14).

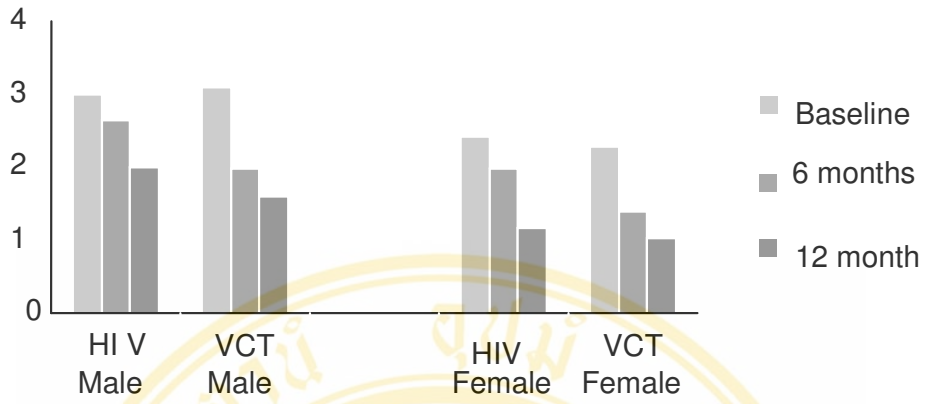
Table 3: 4/6 Studies of multi-session counseling from 1991 – 2000

Author	Site, STD, Clinic	n	Result
HIP trial	SF, US	393	Increase in condom use men and women
NIMH trial	7 US cities	3706	Increase in condom use men and women
CDC trial	5 US cities	5878	30% decrease in new STDs in men and women; increased condom use of men and women.
Woman study	Antonio	617	40% decrease in new STDs in women

(Source: CDC Vietnam. VCT in Vietnam. 2003)

Verifying the effectiveness of VCT, Chief of CDC office in Vietnam, Ms. Marry Kamb, in her presentation about VCT in April, 2003 had showed (Table 3).

CDC' Randomized controlled trials of HIV/STD counseling efficacy; 6 studies of multi-session counseling (1991-2000): 4/6 showed counseling reduced risky behaviors or disease (15).



(Source: CDC Vietnam. VCT in Vietnam. 2003)

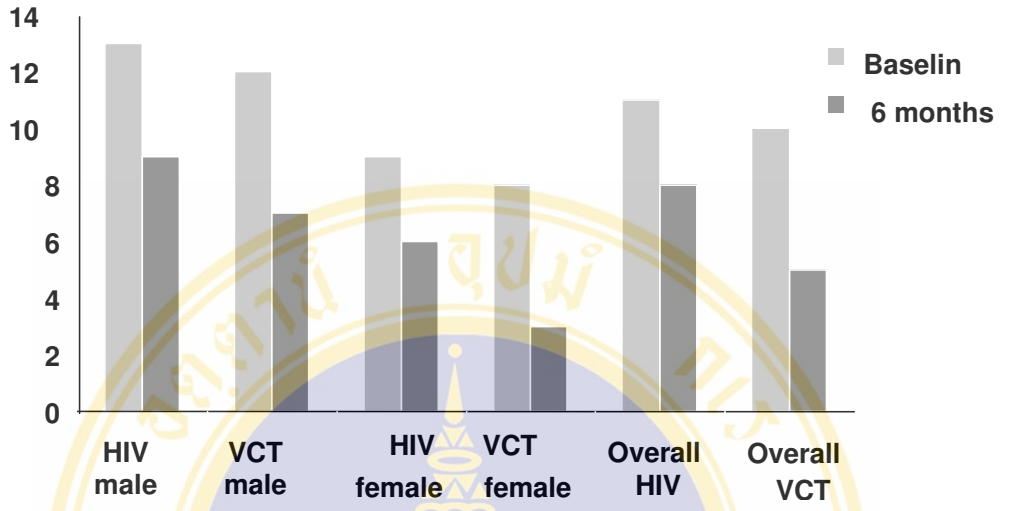
Figure 9: Multi-centre study: Unprotected intercourse with non-primary partners decreased significantly more among VCT participants

A survey in Uganda was conducted interview of 2,505 clients about condom usages after six months of their tests, the results below have shown the significant improvement of using condoms in the interviewees:

Before testing, 10% of clients consistently used condoms. 6 Months after testing, consistent condom use 89% with steady, and 100% with casual partners

HIV- men with non-steady partners increased consistent condom use from 34% to 93%, and with steady partners from 16% to 38%. HIV- women increased condom use with non-steady partners from 14% to 94%, and with steady partners from 15% to 34% (15).

This study, one more time proved firmly the effect of VCT in contributing of fighting against the HIV epidemics not only in Unite States but in other areas in the world.



(Source: CDC Vietnam. VCT in Vietnam. 2003)

Figure 10: Multi-center study: Unprotected intercourse with commercial sexual partners decreased significantly more among VCT participants

2.3.4 Voluntary Counseling and HIV testing in Vietnam

The first VCT was implemented in Vietnam by Ho Chi Minh City Provincial AIDS Committee, 2 Universities of California and San Francisco, United States at November of 2001 (16).

Reporting of HIV positive cases is a mandatory task in Vietnam. As consequence people at high risk do not want to undertake a HIV test because of the fear of disclosure and financial issue due to the HIV test is not free. Data on IDU and CSW is limited to surveillance of detainees. To address these issues, researchers piloted the country's first anonymous testing site (ATS). In the ATS, counselors and staff received training and ongoing evaluate. Services were free and anonymous. Limited data was collected on gender, risk behavior, and reasons for accessing the site.

Result: The high HIV prevalence highlighted the market for counseling and testing that included anonymity, education, risk reduction, referral and support.

Anonymous testing appeared to be both feasible and acceptable in the Vietnamese context and should be replicated.

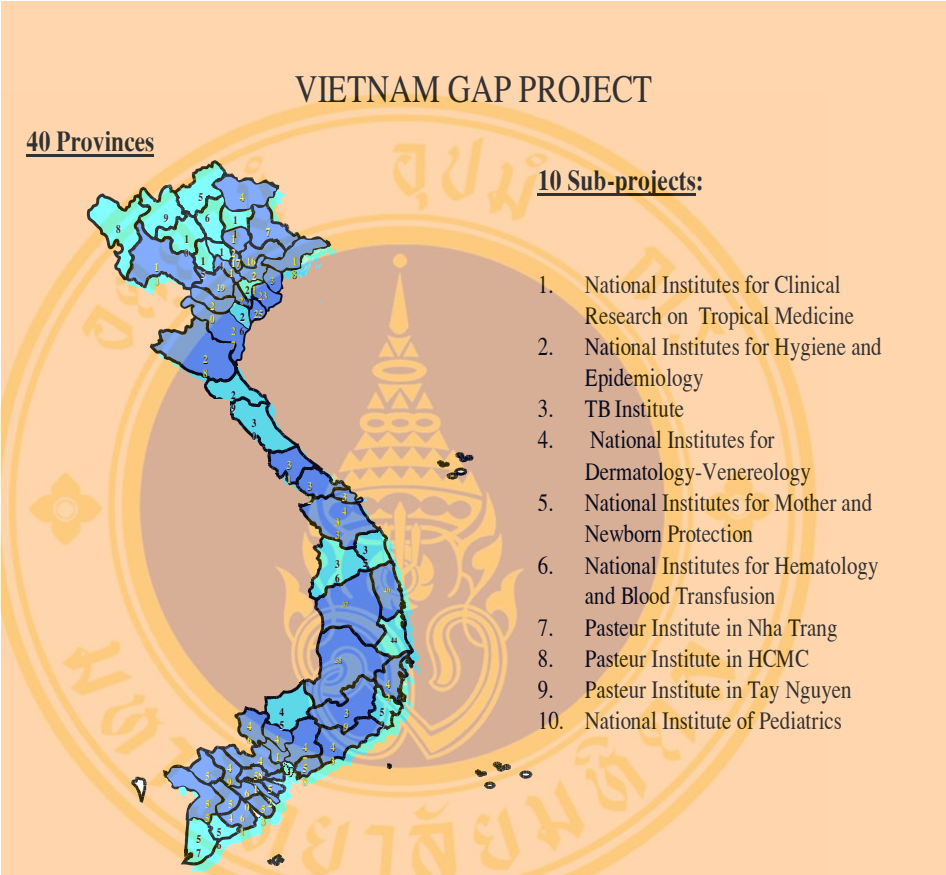


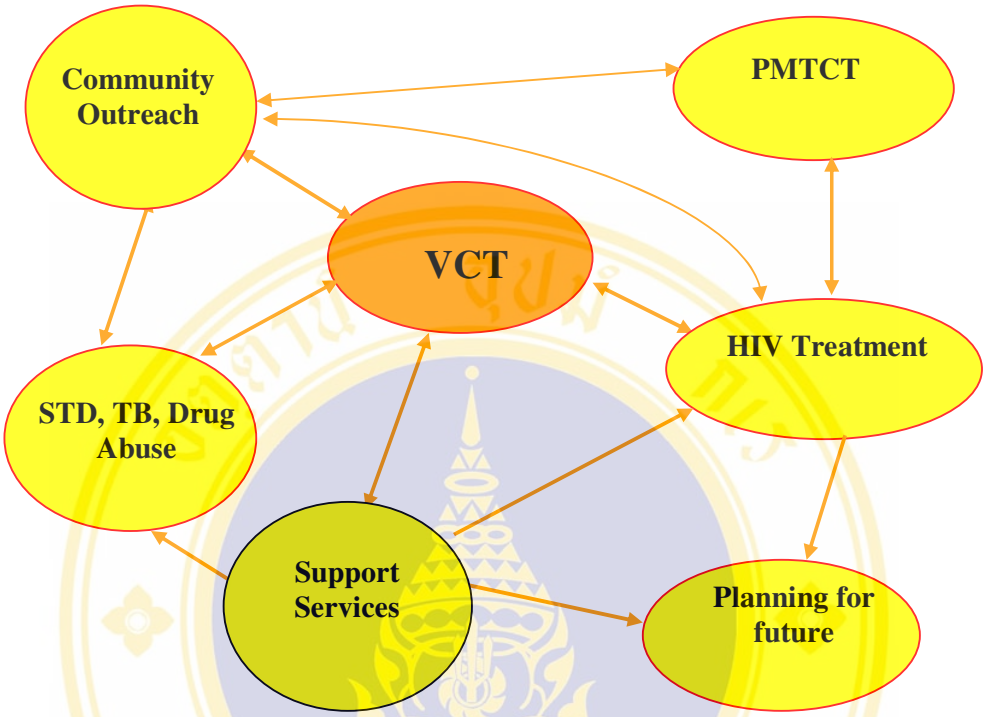
Figure 11: LIFE GAP VCT coverage map (6)

VCT program of LIFE – GAP/ CDC is implemented in 40 provinces along Vietnam since 2002; they provide VCT service free of charge with following main principles (17):

a) HIV testing must be truly "voluntary." The clients entirely make their own decisions on whether HIV test should be undertaken or not although understanding is that this test is obviously needed and brought benefits for both clients and societies.

b) HIV testing and counseling must be done in an atmosphere of trust and confidentiality. This means that services must be done very professionally, and respect for all clients (regardless of reported risk behaviors) must be maintained at all times.
c) Provision of anonymous HIV testing. With anonymous testing, the client does not need to provide his or her name or any personal identifying information.
d) Ensuring clients return for their test results, and are able to talk with the same counselor who did the first session. To be effective, VCT services include provision of the final results. This means results must be provided in a timely manner (within 7 days), and preferably with the same counselor in order to take advantage of the existing relationship.
e) VCT services are integrated with other prevention services in the community. VCT has been shown to be more effective when it is developed in conjunction with other HIV prevention and community support services, including family Planning and reproductive counseling, STD care and treatment, TB clinical care and routine ongoing clinical care (for HIV-infected persons).

One of the most important principles of the VCT program of LIFE – GAP/CDC is VCT integration with other services in HIV prevention and care, to be a "central position for combating the HIV epidemics" (Figure 12). The Vietnam HIV/AIDS Administration Department had been established since July of 2005, by it, the government wants to act more strongly in the battle against HIV/AIDS. Center of HIV prevention and care activities will be Voluntary Counselling and HIV Testing service with a completed theory, efficiency in practice over the world and especially, be proved high effectiveness by LIFE – GAP project. This research would contribute a little knowledge to authorities to conduct VCT service nationwide to get the best result in control HIV/ AIDS in Vietnam.



(Source: LIFE-GAP/CDC. VCT program. 2005)

Figure 12: VCT is central to combating the epidemic (6)

2.4 Theoretical Model

An understanding of or risks of HIV transmissions in target populations is crucial to develop HIV/AIDS programs successfully. Major determinants of HIV transmission are related to many factors. They can be sexual behaviors, demographic factors, socio-economic conditions, cultural barriers. Therefore the determinants of changing behavior related to HIV prevention is very complex.

There are many explanations as why behavior changes, in part this depend on different population and cultures. However, every HIV prevention program relies on theories about why people change their behavior. There are four commonly held theories of behavior change in HIV prevention. These theories provide four models of how the changing behavior process is believed to occur (18).

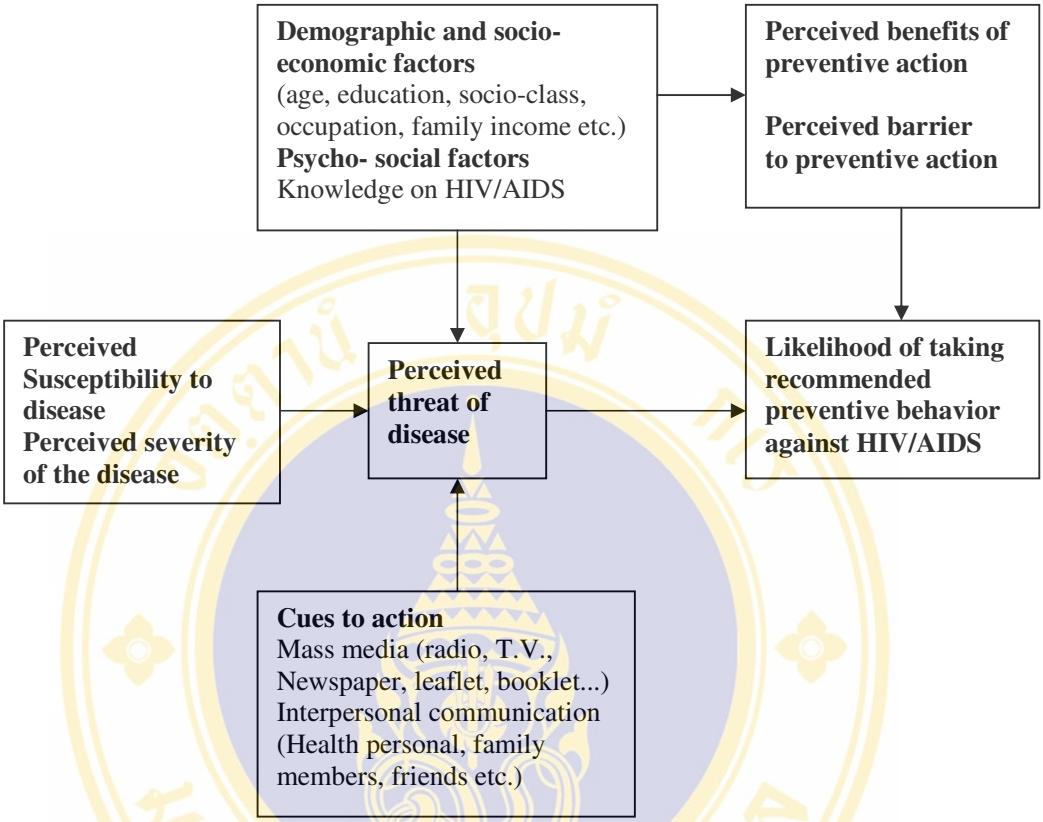


Figure 13: Health-Belief Model

So far, there are many models and community cited theories in HIV/AIDS preventive program or activities. Among them, the most advocated ones are Health Belief Model (HBM) Theory of Reasoned action (TRA), AIDS Risk Reduction Model (ARRM), Social Cognitive Theory (SCT) and others (19, 20). HBM is a psychosocial model that attempts to explain and predict health behavior by focusing on attitude and belief of an individual. The key variable of health belief model is perceived susceptibility, perceived severity, perceived benefit and perceived barrier (21). The premises of SCT states that new behavior is learned either by modeling the behavior of others or by direct experience. TRA is base on the assumptions that human being are usually quite rational in making systematic use of the information available to them. TRA is conceptually similar to HBM, but adds the construct of health behavioral intention as a determinant of health behavior (22). In this study HBM is used to explain the finding.

In this research, as HBM theory framework, socio-demographic factors, media factors are considered as independent variables and risk behaviors of client and sex-partner are added more; patterns of behavior in utilizing counselling centers is a dependent variable.

2.5 Factors affecting the utilization of Voluntary Counseling and HIV Testing services

2.5.1 Factors affecting the utilization of Health facility

Some studies and sociological works have been trying to determine the factors that influence on utilizations of different types of health services. But factors are different within each community and different from communities to communities. For simplification, factors can be divided in two main categories. Factors related to consumers or people who are expected to utilize the health services, and factors related to providers or health institutions or health personnel. Some of these factors are summarized as follows:

2.5.1.1 Factors relate to consumer

- *Socio-demographic characteristic factors* (39, 42)

Clients of VCT of Centre Yonis Toussaint are young. The average age of the men was of 28.7±10.3 years, the women were on average old of 28±9.6 years. And the proportion of very young patients (20 years and less) among HIV positive was 7.1% (23). Women accessed VCT service more than men in Jos, North Central Nigeria. 130 males and 267 **f**emales had come to the VCT between September 2004 and February 2005 (24).

- *Knowledge and perception toward health status* (43)

More than half (55.3 percent) of the clients of World Vision VCT Center in Phnom Penh had low level of knowledge about HIV/AIDS. Regarding perception towards counselling center/ counselor/ counselling, 68.2 percent of the respondents had a high perception (38).

- *Economic factor* (36)

The results that the VCT center in Jos, North Central Nigeria achieved (about 100 clients/ month) could be attributable to free access to VCT, community mobilization strategy and the strong support group which encourages testing of spouses (24). Machekano et al in their research about clients of VCT service in Harare, Zimbabwe had showed: Factors associated with receiving test results were history of STD and lower salary. Factors associated with bringing a partner for VCT were history of STD, being married, being employed at a factory with a peer educator, lower salary (25).

- *Culture and race factor* (40)

The effectiveness of HIV/AIDS programs is different between races. Grinstead et al had concluded in the National AIDS behavioral survey that (26): **"**Prevention messages encouraging HIV testing and condom use have not resulted in high rates of self-protective behavior among African Americans"

Religion has an important affect on HIV prevention and care activities also. Emory University's research about impact of religious leader on VCT service in Zambia (27) showed that the promotion campaigns for VCT service base on churches were not very successful. Only 70/2377 couples who sought testing (3%) heard about CVCT from a religious official.

- *Transportation facilities* (41)

To increase the access with VCT service, many HIV prevention programs are present model "Home test". Phillip et al (28) in the research about HIV test promotion at 1994 concluded that a variety of options to increase testing rates should be explored, including accessible testing services, policies and procedures to increase perceptions of testing privacy, and home testing .

2.5.1.2 Factors related to provider

- *Distance from community (41)*

Home HIV test was considered in many recommendations of researchers as Phillip et al in their research about Planning to get a HIV test among American in 1997 (29). The results or the research provide important information for targeting

testing programs, developing effective public policies, and addressing the debate over issues such as name reporting and the availability of home HIV tests.

- *Behavior of provider - Cost of treatment (35)*

Roll of behavior of VCT providers are Goodman insisted in his research among adolescent girls (30). A significant proportion of adolescent girls engaging in risky behaviors will use confidential HIV counseling and testing services that are linked to primary care. Health care providers play an important role in helping teens address their risk for and concerns about HIV infection by engaging adolescents in repeated discussions about HIV testing.

- *Type of health services*

There are many studies about HIV testing services, however all researchers have agreed with the outstanding effectiveness of anonymous principle, as Kegeles in his research namely **"**Many People Who Seek Anonymous HIV-Antibody Testing Would Avoid It under Other Circumstances" (31). He had concluded the reduction in high-risk behavior have been observed when people have sought anonymous or confidential HIV-antibody testing accompanied by counseling.

- *Type of health personnel, quality and quantity (46)*

Quality and quantity of health care unit is important factor with VCT utilization. In Unite State, if testing is limited to hospitals with inpatient seroprevalences of at least 1%, approximately 5400 persons per year will be falsely labeled HIV-positive. That is conclusion of Lurie et al (32) is the research about cost – effectiveness of VCT service since 1994.

Active promotion of voluntary HIV testing and counseling in couples is needed to reduce the spread of HIV in high-prevalence areas. The use of rapid, on-site HIV testing allows clients to receive result-specific counseling in a single visit. Ongoing quality control an laboratory is essential. In his research in Rapid HIV test (33), Mc Kenna had showed the result: Clients reported high levels of satisfaction with the services and 90 out of 99 (92%) preferred to receive their results the same

day. Clients at another center who waited 10 days for their results reported more fear, and 19 out of 31 (61%) would have preferred to get their results the same day.

- *Facilities of equipment, medicine (18)*

Balmer (34) had suggested that HIV VCT services combined with STD diagnosis and treatment and economic development services could motivate more at-risk individuals and couples to receive counseling and testing.

Leggier, Schnieden and Walsworth – Bell (1992) found that the utilization rate vary with need, with the highest level of need associated with the highest level of utilization (35). Utilization is influenced by an individual's attributes, age, gender, poverty status as well as knowledge of a procedure being available are to be positively associated with utilization of health care utilization. In addition, utilization is mitigated by accessibility and availability of health services.

2.5.2 Features of Voluntary Counseling and HIV testing service affect its utilization and solutions

Relating to the utilization of VCT services, there are several considerations that have to be remembered by the provider as per suggestion from UNAIDS (1999), as they focus on service development and support. Counseling should first be considered as part and parcel the AIDS program (36). And once this is established the following are points to be pondered upon in order to have a good service delivery by the program.

Extreme workload on counselors that lead to burnout can be decrease by using trained part-time volunteer and a well-panned system of shifts (37), exp. a nurse may do counselling for four hours in the morning, and then work at the nurse station in the afternoon.

The location and opening hours of the service should base on the needs of the particular community (36). Counselling has been carried out in STD clinics, hospital outpatient departments and hospital wards. Some NGOs have set up counselling centers inside hospital compounds. Other have established counselling services on

their own premises, or in centers specially dedicated to HIV counselling. Counselling services for sex workers, as well as condom supplies, are sometimes offered in the vicinity of night clubs and operate at night.

Reception staff should be trained to adopt a supportive and sympathetic attitude, and sensitized to the need for confidentiality (44). For people to benefit fully from VCT, it is important for them to have access to further emotional, medical and social support. An indication of the availability and uptake of these services and unmet needs is important. As UNAIDS guide, it is important to examine how the client views the service so that any problems can be addressed.

HIV/AIDS campaigns should include detail on how, where and when people can obtain counselling. The findings of previous research (41) in influence of location of VCT on acceptability suggested strong acceptability barriers in disfavor of clinic-based VCT that are likely to be important in explaining low demands for VCT in the past. Particularly among young people, alternative placement of services has the potential to make a big difference in terms of acceptability.

If resource permit, counselling services for asymptomatic individuals, as well as preventive counselling, should be locate separately from care services for AIDS patients (45). This enable those people living with HIV but who have not yet developed AIDS to receive counselling without being depressed by seeing very ill AIDS patients.

Counselling sessions need to be well planned so that, for instance informed concern is always sought and counselling offered before and after a client takes an HIV test. Isezuo SA, Onayemi O. in the research about attitude of client toward VCT service (44) has showed the result: 9.4% of clients did not turn up for their results, and 3.8% of consenters did not want to know their serostatus. The reactions to disclosure of seropositive results included grief 9 (28.1 %), indifference 8 (25 %), surprise 5 (15.6%), family concern 5 (15.6%), denial 3 (9.4%) and suicidal ideation 2 (6.3%). Thirteen (40.6%) seropositive clients showed willingness to disclosure of their serostatus to family members including the father (58%), senior brother (23%), wife

(11%) and others (8%). Client psychology is very complicated, and need the support of counselors.

Counselling should be integrated in to other services, including STD, antenatal and family planning clinics. UNFPA in the guide book in Integration VCT and reproductive health unit (47) had given out convincing reasons: Integration makes it easier for some clients to use VCT services. Many people want to learn their HIV status but do not want others know that they are seeking HIV testing. They are not comfortable to attend free-standing sites because of the stigma and discrimination associated with HIV testing.

Community base counselling services can be initiated and expanded quickly and at little expense (48). De Clercq F., Katangulia F.had conducted a household survey aim to reflect the impact of Community based Promotion Program in Kigali/Rwanda. In the survey, the population cited the radio (59%), religious leaders (21, 8%) and grass-root leaders/teachers (19%) as the primary means of mobilization for couples' testing. They regarded as community based promotional strategies has proven to be the most efficient mean to tackle those issues. A further integration and mobilization of community leaders with the INAs would increase the demand for CVCT and overcome stigma by spreading out the right message on HIV/AIDS prevention in their communities.

In summary, VCT effectiveness has been proved in Vietnam and the world, in theory and practice. Study about VCT must base on Vietnam' HIV/AIDS epidemic situation and Health Believe Model seem being suitable in this case. However, due to limitation of LIFE- GAP's data, risk behaviors factor will replace Perceived benefits and barriers of prevention action and perceived susceptibility to disease to be independent variable in this research. Utilization of VCT program related to many factors including: features of a Healthcare facility, features of the VCT program, therefore a good methodology is necessary to identify the determinants.

CHAPTER 3
METHODOLOGY

3.1 Research design

This research used secondary data of VCT program that LIFE – GAP project has conducted on 40 provinces along Vietnam in 2004.

3.2 Target population

Figure 14: Vietnam map

LIFE – GAP project implement its programs on 40 provinces in totally 64 provinces of Vietnam base on HIV prevalence of each province and objectives of each program.

The data had been collected from 20,816 individual clients, who visited to one of the 40 VCT sites of LIFE – GAP project along Vietnam to get pre/post test counselling in 2004. Most of them were at high risk HIV transmission populations.

3.3 Study population

3.3.1 Sample

Support data had also been collected in six (6) VCT sites in six (6) provinces (2 in the north, 2 in the centre, and 2 in the south). These provinces represented for three main areas of Vietnam in HIV epidemiological characteristics.

Table 4: List of 6 provinces supported data

2 VCT sites in the north	2 VCT sites in the centre	2 VCT sites in the South
Hai Phong	Da Nang	HoChiMinh
Quang Ninh	Khanh Hoa	BaRia-VungTau

3.3.2 Criteria of subject

Over 15 years old.

3.4 Sample size and Sampling technique

3.4.1 Sample size estimation

Sample size was calculated by the following formula,

$$n = \frac{Z^2_{\alpha/2}\ p\ (1 - p)}{d^2}$$

With:
n: sample size (per provinces)
z: is value corresponding to the confidence level $\alpha = 0.05$ so $Z^2_{\alpha/2} = 1.96$
p: expect proportion in the population, as previous study (40) of World Vision in Cambodia = 0.89
d: absolute precision 5% of p so, d = 0.0445

$$n = \frac{(1.96)^2\ (0.89)(1\text{-}0.89)}{(0.05)^2} = 190$$

N: Total sample size of 6 VCT sites in 3 areas (North, Center and South) of Vietnam

N = 6 x n = 6 x 190 = 1140.

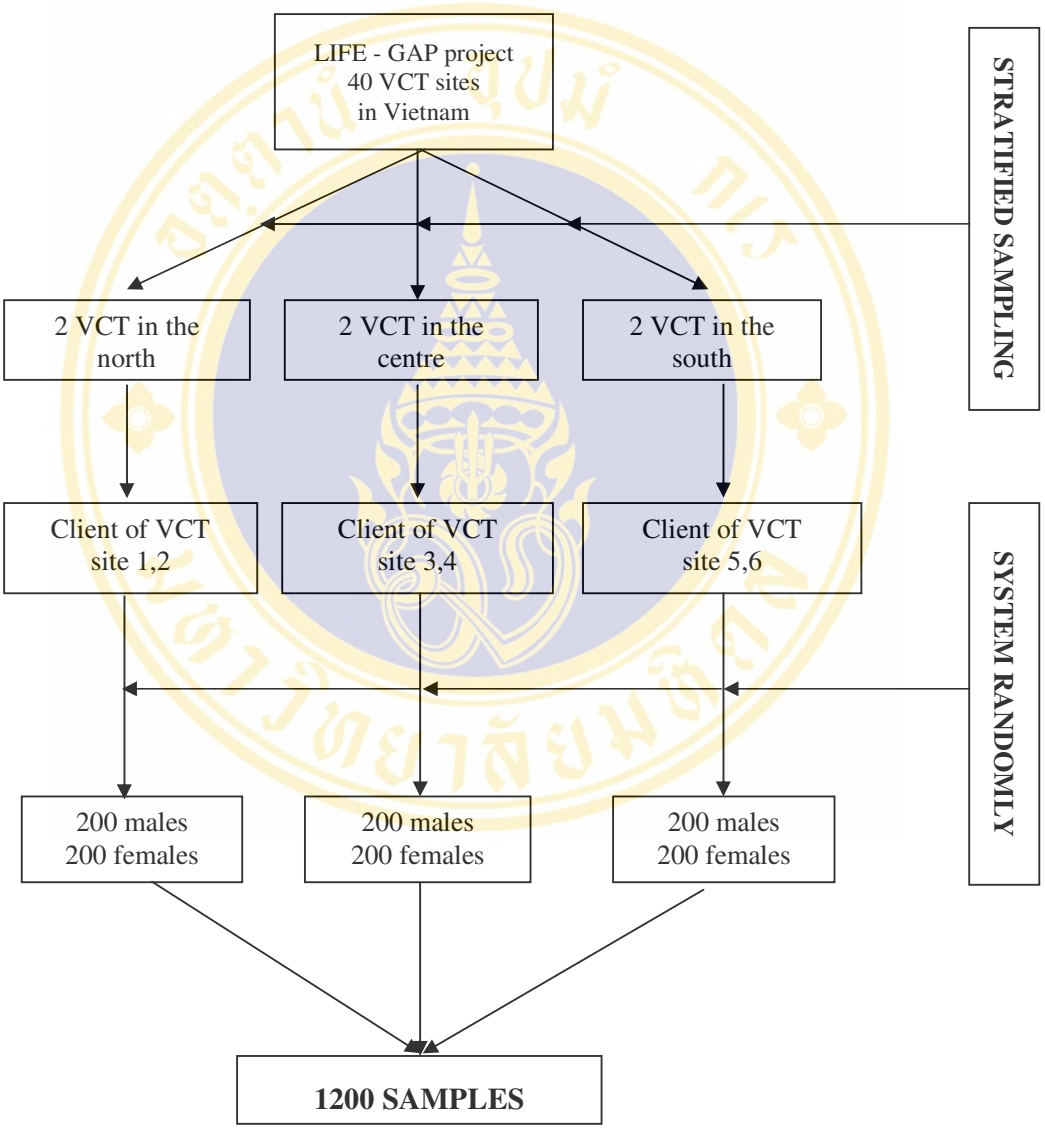


Figure 15: Sampling frame and sampling technique

From 40 VCT sites in 40 provinces that LIFE - GAP project are conducting along Vietnam, 6 VCT sites were selected by criteria: presenting completely HIV/AIDS epidemiology features in three main areas of Vietnam (North, Center and South).

200 females, 200 males were picked up system randomly from clients of each selected VCT site in 2004. Depending on total number clients that each the VCT site had provided service, proportions were set up to identify client who was picked up.

Finally, there were 1200 selected clients became the research sample.

3.5 Research instruments for data collection

The primary tool has been being used for data collection is a structured information form for individual interview in Vietnamese. This Client Information Form was started being used in VCT sites of LIFE – GAP project since 2003, and it had been revised many times to suit with counselling process and demand of gaining information. From beginning of 2004, the final version of the client information form was applied for all 40 VCT sites of LIFE – GAP in 40 provinces along Vietnam.

The author of this research has worked with other program officers, CDC experts to modify the original form of CDC Atlanta. After piloting interview clients directly with the Client Information Form, we adapted it and used in 6 first VCT site of Hai Phong, Quang Ninh, Cao Bang, Lang Son, An Giang, Can Tho. In the second period at 2003 we adjusted it to be more suitable with Vietnam culture and applied to 18 provinces. The final form had been done at 2004 and popularized all of 40 provinces conducting VCT program with LIFE – GAP software.

Counselors in VCT site are medical doctors of medical units which belong to local health service departments and they have responsible for full fill the client information form after conducting a counselling.

The following information in the client information form was catalogue in to dependent and independent variables:

For Independent variables

General Socio - demographic and physical information:

Age; Gender; Residence; Education; Marital status and Health problems that related to HIV (TB, STD).

VCT Clients – relate factors:

Risk behavior of client that causes HIV infection; risk behavior of sex-partner of client.

Information sources about VCT site:

Mass media, health supporter (healthcare staff, peer educator), partner (sex-partner, drug-partner or other clients)

For Dependent variable

Client came back to complete the VCT process (get the test result and post-test counselling) or not.

There are 29 questions in the Client Information Form. Each question may have many options to answers, and a counselor will mark one or more depend on kind of question. Name, address of client is not filled in any document of the VCT site (clients were identified by ID). All forms are collected by a secretary of the sub-project, and then gained information is transformed into electric data by this secretary. The sub-project has responsibility to send an electric-data to a center project office monthly on both the client's information data and summary monthly report.

Extract Form was drawled from the Client Information Form of the LIFE – GAP project. Research data was obtained from general data of the VCT program in 2004.

3.6 Data analysis process and statistics used

The data was collected from clients who used the VCT service in 2004 and be contained by Microsoft Access 2002.

Data cleaning up had been done by MINITAB for checking frequency distribution. Outliers and errors were considered and cleaned in frequency table.

The calculation of frequency distribution, cross tabulation and chi-square test for association had been done by MINITAB version 13. The level of significance was set at 0.05 (95% confidence interval).

CHAPTER 4
RESULTS

The data was collected from 1200 adults from 15 years of age who attended VCT sites for services and assistance. Six selected provinces of 40 provinces where LIFE- GAP project has been implemented, had shown completely the features of the HIV/AIDS epidemic in Vietnam, including: Hai Phong, Quang Ninh, Da Nang, Khanh Hoa, Ho Chi Minh and Ba Ria Vung Tau. The results are presented in three parts. The first part is descriptive characteristic about socio-demographic, client's health problems, risk behavior of client and sex-partner, information sources of VCT service. The second part is descriptive utilization of the VCT service and HIV infection status of clients. The third part is analytic statistics that identify the association between the interested independent variables and dependent variable by using the Chi-square Test.

4.1 Description of Voluntary Counselling and HIV Testing's client variables by frequency and percentage

4.1.1 Socio-Demographic Characteristics of VCT's clients

According to Table 5, more than three quarters (75.50%) of the VCT's clients were aged between 16 to 34, especially nearly 40% of them who were aged from 16 to 24 were considered to be in the high risk group of contracting HIV infection (29.42% of total sample size). The subject's mean age being around thirty although LIFE - GAP try to provide the service to younger groups. Regarding sex, following the research method the numbers of male and female in the sample were equal at 600 subjects each. More than half of VCT's clients (53.42%) were either married or lived with their sex-partner. The percentage of single clients was quite high with about 40% either Divorced/ Separated with widowed being only about 7%.

Education of VCT's clients was categorized in to three levels according to the normal education system in Vietnam, as Secondary school (up to 9 years of study), High school (10 – 12 years of study), College or higher (greater than 13 years of study). The majority of the individuals who were provided service at VCT sites were of a high school education level or less: about 42% for high school and 45% for secondary school.

All VCT sites of LIFE – GAP project are in urban areas, so that the residence of VCT's client was classified into three categories such as urban, rural and other provinces. Almost all of the clients (about 80%) live in urban territories and only 8.2% of subjects that accessed VCT services live in rural territories.

Table 5: Number and percentage distribution of Socio - Demographic characteristic of the patients

Socio - Demographic factors	Number n=1200	Percentage
Age (years)		
≤ 24	353	29.42
25 – 34	553	46.08
≥ 35	294	24.50
Mean ± SD	*30.12*	*± 3.458*
Maximum	*75*	
Minimum	*16*	
Sex		
Male	600	50.00
Female	600	50.00
Marital status		
Single	478	39.83
Married/ live with sex-partner	641	53.42
Divorce/ Separation	58	4.83
Widowed	23	1.92

Table 5: Number and percentage distribution of Socio - Demographic characteristic of the patients (Cont.)

Socio - Demographic factors	Number n=1200	Percentage
School years		
Secondary school	545	45.42
High school	500	41.67
College and more	155	12.92
Residence		
Urban	952	79.33
Rural	141	11.75
Other province/ Foreigner	107	8.92

4.1.2 Client's health problems related to HIV infection

In table 6, response to the STD symptom such as genital ulcer, discharge...16.92% of respondents said "Yes", whereas, 83.08% of clients did not acknowledged having any STD symptom.

For concerning about sex-partner had an STD, the majority of subjects (70.42% for not concern) did not worry about sex-partner's STD situation. 6.92% of respondents admitted to worry. Up to 22.67% of clients did not know if their sex-partners have an STD or not.

There are only about 7.58% of clients who had a cough or fever more for than 10 days (TB symptom).

4.67% of them lived or worked with TB patient and 8.42% did not know about the TB situation of family members or colleagues.

Table 6: Frequency and Percentage distribution on client by health problem related to HIV/AIDS

Health problem	Number n=1200	Percentage
Having STD symptoms (genital ulcer, discharge, etc) in the past 3 months		
No	997	83.08
Yes	203	16.92
Sex-partner had an STD, or client worried his/ her sex - partner has an STD?		
No	845	70.42
Yes	83	6.92
Don't know	272	22.67
Had a cough or fever more than 10 days		
No	1109	92.42
Yes	91	7.58
Living or working with any TB patient		
No	1043	86.92
Yes	56	4.67
Don't know	101	8.42

4.1.3 Risk behaviors of VCT's client

Table 7 shows risk behaviors of individuals who accepted VCT service were divided into 6 categories that depended on the kind of risky behaviors disclosed in confidence with the counselor.

About 40% of VCT's clients considered that he/she was not at any personal risk. Target clients of the VCT service is people who are at a high level of risk, however here only 28% of clients admitted having high risk behavior such as drug injection (15.17%), commercial sex worker (3.25%), men who had sex with other men (0.5%) and multiple sex-partners (11.92%). Many of the subjects recognized

having behavior that put them at risk but did not talk clearly about it (other risk: 28.92%).

Only 8.17% of clients admitted to having two or more sex-partners and 90.08% informed that they have one or no sex-partner during the previous 30 days. On the subject of how many times clients engaged in vaginal sex in the previous month, up to 75.75% of subjects said 5 times or less. 93 in 1200 subjects (7.75%) admit to more than 10 times. On the subject of anal sex174 clients (14.50%) refused to answer the questions while only 1.75% clients admitted to having anal sex and 84% said "No". More than 70% of subjects in this research did not use condoms during the previous 30 days. About 13% used condoms more than 6 times and the same number refused to answer.

During the past 7 days, 6% of clients injected drugs and 2.4% used syringes that had previously been used. 179 of the clients did not admit if they had used dirty syringes or not.

Table 7: Frequency and Percentage distribution on client's risk behavior

Risk behaviors that brought about the clients to visit VCT sites	**Number n=1200**	**Percentage**
Risk behavior of clients		
No personal risk	482	40.25
Inject drug	182	15.17
Sell sex for money/ drug or other	39	3.25
Man who has sex with men	6	0.50
Multiple partners (not for money/ drug)	143	11.92
Other personal risk	348	28.92
During the past 30days		
Number of sex-partners		
1 or no	1,081	90.08
≥ 2	98	8.17
Refused to answer	21	1.75

Table 7: Frequency and Percentage distribution on client's risk behavior (Cont.)

Risk behaviors that brought about the clients to visit VCT sites	Number n=1200	Percentage
During the past 30 days		
Frequency of vaginal intercourse		
Few (≤ 5)	909	75.75
Normal (6 - 10)	22	1.83
Many (≥ 11)	93	7.75
Refused to answer	176	14.67
Frequency of anal intercourse		
No	1,005	83.75
Yes	21	1.75
Refused to answer	174	14.50
Times used condoms during intercourse		
No	861	71.75
Sometime (1 -5)	22	1.83
Often (≥ 6)	157	13.08
Refused to answer	160	13.33
During the past 7 days		
Times injected		
No	1,054	87.83
Sometime (1-7)	38	3.17
Many (≥ 8)	34	2.83
Refused to answer	74	6.17
Times used contaminated syringe		
No	1,004	83.67
Sometime (1-7)	16	1.33
Many (≥ 8)	1	0.08
Refused to answer	179	14.92

4.1.4 Risk behaviors of client's sex – partner

In the VCT questionnaire, risk behaviors of sex – partner were rather completed with nine options (Table 8). 76% of clients in this research had sex – partner and most of them (about 70% client's sex-partner) had risk behavior. Especially, 59.3% of sex-partner had high risk behaviors such as having a HIV infection (8%), IDU (15.42%), CSW (15.83%). There was not equality between percentage of risk behavior of clients and their sex-partners. Exp. 77 (6.42%) clients had sex – partner were man sex man whereas there is only 6 clients admit being in man sex man group. That' mean VCT's clients concerned much about the HIV infection risk from their sex-partners.

Table 8: Frequency and Percentage distribution on client by sex - partner's risk behavior

Risk behavior of Sex-partner	Number n=1200	Percentage
No sex-partner	278	23.17
Not known sex-partner risk	172	14.33
Sex-partner is HIV infected	96	8.00
Sex-partner is IDU	185	15.42
Sex-partner is CSW	190	15.83
Sex-partner is MSM	77	6.42
Sex-partner is client of sex worker	3	0.25
Sex-partner has multiple partner (not for drug/ money	160	13.33
Other sex-partner risk	39	3.25

4.1.5 Mass - media and other VCT information sources

In table 9, regarding to whom clients were referred, mass-media was main information source with 56.33% choices. 17% of VCT clients were presented by other VCT's clients. 15.08% chose healthcare staff and 3.25% chose peer educator as person referring. 4.08% of respondents were presented by sex - partners or drug - partners.

To estimate what kind services client's need, counselors asked them about the main reason for the visit. Comparing 8 options, there was no very strong reason to force clients to attend for assistance. 35.42% of subjects accessed VCT site after engaging in high risk behaviors (IDU, CSW, client of CSW, multiple sex-partner). About 34% of clients attended because sex-partners were HIV infected or of high risk. 9.75% of respondents worried about having contact with HIV infected individuals.

Table 9: Frequency and Percentage distribution on clients by Mass - Media and Other information sources

Information source	Number n=1200	Percentage
How (from who) clients knew about the service and by whom client was referred:		
Peer educators	39	3.25
Healthcare provider	181	15.08
Sex-partner	33	2.75
If from sex-partner, HIV status of sex-partner is:		
Positive	*12*	
Negative	*4*	
Not know	*17*	
Needle - sharing partner	16	1.33
Other clients	204	17.00
Mass-media (TV, radio, newspaper)	676	56.33
Other	51	4.25
Main reasons of visit		
Having high - risk behavior (IDU, CSW, client of CSW, multiple sex - partner)	425	35.42
Sex-partners is HIV infected	98	8.17
Sex-partners is high risk of HIV	308	25.67
Sex-partners/ Drug recommend	57	4.75
Feeling ill/Recommended by healthcare providers	10	0.83
Accident (stepped on syringe/ needles, needle pick)	32	2.67
Contact with HIV infected person (or suspected) (casual contacts, AIDS patient care, etc).	117	9.75
Other	153	12.75

In summary, most of VCT clients (75.5%) were younger than 35 and one-third of clients were younger than 25 years old.

The greater part (53.42%) of clients was married or living with sex-partners. There were only 12.92% of clients had college or more education level. Al most (79.33%) of clients were living in urban areas and up to 8.92% of clients had came from other provinces.

16.92% of clients had STD symptom (genital ulcer, discharge) and 7.58% of clients had a cough of fever more than 10 days.

A large amount (40.25%) of VCT clients said that they did not have personal HIV infection risk. The remains (59.75%) had admitted some of high risk behaviors such as being CSW, IDU, etc.

Mainly (76.83%) of clients had sex-partners and up to 59.25% had sex-partners who had high risk behaviors.

The majority (56.33%) of VCT clients had gotten information about the service from Mass-media such as TV, radio, newspaper, etc. 18.3% of clients was presented by health supporters (peer educators, healthcare staff) and 20.08% of clients was presented by their sex-partners, drug-partners or other clients.

4.2 Description of VCT service's utilization and HIV infection status of VCT clients

4.2.1 Utilization of VCT service

The VCT service of LIFE - GAP project provides complete HIV testing by Preventive Medicine Center of the local province. If the determine test is positive, it will be confirmed by another 2 kinds of tests and after 7 days the client will receive the test results. Therefore a completed VCT process will ask the client to come to VCT site twice (first for HIV test and pre-test counselling; second for result and post-test counselling). Utilization of VCT service variable was categorized into two levels in this study: Completed VCT process with 2 visits and not completed VCT process with 1 visit.

Table 10 has showed that 142 in 1200 samples (11.83%) not come back to complete the VCT process.

Table 10: Frequency and Percentage distribution on clients by Utilization of VCT service

Utilization of VCT service	Number n=1200	Percentage
Not complete the process (1 visit)	142	11.83
Complete the process (2 visits)	1058	88.17
Total	1200	100.00

In table 11, 182 clients (15.17%) got positive HIV test result and other 1018 (84.83%) clients got negative HIV test.

Table 11: Frequency and Percentage distribution on clients by HIV test result

HIV Blood Test	Number n=1200	Percentage
Positive	182	15.17
Negative	1018	84.83
Total	1200	100.00

In summary, the majority (88.17%) of clients had completed the VCT process, only 11.83% of clients did not completed. Percentage (15.17%) of clients who had HIV positive test was much higher than Vietnam HIV prevalence (0.33%); it has proved the success of VCT program.

4.3 Relationship between independent variables and the utilization of the Voluntary Counselling and HIV Testing service

4.3.1 Relationship between Social – Demographic and Physical variables and Utilization of VCT service

In table 12, Chi-Square test has not showed a significant relationship between age variable and utilization of VCT service with p = 0.058. However, percentage in Young group (15.01%) was higher than other groups (11.9% for Old and 9.76% for adult) in not completed VCT process option.

There was not different in Utilization of VCT service among male and female clients. P-value of Chi-Square test = 0.592, it means there was not significant relationship between Sex factor and Utilization variable.

Up to 15.06% of single clients and 13.58% of divorce/ widowed/ separation clients did not complete the VCT process, whereas only 9.20% of married clients did not. Chi-Square test had showed a significant relationship between Marital status and Utilization of VCT service with P-value = 0.01. It means utilization of VCT service of married clients was higher than clients who lives single.

There was not significant relationship between Education (School Years) and Utilization. Chi-Square test made out P-value = 0.482.

Only 7.09% client who came from rural areas did not complete the VCT process, comparing with 11.76% of clients from urban areas and 18.69% of clients from other provinces. P-value of Chi-Square test = 0.02 had confirmed that there was a significant relationship between Residence variable and Utilization of VCT service.

Health problems (TB, STD) that related to HIV were one among of factors that leaded clients to visit VCT site. Table 13 had showed percentage of clients who had health problems and did not complete the VCT process was higher remarkable than clients who did not have health problems. There was strong relationship between Health problems variable and Utilization of VCT service with P-value of Chi-Square test = 0.002.

Table 12: The relationship between Social Demographic and Physical variables and utilization of VCT service

Independent Variables	Utilization of VCT service 1 visit Number (%)	2 visits Number (%)	X^2 P-value
Age (Years)			$X^2 = 5.692$
Old (≥ 35)	35 (11.90%)	259 (88.10%)	p = 0.058
Adult (25 – 34)	54 (9.76%)	499 (90.24%)	df = 2
Young (16≤24)	53 (15.01%)	300 (84.99%)	
Sex			$X^2 = 0.288$
Male	68 (11.33%)	532 (88.67%)	p = 0.592
Female	74 (12.33%)	526 (87.67%)	df = 1
Marital Status			X^2 : 9.262
Single	72 (15.06%)	406 (84.94%)	p = 0.010
Married	59 (9.20%)	582 (90.80%)	df = 2
Divorce/widowed/ separation	11 (13.58%)	70 (86.41%)	
Education level			$X^2 = 1.460$
Secondary	58 (10.64%)	487 (89.36%)	p = 0.482
High school	63 (12.60%)	437 (87.40%)	df = 2
College or more	21 (13.55%)	134 (86.45%)	
Residence			$X^2 = 7.866$
Urban	112 (11.76%)	840 (88.24%)	p = 0.02
Rural	10 (7.09%)	131 (92.91%)	df = 2
Other province	20 (18.69%)	87 (81.31%)	
Health Problems related HIV			$X^2 = 9.632$
Yes	47 (17.15%)	227 (82.85%)	p = 0.002
No	95 (10.26%)	831 (89.74%)	df = 1

4.3.2 Relationship between Risk behaviors of VCT clients, their sex-partners and Utilization of VCT service

Chi-Square test with P-value = 0.415 in table 18 had showed that there was not a significant relationship between Risk behaviors of VCT's clients and Utilization variable. The percentages of clients who did not complete VCT process were reasonably equal whether they have risk behaviors or not.

9.87% of clients who had high risk sex-partners did not complete the VCT process (1 visit) comparing with 17.20% of clients had no sex-partner and 11.32% of clients who had other risk behavior sex-partners. Chi-Square test was confirmed with P-value = 0.006 and there is a significant relationship between Risk behaviors of sex-partners and Utilization of VCT service.

Table 13: The relationship between risk behaviors of VCT clients and their sex-partners and utilization of VCT service

Risk behaviors	**Utilization of VCT service**		X^2 **P-value**
	1 visit Number (%)	**2 visits Number (%)**	
Risk behavior of VCT client			$X^2 = 1.760$ p = 0.415 df = 2
No	63 (13.07%)	419 (86.93%)	
High risk	44 (11.89%)	326 (88.11%)	
Other	35 (10.06%)	313 (89.94%)	
Risk behavior of sex – partner			$X^2 = 10.379$ p = 0.006 df = 2
No	48 (17.20%)	231 (82.80%)	
High risk	70 (9.87%)	639 (90.13%)	
Other	24 (11.32%)	118 (88.68%)	

4.3.3 Relationship between information sources and Utilization of VCT service

In table 14, percentage (13.74%) of clients who got information about VCT service from Mass-Media sources did not complete VCT service process were higher than clients who were presented by health supporters (9.50%) and partners such as sex-partners, drug -partners and other clients (8.37%).

The same meaning, 91.63% of clients who were presented by partners had completed the VCT process, comparing with 90.50% of clients who were referred by health supporters and 86.26% of clients who get information of VCT service from mass-media sources.

P-value of Chi-Square test = 0.037, showed that there is a significant relationship between information sources about VCT service and Utilization variable.

Table 14: The relationship between information sources about VCT sites and Utilization of VCT service

Information sources	**Utilization of VCT service**		X^2 **P-value**
	1 visit Number (%)	**2 visits Number (%)**	
Health supporter (Peer educator, health care staff)	21 (9.50%)	200 (90.50%)	X^2 =6.596 d = 0.037 df = 2
Partner (sex, drug partner, other client)	21 (8.37%)	230 (91.63%)	
Mass-Media	100 (13.74%)	628 (86.26%)	

4.3.4 Relationship between blood test and Utilization of VCT service

Table 16 revealed that there was no significant relationship between perception towards HIV infection status of clients that present in this study by HIV blood test and Utilization of VCT service (P-value = 0.702). It means there is no remarkable difference in percentage of subjects who get the negative or positive test in both cases: completed VCT process (2 visits) or No completed VCT process (1 visit).

Table 15: The relationship between blood test result and utilization of VCT service

Blood test	Utilization of VCT service		X^2 P-value
	1 visit Number (%)	2 visits Number (%)	
Positive	20 (10.99%)	162 (89.01%)	$X^2 = 0.147$
Negative	122 (11.98%)	896 (88.02%)	p = 0.702
			df = 1

In summary, percentage of clients who did not completed the VCT process (1 visit) was 10.35% for all of the 40 provinces that LIFE – GAP cover along Vietnam in 2004 with about 20800 clients. In this research, the percentage was 11.83% for 4 selected provinces with 1200 clients. Selected provinces including Hai Phong, Quang Ninh, Khanh Hoa, Da Nang, Ho Chi Minh and Ba Ria Vung Tau are the top provinces in terms of HIV prevalence rank of Vietnam in 2005. In these provinces's HIV epidemiology reflected completely the HIV epidemic's complicated features in the 3 main areas of Vietnam. That's why the percentage of clients who did not complete the VCT process in the sample was a little higher than the research population. Statistically the sample had reflected quite honestly and accurately the status of the research population.

There were five independent variables which had been revealed and that they had a significant association with utilization of VCT service: Marital status (P-value of Chi-Square test = 0.010), Residence (P-value of Chi-Square test = 0.020), Health problems related to HIV infection (P-value of Chi-Square test = 0.002); Risk behaviors of client's sex-partners (P-value of Chi-Square test = 0.006) and information sources of VCT service (P-value of Chi-Square test = 0.037).

CHAPTER 5
DISCUSSION

The utilization of the Voluntary Counselling and HIV Testing (VCT) service depends on the health seeking behavior of the consumer's side, which consist of the following factors: Socio-Demographics, Risky behavior, Source of Information about VCT service.

The subjects were selected from those individuals who came to utilize the VCT services at 40 VCT sites of LIFE – GAP project over Vietnam. The subjects came to VCT sites totally on 2 occasions: The first time, they got pre-test counselling and a HIV test; on the second visit they got post-test counselling and HIV test results. So that, client's utilization of the service will include two terms: Completed the VCT process (2 visits) and not completed the VCT service (1 visit).

The discussion will follow the order of the conceptual framework. However, before proceeding further, certain limitation of this study has to be stated in order to be able to view the results in their proper perspective.

5.1 Description of VCT's clients variables by frequency and percentage

5.1.1 Socio-demographic and physical characteristics

29.42% of clients were younger than 25 and 75.50% clients were younger than 35 in this research (mean age was 30.12 ± 3.5). A possible explanation for this finding is that people in this age (16 to 34) have more high risk behavior such as sexual activities, infections, drugs, and under psychological pressure based on fear of getting infected HIV. Kibangou N and al. in their research in characteristic in clients in the VCT of Centre Yonis Toussaint in Djibouti (23) also showed that almost of clients were young (28 ± 9.6 for female and 28.7 ± 10.3 for male).

In whole research population, male were 65.78% and female were 34.22%. However, basing on recommendation of WHO in the update epidemic December 2004 (2) that HIV prevalence in female is increasing remarkably over the world. Other hand, HIV prevalence in Vietnam pregnant woman had increased from 0.03% at 1995 up to 0.39% at 2002. Hence, studying about HIV infection risk of woman is very important in term of effort to stop HIV/AIDS spread to general community. Other studies such as Tith Khimuy, 2000 in Cambodia (38), Kibangou N. in Djibouti (23) males were the majority of VCT's clients; however De Souza C. in Brazil (49); Imade G.E. in Nigeria (24) had showed conversely. Sex of VCT clients may depend on characters of race. Exp. Percentage of female VCT clients were lower than male in Asian people and higher in Africa, South America people.

53. 42% of subjects who came to utilize the VCT service were married. It was clearly that married clients worry more for their health status and their families. Emory University's research in Zambia (27); Machekano et al. in Zimbabwe (25); Kanweka W et al in Rwanda (50) had similar findings. These studies showed that couple's VCT (CVCT) is a proven intervention in preventing HIV and STI transmission in married/ cohabiting couples.

A previous study of World Vision Counselling Center in Cambodia (38) had found that most of clients had completed secondary school (38.2%) and only 10% of respondents completed college. Considering education levels of selected clients, in this research, most of them (about 87%) were equal to or at a lower high school level. 12.92% of clients had a college education level or higher.

More clients (18.69%) from other provinces did not utilize the VCT service than clients from urban areas (11.76%) and rural areas (7.09%) did. It was understandable, when all VCT sites of LIFE – GAP project are placed in cities or towns.

WHO had warned at 1996 (53) that since the presence of other STIs can increase people's susceptibility to HIV infection, efforts to diagnose and treat curable STIs have become a major strategy in combating the HIV epidemic. HIV and STI

diagnosis and treatment efforts include counselling to ensure proper treatment and strategies for notifying partners for treatment. Percentage of VCT clients had STIs symptom (16.92%) and clients had TB symptom (7.58%) had showed a sound strategy of LIFE – GAP project when focus VCT promotion campaigns on high risk groups. Especially, HIV prevalence among STIs patient has increased from 0.5% in 1994 to 2% in 2002 in Vietnam (3).

5.1.2 Description of VCT client's features by Age

Young groups are the most concerned of not only health authorities but also community. For LIFE – GAP project, youth is target client of VCT service. Therefore, researcher would like to analyses more about the relationships between other features of VCT clients and Age factor, and focus on young group. By means of findings, a perspective of clients could be estimated in aim to improve the utilization of VCT service.

Data analysis of this part can be seen in Appendix, Description of Independent and dependent variables by Age groups.

In the significant relationship between Age of VCT clients and their marital status, most (85.34%) of client who were married, were older than 24, otherwise a large amount (52.30%) of clients who were single, were younger than 25. Residence of clients had a significant association with majority (45.79%) of clients who came from other provinces were younger 25 (Table 16). Horizons's study in 2004 (52) had gave us an overview: In many countries, young people actively seek VCT. The Kara Clinic in Zambia, for instance, reports an increasing number of youth seeking VCT, especially in the context of premarital testing (Chama and Kayawe 2000; UNAIDS 2002).

By table 17, among VCT clients who had sexual risk behaviors, 80.32% were younger than 35. Among clients who had injection drug behavior, 84.62% were younger than 35 years old. Meanwhile, 79.55% of clients who had high risk sex-partner (CSW, IDU, PLWHIV, MSM, multiple sexes) were younger 35 (Table 18). Kibangou N et al in his research in Djibouti at 2004 (23) had showed the relationship

between Age and Risk behaviors of client: The proportion of very young patients (20 years and less) among HIV + was 7.1%. The applicants having factors of risk were all heterosexuals. A regular use of condoms when having occasional sexual relations was reported only by 12.5% of patients. Those of patients which said that they didn't use the condom had a HIV test more often positive. Hence, youth in Africa and Vietnam both have high risk behaviors need to reduce.

Data of table 19 revealed that 22.38% of young clients (younger than 25) got VCT information from health staff, comparing with 17.36% of adult clients (age from 25 to 34) and 15.56% of old clients (older than 35). 67.01% of old clients VCT information from Mass-media, comparing with 60.22% of adult clients and 56.09% of young clients.

Remarkably, in table 20, 15.01% of young clients did not completed VCT process comparing with 11.9% of old clients (older than 35) and 9.76% of adult clients (age from 25 to 34). This percentage was higher noteworthy than 11.83% of whole research sample (Table 10) and 11.02% of World Vision VCT Center in Cambodia also (38). Normally, youth always is not easy subject to access for out-reach programs due to they are especially sensitive with attitude of society. Thus it is difficult to persuade them getting VCT service and more difficult to support them get over the fear to face with their HIV infection status.

Ann P. McCauley in his study of equitable access to VCT of youth in developing countries had showed there is still not agreement between researchers in their data of VCT clients who were younger than 25 (52). From experiences not only Thailand and Vietnam, features of youth groups should be study more in context of HIV/AIDS – related issues.

5.1.3 Risk behaviors of VCT clients

Risk behaviors such as CSW, IDU, MSM, Multiple sex-partners of clients were combined in High Risk group. So that, VCT clients were divided into 3 groups regarding their risk behaviors: No risk behavior; High risk behaviors; other risk behaviors.

The target clients of VCT program of LIFE – GAP project are people who belong to high risk population, and the project has been successful with 50.75% of clients admitting their risk behaviors. Many of other clients only wanted to get a test, but did not admit to their risk behaviors due to being afraid of the stigma attached. It means, almost all of clients have worried about their HIV infection status and nobody can be sure that they or sex-partner did not have any risk behavior.

Lindan C. et al in their study at 1999 (51) among Alcoholics and Drug Users showed that 57% of the Subjects reported HIV testing; this unusually high rate may be attributable to the large percentage of Subjects identified as high risk. Research of Kibangou N. in Djibouti (23) found that all clients of the VCT center who had a factor of risk were heterosexuals and few of them used condoms (12.5%).

These previous studies confirmed that risk behavior is one of factors leading to clients attending for VCT service, however there are important roles of client's sex-partner as in studies of Kibangou N (23) and Machekano (25).

5.1.4 Risk behaviors of client's sex-partner

Risk behaviors such as CSW, IDU, MSM, Multiple sex-partners of client's se-partners were combined in High Risk group. So that, sex-partners of VCT clients were divided into 3 groups regarding their risk behaviors: No risk behavior; high risk behaviors; other risk behaviors.

Mainly clients (about 70%) had sex-partners and up to 59.3% of sex-partner had high risk behaviors such as CSW, IDU, PLWHIV, MSM or multiple sex-partners. This finding showed the epidemiology feature of HIV epidemic in Vietnam. Most common HIV infection risk behavior in Vietnam is unsafe intercourse. UNAIDS had described in Vietnam HIV epidemiology that frequency of condom use in regular clients (who have bough sex from CSW) is very low (3). And perception of people about susceptibility of HIV infection through their sex-partner's risk behavior is quite good.

5.1.5 Mass-media and other VCT information sources

Information sources that from which clients learn about VCT service, were divided into 3 terms: From health supporters (Peer educators, healthcare staff), from their partners (sex-partners, drug-partners and other clients) and from Mass Media (TV, Radio, Newspaper, etc). VCT site is a part of HIV/AIDS prevention network, therefore information of VCT service is provided by many sources. The percentage of clients (18.3%) who were presented by health supporters reflected effectiveness of the network. Percentage of clients (20%) who were presented by their partners (sex, drug partners and other clients) reflected prestige of VCT program and perception of people in community about it. Percentage of clients (61.7%) who know about VCT service through Mass-media reflected effectiveness of promotion campaign that LIFE – GAP and local Healthcare offices had performed.

5.2 Utilization of VCT service and HIV infection status of VCT clients

5.2.1 Utilization of VCT service

In LIFE – GAP project, utilization of VCT service always is the key index to estimate sub-project's performance. An important income of VCT program in a province's proposal is design of VCT site which is supported by CDC Atlanta and an important outcome is percent of clients who come back to get the post-counselling. 88.17% of VCT clients completed the VCT process and 11.83% clients did not. Utilization's percent that was quite high had proven the effectiveness of LIFE – GAP's VCT program. World Vision's study in VCT center in Phnom Penh, Cambodia (38) at 2000 had revealed quite the same finding that 88.8% of sample visited the center twice and 11.2% visited more than 2 times. Sample of this study included clients who visited at least twice. Kawichai S. et al in the study of Emory in Chiangmai (42), Thailand about VCT clients showed that 10% did not come back to get test result. Percentage of client who did not get the HIV test result in the study of Isezuo et al in Nigerian (44) is 13.2%.

5.2.2 HIV infection status of VCT clients

The results of data analysis showed that 15.17% of those who came to access the service have HIV positive status. Normally, HIV prevalence in Vietnam is about 0.3% at 2005 (3), so that the VCT program was successful in terms of attracting people who have HIV infection high risk to get the service. Study in Cambodia since 2000 (38) showed that 29.5% of VCT clients (Phnom Penh) had HIV positive due to national HIV prevalence of Cambodia is higher than Vietnam.

5.3 Relationship between independent variables and the utilization of the VCT service

5.3.1 Relationship between social – demographic and physical variables and utilization of VCT service

Although, the utilization's percentage of those who were aged from 25 to 34 (90.24%) was higher than clients who were aged in Young group (84.99%) and Old group (88.10%), there is not a significant relationship between age and utilization of VCT service. Prosser WM. in his study that focuses on young client of VCT in Mozambique (39) had showed that the mean age of youth and adolescents <24 seeking testing were not substantially different (18 for youth VCT vs. 19 for general VCT). Nearly all clients of LIFE – GAP's VCT are high risk people and got the service voluntarily therefore age is not notable factor that affects to utilization of VCT service.

Female clients who had not completed the VCT process were marginally more than male clients (12.33% and 11.33%). Maybe female clients had more serious psychological pressures than male clients. However, there is still not a significant relationship between sex variable and utilization of VCT service. Nyblade L et al in their study about HIV risk characteristics in rural district of Uganda (46) has showed that women were significantly less likely to receive VCT than men (41 % versus 48%, HIV positive women were significantly less likely to choose VCT than HIV negative women (35% vs. 43%). This is opposite finding, however, the researchers concluded that in this rural Ugandan population, socio-demographic and behavioral risk characteristics do not predict participation in VCT. All LIFE – GAP's VCT site are

placed in urban areas, hence female clients had different characteristics with female client in Nyblade L's study.

Utilization of the service of married clients was better than other group also, if comparing 15.06% of single clients and 13.58% of divorce/widowed did not completed the VCT process with 9.20% of married clients. The significant relationship between marital status and utilization variable showed somewhat the responsibility of Vietnam people with family. Balmer et al in their study at 2000 in Kenya (34) concluded that HIV VCT services combined with STD diagnosis and treatment and economic development services could motivate more at-risk individuals and couples to receive counseling and testing.

Result of data analysis exposed there is no difference in utilization of the service between 3 educations levels (secondary school, high school and college or more). It means that the relationship between Education level and utilization of VCT service was not significant. Tith Khimuy, 2000 in Cambodia (38), had the same finding. In his study, education level which was divided into 2 levels: primary school and secondary school did not have association with utilization of VCT center.

More clients (18.69%) from other provinces did not utilize the VCT service than clients from urban areas (11.76%) and rural areas (7.09%) did. In here, the distant factor has a very important role in the significant relationship between Residence variable and Utilization of VCT service. Long distant may make those who came from other provinces easier to withdraw from the VCT process. However, because it is not very easy to access the VCT service in cities or home towns in their province, clients who came from rural areas were keen to know their HIV status after the first visit. Being considered as a new effective method, "Home HIV test" are used to solve the "Distance" problem. That was findings of Phillip et al. in the Unite States 1997 (31), 1995 (30) and Fylkesnes K, Siziya S. in Norway 2004 (41). On the other hand, in the research about cost-effectiveness of VCT service 1994 in the Unite States (32), Lurie P. estimated 5400 people per year will be falsely labeled as HIV positive if HIV test was limited to hospitals. Therefore, convenient VCT access in terms of distance is very important to attract clients.

Health problems related to HIV infection (STD, TB) are strong factors that force clients to come to utilize the services of VCT. But the health problems prevented clients complete the VCT process also, due to many reasons such as clients health conditions deteriorating, they could know their HIV status from their treatment clinics or they did not dare face the threat of HIV infection.. The significant relationship between Health problems variable and Utilization of the service had showed that clients who did not have health problems utilize VCT service more than clients had health problems. This finding maybe related to high stigma and discrimination of HIV in Vietnam. Many clients did not want to declare their health problems while in counselling. UNFPA had showed in the guidebook, 2004 (47) that many people want to learn their HIV status but do not want others to know that they are seeking HIV testing, they are not comfortable to attend at free-standing sites because of the stigma and discrimination associated with HIV testing.

5.3.2 Relationship between risk behavior of VCT clients, their sex-partners and utilization of VCT service

5.3.2.1 Relationship between risk behavior of VCT clients and utilization of VCT service

Finding of analysis had not showed any remarkable difference between utilization of 3 groups (No risk; high risk and other risk). There is not a significant relationship between risk behaviors of clients variable and Utilization of the service. “Women and participants reporting symptoms of a sexually transmitted infection were significantly more likely to be infected with HIV” was conclusion in Balmer’s study since 2000 in Kenya (34). The same meaning, Machekano et al in Zimbabwe (25) concluded that factors associated with receiving test results were history of STD and lower salary in man who worked in factories. The not significant relationship between risk behavior and utilization of VCT service of LIFE – GAP’s data should be study more in term of stigma as key factor that prevent clients admit their HIV infection risk behaviors.

5.3.2.2 Relationship between risk bahavior of VCT client's sex-partner and utilization of VCT service

There are clear differences between 3 groups with a strong association between Risk behavior of client's sex-partners and Utilization of the service. This relationship was positive: the higher the risk behaviors of sex-partners of clients rose, the better utilization of the VCT service was. These findings have confirmed the above judgment of Kibangou N (23), Machekano et al (25) about role of sex-partner in term of client's utilization. Studies in Africa frequently report that VCT is associated with reduced risk behaviors and lower rates of seroconversion among HIV serodiscordant couples. Thomas M. Painter in his research in sub-Saharan Africa (54), considered that many of studiespoint out that VCT has considerable potential for HIV prevention among other heterosexual couples, and recommend that VCT for couples be practiced more widely in Africa.

HIV infection risk of clients and their sex-partners sometimes is an inseparable connection. During counselling, the counselor always tries to persuade clients to present or take their sex-partner to the VCT sites. The significant relationship between risk behavior of client's sex-partners and utilization of VCT service had reflected the concern of almost clients about HIV infection risk that they got from sex-partners.

5.3.3 Relationship between information sources and utilization of VCT service

The significant relationship between Information sources variable and Utilization of the VCT service had showed that like normal clients in market, friend, family and relatives are people that clients most believe in when they decide to choose a product. Health supporters in the HIV/AIDS prevention network play an important role in client's VCT utilization. However, mass-media is a most important measure to inform potential clients about the service. In this research, most of the clients (56.33%) knew about VCT service from mass-media.

Grinstead et al in his study (26) at 1997 had concluded that: Prevention messages encouraging HIV testing and condom use have not resulted in higher rates of self-protective behavior among African Americans. It was the same meaning of

findings, general messages in mass-media had less influence on service utilization of clients.

Estimating the role of healthcare supporters, Goodman E. (30) had showed in his study: Healthcare providers play an important role in helping teens address their risk for and concerns about HIV infection by engaging adolescents in repeated discussions about HIV testing. Absolutely, healthcare supporters are the best sources from which clients were given suggestions about VCT service utilization.

5.3.4 Relationship between blood test and utilization of VCT service

Being different to the research of Tith Khimuy, 2000 in Cambodia (38), there is no significant relationship between HIV test results and utilization of VCT in this research. The Word Vision Center that Tith Khimuy researched in Phnom Penh had tried to encourage VCT clients to come for counselling as many times as possible after announcing HIV test result. Tith Khimuy had selected respondents, who visited the VCT center at least twice therefore obviously, clients with HIV positive test results would be more concerned. However, in VCT sites of LIFE – GAP project, clients do not know HIV test result until they complete the VCT process in second visit. Almost all of them were high-risk subjects and are extremely worried about their HIV infection status. That is why there is no significant difference in utilization of HIV positive clients and HIV negative clients. Base on this finding, this research did not divide data in terms of positive and negative results for analysis.

In summary, there were five determinants that have significant relationships with utilization of VCT service. The strong association between marital status and Utilization of VCT service may show the responsibility of person who was taking care family. The significant relationship between Residence variable and Utilization of the service reflected the important role of “distance” issue. Why Health problem related to HIV infection (TB, STD) was a significant barrier for client to utilize VCT service being a question for further study. Risk behaviors of sex-partners were the most concern of client that forced them come to utilize the service. The significant association between information sources of VCT service and Utilization of this service partners (sex-partner, drug-partner, and other clients) and Health supporters

had very important roles in term of information and encouragement clients to utilize VCT service. There were many previous studies supported to these findings.

Regarding to limitation of this research, other factors that affect to utilization of the VCT service such as income of clients; facilities of VCT site; knowledge of counselor in HIV/AIDS and quality of HIV test were not studied due to limited information from the client information form. VCT program provides a voluntary, free of charge and anonymous service. Large number of clients and high percentage (about 88%) of completed utilization had proven success of the program. The service is free of charge therefore income may not be important issue for VCT clients. Facilities of VCT site had been designed follow CDC technique with completed equipments, document for staff, document for clients, marketing card…VCT site is divided into 3 parts: waiting room, counseling room and lab room with one direction way, clients do not need to come back to go out with risk of meeting someone who know him/her. So that facilities of VCT site of LIFE – GAP is very comfortable for client (comparing with VCT of some other organizations) so far. All counselors of VCT program over Vietnam are experience medical doctors from local medicine units and had been trained VCT skills by LIFE-GAP and CDC. Therefore, knowledge of counselor is quite good to provide a comprehensive counselling. Laboratory of VCT site is equipped completed instruments as National standard for a HIV lab. So far, not any client complains about HIV test quality.

CHAPTER 6
CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The research was performed on determinants related to the utilization of the Voluntary Counselling and HIV testing (VCT) service of HIV/AIDS prevention and care (LIFE-GAP) project in Vietnam. Data of 1200 clients including 600 males and 600 females who had come to six selected VCT sites to utilize service in 2004 were chosen by random stratified sampling from 20816 clients of 40 VCT sites in 40 provinces along Vietnam. The dependent variable of the study was utilization of VCT service. It was divided into two levels: Completing the VCT process (Client had visited VCT site twice to get HIV test result and post-test counselling) and Not completing the VCT process (Client had visited VCT site only one time and did not come back to get HIV test result and post-test counselling). Chi-Square test was used for analysis.

The most common VCT clients (75.5%) were younger than 35 years old, 53.42% were married, 79.33% live in urban areas, 87.08% had quite low education level (high school or lower) and some of them had health problems relating to HIV (16.92% for STD and 7.58% for TB). Nearly all of VCT clients had HIV infection risk behaviors of themselves (59.75%) or had high risk sex-partners (59.25%).

Majority of VCT clients (56.33%) had obtained information about VCT service from mass-media such as TV, radio, newspaper. Health supporter (peer educator, healthcare staff) and partner (sex-partner, drug-partner and other clients) had the same important role (18.3% for health supporter and 20.08% for partner) in term of presenting client to the service.

High percentage (88.17%) of clients had utilized completely the VCT process (visited VTC site twice to get pre-test counselling and post-test counselling), only 11.83% of client did completed (visited VCT one time for pre-test counselling).

Five most important determinants that had significant associations with utilization of the VCT service were: marital status (p-value = 0.010), residence (p-value = 0.020), health problems related to HIV infection (p-value = 0.002); risk behaviors of client's sex-partners (p-value = 0.006) and information sources of VCT service (p-value = 0.037).

Remaining variables that had not significant with utilization of the VCT service were: age (p-value = 0.058), sex (p-value = 0.592), education level (p-value = 0.482), risk behavior of VCT clients (p-value = 0.415) and HIV blood test (p-value = 0.702).

6.2 Recommendations

Recommendations for VCT programs that will be implemented nationwide

By the finding in risk behaviors of young VCT clients, VCT programs must improve more and more its integration with other health and social services such as Care and treatment programs, Drug treatment units, Out-reach programs, Youth union, Female union, etc. to access and deal effectively their priority clients: youth high risk population.

Base on the significant relationship between marital status and utilization of the VCT service, counselor can perform group counselling or couple counselling. It means counselor can encourage married clients take their partners (husband or wife) come to get the service with them. For single subjects (normally, youth), counselor can perform group counselling including subject and their parents.

VCT program of LIFE GAP now only provide service in urban areas, that why the residence variable had a significant association with utilization of the service. In the future, VCT programs should be conducted in rural area also, especially in border grossing areas such as border with China in North East and Cambodia in South West.

HIV/AIDS stigma still is severe in Vietnam, it is considerable barrier for clients to access VCT service. To prevent the stigma for clients, VCT sites should be

combined in healthcare units such as in out patient department of a hospital, STD clinics, TB clinic, etc. It will increase effectiveness of VCT in term of integration with other health services and help clients who have health problems more easily to access.

Nearly all of VCT clients had worried about their HIV infection risk due to bad behaviors of themselves or of their sex-partners, even many of them did not know about sex-partner's risk behavior (exp. man had sex with CSW, woman had husband being long way driver). Therefore support them HIV prevention skill such as how to use condom, clean used syringe correctly is very important. Whether clients require or not, counselor should demonstrate these skills for client to observe and practice.

Information is the key of success not only for VCT program but also other HIV/AIDS prevention and care. By the significant relationship between information sources and utilization of the service, IEC activities of LIFE – GAP project had been conducted quite effective. However, health supporter should have more important role in term of transfer clients to VCT site. Transfer system should be take part of healthcare staff in healthcare system, staff of HIV/AIDS programs in the local, unions, organizations and factories.

Recommendation for future research

VCT is a service, therefore to achieve its goals (changing client's behaviors) the service must take intention on the satisfactoriness of clients. Due to the limitation of the VCT client information form, this research could not reflect responses of subjects about the service. This issue should to be studied in further research to contribute in setting up VCT service that most suitable with Vietnam culture and stigma situation.

Considering Health Belief Model as a program model designed for health promotion program, it is important to researcher to study more about factors can modify the utilization of the VCT service, such as perception of clients about benefits and barrier of the service; perception about susceptibility and severity of disease.

The most important goal of the VCT services of LIFE – GAP project is adjustment the risk behaviors of clients. Researching on client's changing behaviors will be effective method to estimate impact of the service. Therefore, the relationship between utilization of VCT service and changing behaviors of clients should be answered in a further study.

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APPENDIX

APPENDIX - A

Description of independent and dependent variables by Age groups

The most priority target client of not only VCT program but also Vietnam health authorities in HIV prevention and care activities is youth. Therefore ,trying to make a perspective about VCT clients, researcher analyzed more about Age factor and identify the relationship between Age factor and other basis feature of VCT clients. The findings may be useful to design HIV/AIDS prevention and care activities aim to young groups and increase effectiveness of VCT service in term of support their target clients. This research categorized Age variable into 3 groups: Young (≤ 24), Adult (25 - 34) and Old (≥ 35).

Table 16: Description of Social-demographic variables of VCT client by Age groups

Sex	**Old (≥ 35)**	**Adult (25 – 34)**	**Young (≤24)**	**Total**
Sex				
Male	148 (24.67%)	293 (48.83%)	159 (26.50%)	600 (100%)
Female	146 (24.33%)	260 (43.33%)	194 (32.33%)	600 (100%)
X^2 ***= 5.453***		***P-value = 0.065***		***df = 2***
Marital Status				
Single	17 (3.56%)	211 (44.14%)	250 (52.30%)	478 (100%)
Married	233 (36.35%)	314 (48.99%)	94 (14.66%)	641 (100%)
Divorce/ Widowed/ Separation	44 (54.32%)	28 (34.57%)	9 (11.11%)	81 (100%)
X^2 ***= 297***		***P-value = 0.000***		***df = 4***
Residence				
Urban	239 (25.11%)	446 (46.85%)	267 (28.05%)	952 (100%)
Rural	36 (25.53%)	68 (48.23%)	37 (26.24%)	141 (100%)
Other province	19 (17.76%)	39 (36.45%)	49 (45.79%)	107 (100%)
X^2 ***= 15.454***		***P-value = 0.004***		***df = 4***

Table 17: Description of client's risk behavior by Age groups

Risk behavior	Old (≥ 35)	Adult (25 - 34)	Young (≤24)	Total
No risk	118 (24.48%)	227 (47.10%)	137 (28.42%)	482 (100%)
Injection drug	28 (15.38%)	100 (54.95%)	54 (29.67%)	182 (100%)
Sex (CSW, MSM, Multi sex)	37 (19.68%)	85 (45.21%)	66 (35.11%)	188 (100%)
Other risk	111 (31.90%)	141 (40.52%)	96 (27.39%)	348 (100%)
X^2 = ***20.409***	***p = 0.000***	***df = 4***		

Table 18: Description of risk behavior of Client's sex partner by Age group

Risk behavior	Old (≥ 35)	Adult (25 - 34)	Young (≤24)	Total
No sex - partner	63 (22.58%)	105 (37.63%)	111 (39.78%)	279 (100%)
Sex-partner is high risk person (CWS, MSM, IDU, Multi sex)	145 (20.45%)	357 (50.35%)	207 (29.20%)	709 (100%)
Other risk	86 (40.57%)	91 (42.92%)	35 (16.51%)	212 (100%)
X^2 = ***57.297***	***p = 0.000***	***df = 4***		

Table 19: Description of information sources that client get to know about VCT service by Age groups

Information source	Old (≥ 35)	Adult (25 - 34)	Young (≤24)	Total
Health supporter (Peer education, health care staff)	46 (20.81%)	96 (43.44%)	79 (35.75%)	221 (100%)
Partners (sex, drug - partner, other client)	51 (20.32%)	124 (49.40%)	76 (30.28%)	251 (100%)
Mass - media	197 (27.06%)	333 (45.74%)	198 (27.20%)	728 (100%)
X^2 = 10.210	P = 0.037	df = 4		

Table 20: Description of Utilization of VCT service by Age groups

Information source	Old (≥ 35)	Adult (25 - 34)	Young (≤24)	Total
Completed VCT process	259 (24.48%)	499 (47.16%)	300 (28.36%)	1058 (100%)
Not completed VCT process	35 (24.65%)	54 (38.03%)	53 (37.32%)	142 (100%)
X^2 = 5.692	p = 0.058	df = 2		

APPENDIX – B

QUESTIONNAIRE

PROVINCE CODE: □□□□□□	SITE CODE: □□□□□□
Data of Initial Session: / / Counsellor code: □□□□□ **Pre-test session: Minutes:**	**Data of second Session: / /** Counselor code: □□□□□□ **Post-test session: Minutes:**

1. Residence 1. ☐ Urban 2. ☐ Rural 3. ☐ Other province (Vietnamese) 4. ☐ Foreigner	**2. Sex** 1. ☐ Male 2. ☐ Female
3. Age	**4. No School years**
5. Marital Status 1. ☐ Single/Unmarried 2. ☐ Married/living with sex partners 3. ☐ Divorced/Separate 4. ☐ Widowed	**6. Has client had an HIV test before?** **Where?** (Tick one) 0. ☐ No 1. ☐ Yes, negative 2. ☐ Yes, positive 3. ☐ Yes, indeterminate 4. ☐ Yes, not received 88 ☐ Other (lost, etc.) If yes, last test date:____ /____/ Place of HIV test:
7. Coming with sex partner today? 0. ☐ No 1. ☐ Yes *(only count when sex partner has a VCT code)* - the partner's code: □□□□□□□□□□□□	**8. How (from who) client knew about the service? By whom client was referred?** *(tick all that apply)* 1. ☐ Peer educators 2. ☐ Healthcare provider 3. ☐ Sex partner. ***If check, what is HIV status of sex partner?*** 4. ☐ Needle - sharing partner 5. ☐ Other clients 6. ☐ Mass media *(TV, radio, newspaper)* 88 ☐ Other (specify):

9. Main reason of visit today *(tick one most appropriate)*

1. ☐ Having high - risk behavior (*IDU, CSW, client of CSW, multiple sex partner)*
2. ☐ Sex partners is HIV - infected
3. ☐ Sex partners of high - risk person
4. ☐ Feeling ill/ Recommended by healthcare providers
5. ☐ Recommended by sex partner
6. ☐ Recommended by needle - sharing partner
7. ☐ Accident *(step on syringe/ needles, needle prick)*
8. ☐ Contact with HIV-infected (or suspected) persons *(casual contacts, AIDS patient care, etc)*

88 ☐ Other (specify):_____.

10. Risk factors *(determined by counselor, tick all that apply)*

Personal risk:

0. ☐ No personal risk (*move to sex partner*
   risk
1. ☐ Inject drugs
2. ☐ Sell sex for money/ drug or other (M or F)
3. ☐ Man who has sex with men (MSM)
4. ☐ Multiple partners (not for money/ drug)

88 ☐ Other personal risk (specify)

During the past 30 days

11. Number of sex partners
Refused ☐

12. Number of times had vaginal sex
Refused ☐

13. Number of time had anal sex:
Refused ☐

14. Number of Time used condoms
Refused ☐

During the past 7 days

15. Number of times injected:
Refused ☐

16. Times used previously used equipment:
Refused ☐

17. Has client had any STD symptom *(Genital ulcer, discharge, etc.)* **the past 3 months?**

0. ☐ No
1. ☐ Yes

18. Has client's sex partner had an STD, or is client worried his/ her sex partner has an STD?

0. ☐ No
1. ☐ Yes
2. ☐ Don't know

(If Yes to either, refer to STD center)

19. Has client had a cough or fever more 10 days?

0. ☐ No
1. ☐ Yes

20. Does client live or work with someone who are diagnosed with TB

0 ☐ No
1 ☐ Yes
2 ☐ Don't know

(If Yes to either, refer to TB center)

21. Condom demo done? *(Tick 1)* 0. ☐ No 1. ☐ Yes, by counselor 2. ☐ Yes, by client 3. ☐ Yes, Both *Number of condoms given:*_____.	**22. Needle demo done?** *(Tick 1)* 0. ☐ No 1. ☐ Yes, by counselor 2. ☐ Yes, by client 3. ☐ Yes, both *Number of bleach kits given:* .
23. If woman, client pregnant? 0. ☐ No 1. ☐ Yes	**24. Client is referred to** *(used for both sessions; determined by counselor [tick all that apply])* 0. ☐ Not referred 1. ☐ HIV care and treatment 2. ☐ STI service 3. ☐ TB service 4. ☐ PMTCT 5. ☐ Family planning 6. ☐ Other clinical care 7. ☐ Peer education program 8. ☐ PLWA support group 9. ☐ Drug treatment program 10. ☐ On-going cuonseling 88. ☐ Other (*specify):* .
25. Did client receive an HIV test? 0. ☐ No 1. ☐ Yes .	**26. If tested, did client return for test result?** 0. ☐ No 1. ☐ Yes Date:____/____/
27. What is the test result? 1. ☐ Negative 2. ☐ Positive 3. ☐ Indeterminate 88 ☐ Other (lost, etc.) Specify _____.	**28. Will client refer sex partner(s) to VCT?** 0. ☐ No 1. ☐ Yes How many
29. Will client refer needle-sharing partner to VCT? 0. ☐ No 1. ☐ Yes How many:	

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