SEXUAL BEHAVIOUR IN THAI HIV INFECTED PATIENTS AFTER THE ANTI RETROVIRAL THERAPY

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SEXUAL BEHAVIOUR IN THAI HIV- POSITIVE PATIENTS AFTER THE ANTI RETROVIRAL THERAPY

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ABSTRACT

This cross-sectional descriptive study aimed to assess patterns of sexual behavior, attitudes towards and knowledge about HIV/AIDS, and levels of perceived acceptance in Thai HIV infected patients after the initiation of HAART. 200 HIV-positive men and women aged 22-58 years, on HAART for 5-28 months, and a reported marked physical improvement, were interviewed by structured questionnaire in November-December 2005, in Chonburi Hospital, Eastern Thailand.

Results: Majority were men (60%), median age was 34 years, heterosexual (71%), married (59%), most had primary or secondary school education, and low income status. We assessed sexual behaviors after HAART and differences in reporting those behaviors perceived before HAART. For men, the numbers of non-regular and commercial partners decreased sharply after ART, but almost 20% still continued visiting CSW after HAART. Among men, perceived “100% condom use” with regular partners grew by more than one-third, to 60%, and with non-regular partners by 17%, to 35%, after HAART. One-fourth of male subjects refused to use condoms with regular partners after HAART. 31% of females still had unprotected sex with regular partners after HAART. Among men, 18% and 26% of women did not use condoms at their last sexual encounter. Three-fourths of subjects had incorrect beliefs about safe-sex behaviors and HIV transmission under HAART. There was a striking overall negative attitude towards HIV infection itself and a high level of stigmatization among patients on HAART. In spite of a positive trend, 64% still experience intolerance at home, the work place, among friends and in health care facilities. Most of the subjects showed higher levels of optimism and felt less depressed after HAART. There were some associations between perceived safe-sex behaviors and disclosure to partner, marital status and ART duration. We recommend collecting baseline data on sexual behaviors, psychological condition, beliefs and attitudes before starting ART, to monitor changes over time. Intensive risk-reduction, counseling and routine STD screening are needed. Treatment programs should emphasize consistent condom use with regular and non-regular partners, further reduction of CSW visits and disclosure. It is necessary to inform patients about continued HIV transmission under HAART. HIV-patients’ self-esteem needs to be improved by integration of mental health services with HIV primary care. Sexual education and condom use campaigns for non HIV-infected persons should be reinforced.

KEY WORDS: SEXUAL BEHAVIOR/HAART/HIV/AIDS/THAILAND
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LIST OF ABBREVIATIONS

AIDS	Acquired immuno deficiency syndrome
ARV	Antiretroviral
ART	Antiretroviral treatment
ATC	Access to Care Program
AZT	Zidovudine
CSW	Commercial Sex Worker
et al.	et alii
GPO	Government Pharmaceutical Organization
HAART	Highly Active Anti Retroviral Therapy
HIV	Human Immuno Deficiency Virus
IDV	Indinavir
IDU	IV drug users
i.e.	it est
MSF	Medicins Sans Frontiers (Doctors without Borders)
NAPHA	National Access to Antiretroviral Program for People Living with HIV/AIDS
NVP	Nevirapine
OPD	Out Patients Department
PHA	People living with HIV/AIDS
RTV	Ritonavir
SEA	South East Asia
STD	Sexually transmitted disease
STI	Sexually transmitted infection
TB	Tuberculosis
USA	United Stated of America
WHO	World Health Organization

CHAPTER I
INTRODUCTION

1.1 General HIV/AIDS situation in Thailand

The first AIDS case in Thailand was detected in September 1984. In the following years increasing numbers of new cases as well of people with HIV were reported. The first group of HIV infected cases was restricted to homosexual males. In 1989 and 1990, the virus spread to sex workers and their clients, and heterosexual transmission became increasingly important (Ministry of Public Health, Thailand, Sept. 25, 2005).

Given the high prevalence of HIV/AIDS and high accessibility to anti retroviral treatment, Thailand can serve as a model among developing countries. The profile of HIV patients in South East Asia (SEA), especially in Thailand, shows considerable differences to those in developed countries. One of those characteristics is the high prevalence of HIV infection predominantly among heterosexual men and women. In the year 2004, from a total population of 61 million, it was estimated that 1,074,155 persons were infected with HIV since the beginning of the epidemic. Among these, 501,600 have died and 572,500 are currently living with HIV and AIDS (Ministry of Public Health, Thailand, 1999-2000). Surveys among males (military conscripts, factory workers and students) and females (factory workers, pregnant women and students) conducted by the HIV/AIDS Risk Surveillance Program during 1995-1999 revealed significant increases in condom use during risky sexual encounters. The rate of constant condom use during sexual encounters with CSW among industrial male workers grew from 15% in 1995 to 58.4% in 2001 and from 9.9% to 32.4% with other women (Ministry of Public Health, Thailand, 25. Sept. 2005). Nevertheless, based on these findings, Thailand is still at risk of having another outbreak of HIV among the general population due to the lack of condom use during casual sex. It was demonstrated that the rate of condom use during sex with CSW among military recruits decreased in the same period from 50.5% to 30.8% (Ministry of Public

Health, Thailand, 25. Sept. 2005). Another characteristic of the HIV epidemic in Thailand is the high rate of HIV transmission caused by sexual intercourse with commercial sex workers (CSW). Despite a continuous decline in commercial sex visitations by men, many still engage in casual sex without condoms. For military conscripts, having sex with CSW declined from 50.5% in 1995 to 25.7% in 2001 and among industrial male workers from 31.5% to 17.6% in the same period (Ministry of Public Health, Thailand, 1999-2000).

After 1989, extensive national awareness campaigns for safer sex and condom use were initiated. They included:

- The “100 percent condom use program” with distribution of free condoms for CSW: the condom use rate among female CSWs increased from 25% in 1989 to 98% in the year 2001. (Ministry of Public Health, Thailand, 1999-2000 & 2005);
- Prevention programs among high risk populations including education programs for military recruits, peer education programs for sex workers, migrant workers, fishermen, factory workers;
- Comprehensive STDs case management aimed at accessibility of services for vulnerable populations, effective treatment, counseling for reduction of risk behaviors and partner notification;
- Mass media campaigns and a national STD campaign;
- Enhanced screening for detection of asymptomatic STD cases (Ministry of Public Health, Thailand, 25. Sept. 2005).

The National Anti-retroviral Program has been continuously developed and can be divided in 3 phases. Phase 1: 1992-1997: Assessment of the readiness of the health care service for patients living with HIV/AIDS (PHA) in anti retroviral treatment and use of mono therapy (zidovudine, AZT) free of charge. Phase 2: 1997-2000: The activities included: shift from mono therapy to dual therapy and in the final year to triple therapy, start of a project called Access to Care Program (ATC), where 1,200 patients were treated using highly active anti retroviral treatment (HAART). Phase 3:

2000-present: owing to the local production of affordable generic anti retroviral medicines by Government Pharmaceutical Organization (GPO), a growing number of PHA is getting access to ARV treatment. An increasing number of hospitals are now providing care and support to PHA and there is an enhanced collaboration between the government sector, private sector, community organizations and HIV patient networks. Good adherence is one of the most important objectives of this networking. National ARV regimen includes GPO–vir® as first line treatment which is a combination treatment of stavudine (d4T), lamivudine (3TC) and nevirapine (NVP); as second line treatment in case of allergy and side effects the combination of d4T, 3TC and efavirenz (EFV) and as third line treatment d4T, 3TC and indinavir (IDV)/ritonavir (RTV). The inclusion criteria for HAART by NAPHA in adult Thai patients include: AIDS or symptomatic with CD 4 ≤ 250 cell/mm³, or asymptomatic with CD 4 < 200 cells/mm³. For children, the criteria are: age < 12 months, children aged ≥ 12 months with clinical staging B, C or CD 4 < 20% (WHO Guidelines for resource limited settings).

By March 2005, 54,414 patients have been under HAART; the target has been set as 2,500 newly enrolled cases per month. The government budget (National Access to Antiretroviral Program for People Living with HIV/AIDS= NAPHA) covers 40,000 cases, the remaining patients are supported by the Global Found to Fight AIDS, TB and Malaria, a non assessable number of patients is receiving a self financed treatment. An Insurance Office in order to foster anti-retroviral medicines under the universal health care scheme has been established (Ministry of Public Health, Thailand, 25. Sept. 2005).

Another important feature of the AIDS epidemic in Thailand is the success of governmental programs in containment of the spread of HIV/AIDS epidemic. The HIV prevalence rate among male conscripts at the national level reached 4% in 1993 and decreased since then steadily to 0.5% in the year 2003. The HIV prevalence rate among pregnant women rose to 2.3% in 1995 and dropped to 1.18% in the year 2003. The highest prevalence was among IV drug users (IDU) (33.33%), followed by female direct sex workers (working exclusively in sex establishments) (10.87%), male

sex workers (7.90%), fishermen (6.86%), male STD clinic patients (4.0%), female indirect sex workers (3.67%) and blood donors (0.27%). However, the HIV prevalence rate in female direct sex workers decreased from 28 % in 1994 to 12 % in the year 2003 and in female indirect sex workers from 10% in 1996 to 4% in 2003 (Ministry of Public Health, Thailand, 1999-2000 & 2005).

The feature which makes Thailand distinctive among developing and transitional countries is the wide accessibility to HAART for its HIV infected patients. In the past five years the prices for the anti retroviral regimens known as highly active anti retroviral therapy (HAART) for people living with HIV/AIDS (PHA) have dropped significantly and the accessibility for patients in developing countries now becomes possible. WHO/UNAIDS estimate that 700,000 people were on anti retroviral treatment (ART) in developing countries by the end of 2004. This number though represents only 12% of an estimated 5.8 million currently needing ART in developing and transitional countries. Thailand has reached the “3 by 5” target of treating 50% or more people needing HAART in the first half of 2005. Organizations like the Clinton Foundation and MSF have been instrumental in lowering the price of first-line anti retroviral medicines (WHO/UNAIDS, 2005).

CHAPTER II
LITERATURE REVIEW

2.1 Introduction

Since the wide distribution and affordability of HAART among PHA, many experts have expressed their concern whether the treatment has an impact on the sexual behavior of those patients. HAART provides persons living with HIV with a longer life span and improved health resulting in more time and opportunities for transmission of HIV to occur. Studies suggest that many PHA believe that sexual behaviors leading to transmission of HIV such as unprotected sex, are less risky if viral load is suppressed and the probability of transmission is lower (Dukers et al. 2001, Scheer et al., 2001). There is also evidence that transmission behaviors have increased among PHA since the introduction of HAART (Crepaz et al, 2004, Lightfoot et al., 2005, Ostrow et al., 2002, Stolte et al., 2001, Dukers et al., 2001, Scheer et al., 2001).

To examine these associations, several behavioral studies have been conducted in the USA, Australia, Canada, Holland, Taiwan and other developed countries focusing on “risk groups” such as homosexual men and IV drug users (Crepaz et al, 2004, Lightfoot et al., 2005, Ostrow et al., 2002, Stolte et al., 2001, Dukers et al., 2001, Scheer et al., 2001, Diamond et al., 2005, Van der Straten et al., 2000, Castilla et al., 2005). The results showed controversial, potentially conflicting outcomes. They ranged from the conclusion that an increase of sexual risk behaviors was associated with receipt of therapy and indicated a higher risk for transmission (Crepaz et al, 2004, Lightfoot et al., 2005, Ostrow et al., 2002, Stolte et al., 2001, Dukers et al., 2001, Scheer et al., 2001) to contrary statements suggesting that HAART was associated with less sexual risks even among those achieving an undetectable viral load (Crepaz et al., 2004, Van der Straten et al. 2000, Castill et al., 2005).

2.2 Increases of risky sexual behaviors after HAART

Crepaz and colleagues (2004) published a meta-analytic review of 25 studies from the time between 1996 and 2001. 64% of the studies were conducted in the USA, more than half of them with homosexual men. The results demonstrated that the weighted overall effect size reflecting the association between receiving HAART and engaging in unprotected sex was not significant (OR, 0,92; 95% CI, 0,65-1,31; k=21, *P*<0.001). The likelihood of engaging in risky sexual behavior was not higher in the group of HIV positive persons receiving HAART compared with the untreated group. The same study examined the association of unprotected sex with knowledge about HIV therapy or viral load in HIV positive persons. The likelihood of unprotected sexual behavior was significantly higher in people who believed that HAART reduces HIV transmission or who were less concerned about engaging in unsafe sex given the availability of HAART (OR, 1,82; 95% CI, 1.52-2.17, k=18, *P*<0.001) (Crepaz et al., 2004).

Lightfoot et al. (2005) conducted a study among youths living with HIV in the United States in the era prior to HAART compared with the time when antiretroviral treatment became widely availability. It was demonstrated that post-HAART adolescents and young adults were more likely to engage in unprotected sex (OR 1.96). The mean number of unprotected sex act was significantly higher in the post-HAART cohort compared with the pre HAART cohort (10.8 vs. 4.8, *P*< 0.01). Post HAART youth were almost twice as likely to have had unprotected sex in the previous three months than were pre HAART youth. Therefore, transmission acts were higher among the post HAART youth (Lightfoot, 2005).

Another study conducted among homosexual men in the USA indicated that the beneficial effect of HAART on reducing HIV incidence has been counterbalanced by an increase in high risk behaviors among homosexual men in the USA. In a multi-center AIDS cohort study, Ostrow and colleagues (2002) demonstrated that despite reductions in HIV risk behaviors observed in the first decade of the HIV epidemic, approximately half of the homosexual men who reported recently having risky sex encounters did not consistently use condoms. Among those men, lessened concern

about infecting someone due to availability of HAART was strongly associated with a three to six fold higher odds of unprotected anal sex as was safer sex fatigue among HIV positive men (OR, 3.31; 95% CI, 2.24-16.63 and OR, 4.57; 95% CI, 1.70-12.24, respectively) (Ostrow et al., 2002). Another study conducted at the STD clinic in Amsterdam, Holland, showed an increase in rectal gonorrhea and early syphilis in homosexual men coinciding with the introduction of HAART and indicating a change in sexual behavior among that patient group (Stolte et al., 2001). Rectal gonorrhea and early syphilis are often used as markers of unprotected anal intercourse. This would be in agreement with the findings from a cohort of HIV positive homosexual men in Amsterdam. This study concluded that among HIV-1 positive men, a higher level of unprotected sex with casual partners was observed after HIV-1 RNA became undetectable and CD 4 cell counts increased with the use of HAART. The authors interpret these findings as a consequence of treatment optimism. After learning their newly improved HIV-1 RNA level, the patients may feel more optimistic about their life expectancy and perhaps also believe that their infectiousness has diminished.
Furthermore, a physiological component of an improved physical health and consequently increased libido might be of importance. HAART induced improvements in levels of HIV-1 RNA, and CD 4 cells appear to play an important role in predicting the practice of unprotected sex (Dukes et al, 2001 & Scheer S 2001). A study matching the sexually transmitted diseases and HIV registers in San Francisco showed that patients on HAART were more likely to develop STD than untreated patients. (P<0.001) (Scheer et al., 2001).

2.3 Decreases of risky sexual behaviors since HAART

However, there are several studies demonstrating reverse results. Diamond et al. (2005) examined the relationship between unprotected anal or vaginal sex and HAART use and adherence to this treatment in HIV clinic patients in California. Contrary to previous research, the use of and the adherence to HAART and the consequent suppression of HIV-1 were associated with a decreased prevalence of self reported risky sexual behavior (for ART use OR 0.5; 95% CI 0,4-0,7, P<0.001, for adherence to HAART OR 0,6; 95% CI 0,4-0,8, P<0,001). HAART users reported lower prevalences of unprotected sex encounters and good treatment adherence was

also associated with a lower likelihood of unprotected sex. Although “safer sex fatigue” from prevention messages in the clinic setting, as indicated by Ostrow et al. (2002), could result in increased unprotected sex, this study concluded that a longer duration of clinic attendance actually was associated with less unprotected sex (Diamond et al., 2005). Similarly, among heterosexual serodiscordant couples in California, HIV infected patients on protease inhibitors were less likely to have unprotected sex compared to those not on protease inhibitors, and the partner’s undetectable viral load was associated with protected sex among seronegative members of the couples (Van der Straten et al., 2000).

Castilla et al. (2005) analyzed heterosexual couples, of which one partner had been previously diagnosed with HIV infection and where the HIV negative partner reported his or her sexual relationship with the HIV infected partner as the unique risk exposure. The prevalence of HIV among partners of HIV infected persons who had not received HAART was 8.6%, whereas no partner was infected in couples in which the HIV partner was on ART treatment (P=0.0123). When HAART became widely available, a reduction of approximately 80% in heterosexual transmission of HIV was observed (Castilla et al., 2005). The results of this study also demonstrated that the proportion of couples who practiced unprotected coital acts decreased as well as the frequency of STDs, which would contribute to lower transmission rates. However, the authors suggest that it is the antiretroviral treatment which contributes mostly to the reduction in sexual transmission of HIV (Castilla et al., 2005).

2.4 HAART and its impact on HIV transmissions

As this information moves into public domain, it may influence people’s knowledge about HIV transmission and lessen concern about engaging in safer sex. There are biological and epidemiological reasons to believe that HAART can reduce sexual transmission of HIV. Biological studies have shown that antiretroviral drugs decrease HIV in seminal fluid and in cervicovaginal secretions (Vernazza et al., 2000, Kovacs et al., 2001).

An epidemiological study by Quinn and colleagues (2000) in Rakai, a rural district of Uganda, conducted in the pre-HAART era, showed that no HIV-1 transmission occurred within monogamous heterosexual couples, in which one partner was HIV-1 positive, when HIV-RNA levels were low (below 1300 copies/ml). The rate of heterosexual transmission of HIV-1 was the same for men and women and only related to serum HIV-1 RNA concentration. It has been suggested that the viral load is the chief predictor of the risk of heterosexual transmission of HIV-1 (Quinn et al., 2000).

Although optimal adherence to HAART can significantly reduce plasma HIV-1 levels, a substantial proportion of patients may be infectious or harbor HIV-1 drug resistant strains (Kovacs et al., 2001). Moreover, unprotected sex with another HIV-1 positive person could result in superinfection with a drug resistant strain of the HIV-1 virus (Scheer et al., 2001). However, although greatly suppressed by HAART, the shedding in the semen of men and in the genital tract of women of cells harboring the HIV-1 provirus still continued after treatment (Vernazza et al., 2000, Kovacs et al., 2001). One study demonstrated that although treatment was associated with a decrease in the odds of HIV-1 shedding in the female genital tract, 59% of women receiving HAART still had HIV-1 shedding even with less than 500 copies/ml plasma HIV-1 RNA. However, mean RNA concentrations in genital secretions were significantly lower in women receiving treatment than in untreated women (Kovacs et al., 2001).

Therefore, even if there are biologic and epidemiological reasons to believe that HAART can reduce sexual transmission of HIV, the possibility of transmitting HIV-1 RNA at low virus levels cannot be ruled out. Moreover, the practice of unprotected sex is still of concern for the spread of STD other than HIV. The same study demonstrated that genital tract shedding was detected more often among women with vaginal discharge, squamous intraepithelial lesions on pap smear, vaginal candidiasis, genital warts and herpes simplex virus or human papilloma virus infections (Kovacs et al., 2001). The same can be concluded from the studies conducted with men. STD like gonorrhea or syphilis may enhance both HIV-1 virus susceptibility and

infectiousness and could affect the resistance patterns of genital HIV-1 (Dukers et al., 2001, Ping et al., 2000). Therefore, efforts must be strengthened to use the surveillance derived measures of the occurrence of sexually transmitted diseases as indicators of high risk sexual behaviors or of HIV incidence (Renton et al., 1994).

2.5 Behavioral studies from Asia

So far, only one study exploring the sexual behavior of PHA *prior* to HAART has been conducted in 4 northern provinces of Thailand. Oberdorfer and colleagues (2005) explored sexual behaviors of HIV infected patients before they received antiretroviral treatment and presented their results as baseline findings. The authors concluded that the rate of condom use was low during sex with regular and irregular partners and suggested more emphasis on prevention activities including regular partner relations, disclosure of HIV status to the partner, partner testing and consistent condom use with all partners. The question whether sexual behaviors in Thai HIV infected patients have changed after the initiation of HAART has not been examined yet.

One study examined the impact of the policy of providing free access to HAART in Taiwan, an Eastern Asian setting. After the availability of antiretroviral therapy free of charge through the National Health Insurance Program was established in 1997, the estimated HIV transmission rate decreased by 53% between 1997 and 2002. To differentiate the effect of HAART from that of behavioral changes, the incidence of syphilis in general population and among HIV positive patients was also analyzed. There was no significant change in the incidence of STDs such as syphilis among HIV infected patients and in the general population during this period indicating that there was no change in risky sexual behavior. The study from Taiwan shows contrary results compared with most of the outcomes from other industrialized countries. Despite the fact that Taiwan is a low prevalence country, there are cultural traits comparable to other countries in the region and therefore lessons to learn (Fang et al., 2004).

Since the majority of studies were conducted among risk groups in developed countries there is so far no evidence of a possible correlation between the provision of HAART and the amount of unsafe sexual practices among HIV patients in developing countries. The cultural, behavioral, social and economic structures of those patients differ considerably from patients in developed countries who were subjects in behavioral investigations so far. Ninety percent of people infected with HIV live in the developing world; however, only 4 % of those who need ART currently have access to the drugs they require (Asia Pacific Ministerial Meeting, 2001). The focus on HIV patients in developed countries who constitute only an insignificant minority among all PHA worldwide, diverts the attention from the majority of patients in developing and transitional countries where the epidemic is driven primarily by heterosexual contacts. Therefore, more information about the risky behavior among those patients in the HAART era is needed.

While some of the studies suggest that the availability of HAART may promote risky sexual behavior and thus lead to a surge in the incidence of new HIV infections, there is no proof that this hypothesis can be applied to resource limited settings, such as Thailand.

The following study aims to describe the behavioral aspects, attitudes towards and the beliefs about HIV/AIDS in persons receiving ART in the context of HIV infections in Thailand. We also would like to point out the possible impact of these aspects on planing and conducting of public health measures in the field of control and treatment of HIV/AIDS in Thailand.

CHAPTER III
STUDY OBJECTIVES

The aims of this study are:

1. To assess patterns of sexual behaviors in Thai HIV infected patients after the introduction of HAART and in the socio-cultural setting of eastern Thailand

2. To assess patients' beliefs about and attitudes towards HIV/AIDS and risky sexual behaviors after HAART

3. To determine, whether demographic parameters can influence sexual behavior of HIV infected patients after HAART in Chonburi Province

4. To assess perceived levels of intolerance and discrimination among patients after the initiation of HAART

3.1. Research hypotheses:

1. There is an association between being on HAART and differences in reporting of perceived patterns of sexual behaviors (i.e. condom use, visits to CSW, number of regular and non regular partners, frequency of STDs) before and after HAART among Thai HIV infected patients in Chonburi Province, East Thailand.

2. There is an association between patient's disclosure of his/her HIV status to the partner and differences in reporting of patterns of risky sexual behaviors among Thai HIV infected patients in Chonburi Province, East Thailand, after the introduction of HAART.

3. There is an association between patient's general characteristics such as age, gender, sexual orientation, marital status, education level, occupation, income and differences in reporting of perceived patterns of risky sexual behaviors among Thai HIV infected patients in the Chonburi Province, East Thailand, after the introduction of HAART.

4. There is an association between patient's health improvement and duration of ART treatment and differences in reporting of patterns of risky sexual behaviors among Thai HIV infected patients in Chonburi Province, East Thailand, since the introduction of HAART.

3.2. Variables of the study

INDEPENDENT VARIABLES:

1. General demographic characteristics:

- Age
- Gender
- Marital status
- Sexual orientation
- Level of education
- Occupation
- Income

2. Duration of treatment with HAART

3. Health improvement since taking HAART

4. Patient's beliefs about and attitudes towards HIV/AIDS

5. Patient's experience with stigma

6. Adherence to HAART

DEPENDENT VARIABLES:

1. Sexual behaviors:

- Frequency of sex post HAART
- Condom use post HAART
- Number of regular partners post HAART
- Number of non regular partners post HAART
- Frequency of visits to CSW post HAART

3.3. Operational definitions:

Risky sexual behavior: any sexual behavior, which bears the risk of infection with sexually transmitted diseases including HIV. It includes participants' non-willingness of adapting protective measures such as use of condoms in order to prevent themselves and their partners from getting STD/HIV/AIDS.

Regular partners: husband or wife or the one the participant has sex regularly.

Non-regular partners: someone else besides from the definition above and with whom the participant has sex.

Commercial sex workers: partners with whom the participant has sex in exchange for money.

Patient's beliefs about HIV/AIDS: refers to participants' beliefs about ways of transmission of HIV, infectiousness under HAART, and possibilities of protection and prevention of HIV infections.

Patient's attitudes towards HIV/AIDS: refers to participant's opinions about safe sex practices, HIV transmission under HAART and about HIV infected people's perspectives of the future.

Patient's experience with stigma: refers to participant's subjective and perceived levels of intolerance and discrimination in daily life situations such as at home, among friends, at the work place or in health care facilities.

Health improvement since HAART: refers to participant's subjective and perceived improvement of health status since the initiation of HAART, such as gaining on weight and physical strength or better performance in daily life.

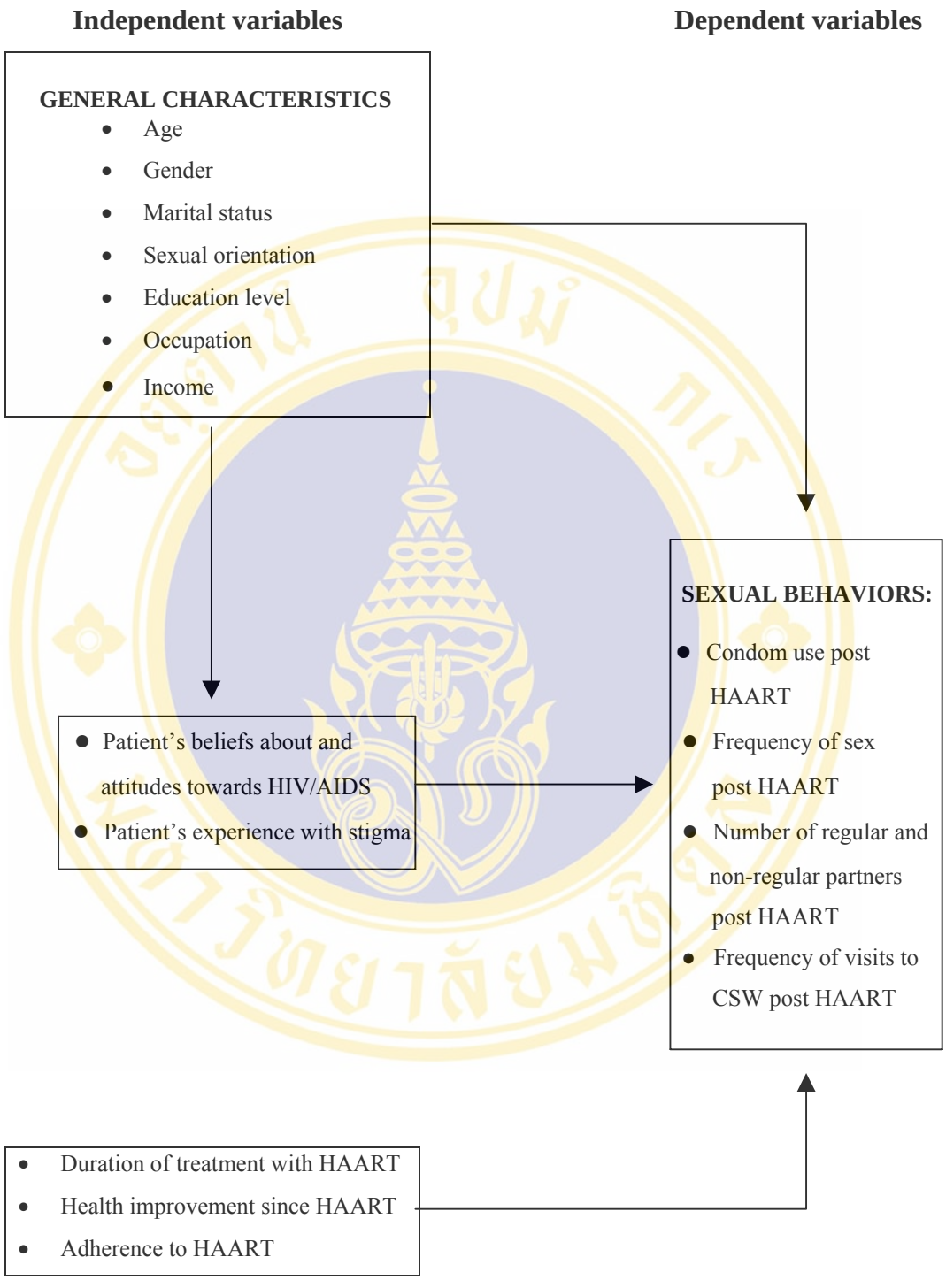

Figure 1: Conceptual framework of risky sexual behaviors among HIV infected Thai patients prior and post HAART in Chonburi Province, Thailand.

CHAPTER 4
MATERIALS AND METHODS

4.1. Study design:

A descriptive, cross sectional study among 200 HIV infected patients in Chonburi province was conducted. Ethical clearance had been obtained from the Ethics Committee of the Faculty of Tropical Medicine, Mahidol University and from the Ethics Committee of the Chonburi Hospital.

4.2. Study area and population

This study was carried out in Chonburi, a province in Eastern Thailand. Neighboring provinces are Chachoengsao, Chanthaburi and Rayong. To the west, the Gulf of Thailand is located. The province capital city is Chonburi, the area is 4.363 km², the number of inhabitants is 1.040.865 (2000). Chonburi Hospital is situated about 60 km from the tourist town of Pattaya and around 80 km southeast of Bangkok. Until the 1950s Pattaya had been small fishing village, but during Vietnam War the American troops maintained a base nearby and the place became a popular "rest and recreation" location. The city grew quickly, mostly due to its nightlife and became the prime tourist center in the country. The town has seen a large increase in family tourism despite its reputation as being a destination for sex tourism, though its red light districts still attract their share of native Thais and foreigners alike (www.wikipedia.org). Chonburi and neighboring Rayong are two provinces with some of the highest rates of HIV in Thailand (Ministry of Public Health, Thailand, 1999-2000).

Inclusion criteria were all patients above 18 years, everyone being on HAART for at least 5 months but not much longer than 28 months and patients able to self-administer the questionnaires. The study population consisted of HIV positive men and women from the Chonburi Province aged 22 to 58 years who appeared for follow-up visits at the special OPD of the Chonburi Hospital. This hospital is a center taking

care of and providing HAART to more than 1000 HIV infected persons from the area (C Bowonwatanuwong, personal communication, 16.12 2005).

4.3. Sample size

The research was limited by the time restrictions given by the study design. Though random sampling was difficult to carry out in this study due to several conditions, the sample size was calculated to get a minimum figure required for this study. The numbers were calculated from the change in the mean rate of constant condom use in male military recruits and male and female industrial workers in the time between 1996 (before introduction of HAART) and 2001 (after HAART was introduced in Thailand) and the formula for estimated sample size was used as follow:

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

n = estimated sample size

$Z^2\ \alpha/2$ = value from normal distribution associated with 90 % confidence level=1.648

α = significance level set at <0.10

d = maximum allowance error = 0.02

P = 0.044; this estimated change in sexual behavior is quoted from the prevalence of constant condom use among general population in Thailand before and after the wide use of HAART from the Bureau of Epidemiology, Ministry of Public Health, Thailand. The calculation is the change in the mean percentage of condom use among male and female factory workers and male conscripts between 1996 and 2001.

$$n = \frac{(1.648)^2 \times (0.044) \times (0.956)}{(0.02)^2} = 285$$

→ The minimum required sample size for this study was 285 cases

4.4. Sampling

The study participants were HIV infected women and men on HAART. They were scheduled for routine follow-up visits to the special OPD at the Chonburi Hospital at two days per week where they received their antiretroviral treatment. The issue of data collection was sensitive as the study was concerned with sexual behavior. Due to the study design and the schedule of the Master course, the time for data collection was restricted to 8 weeks and the estimated number of patients who met the inclusion criteria in this hospital was difficult to obtain in this time. Therefore, random sampling could not be done. Instead, convenient sampling was conducted. It was based on selecting the subjects who were available in the waiting room of the OPD or had to wait for the results of the follow-up examinations and who met the inclusion criteria. The purpose and the objectives of the study were explained to the study participants by volunteer interviewers who themselves were HIV infected. The questionnaires were distributed only after signed or, in case a participant refused to sign, verbal informed consent was obtained.

4.5. Research instruments

The instrument for this research was a questionnaire first prepared in English. Later it was translated into Thai language by two independent translators. The questionnaire was already checked by the Committee including the Advisor and Co-advisors who themselves are HIV researchers and social scientists, and was revised and modified according to their suggestions to make it more understandable. The revised questionnaire was pre-tested among four (two females, two males) HIV infected volunteers working at Chonburi Hospital to test comprehensibility of the questions and to check whether it could accurately elicit the required information. After the pre-test results were checked, changes and modifications in both Thai and English versions were made and the questionnaire was back translated into English. Furthermore, the questionnaire was approved by the Ethical Commissions of Mahidol University and of Chonburi Hospital. During the time of data collection, we distributed 220 questionnaires to potential study participants. However, some of the questionnaires were either not returned or contained too many missing data.

Therefore, those subjects had to be excluded from our study. Therefore we obtained 200 study participants, which was 70.1% of the minimum required sample size of 285 subjects.

The questionnaire included 51 questions and was divided into 4 parts:

Section 1: General characteristics and information about HAART
Section 2: Patterns of sexual behavior
Section 3: Condom use, beliefs about and attitudes towards safe sex
Section 4: Patient's experience with stigma and intolerance

Section 1: General characteristics and information about HAART

General characteristics included age, gender, sexual orientation, marital status, level of education, occupation and average monthly income. Information about treatment included duration of HAART in months, health improvement since HAART, as well as questions concerning interest in sex since HAART and desire to have a child before and after HAART. Close-ended questions were used here.

Section 2: Patterns of sexual behavior

There were seven items asking about the number of regular, non-regular and commercial sex partners before and after HAART, number of current partners and regularity of visits to CSW. For the last item, rating scale written as "regularly", "sometimes" and "never" was used.

Section 3: Condom use, beliefs about and attitudes towards safe sex

The questions in this section referred to condom use behavior with regular and non-regular sex partners before and after HAART using a rating scale ranging from "100% = every time" to "0% = never". Other questions were concerned with the frequency of sex acts before and after HAART and condom use at the last time they had sex with regular and commercial sex partners. This section also included statements about attitudes towards safe sex behaviors, beliefs about HIV transmissions among patients on HAART as well as patients' attitudes towards HIV

infection and HIV infected persons. The participants were asked to indicate the level of their agreement on a five-point scale ranging from “strongly agree” to “disagree”. Furthermore, the patients were asked whether they disclosed their HIV status to sex partners, whether adherence to the treatment was maintained and if they suffered of any STDs since HAART.

Section 4: Patient’s experiences with stigma and intolerance

There were five items in the last section and we used a rating scale. The questions referred to perceived or experienced acceptance by the environment (at home, working place, among friends and in health care facilities) and the level of intolerance before and after HAART. Two questions referred to optimism and depression before and after treatment.

4.6. Data collection

Data collection was done by convenient sampling. Participants in this study were HIV positive women and men on antiretroviral treatment aged 22 to 58 years (median age 34 years), mostly married and heterosexual. They visited a special OPD of Chonburi Hospital at previously scheduled times for routine follow-up checks. All patients with HAART duration for at least 5 months and not longer than 28 months met the inclusion criteria. Completing a questionnaire by an individual subject took between 20 and 40 minutes. The process of collecting data lasted from 14 November 2005 to 8 January 2006.

The structured, self-administered questionnaire in Thai language was used. Some participants who did not fully understand the questions were given assistance by volunteers who were employed to be at the researcher’s disposal by Chonburi Hospital. Some of them were HIV positive themselves and had previously been explained about the objectives of the research and trained in data collection technique. To maintain the accuracy of data, we have put the subjects as much as possible at ease during the data collection session by proper self-introduction and building rapport with them. To guarantee confidentiality and privacy, the process was performed in a separated and silent OPD room and we provided as much time as the participants required to complete the questionnaires. They could ask any questions and for any

assistance if needed. Throughout the whole period of completing the questionnaires, the researcher was present and any questions from participants were immediately clarified. To reduce inconsistencies of data entry and to maintain the quality of the data, the filled questionnaires were repeatedly checked in presence of the participants and the subjects were asked to fill in any missing items.

4.7. Data analysis

4.7.1. Scoring criteria and classification

Beliefs about safe sex behaviors and HIV transmissions: Six items in this section were rated with 5 points response format ranging from "5 = strongly agree", "4 = agree", "3 = undecided", "2 = disagree", to "1 = strongly disagree". The total score was 5 points and 1 point was classified as "incorrect beliefs", 2 points as "rather incorrect beliefs", 3 points as "acceptable beliefs", 4 points as "rather correct beliefs" and 5 points a "correct beliefs". A total score of 4-5 points was classified as "generally correct beliefs" while score 1-3 points as "generally incorrect beliefs".

Attitudes towards safe sex behaviors and HIV/AIDS: Ten items in this section were rated with 5 points response format ranging from "5 = strongly agree", "4 = agree", "3 = undecided", "2 = disagree", to "1 = strongly disagree". The total score was 8 points and 1-2 points were classified as "negative attitude", 3-4 points a "rather negative attitude", 5-6 points a "rather positive attitude", 7-8 points a "positive attitude".

A total score of 5-8 points was classified as "positive attitude" while scores 1-4 points as "negative attitude".

Table 1: Possible scores and cut-off points of study variables

Variables	Possible score	Level of classification	
	Range	Need for improvement: low	high
Beliefs about safe sex and HIV transmissions under HAART	1-5	4-5	1-3
Attitudes towards safe sex and HIV-infected persons	1-8	5-8	1-4

4.7.2. Statistical analysis

Descriptive statistics such as mean, median, percentage and standard deviation were generated for sample characteristics and patients sexual behavior variables. The Chi-square and McNemar tests were used to find out the association between independent and dependent variables. All *P* values <0.05 were considered statistically significant and based on univariate analysis.

4.8. Ethical considerations

The Ethical Committee of the Faculty of Tropical Medicine, Mahidol University and the Ethical Committee of Chonburi Hospital approved the research protocol. Usually, it is very sensitive to ask Thai people questions about sexual behavior. In our study, the advantage was that some of the OPD employees who supported the researcher in the Chonburi Hospital and who explained the objectives of the research to study participants and helped them in filling in of questionnaires were themselves HIV infected and were in patients' confidence. This fact helped the subjects be more confident to answer and to share their knowledge and experience.

The purpose of the study was explained to the study participants before handing out the questionnaires and the questions were answered only after they gave their written or, in case they refused to sign, oral informed consent to be the volunteers. Moreover, it was made clear to them that they had the right to refuse to answer and

they could resign from the study at any time without any obligations. The structured questionnaire was distributed and confidentiality and privacy was maintained. The answers were recorded and analyzed using a number and code for each patient and questionnaire. Furthermore, the names of the study participants did not appear in any publication and the results were presented as a group only.

CHAPTER V
RESULTS

This cross-sectional study was carried out to assess patterns of risky sexual behaviors, beliefs about and attitudes towards HIV/AIDS as well as levels of perceived or experienced stigma and intolerance in HIV infected patients after HAART. The study was conducted among 200 HIV infected Thai subjects aged 22 – 58 years in Chonburi Province, Eastern Thailand.

The study results are divided into 7 parts: 1. General characteristics; 2. Regular, non-regular and commercial sex partners before and after HAART; 3. Condom use behaviors before and after HAART; 4. Beliefs about safer sex behaviors and HIV transmissions under HAART; 5. Attitudes towards safer sex behaviors and HIV infected people; 6. Disclosure to partners, adherence to treatment and history of STDs since HAART; 7. Intolerance, stigma and optimism since HAART.

5.1. General characteristics

The general characteristics of 200 subjects aged 22 to 58 years (median age 34 years) are described in detail in Table 2. The majority of participants was male (59.5%) in the age range of 23 to 58 years, with a mean age of 36.9 years. The proportion of females was 40.5% and their age ranged from 22 to 55 years (mean age 32.6 years). Regarding sexual orientation, 67.5% stated to be heterosexual, 21.5% homosexual (including gays and kathoeys), 3% bisexual, 4.5% refused to indicate their sexual orientation. The majority of the participants were married (58.5%), 7.5% were divorced, 13% widowed and 19.5% single. Subjects who only completed primary education made up for 37.5%, those with secondary education 38.5%, followed by vocational school (14%) and university or above (8%). Regarding occupation, factory workers (22.5%) and laborers (13%) constituted the biggest groups, 8% were housewives, 7% employees, 4.5% sellers, 3.5% were employed in agriculture, a further 3.5% owned a business and 2.5% were fishermen. The

remaining occupations included entertainment workers, civil governors, policemen and one monk. Twelve percent remained without job. Their incomes ranged from “no income” to “>50.000 Baht”, but the majority indicated a monthly income “3,001-6,000 Baht” (38.5%) and “6,001-10,000 Baht” (19%). Only a small proportion of 8% received 10,001-50,000 Baht whereas 1.5% earned more than 50,000 Baht per month. Fourteen point five percent had no income. When asked about the duration of antiretroviral treatment, a majority received HAART for 12-24 months (51.5%) and 25.0% for 6-12 months. Eighteen percent of respondents indicated a time longer than 24 months and 5.5% shorter than 6 months. A majority of participants reported a perceived marked improvement of their health since being on HAART (82%), whereas 17% indicated a slight improvement and only two patients (1%) did not feel any improvement at all. Most of respondents noticed an increased interest in sex since they started taking HAART (55.5%), while 42.5% denied having more interest. The majority of subjects reported having sex since the initiation of the ART treatment (79.5%), 20.5% had no sex after HAART.

Table 2: General characteristics of 200 Thai HIV infected females and males on HAART.

General characteristics	Frequency	Percent
Age in years (n=199)		
22-30	52	26.0
31-40	105	52.5
41-50	35	17.5
51-58	7	3.5
Mean ± SD = 34 ± 6.78		
Range = 22-58		
Gender (n=200)		
Male	119	59.5
Female	81	40.5
Sexual orientation (n=191)		
Heterosexual	135	70.7
Homosexual	41	21.5
Bisexual	6	3.1
Don't want to answer	9	4.7
Marital status (n=197)		
Married	117	59.4
Divorced	15	7.6
Widowed	26	13.2
Single	39	19.8
Education (n=197)		
No school	1	0.5
Primary school	75	38.1
Secondary school	77	39.1
Vocational school	28	14.2
University and above	16	8.1

Table 2: General characteristics of 200 Thai HIV infected females and males on HAART (cont.)

General characteristics	Frequency	Percent
Average monthly income in Thai Baht (n=191)		
No income	29	15.2
≤ 3,000 Baht	28	14.7
3,001-6,000 Baht	77	40.3
6,001-10,000 Baht	38	19.9
10,001-50,000 Baht	16	8.4
> 50,000 Baht	3	1.6
Occupation (n=200)		
Laborers, factory workers, employees	85	42.5
Agriculture, Fishermen	12	6.0
Housewife	16	8.0
Entertainment	3	1.5
Civil governors	10	5.0
Own business, seller	16	8.0
Monk	1	0.5
Others	33	16.5
No job	24	12.0
Duration of ART treatment (n=200)		
0-6 months	11	5.5
7-12 months	50	25.0
13-24 months	103	51.5
> 24 months	36	18.0
Improvement of health since HAART (n=200)		
Marked improvement	164	82.0
Slight improvement	34	17.0
No improvement	2	1.0

Table 2: General characteristics of 200 Thai HIV infected females and males on HAART (cont.)

General characteristics	Frequency	Percent
Sex ever since HAART (n=200)		
Yes	159	79.5
No	41	20.5
Increased interest in sex since HAART (n=196)		
Yes	111	56.6
No	85	43.4

5.2. Regular, non-regular and commercial sex partners after HAART

Tables 3, 4 and 5 show in detail the self-reported numbers of regular, non-regular and commercial sexual partners of 200 HIV infected Thai males and females after they received HAART, and the perceived change in percent. When we compared reported behaviors as they were perceived between “before” and “after HAART”, we found that the distribution of “before” and “after” was different. Changes in all categories were tabulated “before” versus “after HAART”. However, we did not compare category by category of “before” vs. “after”, so the indicated changes in percent do not reflect changes in the same persons over time. This applies to all tables displaying perceived changes in percent.

Table 3 focuses on numbers of partners among 112 males after HAART . Sixty men (53.6%) reported having one regular partner and there was no difference in reporting of regular numbers as they were recalled from the time before HAART. Two regular partners were indicated by 4.5%, no men had more than two regular partners and 15.2% did no indicate the number of their regular partners for the time after the start of the treatment. There was only a slight difference in reported numbers of regular partners before HAART was started. Regarding non-regular partners of 111 men, it was shown that 99 (89.2%) had no non-regular partners after HAART. The

proportion of those who indicated having no non-regular partners before HAART was 70.3%. Regarding the number of commercial partners, 93 (83.0%) out of 114 men reported not having any CSW partners after HAART, whereas the percentage of men who reported to have no CSW partners before ART was 74.1%. The last two findings indicate a difference in reporting of perceived numbers of non-regular and commercial sexual partners after HAART was initiated.

Table 3: Numbers of regular, non-regular and commercial sexual partners and perceived changes of these numbers in HIV infected Thai males after HAART, n (%).

	After HAART n (percents)	Perceived change (percent)
Behavior		
Number of regular partners (n=112)		
1 regular partner	60 (53.6)	0.0
2 regular partners	5 (4.5)	0.9
> 2 regular partners	0 (0.0)	4.5
number unknown	17 (15.2)	0.9
no regular partners	30 (26.8)	6.3
Number of non-regular partners (n=111)		
1 non-regular partner	4 (3.6)	5.4
2 non-regular partners	2 (1.8)	5.4
> 2 non-regular partners	3 (2.7)	6.3
number unknown	3 (2.7)	1.8
no non-regular partners	99 (89.2)	18.9
Number of commercial partners (n=114)		
1 commercial partner	4 (3.6)	1.8
2 commercial partners	5 (4.5)	2.6
> 2 commercial partners	4 (3.6)	3.5
number unknown	6 (5.4)	0.9
no commercial partners	93 (83.0)	8.9

Table 4 gives details about the number of sex partners after HAART among 81 female respondents. After antiretroviral treatment, 49 women (63.6%) reported one regular partner. The proportion of females who remembered having one regular partner before HAART was 75.3%. Therefore, they perceived different numbers of regular partners since HAART was initiated. There was not much difference in reporting of higher numbers of regular partners by women as they were recalled before and after HAART. However, the proportion of women who reported having no regular partners after HAART was 23.4% and the proportion of women who recalled having no regular partners before HAART was lower at 6.2%. Regarding non-regular partners, 71 (91.0%) out of 78 women had no non-regular partners after treatment. The number of females, who recalled having no non-regular partners before HAART was with 70 (85.9%) only slightly lower.

Table 4: Numbers of regular and non-regular sexual partners in HIV infected Thai females after HAART and perceived changes after HAART, n (%).

	After HAART n (percent)	Perceived change (percent)
Number of regular partners (n=81)		
1 regular partner	49 (63.6)	11.7
2 regular partners	0 (0.0)	4.9
> 2 regular partners	0 (0.0)	0.0
number unknown	10 (13.0)	0.6
no regular partners	18 (23.4)	17.2
Number of non-regular partners (n=78)		
1 non-regular partner	5 (6.4)	1.3
2 non-regular partners	0 (0.0)	1.3
> 2 non-regular partners	1 (1.3)	1.3
number unknown	1 (1.3)	1.3
no non-regular partners	71 (91.0)	5.1

Table 5 and Figure 2 display self-reported frequencies of visits to CSW among 114 HIV infected Thai men after they started to take HAART as well as the perceived frequencies of CSW visits before HAART. Regular visits to CSW before treatment were recalled and reported by 5 (4.4%) men and by 2 (1.8%) in the time after treatment. Seventy-two (63.2%) men reported having sex with CSW before HAART "sometimes" compared with 21 (18.4%) men after ART was initiated. The number of men who reported that they "never" visited CSW before HAART was 37 (32.5%) and 90 (79.8%) for the time after antiretroviral treatment was started. These findings indicate perceived differences in frequencies of CSW visits among our male respondents. However, among factory workers, the largest occupational sub-group, these differences in reporting were less marked even given a smaller proportion of factory workers reporting visits CSW before HAART.

Table 5: Perceived frequencies of sex with commercial sex workers (CSW) in Thai HIV infected males and male factory workers before and after HAART (n, percent) and perceived changes after HAART (in percent).

	After HAART n (percent)	**Perceived change** (percent)
All men (n=114)		
Regularly	2 (1.8)	2.6
Sometimes	21 (18.4)	44.9
Never	90 (79.8)	46.4
Factory workers (n=43)		
Regularly	2 (4.7)	2.4
Sometimes	6 (14.0)	18.6
Never	35 (81.4)	16.3

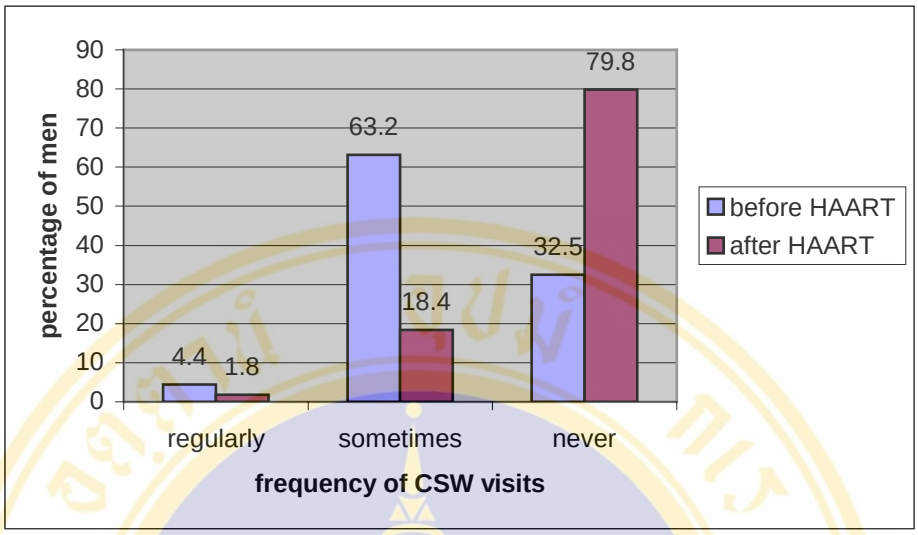

Figure 2: Perceived frequencies of CSW visits of HIV infected Thai men before and after HAART (in percent).

5.3. Condom use behaviors before and after HAART

Tables 6 and 7 and Figures 3, 4 and 5 show self-reported condom use behaviors among HIV infected Thai men and women before and after HAART treatment and their perceived changes after HAART.

While only 26 (22.4%) of 116 males recalled and reported having used condoms at every sex encounter with regular partners before ART, the number of men who indicated this behavior was 69 (59.5%) in the time after HAART. This means a perceived change of 37.1%. The number of those who "sometimes" used condoms decreased from 33 (28.4%) before to 9 (7.8%) after HAART and of those who "never" used condoms dropped from 26 (22.4%) to 6 (5.2%) in the same time (perceived change of 12.1%). The percentage of men who indicated having no sex with regular partner after HAART was 14.7%. Regarding condom use behaviors with non-regular partners, 21 (18.6%) out of 113 men reported having used condoms "every time" before HAART and 40 (35.4%) after HAART (perceived change of 16.8%). Twenty-five (22.1%) of men reported having "sometimes" used condoms

before HAART, whereas only 3 (2.7%) men used condoms “sometimes” after HAART. The number of those men who indicated having “never” used condoms fell from 11 (9.7%) before to 3 (2.7%) after HAART. However, only few men responded to this question (n=14). Fifty-nine males (52.2%) reported not having sex with non-regular partners since they were on HAART.

Table 6: Perceived patterns of condom use behaviors with regular and non-regular partners in Thai HIV infected men before and after HAART and their perceived changes since HAART, (n, percent).

	After HAART Number of men (percent)	**Perceived change** (in percent)
Frequency of condom use		
With regular partner (n=116)		
Every time	69 (59.5)	37.1
Almost every time	12 (10.3)	1.8
Sometimes	9 (7.8)	20.6
Almost never	3 (2.6)	9.5
Never	6 (5.2)	17.2
No sex with reg. partner	17 (14.7)	12.1
With non-regular partner (n=113)		
Every time	40 (35.4)	16.8
Almost every time	7 (6.2)	8.0
Sometimes	3 (2.7)	19.4
Almost never	1 (0.9)	7.1
Never	3 (2.7)	7.0
No sex with non-reg. partner	59 (52.2)	24.8

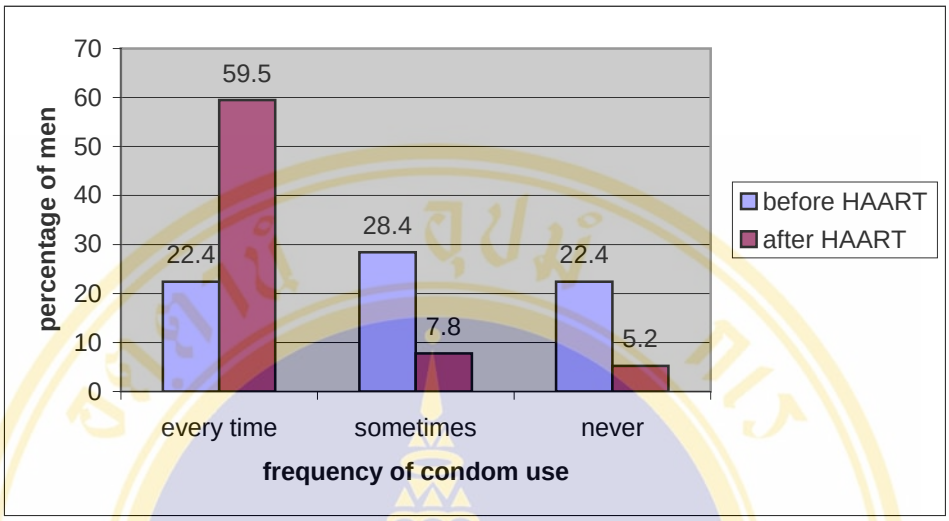

Figure 3: Perceived patterns of condom use behaviors with regular partners among Thai HIV infected men before and after HAART, (%).

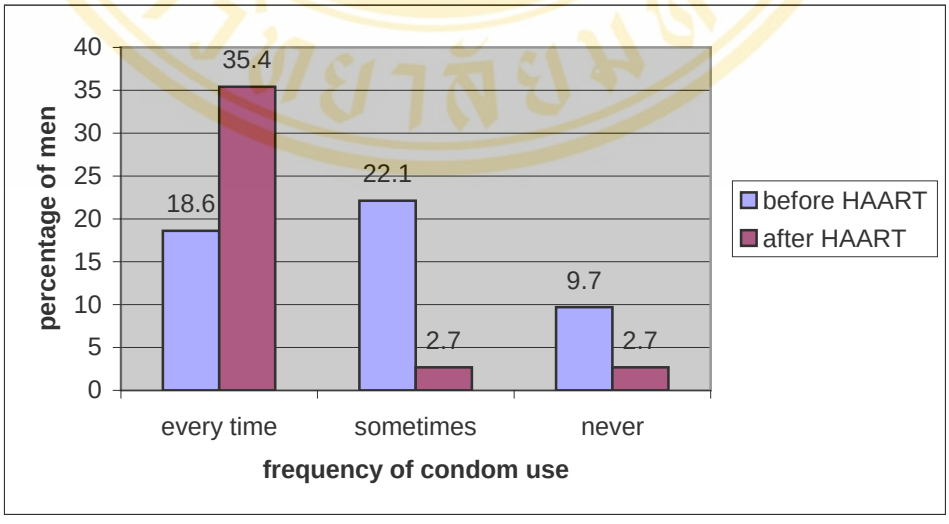

Figure 4: Perceived patterns of condom use behaviors with non-regular partners among Thai HIV infected men before and after HAART, (%).

Table 7 and Figure 5 demonstrate patterns of condom use behaviors among 77 HIV infected Thai women as they were reported for the time before and after HAART treatment. Only 13 (16.9%) of females perceived having sex persistently with condoms and with regular partners before HAART. This number grew to 37 (48.1%) for the time after (perceived change by 31.2%). The number of females who reportedly used condoms only "sometimes" fell from 15 (19.5%) for "before HAART" to 8 (10.4%) "after HAART" and of those who "never" used condoms from 30 (39.0%) before treatment to 4 (5.2%) in the time after (perceived change by 33.8%). This indicated differences in reporting of patterns of condom use behaviors before and after HAART. There were 16 (20.8%) women who indicated not having sex with regular partner since HAART was started. Regarding the condom use with non-regular partners, the percentage of females who perceived having used condoms "every time" grew from 7.8% before to 11.7% after HAART. The percentage of women who "never" used condoms was 5.2% for "before HAART" and 2.6% for "after HAART". However, only few women responded to this question (n=6). The number of females who reported not having sex with non-regular partners since they were on HAART was 64 (83.1%).

Table 7: Perceived patterns of condom use behaviors in Thai HIV infected females after HAART and perceived changes since HAART, (n, percent).

	After HAART Number of females (%)	**Perceived change** (in percent)
Frequency of condom use		
With regular partner (n=77)		
Every time	37 (48.1)	31.2
Almost every time	10 (13.0)	1.3
Sometimes	8 (10.4)	9.1
Almost never	2 (2.6)	7.8
Never	4 (5.2)	33.8
No sex with reg. partner	16 (20.8)	20.8
With non-regular partner (n=77)		
Every time	9 (11.7)	3.9
Almost every time	0 (0.0)	3.9
Sometimes	2 (2.6)	3.9
Almost never	0 (0.0)	2.6
Never	2 (2.6)	2.6
No sex with non-reg. partner	64 (83.1)	9.1

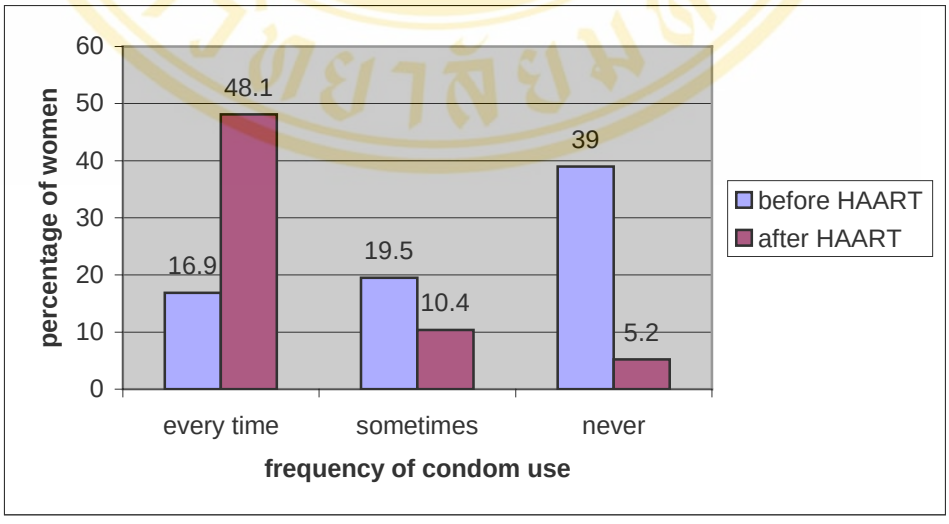

Figure 5: Perceived patterns of condom use behaviors with regular partners of HIV infected Thai women prior and post HAART (in percent).

We examined patterns of condom use behaviors among 33 homosexual persons who participated in our study. The results are displayed in Table 8 and Figure 6. Regarding sex encounters with regular partners, 8 (24.2%) respondents perceived condom use at every sexual encounter before HAART and there were 19 (57.6%) persons who used condoms “every time” after HAART (perceived change by 33.4). Perceived frequency of condom use was indicated as “sometimes” by 7 (21.2%) participants pre ART and by 3 (9.1%) post ART. While 12 (36.4%) homosexual individuals recalled having “never” used condoms before HAART, their number decreased to 1 (3.0%) after HAART was started (perceived change by 33.4%). This indicated a difference in perception of condom use behaviors before and after HAART of 33.4%. Six (18.2%) respondents reported to have no sex with regular partners since they took antiretroviral treatment. Regarding sexual encounters with non-regular partners, the number of those who reported “100% condom use” was 5 (16.7%) before and 8 (26.7%) after HAART. The number of those using condoms “sometimes” decreased from 6 (20.0%) to 3 (10.0%) persons after treatment. “Never” using condoms with non-regular partners was perceived by 4 (13.3%) before treatment and by 1 (3.3%) person in the time after. There were 18 (23.3%) subjects who reported having no sex with non-regular partners after ART.

Table 8: Perceived patterns of condom use behaviors in HIV infected Thai homosexual individuals with regular and non-regular partners after HAART and their perceived change since HAART (in percent).

	After HAART n (%)	**Perceived change** (in percent)
Frequency of condom use		
With regular partner (n=33)		
Every time	19 (57.6)	33.4
Almost every time	3 (9.1)	3.0
Sometimes	3 (9.1)	12.1
Almost never	1 (3.0)	3.1
Never	1 (3.0)	33.4
No sex with reg. partner	6 (18.2)	18.2
With non-regular partner (n=30)		
Every time	8 (26.7)	10.0
Almost every time	0 (0.0)	6.7
Sometimes	3 (10.0)	10.0
Almost never	0 (0.0)	6.7
Never	1 (3.3)	10.0
No sex with non-reg. partner	18 (60.0)	23.3

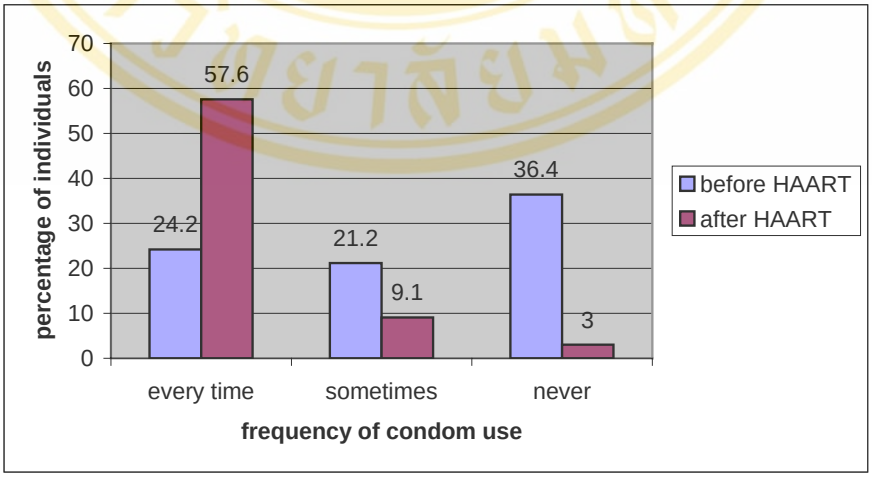

Figure 6: Perceived patterns of condom use behaviors in HIV infected Thai homosexual individuals with regular and non-regular partners before and after HAART (in percent).

When asked about condom use at last sex, 80 (70.8%) of 113 males and 51 (65.4%) of 78 females reported having used a condom and 20 (17.7%) men and 20 (25.6%) women denied condom use. As for those who did not know whether they were using condoms at last sex, 11.5% were males and 9.0% females. In Table 9 and Figure 7 we compare frequencies of condom use at last sex among 194 Thai HIV infected males and females. There was no significant difference in condom use behaviors between males and females (Chi-square=1.87, $P>0.05$).

Table 9: Condom use at last sex in HIV infected Thai males and females on HAART.

	Males (n=113) Frequency (percent)	**Females (n=78) Frequency (percent)**	***P* value***
Condom use at last sex			.393
Yes	80 (70.8)	51 (65.4)	
No	20 (17.7)	20 (25.6)	
I don't know	13 (11.5)	7 (9.0)	

* Chi-square test

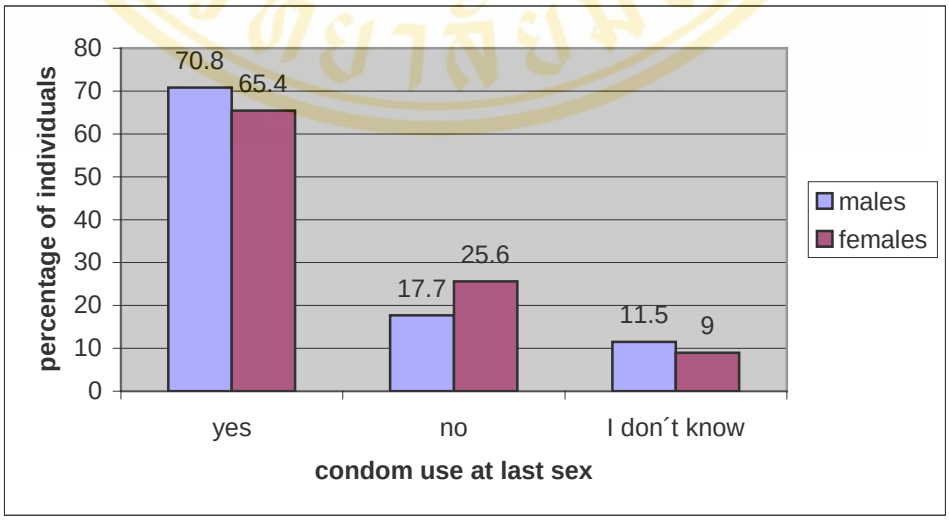

Figure 7: Condom use at last sex among HIV infected men and women on HAART (in percent).

Regarding condom use at last sex with a commercial sex worker, 54 (73.0%) of the 74 Thai HIV infected men on HAART who answered this question affirmed having used condoms, whereas 9 (12.2%) denied condom use. The number of men who did not know whether they used condoms at their last sex with a CSW was 11 (14.9%). Table 10 shows the frequencies of these behaviors.

Table 10: Condom use at last sex with CSW in 74 HIV infected Thai males on HAART.

Condom use at last sex with CSW (n=74)	
Yes	54 (73.0)
No	9 (12.2)
Don't know	11 (14.9)

Table 11 displays the perceived and self-reported frequencies of sexual encounters of HIV infected Thai males and females as they recalled them for the time before and after HAART. Regarding frequencies of sex per week, only 69 respondents answered the question for the time before and 44 for the time after HAART. The reported median frequency of sex encounters was 2.88 times per week for "before HAART" and 2.09 for "after HAART". Sex once per week before HAART was reported by 15 (21.7%) respondents but by 18 (40.9%) after treatment. Forty-nine (71.0%) subjects for "before" and 25 (56.9%) for "after HAART" indicated 2-5 times per week. Few individuals (5 [7.3%]) reported higher sex frequency per week before receiving ART and only one (2.3%) after treatment. When asked about the frequency of sex encounters per month, 50 respondents for the time before and 49 for the time after treatment responded to this question. The perceived, mean frequency of sex acts per month was 4.70 for "before" and 2.98 for "after HAART".

Table 11: Perceived frequencies of sexual encounters of HIV infected Thai males and females after HAART and their perceived changes since HAART, (%).

	After HAART Frequency (percent)	**Perceived changes** (in percent)
Frequency of sex Encounters per week (n=69 prior HAART, n=44 post HAART)		
1 time/week	18 (40.9)	16.9
2-5 times/week	25 (56.9)	14.1
6-10 times/week	1 (2.3)	3.4
> 10 times per week	0 (0.0)	1.6
mean frequency/week	2.09	
Frequency of sex acts per month (n=50 prior HAART, n=49 post HAART)		
1 time per month	18 (39.0)	2.7
2-5 times per month	25 (51.0)	5.0
6-10 times per month	3 (6.0)	0.0
> 10 times	2 (4.0)	10.0
mean frequency /month	2.98	

5.4. Beliefs about safe sex behaviors and HIV transmissions while on HAART

We examined beliefs about safe sex practices and infectiousness of HIV under antiretroviral treatment among HIV infected Thai males and females on HAART. Table 12 shows various positive and negative items in belief scales and the responses of participants in percentages. Figures 8, 9 and 10 demonstrate the percentages of answers for 3 selected statements. Almost all of the participants responded to the questions (n between 193 and 199). Regarding the statement “STDs/HIV/AIDS can be prevented by condoms” only 3.5% agreed strongly, 1.0% agreed, 7.0% were undecided and a majority of 88.5% either disagreed (37.2%) or disagreed strongly

(51.3%). Regarding the question whether “It is more difficult for a HIV positive person to infect partners through unsafe sex if the HIV positive person was taking HAART”, 26.9% agreed strongly, 22.3% agreed, 19.3% were undecided and 31.5% either disagreed (20.3%) or disagreed strongly (11.2%). When asked whether “they can trust people who look very healthy that they are not infected with HIV”, a majority of 51.3% either agreed strongly (19.3%) or agreed (32.0%) while 28.9% of the participants were undecided, 10.7% disagreed and 9.1% disagreed strongly. For the statement “there is no need to use a condom with partners who are already infected with HIV”, strong agreement was expressed by 47.7% and agreement by 35.8% of respondents. However, 3.1% were undecided and only 6.7% disagreed, or strongly disagreed (6.7%). A minority of 3.5% agreed strongly and 7.1% agreed with the statement that “condom use protects 100% against HIV”. A majority remained either undecided (37.4%), disagreed (31.8%) or strongly disagreed (19.2%). When asked whether “HIV infected people can have new children”, 25.9% of the subjects strongly agreed, 30.5% agreed, 28.9% were undecided, 14.8% either disagreed (10.7%) or strongly disagreed (4.1%).

Table 12: Beliefs about safe sex behaviors and HIV infectiousness among HIV infected Thai males and females under HAART by items.

Statement	strongly agree n (%)	agree n (%)	undecided n (%)	disagree n (%)	strongly disagree n (%)
STDs/HIV/AIDS can be prevented by condom use (n=199)	7 (3.5)	2 (1.0)	14(7.0)	74(37.2)	102(51.3)
It is more difficult for a HIV positive person to infect partner through unsafe sex if the HIV positive person was taking treatment against HIV/AIDS (n=197)	53(26.9)	44(22.3)	38(19.3)	40(20.3)	22 (11.2)
We can trust people who look very healthy that they are not infected with HIV (n=197)	38(19.3)	63(32.0)	57(28.9)	21(10.7)	18(9.1)
There is no need to use a condom with partners who are already infected with HIV (n=193)	92(47.7)	69(35.8)	6(3.1)	13(6.7)	13(6.7)
Condom use protects 100% against HIV (n=198)	7(3.5)	14(7.1)	76(38.4)	63(31.8)	38(19.2)
HIV infected people can have new children (n=197)	51(25.9)	60(30.5)	57(28.9)	21(10.7)	8(4.1)

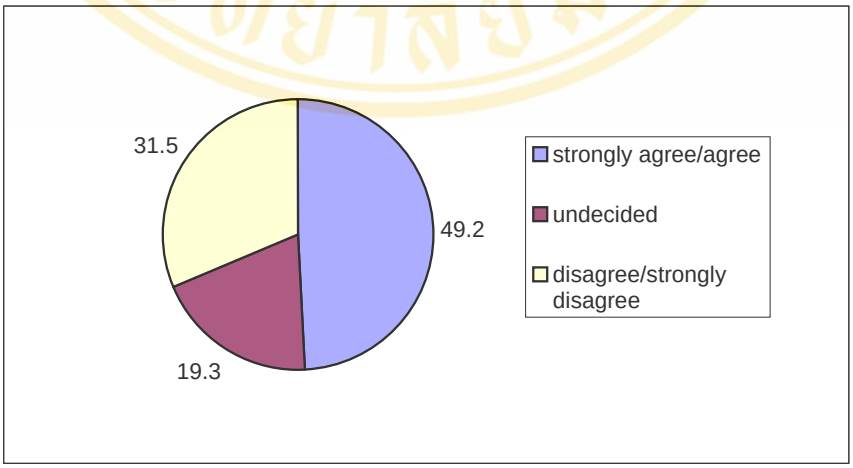

Figure 8: Answers for the item: "It is more difficult for HIV positive person to infect partner through unsafe sex if the HIV positive person was taking HAART" among HIV infected Thai men and women on HAART (in percent).

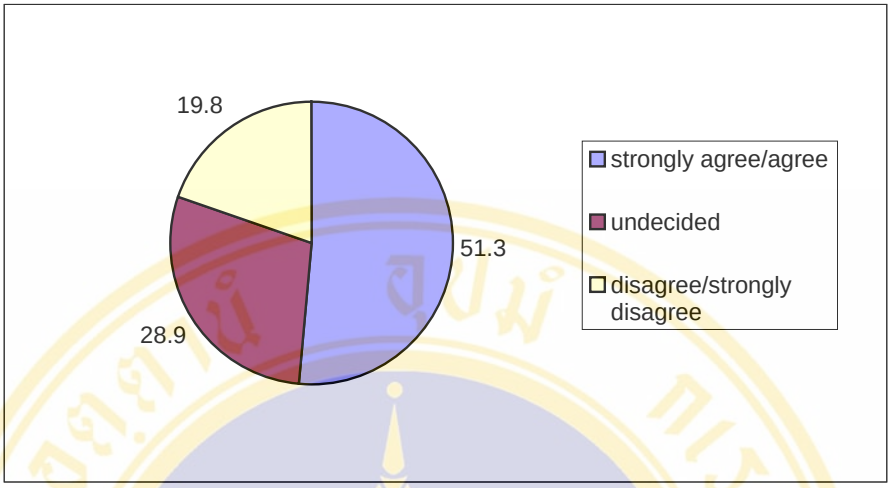

Figure 9: Answers for the item: "We can trust people who look very healthy that they are not infected with HIV" among HIV infected Thai men and women on HAART (in percent).

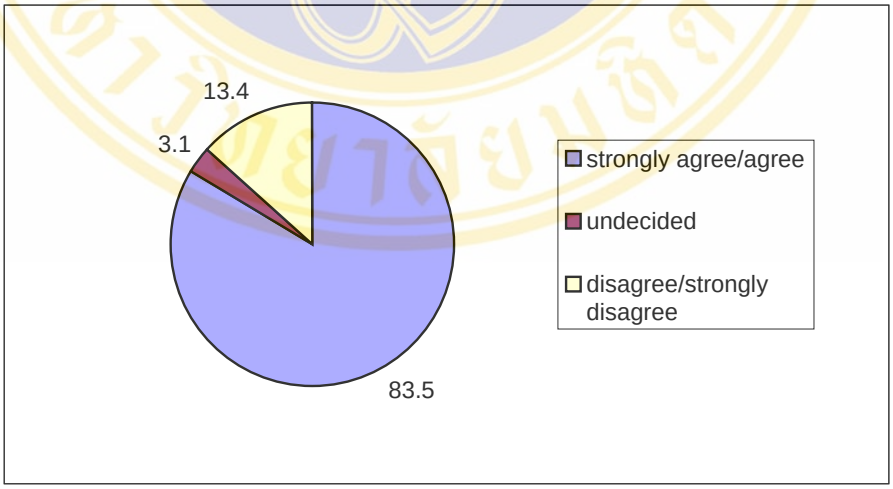

Figure 10: Answers for the item: "There is no need to use a condom with partners who are already infected with HIV" among HIV infected Thai men and women on HAART (in percent).

5.5. Attitudes towards safe sex behaviors and towards HIV infected people

We also evaluated attitudes towards safe sex behaviors and towards HIV infected people among our respondents. Most of them responded to the questions in this section. (n between 195 and 198).

The results are shown in Table 13. Figures 11, 12 and 13 demonstrate the answers for a number of selected items. For the statement "it is complicated to use condoms" 40.4% agreed strongly and 31.3% agreed while 6.6% remained undecided, 9.1% disagreed and 12.6% disagreed strongly with this statement. Regarding the statement "sex doesn't feel good when one uses a condom", most of the subjects strongly agreed (18.8%), agreed (26.9%) or were undecided (28.4%). Disagreement was expressed by 17.3%, and 8.6% disagreed strongly. Twenty-six percent of respondents strongly agreed and 49.0% agreed that "it is too much trouble to carry condoms along" while 11.7% were undecided and only a minority of 9.7% disagreed or disagreed strongly (3.6%). When confronted with the statement "many men avoid using condoms with a partner", 14.9% strongly agreed and 29.2% agreed, 14.4% were undecided, 30.8% disagreed and 10.8% disagreed strongly with this statement. When asked whether "they are less concerned about infecting other people because of the treatment against HIV/AIDS", only 9.6% of the subjects strongly agreed and 14.6% agreed with this statement. However, 21.7% remained undecided while 30.3% either disagreed or strongly disagreed (23.7%). Regarding the statement that "HIV infected people are dirty persons" a large majority either strongly agreed (35.9%) or agreed (42.4%), while 15.7% were undecided and only 3.5% disagreed and 2.5% strongly disagreed. For the statement "HIV infected people can get married with persons not infected with HIV", only 9.7% agreed strongly and 17.4% agreed. However, 40.5% were either undecided or disagreed (27.2%) or strongly disagreed (5.6%). On the other hand, when asked whether "HIV infected people can get married with other HIV infected persons", only 5.1% strongly agreed and 9.7% agreed while 36.9% remained undecided, 39.5% disagreed and 8.7% disagreed strongly. Only 5.1% agreed strongly and 2.5% of the respondents agreed with the statement that "HIV infected people can think on the future like anyone else". The percentage of undecided respondents was 14.2% and a large majority either disagreed (48.7%) or disagreed strongly (22.7%). The last statement "HIV infected people have the same dignity like everybody else".

Only 7.6% agreed strongly and 11.6% agreed with this statement while 21.2% remained undecided and 36.9% disagreed or disagreed strongly (22.7%).

Table 13: Attitudes towards safe sex behaviors and towards HIV-infected persons among HIV infected Thai males and females on HAART (n, percent).

Statement	strongly agree n (%)	agree n (%)	undecided n (%)	disagree n (%)	strongly disagree n (%)
It is complicated to use condoms (n=198)	80(40.4)	62(31.3)	13(6.6)	18(9.1)	25(12.6)
Sex doesn't feel good when you use a condom (n=197)	37(18.8)	53(26.9)	56(28.4)	34(17.3)	17(8.6)
It is too much trouble to carry condoms along (n=196)	51(26.0)	96(49.0)	23(11.7)	19(9.7)	7(3.6)
Many men avoid using condoms with a partner (n=195)	29(14.9)	57(29.2)	28(14.4)	60(30.8)	21(10.8)
Because of the treatment for HIV/AIDS I am less concerned about infecting other people (n=198)	19(9.6)	29(14.6)	43(21.7)	60(30.3)	47(23.7)
HIV infected people are dirty persons (n=198)	71(35.9)	84(42.4)	31(15.7)	7 (3.5)	5 (2.5)
HIV infected people can get married with persons not infected with HIV (n=195)	18(9.2)	34(17.4)	79(40.5)	53(27.2)	11(5.6)
HIV infected people can get married with other HIV infected persons (n=195)	10(5.1)	19(9.7)	72(36.9)	77(39.5)	17(8.7)
HIV infected people can think on the future like everybody else (n=197)	10(5.1)	5(2.5)	28(14.2)	96(48.7)	58(29.4)
HIV infected people have the same dignity like anyone else (n= 198)	15(7.6)	23(11.6)	42(21.2)	73(36.9)	45(22.7)

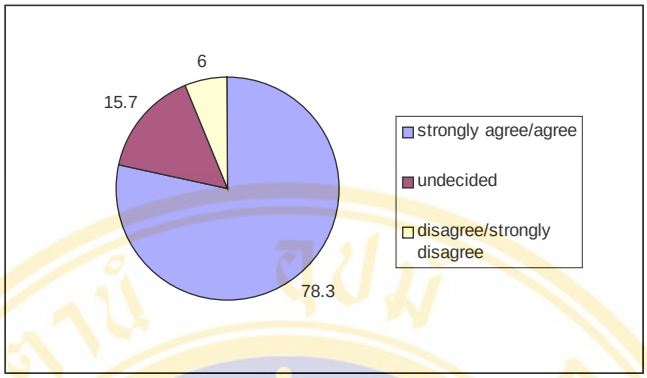

Figure 11: Answers for the item: "HIV infected people are dirty persons" among HIV infected Thai men and women on HAART (in percent).

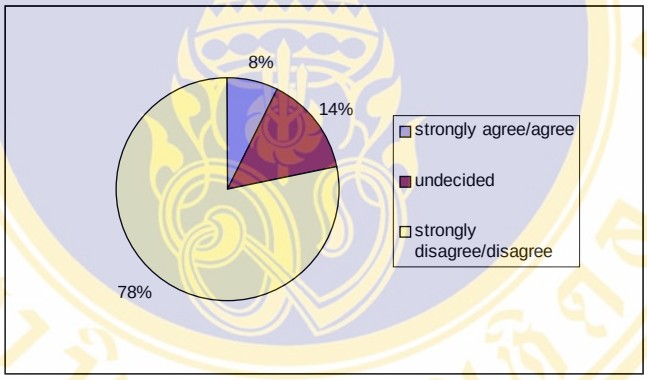

Figure 12: Answers for the item: "HIV infected people can think on the future like everybody else" among HIV infected Thai men and women on HAART (in percent).

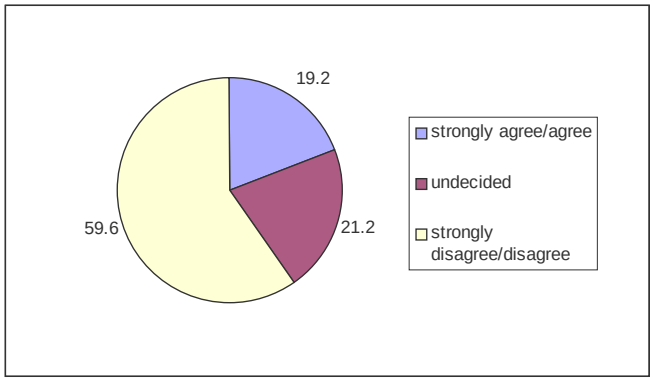

Figure 13: Answers for the item: "HIV infected people have the same dignity like everybody else" among HIV infected Thai men and women on HAART (in percent).

Table 14 shows the scoring criteria for attitudes towards safe sex behaviors and towards HIV infected persons reported by 188 HIV positive Thai males and females on HAART. In our scoring system, we assumed that 1-2 points represented a negative attitude, 3-4 points a rather negative attitude, 5-6 points a rather positive attitude and 7-8 points a positive attitude. It was demonstrated that 6.9% scored 1-2 points, 32.5% had a score of 3-4, 44.6% had 5-6 points and 16.0% had 7-8 points.

Table 14: Attitudes towards safe sex behaviors and towards HIV /AIDS among HIV infected Thai males and females on HAART (n=188)

Points	**Frequency (percent)**
1-2= negative attitude	13 (6.9)
3-4=rather negative attitude	61 (32.5)
5-6= rather positive attitude	84 (44.6)
7-8= positive attitude	30 (16.0)

5.6. Disclosure to partners, adherence to treatment and history of STDs since HAART

Table 15 and Figure 14 and 15 describe various items in disclosure to partners and responses of males and females in percentages. While 74.8% of men and 78.2% of women informed their partners about their HIV infection, 25.2% of males and 21.8% of females did not disclose their HIV status to their partners. The difference between men and women regarding disclosure to partners was statistically not significant (Chi-square=0.297, $P>0.05$). When asked whether they would inform a potential new partner about their HIV status, 48.2% of males answered with “yes”, while 24.5% admitted that they would not disclose and 27.3% of them did not know whether they would disclose the HIV infection to their new partners. Regarding females, 71.4% would inform their new partners and 15.6% would not disclose their HIV infection. A minority of 13.0% did not know how they would behave in this

situation. In this case, the difference in hypothetical disclosure to a new partner between males and females was statistically significant (Chi-square=10.304, *P* <0.001).

Table 15: Disclosure of HIV status to partners by HIV infected Thai males and females on HAART (percent)

	Males			**Females**			***P* value***
Statement	**Yes**	**No**		**Yes**	**No**		
Have you ever informed your Partner about your HIV status? (males: n=111, females: n= 78)	74.8	25.2		78.2	21.8		.586
	Yes	**No**	**I don't know**	**Yes**	**No**	**I don't know**	
If you would have a new partner, would you disclose your HIV status to him/her? (males: n=110, females: n=77)	48.2	24.5	27.3	71.4	15.6	13.0	.006

* Chi-square test

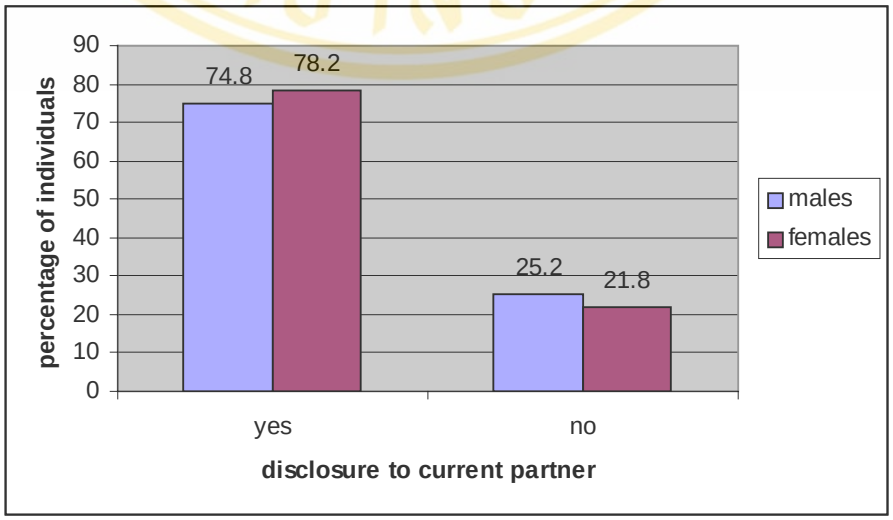

Figure 14: Disclosure of HIV status to current partners among HIV infected Thai men and women on HAART (in percent)

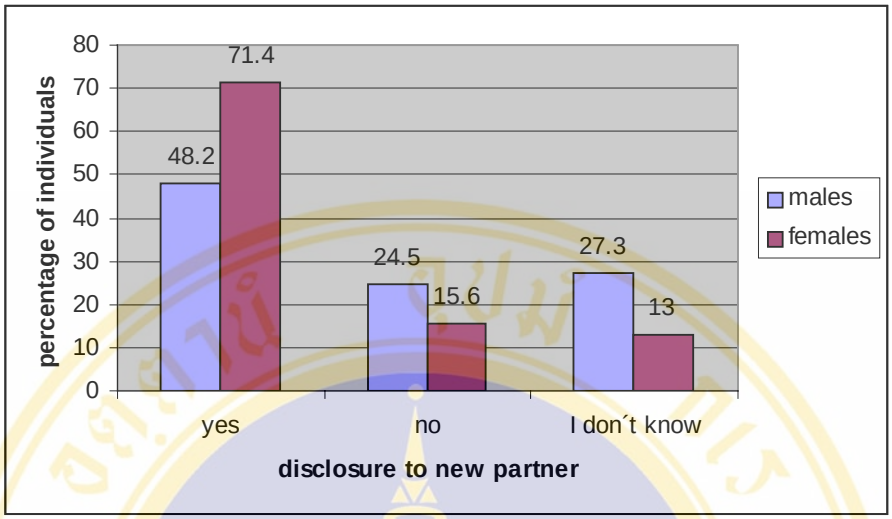

Figure 15: Disclosure of HIV status to a potential new partner among HIV infected Thai men and women on HAART (in percent).

One question examined the adherence of 117 males and 81 females to antiretroviral treatment. The results are shown in Table 16 and in Figure 16. None of the men but 3 (3.7%) women forgot taking HAART very often while 46 (39.3%) males and 37 (45.7%) females forgot to take their tablets sometimes. However, 71 (60.7%) men and 41 (50.6%) women reported never forgetting to take their antiretroviral treatment. The differences in adherence between males and females were not significant statistically (P>0.05).

Table 16: Adherence to antiretroviral treatment in HIV infected Thai males and females (n, percent)

	Males (n=117)			Females (n=81)			
Statement	**very often**	**sometimes**	**never**	**very often**	**sometimes**	**never**	**P value**
I forgot to take my ART treatment	0 (0.0)	46(39.3)	71(60.7)	3 (3.7)	37 (45.7)	41 (50.6)	.059*

* Chi-square test

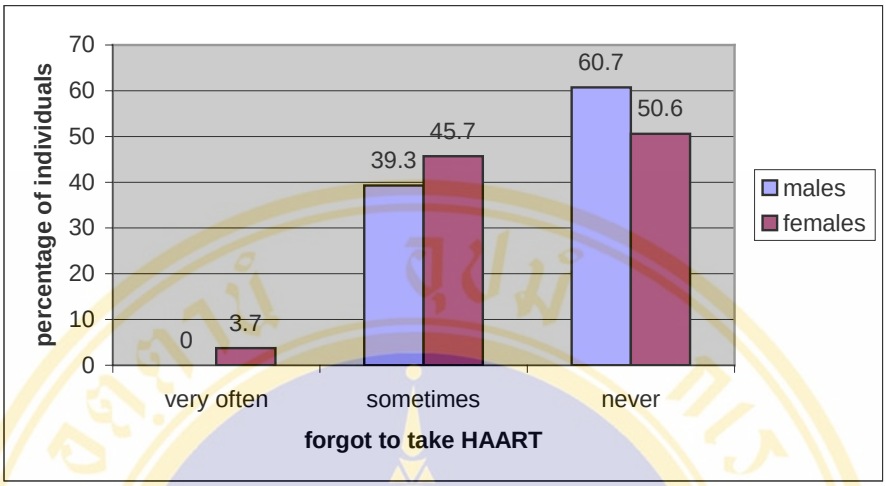

Figure 16: Adherence to HAART among HIV infected Thai men and women (in percent).

Table 17 shows frequencies of STDs among HIV infected Thai males and females in the time after ART treatment. The most common STD reported was gonorrhea for men (10.3%) and vaginal discharge for women (15.2%). Few respondents had other STDs like syphilis or warts. More than three-quarters of men (77.7%) and females (75.9%) did not report any STD since they take HAART.

Table 17: History of STDs in HIV infected Thai males and females since HAART (frequency and percent).

STD	**Males (n=116) Frequency (percent)**	**Females (n=79) Frequency (percent)**
Gonorrhea	12 (10.3)	1 (1.3)
Syphilis	4 (3.4)	1 (1.3)
Vaginal discharge		12 (15.2)
Warts	3 (2.6)	2 (2.5)
Other STDs	7 (6.0)	3 (3.8)
No STDs since HAART	90 (77.7)	60 (75.9)

5.7. Intolerance, stigma and optimism since HAART.

Table 18 and Figure 17 display various positive and negative items in acceptance scales and the answers of male and female participants in percentages. For both men and women, only 6.7% strongly agreed and 7.6% agreed with the statement that they were better accepted at home since on HAART. Twenty percent were undecided but a majority either disagreed (42.1%) or strongly disagreed (27.2%). For the statement suggesting an improved acceptance at the work place since the antiretroviral treatment was started, a minority of 7.6% strongly agreed and 5.9% agreed, while 46.5% remained undecided, 26.5% disagreed and 13.5% strongly disagreed. Similar results were obtained when asked for perceived acceptance among friends. In this case, 5.4% strongly agreed, 7.0% disagreed and 48.9% were undecided while 30.6% disagreed and 8.1% strongly disagreed with that statement. When asked about improved acceptance in health care facilities, 4.8% agreed strongly, 3.7% agreed and 22.8% were undecided. A majority either disagreed (47.1%) or disagreed strongly (21.7%). Except for perceived acceptance among friends, no statistically significant differences were found between both sexes in terms of levels of acceptance (Chi-square=11.42, $P<0.05$). In this case more women than men agreed that they felt better accepted among their friends since they were on HAART. The differences between the two sexes in perceived levels of acceptance among other groups were not significant statistically ($P>0.05$).

Table 18: Levels of perceived acceptance of HIV infected Thai males and females since HAART (%).

	Strongly agree (%)	agree (%)	undecided (%)	disagree (%)	strongly disagree (%)	*P* value*
Improved acceptance since HAART						
At home						.763**
Males (n=116)	5.2	5.2	20.7	42.2	26.7	
Females (n=79)	8.9	2.5	19.0	41.8	27.8	
All subjects (n=195)	6.7	4.1	20.0	42.1	27.2	
At working place						.184**
Males (n=108)	3.7	5.6	47.2	29.6	13.9	
Females (n=77)	13.0	6.5	45.5	22.1	13.0	
All subjects (n=185)	7.6	5.9	46.5	26.5	13.5	
Among friends						.022**
Males (n=108)	1.9	4.6	51.9	30.6	11.1	
Females (n=78)	10.3	10.3	44.9	30.8	3.8	
All subjects (n=186)	5.4	7.0	48.9	30.6	8.1	
In health care facilities						.301**
Males (n=111)	3.6	1.8	26.1	47.7	20.7	
Females (n=78)	6.4	6.4	17.9	46.2	23.1	
All subjects (n=189)	4.8	3.7	22.8	47.1	21.7	

* Chi square test
** Calculated for the differences between sexes

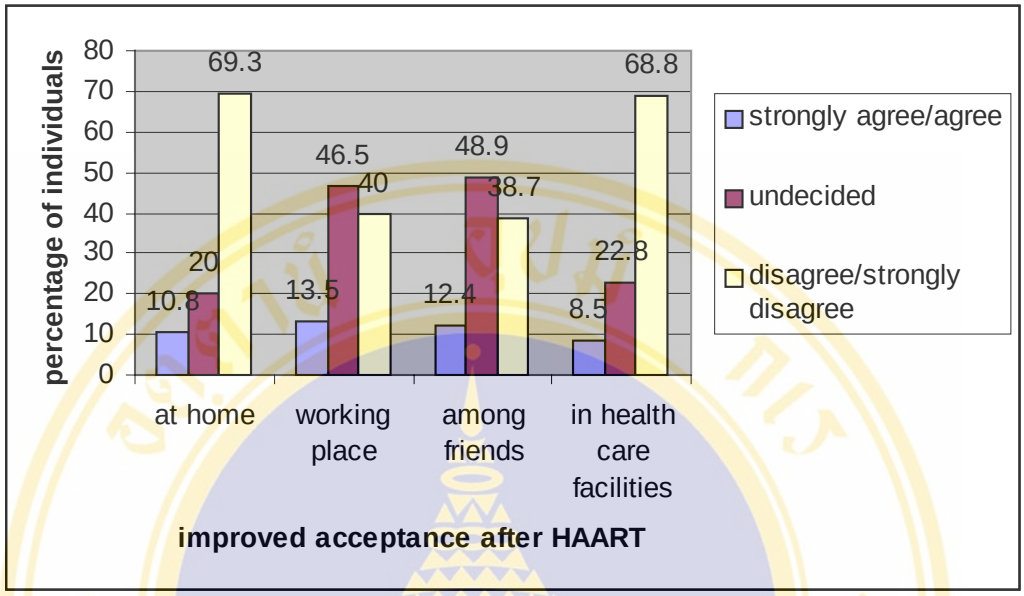

Figure 17: Levels of improved perceived acceptance since HAART among HIV infected Thai men and women (in percent).

When asked to indicate perceived or experienced levels of intolerance due to their HIV status at home, at the work place, among friends, and in health care facilities as they were recalled from the time before and after HAART, 17 (8.8%) participants reported intolerance on an "every day" basis before HAART compared with 11 (5.6%) after treatment. Intolerance was perceived "almost every day" by 22 (11.4%) subjects before and by 18 (9.2%) after HAART. The number for those who perceived intolerance only "sometimes" was 75 (38.9%) for "before" and 61 (31.1%) for "after HAART". Before starting HAART, 30 (15.5%) participants reported to experience intolerance "almost never" and this number was only slightly higher with 35 (17.9%) in the time post treatment. Forty-nine subjects (25.4%) recalled having "never" felt intolerance before HAART and 71 (36.2%) persons in the time after (perceived change by 10.8%).

Table 19: Perceived and experienced levels of intolerance at home, at work place, among friends and in health care facilities due to HIV status in HIV infected Thai males and females after HAART and their changes since HAART (in percent).

	After HAART Frequency (%) (n=196)	**Perceived change** (in percent)
Experienced Intolerance		
Every day	11 (5.6)	3.2
Almost every day	18 (9.2)	2.2
Sometimes	61 (31.1)	7.8
Almost never	35 (17.9)	2.4
Never	71 (36.2)	10.8

Table 20 display perceived levels of optimism and depression since the initiation of HAART among 199 HIV infected Thai males and females. More than 80 percent of the respondents feel more optimistic and there is no significant difference between the two sexes (82.3% for males and 80.3% for females, Chi-square=1.347, $P>0.05$). However, 6.8% of men and 11.1% of women indicated to be less optimistic about their future. For 11.0% of males and 8.6% of females there was no difference in optimism after HAART was started. When asked about the levels of depression since HAART, 61.0% of men and 77.8% of women perceived feeling less depressed (67.8% for both sexes), while only 1.7% of males and 6.2% of females indicated a higher level of depression. Thirty-seven point three percent of men, but only 16.0% of women perceived no change in depression levels since HAART. It appeared that males and females are significantly different in terms of perceived levels of depression between the time they did not receive HAART and the time after HAART was started (Chi-square=12.29, $P<0.05$).

Table 20: Self-reported perceived levels of optimism and depression of HIV infected Thai males and females before and after HAART (in percent).

	Males (n=118)	**Females (n=81)**	**Both sexes (n=199)**	***P* value***
Optimism since HAART				.510
More optimistic	82.2	80.3	81.4	
Less optimistic	6.8	11.1	8.5	
Same as before	11.0	8.6	10.1	
Depression since HAART				.002
Less depressed	61.0	77.8	67.8	
More depressed	1.7	6.2	3.5	
Same as before	37.3	16.0	28.6	

* Chi-square test

An additional question about the perceived desire to get pregnant or have a new child in the time pre and post HAART was asked. The results in percent are displayed in Table 21. It was demonstrated that 32.1% of females “before” and 25.3% “after HAART” perceived a desire to get pregnant and 27.9% of men before HAART and 19.4% after treatment wanted to have a new child. A majority of 67.9% of females and 72.1% of males in the time before HAART and 74.7% of women and 80.6% of men after HAART denied the desire for a new child.

Table 21: Perceived desire to get pregnant or have a child in HIV infected Thai females and males after HAART and perceived changes since HAART (percent).

	Females		Males	
	After HAART (n=79)	**Perceived change (percent)**	**After HAART (n=108)**	**Perceived change (percent)**
Desire to get pregnant/ have a child				
yes	25.3	6.8	19.4	8.5
no	74.7	6.8	80.6	8.5

5.8. Associations between education, treatment duration and marital status and perceived condom use behaviors at sex encounters with regular partners.

Table 22 demonstrates associations between education, duration of HAART, marital status and perceived patterns of condom use behaviors with regular partners. At all levels of education the perceived changes between recalled condom use behaviors "before" and "after HAART" were similar. The perceived change of "100% condom use" ranged from 33.4% among primary school graduates and 40.8% in case of those after vocational school. However, within the categories "duration of HAART < 12 months" and "> 12 months" we found differences in reports of perceived condom use behaviors of males and females with their regular partners. A higher percentage of subjects in the group "< 12 months HAART duration" reported condom use "every time" after HAART compared with those on more than 12 months of treatment. On the other hand, the percentage of participants who perceived and reported "never" having used condoms was 33.3% for "before HAART" and 5.0% for the time "after ART" in the "<12 months" group and 28.6% vs. 5.3% respective in the group "over 12 months". Regarding marital status, it could be demonstrated that the proportion of married persons who reported having used condoms "every time" before HAART was 20.2% and 60.5% after treatment. In the same time the proportion of those who perceived having "never" used condoms was 31.6% vs. 4.4%

respectively. Among divorced and widowed individuals, it appeared that differences in reporting were less important. Among single individuals, there was a perceived increase in "100% condom use" from 12.8% to 41.0% between the time "before", and "after HAART" and among those who "never" used condoms a perceived decrease from 15.4% to 7.7%. However, 33.3% of singles, 34.8% of widowed and 28.6% of divorced individuals reported not having sex at all since they received HAART.

Table 22: Association between education, duration of HAART and marital status and differences in reporting of perceived frequencies of condom use with regular partners by HIV infected Thai males and females before and after HAART (%).

Frequency of condom use after HAART	**every time**	**almost every time**	**sometimes**	**almost never**	**never**	**no sex**	**Perceived change (in percent)***
(percent of subjects)	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	
Education							
Primary school (n=72)	55.6	8.3	11.1	2.8	6.9	15.3	33.4
Secondary school (n=74)	52.7	17.6	6.8	2.7	4.1	16.2	35.1
Vocational school (n=27)	63.0	7.4	3.7	3.7	7.4	14.8	40.8
University/above (n=16)	56.3	6.3	6.3	0.0	0.0	31.3	31.3
Duration of HAART							
<12 months (n=60)	58.3	6.7	5.0	3.3	5.0	21.7	30.0
>12 months (n=133)	53.4	13.5	10.5	2.3	5.3	15.0	36.9
Martial status							
Married (n=114)	60.5	14.0	11.4	2.6	4.4	7.0	40.3
Divorced (n=14)	42.9	7.1	7.1	0.0	14.3	28.6	21.5
Widowed (n=23)	60.9	0.0	4.3	0.0	0.0	34.8	30.5
Single (n=39)	41.0	10.3	2.6	5.1	7.7	33.3	28.2

* perceived change in the category "every time"

5.9. Associations between income, education, treatment duration, disclosure, marital status and perceived frequencies of CSW visits by men.

For all income groups there were similar differences in reporting of perceived frequencies of CSW visits “before” and “after HAART”. They ranged from 50.0% in the “3,001-6,000 Baht” and “no income” group to 53.8% among those earning 10,001-50,000 Baht. Exceptions were men earning 6,001-10,000 Baht where the perceived change of frequencies of CSW visits after HAART was 29.2%. There were important differences in perceived frequencies of CSW visits at all levels of education. The proportion of men who reported having “never” visited CSW was 31.6% for “before HAART” but 89.5% for “after HAART” in case of primary school education. The perceived change between “before” and “after HAART” was the highest in this group. However, similar important differences in reporting were observed for other education groups. The proportion of those who reported “never” frequenting CSW after HAART was started was 72.3% for secondary school graduates and 77.3% for men who competed vocational school. Concerning the treatment duration, there was no apparent association between HAART-duration and differences in frequencies of visits to CSW by men perceived before and after HAART. After HAART, the proportion of males who reported visiting CSW “sometimes” was 18.8% and of those who reported “never” frequenting CSW was 78.8% for men with more than 12 months of treatment and 17.6% respective 82.3% for men with “<12 months” HAART duration.

Males who disclosed their HIV status to their partner showed important differences in reporting CSW visits, as perceived before and after HAART. The proportion of those who perceived having “sometimes” visited CSW was 62.0% for “before” and 17.7% for the time “after HAART” and of those who perceived “never” having visited CSW was 35.4% before treatment and 81.0% in the time after ART. Only 1.3% of males in this group continued to visit CSW regularly after HAART. In the group of men who did not disclose their HIV infection to the partner, frequenting CSW “sometimes” was reported by 63.0% “before HAART” and by 25.9% in the time after treatment. In the same time the percentage of those who reportedly “never”

went to CSW increased from 29.6% to 70.4%. Another 3.7% of men from this group still engaged in regular sex with CSW after HAART.

Regarding marital status, important differences in perceived frequencies of CSW visits by men were observed in all groups. The proportion of married men who perceived having visited CSW “sometimes” was 65.2% before HAART. This percentage decreased to 10.6% after treatment. The proportion of those who reported “never” having frequented CSW was indicated by 31.8% of males for “before HAART” and by 89.4% for “after HAART”. For divorced and widowed men n was too small to make any conclusion. However, single men showed similarly important differences in reporting of their CSW frequencies compared to married men (65.6% for “sometimes pre HAART” vs. 18.8% “sometimes post HAART” and 34.4% “never pre HAART” vs. 71.8% “never post HAART”).

Table 23: Associations between income, education, treatment duration, disclosure and marital status and perceived frequencies of CSW visits among HIV infected Thai men after HAART and their perceived changes since HAART (in percent).

CSW visits after HAART	**regularly**	**sometimes**	**never**	**perceived change (in percent)***
(percent of men)	**(%)**	**(%)**	**(%)**	
Average monthly income				
no income (n=16)	0.0	25.0	75.0	50.0
< 3000 Baht (n=17)	0.0	5.9	94.1	52.9
3,001-6,000 Baht (n=38)	2.6	18.4	78.9	50.0
6,001-10,000 Baht (n=24)	4.2	20.8	75.0	29.2
10,001-50,000 Baht (n=13)	0.0	15.4	84.6	53.8
> 50,000 Baht (n=1)	0.0	0.0	100.0	
Education				
Primary school (n=38)	0.0	10.5	89.5	57.9
Secondary school (n=47)	4.3	23.4	72.3	38.3
Vocational school (n=22)	0.0	22.7	77.3	45.5
University of above (n=7)	0.0	14.3	85.7	57.1
Duration of HAART				
<12 months (n=34)	0.0	17.6	82.3	49.9
>12 months (n=80)	2.5	18.8	78.8	46.3
Disclosure to partner				
yes (n=79)	1.3	17.7	81.0	45.6
no (n=27)	3.7	25.9	70.4	40.8
Marital status				
Married (n=66)	0.0	10.6	89.4	56.1
Divorced (n=7)	14.3	57.1	28.6	28.6
Widowed (n=6)	0.0	50.0	50.0	0.0
Single (n=32)	3.1	18.8	78.1	43.7

* Perceived change in the category “never”

Figures 18 and 19 demonstrate the trends of "100% condom use" behaviors with different durations of HAART among our study participants. While the perceived reported "100% condom use" with regular partners before HAART decreased sharply with HAART duration, the percentage of individuals in the same category for the time after HAART decreased by around 10% between "<6 months" and ">24 months on HAART". In Figure 20 it is shown that the percentage of those who used condoms "every time" at sexual intercourses with non-regular partners increased slightly by about four percent post HAART, after it dropped significantly within the first 24 months of ART treatment.

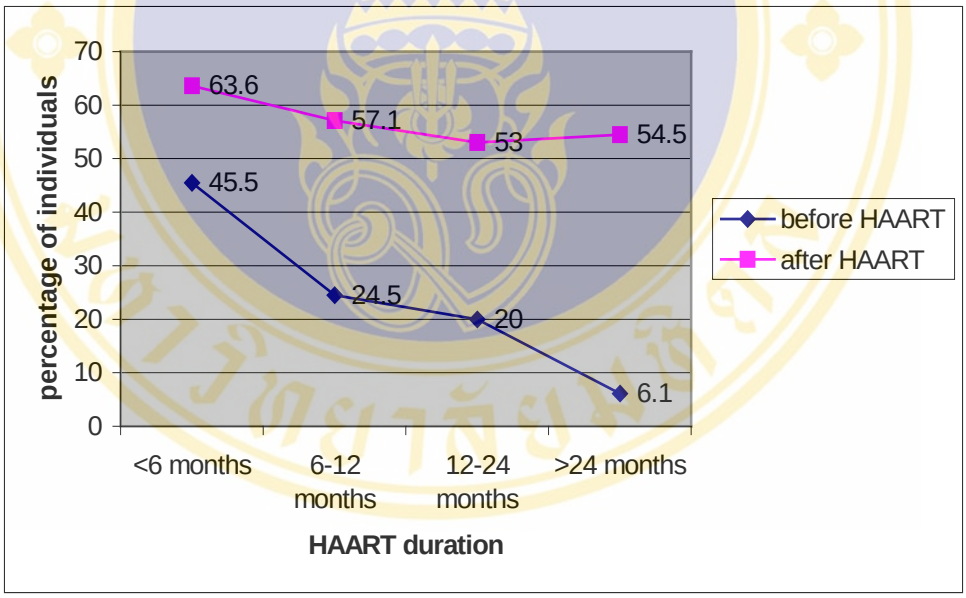

Figure 18: Association of HAART duration and "100% condom use" with regular partners among HIV infected men and women (in percent)

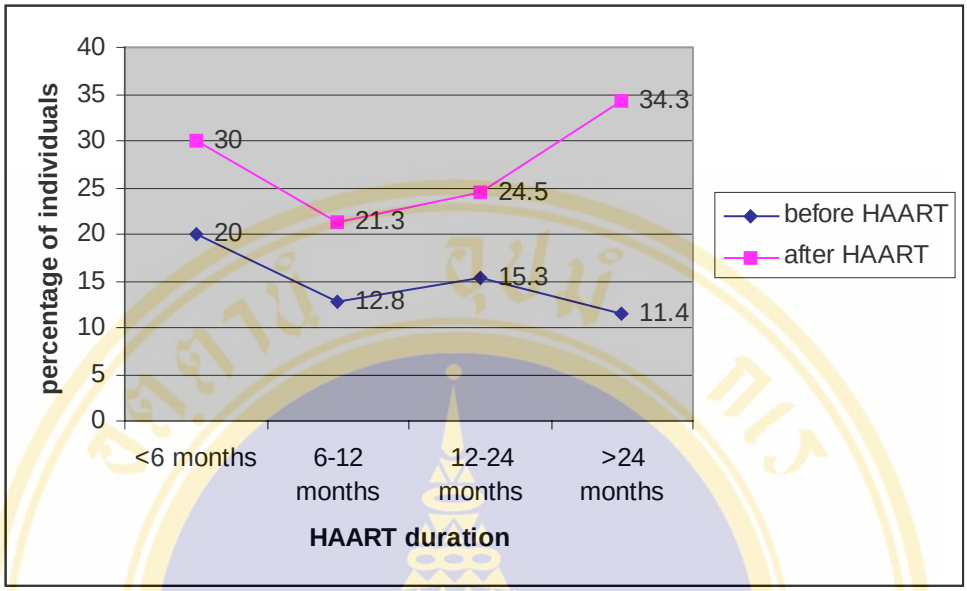

Figure 19: Association between HAART duration and "100% condom use" with non-regular partners among HIV infected men and women (in percent).

In Figure 20, a trend of CSW visits related to HAART duration is demonstrated. The percentage of men who never frequented CSW increased sharply but remained relatively stable among all groups of treatment duration after HAART was started. As shown in Figure 21, among men who reported visiting CSW "sometimes", there also was an important decrease in CSW visits, and similarly, those males did not show a tendency to increase their CSW visits after longer treatment durations.

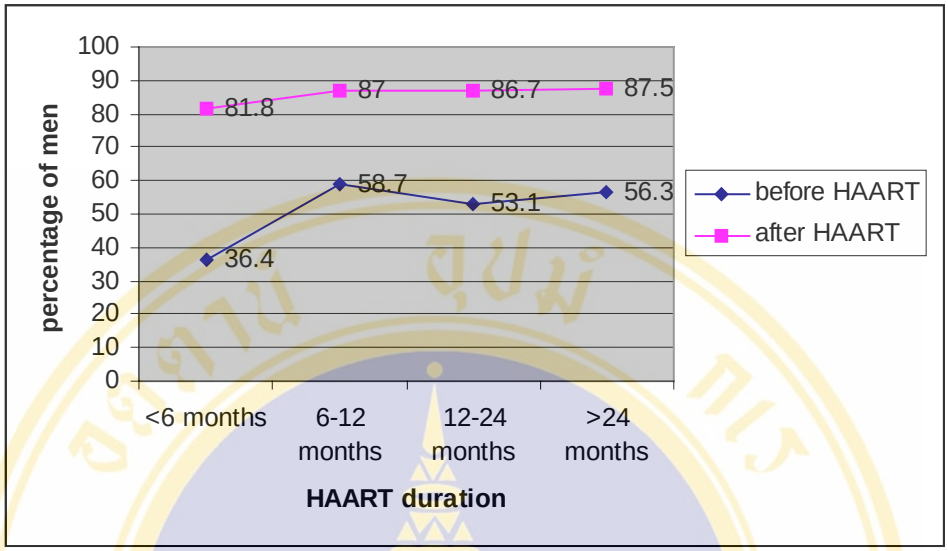

Figure 20: HAART duration and percentage of men who "never" visited CSW before and after HAART (in percent)

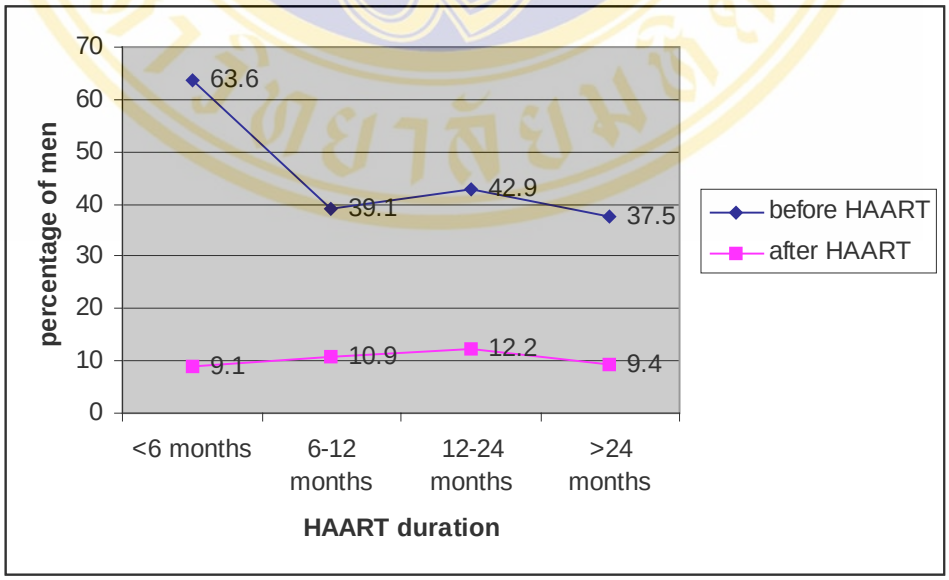

Figure 21: HAART duration and percentage of men who "sometimes" visited CSW before and after HAART (in percent)

CHAPTER VI
DISCUSSION

The profile of HIV- patients in South East Asia, including Thailand shows some specific characteristics and differences compared to those in developed countries. Over the past few years, a wide accessibility to HAART for patients in Thailand has become possible owing to the National Access to Antiretroviral Program for People Living with HIV/AIDS (NAPHA).

Since the dissemination of HAART for HIV-infected patients worldwide, there is a growing concern regarding the impact of the treatment on sexual risk behaviors of those patients. The results of behavioral studies from developed countries show controversial outcomes ranging from the conclusion that an increase of sexual risk behaviors was associated with receipt of antiretroviral treatment to potentially contradicting results.

This study was carried out to assess patterns of sexual behaviors, attitudes towards safe sexual behaviors and HIV infection, beliefs about HIV/AIDS as well as levels of perceived acceptance and intolerance in the context of the HIV infections in Thailand after HAART was initiated. The results are discussed below.

6.1. General characteristics

The general characteristics described 200 HIV-infected men and women scheduled for routine check-ups in the OPD of Chonburi Hospital in Eastern Thailand. The proportion of men to women was with 1.5 to 1 quite balanced, they were young (median age 34 years), mostly heterosexual, mainly married or single, and most of them had rather low levels of education and income. The general characteristics are not fully consistent with the findings in the study by Oberdorfer and colleagues (2005) among 732 PLHA prior to the initiation of HAART. The baseline findings revealed that the mean age was similar (36 years), but the proportion of men was lower (48%). Only 42% were married and 11% single (in our study 60% respective 20%). Primary school education was indicated by 75% of respondents

(only 38% in our study). Concerning employment, 30% were unemployed (in our study 12%), 37% laborers (36% for our findings) and 17% worked in the agriculture and farming sectors (6% in our study). These differences probably resulted from a different demographic setting in Chiangmai, Northern Thailand, where the study was conducted in 45 public hospitals. In our study, the participants may represent those HIV patients who were enrolled in the NAPHA project in the last 2 years and who could not afford the expensive antiretroviral treatments in the time before HAART was made widely accessible by NAPHA. An important difference compared to HIV patients from developed countries is the high proportion of heterosexual, married persons and increasingly women (C Bowonwatanuwong, personal communication, 22 February 2006).

6.2. Numbers of regular, non-regular and commercial partners of males and females

In our study, we found differences in self-reports of numbers of sexual partners, as they were perceived before and after HAART. Both men and women perceived only slight differences in numbers of regular partners for the time before and after HAART. Almost 90% of male respondents indicated having no non-regular partners after HAART. The percentage of men who perceived having no non-regular partners before antiretorviral treatment was 20% lower compared with the time after ART. Even if we take memory bias into account - some of our respondents were on HAART for more than 24 months - this finding indicated a tendency to decrease non-regular partners among men since HAART, thereby strengthening their relationships with regular partners.

In contrast to men, among female respondents, 63.6% indicated to have only one regular partner after HAART, which is 10% more than men. However, in women we observed a difference in self-reporting of regular partners before HAART. More women (75.3%) perceived having one regular partner before HAART. This finding showed a tendency to decrease the number of regular partners among females after HAART. Also for non-regular partners, there was a tendency to decrease the numbers with 91% of women reporting to have no non-regular partners after HAART. Furthermore, women were more likely to live in stable single-partner relationships

before and after HAART. On the other hand, only a minority of women (9%) and men (10.8%) in our cohort maintained sexual relations with non-regular partners after treatment. These percentages are only slightly higher than those indicated by Oberdorfer and colleagues (2005), where sex with non-regular partners was reported by only 4% of respondents before HAART. The Chiangmai study was a collection of baseline data before antiretroviral treatment, therefore, we may conclude that there was a change in the proportion to higher percentages of men and women reporting sex with non-regular partners after HAART. However, as mentioned above, patients in the Chiangmai study constituted a different demographic group. Therefore, baseline data before introduction of HAART are needed in order to properly assess changes in regular and non-regular partners of HIV infected persons.

6.3. Commercial sex visits by men

Our study found that there were considerable differences in perceived frequencies of CSW visits by HIV infected Thai males before and after they received HAART. The most important differences in perception were among those who paid visits to CSW “sometimes” and those who “never” frequented CSW. In the subgroup “factory workers” (n=43), the reports of having sex with CSW declined from 34.9% (including “regularly” and “sometimes”) before HAART to 18.7% after treatment. These results are supported by data obtained from the Ministry of Public Health (MOPH). It was revealed that for non HIV-infected men the change between the pre- and post-HAART era in Thailand was 31.5% vs. 17.6% respectively (Ministry of Public Health, Thailand, 1999-2000).

Also in the case of perceived differences in CSW visits between “before” and “after” HAART we should be aware of recall bias, but the striking differences in reporting of CSW visits (for “sometimes” and “never”) of almost 50% between pre ART and post ART era in our study indicated a tendency towards a decrease in CSW visits by men after HAART. However, almost 20% of all men from our cohort still continued to visit CSW after HAART. Compared with the data obtained from MOPH, the percentage of men from our cohort still engaging in commercial sex was higher than the proportion of industrial male workers (17.6%) and only slightly lower than the proportion of male military conscripts (25.7%) who reported CSW visits in the

post HAART era. However, those men were not HIV infected. This finding showed that despite continuous decline in CSW visits by men, many still engage in casual commercial sex. Particularly striking is that our participants were HIV infected and despite this, they showed proportions of CSW visits similar to the not HIV-infected men who were questioned by MOPH few years ago. Furthermore, we found that 12% of male participants did not use condoms at last sex with CSW. Commercial sex visits contributed significantly to the spread of the HIV-epidemic among heterosexual general population in Thailand (Ministry of Public Health, Thailand, 2005). If HIV infected patients relapse into unsafe sex practices, there is a real risk of having another outbreak of HIV among the general population.

6.4. Condom use behaviors among heterosexual and homosexual subjects

Among males, the proportion of perceived “100% condom use” with regular partners grew by more than one third and with non-regular partners by 17% between the time before and after HAART. This was different to findings by Oberdorfer and colleagues (2005) where consistent condom use with regular partners among men and women was reported by 54% of study subjects before HAART (in our study 22.4% for regular and 18.6% for non-regular partners). The proportion of men who indicated “never” using condoms after HAART was rather low (5.2% respective 2.7%). Only 35.4% of them used condoms “every time” after HAART. On the other hand, the results suggest that one fourth of male subjects still refused using condoms at sexual encounters with regular partners, and 12.5% with non-regular partners after HAART. For non-regular partners the proportion of males who continued having unprotected sex was 12.5%. Similar results were obtained for homosexual individuals.

Our male participants showed better improvement of condom use behaviors than the men examined by MOPH where the rate of constant condom use during sexual encounters with women among industrial male workers grew from 9.9% in the pre HAART era (1995) to 32.4% in 2001. However, these numbers apply to not HIV infected general population. (Ministry of Public Health, 2005).

For females, perceived changes in condom use behaviors with regular partners were similarly important. As mentioned before, a majority of women did not have any

non-regular partners. Similarly to male participants, the proportion of females who always or sometimes engaged in unprotected sex with regular partners remained at 31.2% high after HAART (5.2% for sex with non-regular partners). However, the results for “sex with condoms” among female respondents could be doubtful since it might sometimes be difficult for them to convince their partners to use condoms and they might find it more difficult to report condom use of their partners. Furthermore, there is a usually recall bias in self-reported behaviors. Yet, the percentages of women and men reporting about their condom use are very similar in our study (condom use at last sex for 70.8% of men and 65.4% for women, condom use “every time” with regular partners after HAART in 5.2% of men and women). This indicated a consistency of results for male and female respondents.

The results concerning condom use at last sex showed that 17.7% of males and 25.6% of females did not use condoms at their last sexual encounters. This proportion is lower than in the study by Oberdorfer and colleagues (2005) where the percentage was 32% for both sexes before HAART was started. In our study, for commercial sex encounters, the proportion of men who did not use condoms at their last sex was 12.2%. However, 73.0% of them reported protected sex with a CSW. This indicated a higher condom use compared with the data published by MoPH. In their report from 25 September 2005, the rate of constant condom use during sexual encounters with CSW among (not HIV infected) industrial male workers was 58.4% and among military recruits only 30.8%. However, these data show that the “100 percent condom use program” which initially increased the condom use rate among female CSW from 25% in 1989 to 98% in 2001 is at risk to become to lose its value. Since the HIV infection spread from CSW to general population in Thailand, our findings suggest a re-emerging danger of a new epidemic unless measures to improve condom use behaviors (and CSW visits) are taken.

However, we found that there was a positive tendency towards a decrease in commercial sex visits and to an increase in condom use rates among men and women in the reports of our study participants since HAART was started. The findings in this section are also strongly supported by several behavioral studies. Diamond and

colleagues (2005) demonstrated that use of (and adherence to) HAART were associated with a decreased prevalence of self-reported unprotected anal and vaginal sex. Among 689 patients taking HAART, 31% reported unprotected sex, while among the 185 not taking HAART the proportion was 46%. In 2004, Crepaz and colleagues conducted a meta-analysis of 25 published studies on sexual behaviors of patients on HAART comparing those without ART treatment. Sixteen studies came from the United States, more than half of all studies were conducted with MSM. The likelihood of engaging in unprotected sexual behavior was not higher in the group of HIV infected persons receiving HAART compared with the group not receiving HAART.

On the other hand, most of the studies examining sexual behaviors after HAART concluded contrary results. In a comparative study among youths living with HIV/AIDS, Lightfood and colleagues (2005) found that among young people (age 13-24 years) on HAART in the USA, the proportion of unprotected sex increased from 27% pre-HAART to 42% post-HAART. The mean number of unprotected sex act was significantly higher in the post-HAART cohort compared with the pre-HAART cohort (10.8 vs. 4.8, $P< 0.01$). Therefore, transmission acts were higher among the post HAART youth (Lightfoot et al., 2005). In 2001, Dukers and colleagues suggested that increases in unprotected sex and STDs among homosexual men in Holland reflected reduced concern regarding HIV-1 because of positive effects of HAART. They demonstrated that the practice of unprotected sex has either increased or remained stable after HAART among HIV-1- positive men. In their multi-center AIDS cohort study, Ostrow and colleagues (2002) demonstrated that despite reductions in HIV risk behaviors observed in the first decade of the HIV epidemic, approximately half of homosexual men who reported recently having risky sex encounters did not consistently use condoms. Among those men, lessened concern about infecting someone due to availability of HAART was strongly associated with three to six fold higher odds of unprotected anal sex, as was safer sex fatigue among HIV-positive men.

Because most of the previous studies suggesting an increase in unprotected sex with HAART were conducted among MSM in developed countries, we query the generalization of those findings. Our results suggest that increases in risk behaviors

associated with HAART may not reflect the sexual behaviors of patients from another socio-cultural and geographical setting. After 1989, Thailand has undertaken extensive promotion for safer sexual behavior and condom use such as “100 percent condom use campaign”, peer education programs for sex workers, factory workers or fishermen, including mass media campaigns. Counseling in health care facilities had also influenced patients’ behaviors. These steps seem to have an overall beneficial effect on condom use behaviors, the frequency of CSW visits and the number of partners among HIV infected people.

Another mechanism to explain the association of antiretroviral therapy with perturbation of risky sexual behaviors could be connected to cultural and economic traits including compliance with authorities such as physicians and the government, consciousness of a “unique chance” given by governmental schemes or support by natural “social nets” such as extended families. As Klausner (2001) writes in “Thai Culture in Transition”, Thai society is hierarchical in structure with its well-defined sets of duties and responsibilities. Hierarchy often finds expression through a patron-client syndrome (*phuu yai* vs. *phuu nawy*), which dictates appropriate behavior. There is a social and cultural imperative to accommodate to the realities of differential status. *Phuu nawy* are supposed to defer to *phuu yai* following lines of social rank defined by status and personal power. An example of *phuu yai* status would be doctors versus patients.

6.5. Frequency of sexual encounters

Among our respondents, 79.5% reported sexual activity after treatment. A smaller proportion of subjects (56.6%) admitted to have an increased interest in sex since they took antiretroviral drugs (Table 2). And yet, this study found that the reported perceived frequency of sex encounters per week and per month decreased among male and female study participants after they started to take HAART. The perceived median frequency of reported sex encounters dropped from 4.70 to 2.98 times per month and from 2.88 to 2.09 times per week. Furthermore, almost 20% more subjects reported to have only one sex encounter per week after HAART. There might be several reasons for this perceived decline. Recall bias is one of them. On the

other hand, considering a reported increased libido after HAART was started, there might have been an increased safe sex consciousness that has caused this reported decrease of sex acts among our participants after HAART.

6.6.Beliefs about safe sex behaviors and HIV transmissions while on HAART and attitudes towards HIV infected persons after HAART.

In this study, it was found that three-quarters of male and female participants had incorrect beliefs about safe sex behaviors and HIV transmissions while on HAART. Particularly striking was the agreement of the majority of subjects with the statement: “We can trust people who look very healthy that they are not infected with HIV”. Almost half of our respondents believed that it is more difficult for an HIV positive person to infect others through unsafe sex if the person was receiving HAART. Although it is proven that transmission probabilities by coital acts decreased significantly at low virus loads and that antiretroviral drugs can decrease HIV transmissions (Vernazza et al., 2000, Kovacs et al., 2001, Quinn et al., 2000, Gray et al., 2001), a substantial proportion of patients may be infectious or harbor HIV-1 resistant strains (Kovacs et al., 2001). It has been demonstrated that the shedding of HIV-1 in the semen of men and in the genital tract of women of cells harboring HIV-1 provirus still continued after HAART (Kovacs et al., 2001). A majority of our respondents (83.5%) believed that there was no need for safe sex with partners who were already infected with HIV. This view is particularly dangerous because of the possibility of a superinfection with a drug resistant strain of HIV-1 virus (Scheer et al., 2001). Moreover, unprotected sex contributes to the spread of STDs other than HIV (Kovacs et al., 2001). The findings in our study stress the importance of a better education of HIV infected patients about HIV transmissions under HAART. However, 88.5% of study subjects believed that condoms do not fully prevent STDs and HIV infection. Regarding the possibility of having a child as an HIV infected person, more than half (56.4%) of study participants knew that they could have children. These two findings demonstrate a good level of counseling in these particular fields.

Only a slight majority of our respondents demonstrated a positive attitude towards safe sex behaviors and towards HIV infected persons. However, some of the attitudes were strikingly negative. A majority of subjects (72%) was of the opinion that it is complicated to use condoms. Another 46% agreed with the statement that sex does not feel good with a condom and 75% believed that it causes too many troubles to carry condoms along. As mentioned above, a majority believed that AIDS and STDs could not be fully prevented by condoms. These findings suggest a generally negative attitude towards condom use. When we compare the fact that a majority of subjects reported to use condoms “every time” or “almost every time” after HAART, with these opinions shared by a majority of patients, there is a potential danger of “safe sex fatigue” (see below) in the future.

There was a striking overall negative attitude towards HIV infection itself. A majority of almost 80% perceived HIV infected people as “dirty” and did not believe that HIV infected people can think about their future like anyone else. Another 60% did not think that HIV infected people have the same dignity as non-infected individuals. Only 26.6% of respondents agreed that HIV infected people can get married with HIV negative persons. Even regarding a possible marriage with another HIV infected person, most of the subjects were either undecided or disagreed. Since the study participants were HIV positive themselves, these findings indicate a low level of self-esteem among the patients on HAART. In this context, it should be mentioned that 75% of females and 80% of males did not want to get pregnant or have a new child since they were on HAART. HIV continues to be a stigmatizing disease even after marked health improvements by HAART and therefore mental health services should be better integrated with HIV primary care. However, these findings are not consistent with high levels of optimism and relatively low levels of depression since HAART, where more than 80% of both, men and women reported to feel more optimistic and a majority felt less depressed after HAART. In this case, the difference between the sexes was statistically significant ($P<0.05$) and indicated lower levels of depression among females than among males. It appears that while the self-perception remains negative even after HAART, the improved quality of life had an overall positive effect on mental health.

6.7. Disclosure to partners, adherence to HAART and history of STDs

A majority of men and women reported having disclosed their HIV status to their current partners (76.5% for both sexes). However, around one fourth of them continued concealing their HIV infection from their partners. When asked about a hypothetical disclosure to a new partner, just under half of males but almost three-quarters of females would disclose their infection. In this case, we found a significant difference between the two sexes ($P<0.05$). A non-disclosure to current or new partner can serve as a predictor for a potential high-risk sexual behavior. Oberdorfer and colleagues (2005) found that 87% of patients scheduled for HAART treatment disclosed their HIV status to regular partners and only 19% to non-regular partners. In their cohort, it appears that a higher proportion of subjects disclosed the infection to their partners already before HAART was initiated. Another finding of our study was concerned with the adherence to the antiretroviral treatment. There was a noticeable difference between the two sexes. While 39% of men admitted forgetting to take the ART- tablets “sometimes”, this proportion was 46% among females. Also more women than men reported forgetting to take their treatment “very often”. Non-adherence is recognized as one of the main causes of treatment failure. Montaner and colleagues (1998) showed in a clinical trial that incomplete adherence to HAART was associated with HIV drug resistance. Friedland and colleagues (1999) showed that at least 95% adherence was needed to maximally suppress viral replication in patients receiving HAART. We did not assess the exact levels of adherence to ART but the high proportion of men and even higher percentage of women who admitted forgetting to take their treatment, indicates a low consciousness about the consequences of poor compliance. The information emphasizing on importance of adherence should be improved at HIV primary care levels.

An additional finding which was not part of our original study objectives was the overall rate of STDs after HAART among participants (22.3% for men and 24.1% for women). The most common STDs were gonorrhea and syphilis for men and vaginal discharge for women. A study from Holland found that an increase in gonorrhea and syphilis among homosexual men coincided with the introduction of HAART and indicated a change in sexual behavior among this group (Stolte et al., 2001). Another

study from the USA matching STD- and HIV registers showed that patients on HAART were more likely to develop STDs compared with untreated patients (Scheer et al., 2001). Since we do not have the baseline data for our patients, we can not conclude whether this is in agreement with our findings. However, the self reported changes in condom use behaviors among our subjects and an overall majority of 77.6% men and 75.9% of women who did not report any STDs since they were on HAART suggested an improved STD prevalence in our patient group.

6.8. Acceptance, intolerance, optimism and depression since HAART

This study revealed that among our male and female HIV infected responders the levels of perceived and experienced acceptance at home, at the work place, by friends and in health care facilities were generally low. The majority of men and women were either undecided or did not feel any improvement of acceptance by their environment since they were taking HAART. In all categories except for 'perceived acceptance among friends', no statistically significant differences were found between the two sexes in terms of levels of acceptance ($P>0.05$). Significantly more women than men agreed that they would feel better accepted among their friends since they were on HAART ($P<0.05$). This finding may suggest that HIV infected women would find more moral support among their friends than at home or at the work place. A striking majority of 69% denied any improvement of acceptance in health care facilities after HAART. This finding showed that even after HIV infection became a treatable and therefore chronic disease, in its course comparable to diabetes mellitus, HIV-patients still feel stigmatized by medical personnel. Another striking finding was the reported low level of acceptance at home after HAART. Thai society is traditionally based on extended families where mutual support is strong. Furthermore, since the social insurance system is not accessible to the majority of HIV patients (most of our HIV infected respondents were in the NAPHA project, C Bowonwatanuwong; personal communication, 20 November 2005), family ties remain the most important social support for the patients. Therefore, the general population needs to be better informed and educated about the HIV infection in the post HAART era.

There were hardly any differences in reporting of perceived daily intolerance between “before” and “after HAART” Only the percentage of those who indicated “never” experiencing intolerance grew by 11% after HAART. However, despite a positive trend, 64% still experienced intolerance in their environment in the post HAART era.

6.9.Associations between general characteristics, duration of treatment and differences in reporting of sexual behaviors and CSW visits

After comparing differences in perceived patterns of condom use behaviors in different education groups, it appeared that among our study participants, school education was not associated with perceived changes of condom use behaviors with regular partners. Since we do not have reliable baseline data (due to recall bias in our study), it remains to be evaluated further whether education can serve as a predictor for risky sexual behaviors among HIV-infected persons.

After relating HAART- duration “< 12 months” and “> 12 months” with condom use behaviors, it appears that there was a difference between the two groups in terms of perceived condom use behaviors before and after HAART. There was a decrease of reported “100% condom use” with regular partners between “<6 months on HAART” and “>24 months on HAART” by almost 10%. These findings can be explained by the “treatment fatigue” as mentioned by Dukers and colleagues (2001). It seems that there is a critical threshold of time during treatment before increases in unprotected sex are seen. This issue warrants attention in future research. For the reported perceived “100% condom use” before HAART, there was a more important decrease between those on treatment for less than 6 months and those for more than 24 months. We believe that this discrepancy in reporting was due to recall bias, especially for those on HAART for longer than 24 months. This study also demonstrated that married individuals showed a better perceived improvement in condom use behaviors than divorced, widowed and single persons. There were higher perceived increases in “100% condom use” and decreases of those who reported “never” using condoms than in other marital status groups. Interestingly, more divorced and single individuals reported “never” using condoms after HAART.

Similarly, a much higher proportion of divorced and widowed men reported continuing commercial sex visits after HAART compared with married and even single individuals. Again, among married individuals, the proportion of those who reported “never” frequenting CSW after HAART was with 89.4% the highest among all marital status groups. While among divorced persons nobody recalled having “never” visited CSW before HAART, this proportion was 28.6% after HAART. Single men perceived sharp declines in commercial sex visits, too, but 3.1 % of them still admitted to engage in regular commercial sex and 18.8% in casual sex with CSW after HAART.

The differences in reporting of perceived frequencies of commercial sex visits “before” and “after HAART” were comparable in all income groups (perceived change by around 50%) except for men earning between 6,001 and 10,000 Baht. The perceived decrease in this group was only 29.2%. Also, a higher proportion of men in this group reported to still engage in regular sex with CSW. However, the proportion of men who reported “never” visiting CSW after HAART was with three-quarters of respondents similar in all income groups except for the men earning less than 3,000 Baht per month (94% of them denied CSW visits after HAART). Naturally, this fact can be explained by the financial limitations of those males. Regarding school education, the proportion of men who reportedly “never” visited CSW grew by 57.9% between the time “before” and “after HAART” among primary school graduates and also the highest proportion of men from this group reported “never” visiting CSW after HAART. Only university graduates achieved a similar increase in this category. The lowest increase of this proportion was among men with secondary school education. However, due to relatively small n in the subgroups, it is difficult to predict, whether education can serve as a predictor for risky sexual behaviors. Furthermore, we did not find any apparent differences in perceived frequencies of CSW visits in terms of treatment duration. The proportion of men reporting “never” visiting CSW after HAART remained stable around 85% between those with “< 6 months” and “> 24 months” of HAART duration and of men who “sometimes” frequented CSW remained in the same time around 10%. In contrast to our findings concerning patterns of condom use behaviors related to treatment duration, we could

not conclude a “treatment fatigue” among our male respondents in terms of CSW visits..

There was an obvious association between disclosure of HIV status and CSW visits among male participants of our study. Men who reported having disclosed their infection to their partner perceived a sharper decrease in CSW visits compared with those who preferred non-disclosure. The study conducted by Oberdorfer and colleagues (2005) found a significant association between consistent use of condoms and disclosure status where 71% consistently used condoms in the disclosure group but only 35% in the non-disclosure group ($P<0.001$). Both the findings from our study and from Chiangmai stress the significance of disclosure of HIV status to partners as an important factor contributing to safer sex practices.

The results from our study showed a perceived tendency to decrease unsafe sex practices among males and females after they received HAART. On the other hand however, our data indicate that many of the study participants continue having unprotected sex, visiting CSW and maintaining multiple sexual partner relationships after HAART. The proportions of individuals reporting risky sexual behaviors are in some cases even higher than indicated in the data from MOPH where sexual behaviors of not HIV-infected persons in the HAART era were compared with reports from the pre HAART era in a multi-variate analysis. Our findings suggest that despite a perceived positive tendency, the rate of risky sexual behaviors among PLA remain high and have even increased since 2001 when data from MOPH were presented. In the light of the facts mentioned above concerning ongoing HIV transmissions under HAART, the dangers of infections with drug resistant HIV-1 strains, the poor adherence and many incorrect beliefs and negative attitudes, the NAPHA project which provides free access to antiretroviral drugs is in danger to lose its value unless steps to improve sexual behaviors, beliefs and atittudes are taken. Our study aimed to show that HAART is able to decrease the rate of risky sexual behaviors on the one hand but on the other hand it is important to emphasize that these improvements are not going far enough to fully suppress the spread of HIV/AIDS in Thailand. This research can only serve as a pilot study examining perceptions and tendencies of risky

sexual behaviors. Further multi-variate analyses using baseline data from the time before HAART and comparing them with behaviors after HAART are needed to assess changes in and predictors of risky sexual behaviors.

6.11 Limitations of the study

Our study had several limitations that must be taken into account when interpreting the findings:

a) Sexual behaviors and issues related to adherence to HAART in this study were indirectly assessed via self-reports using a questionnaire. Under-reporting was probably more common for sensitive behavior and for individuals engaged in high-risk sexual behaviors.
b) Patients may have found it difficult to disclose their risky sexual activities such as non-use of condoms, numbers of partners, frequency of sexual intercourse or CSW visits due to their desire to please the clinician and additionally there could have been distrust towards the investigator.
c) As there was a short period for the researcher to collect the data, and the questions were related to sexual behavior, it sometimes might have been difficult to obtain accurate responses.
d) The recall period of 6-24 months might have caused recall bias.
e) For some associations, the persons in subgroups comprised a relatively small group of total number of participants, therefore the findings may not always be representative.
f) We did not examine the relationship between HAART and changes in behaviors, attitudes, acceptance and optimism by cross-section in the same patients. Therefore, we did not compare the subjects by pairs but calculated the global changes as an overall over time.
g) Chonburi province of Eastern Thailand has one of the highest HIV prevalences in the county partially due to the proximity of big tourist centers such as Pattaya. Therefore, our results may not be transferable to other areas of Thailand or the region.

CHAPTER VIII

CONCLUSIONS AND RECOMMENDATIONS

8.1. Conclusions

This cross-sectional study was carried out to assess patterns of sexual behaviors, attitudes towards and beliefs about HIV/AIDS as well as levels of perceived acceptance and intolerance in the context of the HIV infections in Thailand as they were perceived prior and post HAART. During the data collection, 200 HIV infected men and women were sampled according to convenient sampling and completed structured questionnaires during November and December 2005 in Chonburi Hospital, Eastern Thailand.

The proportion of men to women was 1.5 to 1; most of the participants were heterosexual. A majority of the subjects had low income and education status. An important difference compared to HIV patients from developed countries is the high proportion of heterosexual, married persons and increasing proportion of women.

For men, the perceived numbers of non-regular and commercial partners decreased sharply after HAART. The difference in reporting of numbers of commercial sex partners after HAART was not that striking. Among men, there was a stronger tendency to strengthen their one-partner relations after HAART than among females. Women were more likely to live in stable one-partner relationships before and after HAART or preferred not to have any partners after HAART. A majority of men (53.6%) and women (75.3%) perceived having only one regular partner before HAART.

Concerning perceived frequencies of CSW visits after HAART, the most important decreases occurred among males who reported frequenting CSW “sometimes” or “never”. However, almost 20 percent of all men from our cohort still continued visiting CSW after HAART.

Important perceived behavioral changes occurred in terms of condom use. Among males the proportion of recalled and reported “100% condom use” with regular partners grew by more than one-third and with non-regular partners by 17% between the time before and after HAART. ”Zero percent condom use” reportedly decreased by 17% with regular partners but only by 7% with non-regular partners in the same time. The results suggest that one-fourth of male subjects still refused using condoms at sexual encounters with regular partners after HAART. The proportion of females who “always” or “sometimes” engaged in unprotected sex with regular partners remained at 31.2% high after HAART. Among homosexual subjects, the perceived “100% condom use” rate with regular partners rose by one-third with regular partners and by 10.0% with non-regular partners. However, almost one-fourth of homosexual subjects still engaged in unprotected sex with regular partners (13.0% for non-regular partners) after HAART. It was shown that 18% of males and one-fourth of females did not use condoms during their last sexual encounter with regular partner and 12% of men had unprotected last sex with CSW. However, 73% of them reported consistent condom use with CSW. Eighty percent reported sexual activity after HAART. This study found that the perceived frequency of sex encounters per week and per month decreased among male and female study participants after they started to take HAART. The findings indicate a tendency towards safer sex among men and women after HAART, but rates of unsafe sexual behaviors remain high and put the safer sex campaigns and the NAPHA project at risk to lose their value.

The beliefs concerning safe sex behaviors and HIV transmissions under HAART were incorrect for three-quarters of males and females on HAART. The findings in our study stress the importance of a better education of HIV infected patients about HIV transmissions under HAART. A slight majority of our respondents demonstrated a positive attitude towards safe sex behaviors and towards their HIV infection even if some of the attitudes, especially those concerning condom use and HIV transmissions under HAART remain to be changed. Otherwise, there is a danger of “safe sex fatigue” in the future. There was a striking overall negative attitude towards HIV infection itself. A vast majority perceived HIV infected people as “dirty” and did not believe that HIV infected people can think on their future like

everybody else. These findings indicated low levels of self-esteem among patients on HAART.

A majority of men and women reported having disclosed their HIV status to their current partners. However, around one fourth continued concealing their HIV infection from their partners. Furthermore, there was a noticeable difference between the two sexes in terms of adherence to HAART. While almost 40 percent of men admitted forgetting to take the ART- tablets “sometimes”, this proportion was 45.7% among females. Also more women confessed forgetting their treatment “very often”.

The levels of perceived acceptance at home, at work place, by friends and in health care facilities among our male and female HIV infected responders were generally low. Significantly more women than men agreed that they would feel better accepted among their friends since they were on HAART. Despite a positive trend, 63.8% still experienced intolerance in their environment, especially at home and in health care facilities. However, over 80 percent of the study participants showed higher levels of optimism after treatment and there was no significant difference between the two sexes. Similarly positive results were obtained for levels of depression in the post HAART era. In this case, depression levels were lower among females than among males.

In terms of treatment durations of “<12 months” and “>12 months”, it appeared that those on HAART for less than 12 months showed a higher decrease in percentage of persons who “never” used condoms and a higher proportion of those with consistent condom use after HAART. Furthermore, married individuals showed better improvements in condom use behaviors than divorced, widowed, and single individuals. Similarly, among married individuals, the proportion of those who never frequented CSW was at almost 90 percent the highest among all marital status groups. The perceived decrease in commercial sex visits was comparable in all income groups (around 50%) except for those men earning between 6,001 and 10,000 Baht per month. The decrease in this group was only by 29.2%. The proportion of men never visiting CSW was highest among individuals with an education level up to primary

school. Furthermore, men who disclosed their infection to their partner showed a sharper perceived decrease in CSW visits compared with those who preferred non-disclosure.

8.2. Recommendations

1. Further longitudinal, multi-variate studies are needed to assess and monitor changes in risk behaviors among HIV infected persons. Since around 2,500 new HIV cases are enrolled into NAPHA every month, more baseline data on sexual behaviors, psychical condition, beliefs and attitudes before starting of HAART are needed to better assess any changes over time.
2. HIV infected patients receiving HAART have continuing contact with health care system. To enhance HIV prevention, more intensive risk-reduction, counseling and routine STD screening are needed.
3. Treatment programs need to emphasize on consistent condom use with regular and non-regular partners, further reduction of commercial sex visits and on disclosure.
4. HAART related beliefs and attitudes suggest that HIV patients should receive prevention messages emphasizing that receiving HAART does not fully protect the person from spreading of the infection. Furthermore, it is necessary to inform the patients that unprotected sex with other HIV infected persons can contribute to a superinfection with a drug resistant strain of HIV-1 and spread of other STDs.
5. The self-esteem of HIV persons and their acceptance especially in healthcare facilities were poor. Therefore, improved integration of mental health services with HIV primary care and improved training of health care workers dealing with HIV patients should be employed.
6. Our findings about perceived sexual behaviors before HAART suggest a high level of unsafe sex practices among the general population. Therefore, sex education and condom use campaigns for non HIV-infected persons should be reinforced.

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APPENDIX

APPENDIX A

Questionnaire

Sexual behavior in Thai HIV infected patients after the antiretroviral therapy, Chonburi Province, Thailand

Date: ……

Interviewer: …….

No.: …….

To be filled by the respondents.

The objective of this study is to assess any changes in sexual behavior, of attitudes towards sexual behavior, the knowledge about the HIV infection risks and of discrimination towards HIV-infected persons since the introduction of the therapy against HIV/AIDS, known as highly active antiretroviral treatment (HAART), among Thai HIV infected persons in the Chonburi Province, Thailand.

The knowledge and information gained from this research will reflect the real situation regarding the changes in sexual risky behavior and changes in attitudes of the environment towards patients living with HIV/AIDS as well as the need for prevention among Thai HIV infected patients in Chonburi Province, Thailand.

Some questions that you will have to answer relate to sexual matters, your sexual orientation and condom use, the issues that you usually keep private and that you are not used to discuss everyday. So, it is natural that you may feel a bit uncomfortable to answer during this interview. So, I would like to inform you that you can stop the interview at any time.

Your answers are completely confidential. Your names will not be written in this form and will never be used in connection with any of the information you tell me. The answers will be recorded and analyzed using a number and code for each patient and questionnaire. The questionnaires will be also destroyed after the data will be entered and analyzed.

APPENDIX B

Informed Consent Form

Project title: **Sexual behavior in Thai HIV infected patients after the antiretroviral therapy, Chonburi Province, Thailand**

This is the thesis project for partial fulfillment of the requirements for the degree of Master in Clinical Tropical Medicine

Responsible person and institute: Advisor: Prof. Dr. Punnee Pitisuttithum, Faculty of Tropical Medicine, Mahidol University, Bangkok.
Principal investigator: Dr. Marcin Pietraszkiewicz, MCTM student, Faculty of Tropical Medicine, Mahidol University

Date of consent: ____/____/_____
(day/month/year)

I (Ms/Mrs/Mr)……
Home address…….

Street No.:……..
Village No.:……..

Sub-District:……
District:…….

Area code:……

I have read and understood all statements in the consent form. I also have been given explanation regarding the objectives and methodology of this study, possible risks and benefits that may occur to me upon the participation in the study. I understand that the information will be kept confidential. The answers will be recorded and analyzed using a number and code for each patient and questionnaire. The questionnaires will be also destroyed after the data will be entered and analyzed. My name will not be presented in the study report. I have rights to cancel my participation in the project at any time and this will not affect my treatment and care.

Signature……(Respondent)
(Mr/Mrs/Ms……)

Signature……(Researcher)
(Mr/Mrs/Ms……)

Signature……(Witness)
(Mr/Mrs/Ms……)

Signature……(Witness)
(Mr/Mrs/Ms……)

For persons who cannot read and write

I cannot read but before signing my consent hereby, interviewer had read and explained me about the study, the information sheet and the informed consent in details until I completely understand.

Signature……(Respondent)
(Mr/Mrs/Ms……)

Signature……(Researcher)
(Mr/Mrs/Ms……)

Signature……(Witness)
(Mr/Mrs/Ms……)

Signature……(Witness)
(Mr/Mrs/Ms……)

APPENDIX C

The questionnaire in English

The questionnaires consist of four sections:

Section 1: General characteristics

Section 2: Patterns of sexual behavior

Section 3: Condom use, knowledge about and attitudes towards safe sex

Section 4: Patient's experience with stigma and intolerance

Number: ……

Initials: ……..

Section 1: General characteristics

Please rate X or fill in the blank as appropriate

1. Birth date: …… Age in years: …….. years

Gender: 1…… Male 2…..... Female (according to ID card)

Sexual orientation:

1….. heterosexual

2….. homosexual : □ gay □ katoey □ don´t want to answer

3….. bisexual

Martial status

1…. .Married 3….. Widowed
2….. Divorced 4…... Single

What is the highest level of education you completed?

1….. No schooling 4…… Vocational School or higher
2….. Primary school (grade 1-6) 5…… University or above
3….. Secondary school (grade 7-12)

What is your occupation?

1……Laborer 5…… Factory worker 9…… Soldier
2…... Agriculture 6…… Entertainment 10……Others(specify)…….
3…... Fisherman 7…… Civil governor 11…… No job
4…... Housewife 8…… Policeman

7. Average income per month ……. Baht

1……under 3,000 Baht 4…….10,000-50,000 Baht
2……3,000-6,000 Baht 5…….more than 50,000 Baht
3……6,000-10,000 Baht 6…….no income

Number: ……

Initials: ……..

8. Since when have you been on antiretroviral treatment ?

Month…….. Year……

Duration:

1….. 0-6 months 2…..6-12 months 3…..12-24 months 4…. > 24 months

9. Have you felt an improvement of your health since taking the ART-treatment (gaining on weight, physical strength, better performance in daily life)?

1….. marked improvement 2….. slight improvement 3….. no improvement

10. Have you noticed an increased interest in sex since taking the ART treatment?

1….. yes 2….. no

11. Did you have the desire to get pregnant/have a child before starting the ARV treatment?

1….. yes 2..… no

12. Do you have the desire to get pregnant/have a child since the ARV treatment?

1….. yes 2….. no

Number: ……

Initials: ……..

Section 2: sexual behaviors:

Please rate X or fill in the blank as appropriate

13. Have you ever had sex since the antiretroviral treatment?

1…… yes 2…… no

The following questions refer to your behavior before and after starting the ARV treatment

BEFORE ARV -TREATMENT **AFTER ARV- TREATMENT**

14. How many partners did you have had before starting the ARV treatment

1…… Regular partners (=husband/wife or the one with whom you have sex regularly) ……..

2……. Non regular partners (= someone else besides from the definition above and with whom you have sex) ……..

3……. Commercial partners (= partner with whom you had sex in exchange for money) ……..

15. How many partners have you since the ARV treatment?

1……. Regular partners…….. ….

2…… Non regular partners……..

3……. Commercial partners……

How many partners at one time you used to have before starting the ARV treatment?

1…... Regular partners ……

2…… Non regular partners ……..

17. How many partners do you have now?

1…… Regular partners ……

2…….Non regular partners ……

Number: ……

Initials: ……..

18. Have you had sex with commercial sex workers before starting the ARV-treatment?

1….. regularly

2….. sometimes

3….. never

19. Do you currently have sex with commercial sex workers?

1….. regularly

2….. sometimes

3….. never

Section 3: Condom use, knowledge about and attitudes towards HIV/AIDS

Please rate X or fill in the blank as appropriate

BEFORE ARV TREATMENT

20. When you had sex before ARV treatment, how frequently you or your partner used condoms?

With regular partner:

1….. 100%=every time
2….. 75%=almost every time
3….. 50%=sometimes
4….. 25%=almost never
5….. 0% = never

With non-regular partner:

1….. 100%=every time
2….. 75%=almost every time
3….. 50%=sometimes
4….. 25%=almost never
5….. 0% = never

22. How many times per week/month have you had sex before ARV treatment

..……. times per week
……. times per month

AFTER ARV TREATMENT

21. When you have sex, how frequently you or your partner use condoms?

With regular partner:

1…. 100%=every time
2…. 75%=almost every time
3…. 50%= sometimes
4…. 25%=almost never
5…. 0%= never

With non-regular partner:

1…. 100%=every time
2…. 75%=almost every time
3…. 50%= sometimes
4…. 25%=almost never
5…. 0%= never

23. How many times per week/month do have sex now?

..……. times per week
……. times per month

Number: ……

Initials: ……..

24. Have you or your partner used condoms at your last sex?

1….. Yes 2….. No 3…. I don´t know

25. The last time you had sex with a commercial sex worker did you use a condom?

1….. Yes 2…… No 3…. I don´t know

Please answer the following questions putting a cross X in the appropriate number for each statement to indicate the level of your agreement:

Statement	strongly agree 5	agree 4	undecided 3	disagree 2	strongly disagree 1
26. It is complicated to use condoms					
27. Sex does not feel good when you use condoms					
28. It is too much trouble to carry condoms along					
29. Many men avoid using condoms with a partner					
30. STD/HIV/AIDS can be prevented by condom use					
31. Because of the treatment for HIV/AIDS, I am less concerned about infecting other people					
32. It is more difficult for an HIV positive person to infect a partner through unsafe sex if the HIV positive person was taking the treatment against HIV/AIDS					

Number: ……

Initials: ……..

Please answer the following questions putting a cross X in the appropriate number for each statement to indicate the level of your agreement:

Statement	strongly agree 5	agree 4	undecided 3	disagree 2	strongly disagree 1
33. We can trust people who look very healthy that are not infected with HIV					
34. There is no need to use a condom with partners who are already infected with HIV					
35. Condom use protects 100% against HIV					
36. HIV infected people are dirty persons					
37. HIV infected people can get married with not HIV infected persons					
38. HIV infected people can get married with other HIV infected persons					
39. HIV infected people can have new children					
40. HIV infected people can think on the future life like everybody else					
41. HIV infected people have the same dignity like everybody else.					

42. Have you been treated for STI since you take the ART treatment?

1…… Gonorrhea
2…… Syphilis
3…... Vaginal discharge
4…… Warts
5…… Other STI (specify)……..
6…… No STI in the last 6 month

Number: ……

Initials: ……..

43. Have you ever informed your partner about your HIV status?

1…… yes 2…… no

44. If you would have a new partner, would you disclosure your HIV status to him /her?

1……. yes 2……. no 3…… I don´t know

45. Have you ever forgotten to take your ART treatment as indicated by your doctor?

1……. very often 2…… sometimes 3……. never

Section 4: patient experience with stigma and intolerance:

Please rate with a cross X in the appropriate number to indicate the level of your agreement:

46. Do you feel better accepted by your environment (family, friends, working place, health care facilities) since taking the treatment?

	Strongly agree 5	**agree 4**	**undecided 3**	**disagree 2**	**strongly disagree 1**
at home					
at working place					
among friends					
in health care facilities					

47. Have you experienced intolerance due to your HIV status before ART treatment? (discrimination at home, working place, among friends, in health care facilities)

1….. 100% = every time
2….. 75% = almost every time
3….. 50% = sometimes
4….. 25% = almost never
5….. 0% = never

Number: ……

Initials: ……..

48. Do you experience intolerance due to your HIV status since you get the ART treatment?

1….. 100% = every time
2….. 75% = almost every time
3….. 50% = sometimes
4….. 25% = almost never
5….. 0% = never

49. Do you feel now more optimistic about your future than before starting ARV-treatment?

1….. More optimistic
2….. Less optimistic
3….. Same as before

50. Do you feel depressed since you take the treatment for HIV/AIDS?

1…… Less frequently than prior treatment
2…… More frequently than prior treatment
3…… No change to the time prior treatment

51. Do you find it complicated to complete this questionnaire?

1…..very complicated 2……slightly complicated 3……not complicated

Thank you for your cooperation!

APPENDIX D

Questionnaire in Thai

พฤติกรรมทางเพศสัมพันธ์ของผู้ป่วยที่ติดเชื้อเอชไอวีหลังจากได้รับการรักษาด้วยยาต้านเชื้อไวรัส ที่จังหวัดชลบุรี ประเทศไทย

วันที่.....

ผู้สัมภาษณ์.....

หมายเลข.....

สำหรับผู้ให้สัมภาษณ์

วัตถุประสงค์ของการศึกษาครั้งนี้เพื่อประเมินความเปลี่ยนแปลงในด้านพฤติกรรมทางเพศ, ทัศนคติต่อพฤติกรรมทางเพศ, ความรู้เกี่ยวกับความเสี่ยงต่อการติดเชื้อเอชไอวี และการแบ่งแยกต่อผู้ติดเชื้อเอชไอวีหลังการได้รับการรักษาด้วยยาต้านเชื้อไวรัสที่เรียกว่าในกลุ่มผู้ติดเชื้อเอชไอวีในจังหวัดชลบุรี ประเทศไทย

ความรู้และข้อมูลที่ได้จากการศึกษาครั้งนี้จะเป็นตัวสะท้อนให้เห็นถึงสภาวะการณ์ที่แท้จริงต่อการเปลี่ยนแปลงของพฤติกรรมเสี่ยงทางเพศสัมพันธ์ และทัศนคติที่เปลี่ยนไปของผู้คนรอบข้างต่อผู้ติดเชื้อเอชไอวี เช่นเดียวกับความจำเป็นในการป้องกันในกลุ่มผู้ติดเชื้อเอชไอวีในจังหวัดชลบุรี ประเทศไทย

บางคำถามที่ท่านต้องตอบขณะที่ให้สัมภาษณ์ที่เกี่ยวกับเรื่องเพศสัมพันธ์และประเภทของการมีเพศสัมพันธ์ ของท่านและการใช้ถุงยางอนามัย ซึ่งเป็นเรื่องส่วนตัวและท่านอาจไม่สะดวกที่จะให้คำตอบ ท่านสามารถหยุดการให้สัมภาษณ์ได้ทุกเวลา

คำตอบของท่านจะถูกเก็บไว้เป็นความลับ ชื่อของท่านจะไม่ถูกเขียนลงในเอกสารนี้และจะไม่มีการนำไปใช้ในการติดต่อใดๆทั้งสิ้น คำตอบจะถูกบันทึกในระบบการวิเคราะห์เชิงตัวเลขและรหัสเฉพาะของแต่ละบุคคล คำถามนี้จะถูกทำลายเมื่อการวิเคราะห์ข้อมูลเสร็จสิ้น

คำถามมีทั้งหมด 4 หัวข้อ ดังนี้

1. **คำถามทั่วไป**
2. **คำถามเกี่ยวกับพฤติกรรมทางเพศ**
3. **คำถามเกี่ยวกับการใช้ถุงยางอนามัย ความรู้และทัศนคติต่อการมีเพศสัมพันธ์อย่างปลอดภัย**
4. **คำถามเกี่ยวกับประสบการณ์ของท่านที่คนรอบข้างไม่ยอมรับ และท่านไม่สามารถอดทนได้**

หนังสือแสดงความยินยอมเข้าร่วมการศึกษา

ชื่อโครงการ: พฤติกรรมทางด้านเพศสัมพันธ์หลังจากได้รับการรักษาด้วยยาต้านไวรัสของผู้ป่วยชาวไทย ที่ติดเชื้อเอช ไอ วีในจังหวัดชลบุรี ประเทศไทย

โครงการวิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาปริญญา อายุรศาสตร์เขตร้อนคลินิกมหาบัณฑิต

อาจารย์ที่ปรึกษา: ศ.ดร.พรรณี ปิติสุทธิธรรม คณะเวชศาสตร์เขตร้อน มหาวิทยาลัยมหิดลผู้รับผิดชอบ

โครงการวิจัยหลัก: นายแพทย์มาร์ติน เพียร์ตร้าเควิช (Dr.Martin Pietraszkiewicz)
นักศึกษาอายุรศาสตร์เขตร้อน คลินิกมหาบัณฑิต คณะเวชศาสตร์เขตร้อน
มหาวิทยาลัยมหิดล

วันที่แสดงความยินยอม_____
(วัน /เดือน / ปี)

ข้าพเจ้า(นางสาว/นาง/นาย).....
บ้านเลขที่.....
ถนน.....
หมู่บ้าน.....
แขวง.....
เขต.....
จังหวัด.....
รหัสไปรษณีย์.....

ข้าพเจ้าได้อ่านและเข้าใจเนื้อหาทั้งหมดในหนังสือแสดงความยินดียินยอมเข้าร่วมการศึกษาครั้งนี้ ข้าพเจ้าได้รับคำอธิบายเกี่ยวกับวัตถุประสงค์ของการศึกษา,วิธีการศึกษา, ความเสี่ยง และประประโยชน์อาจเกิดจากการเข้าร่วมการศึกษานี้ ข้าพเจ้าเข้าใจว่าข้อมูลจะถูกเก็บเป็นความลับ คำตอบของข้าพเจ้าจะถูกบันทึกและวิเคราะห์โดยจะกำหนดตัวเลข และรหัสแทนตัวผู้ป่วยแต่ละคนรวมทั้งแบบสอบถามด้วย แบบสอบถามจะถูกทำลายหลังจากนำข้อมูลไปวิเคราะห์แล้ว ชื่อของข้าพเจ้าจะไม่ปรากฏในรายงานการศึกษานี้ ข้าพเจ้ามีสิทธิ์ที่จะถอนตัวหรือยกเลิกการเข้าร่วมการศึกษานี้ได้ทุกเมื่อ และการตัดสินใจของข้าพเจ้าจะไม่มีผลกระทบต่อการดูแลรักษาทางการแพทย์ของข้าพเจ้า

ลายมือชื่อ.....(ผู้เข้าร่วมการศึกษา)
(นาย/นางสาว/นาง/.....)

ลายมือชื่อ.....(ผู้ดำเนินการวิจัย)
(นาย/นางสาว/นาง/.....)

ลายมือชื่อ.....(พยาน)

(นาย/นางสาว/นาง/.....)

ลายมือชื่อ.....(พยาน)

(นาย/นางสาว/นาง/.....)

สำหรับบุคลที่ไม่สามารถอ่านเขียนหนังสือได้

ข้าพเจ้าไม่สามารถอ่านหนังสือได้ แต่ก่อนลงลายมือชื่อในหนังสือแสดงความยินดียินยอมเข้าร่วมการศึกษานี้ ผู้สัมภาษณ์ได้อ่านและอธิบายรายละเอียดเกี่ยวกับการศึกษานี้ ทั้งในเอกสารข้อมูลการศึกษาและในหนังสือแสดงความยินดียินยอมเข้าร่วมการศึกษา จนข้าพเจ้าเข้าใจอย่างดี

ลายมือชื่อ.....(ผู้เข้าร่วมการศึกษา)

(นาย/นางสาว/นาง/.....)

ลายมือชื่อ.....(ผู้ดำเนินการวิจัย)

(นาย/นางสาว/นาง/.....)

ลายมือชื่อ.....(พยาน)

(นาย/นางสาว/นาง/.....)

ลายมือชื่อ.....(พยาน)

(นาย/นางสาว/นาง/.....)

หมายเลข.....
ชื่อย่อ.....

ตอนที่ 1 คำถามทั่วไป

กรุณาใส่เครื่องหมาย X ลงในช่องว่าง หรือเขียนคำตอบลงในที่ว่าง

1. ปีเกิด ..... อายุ .....ปี

2. เพศ 1 ..... ชาย 2 ..... หญิง (ตามบัตรประชาชน)

3. ท่านมีพฤติกรรมทางเพศสัมพันธ์แบบใด

1 ..... รักต่างเพศ

2 ..... รักร่วมเพศ : □ เกย์ □ กระเทย □ ขอไม่ตอบ

3 ..... ได้ทั้ง 2 เพศ

4. สถานะภาพของท่าน

1 ..... แต่งงานแล้ว 3 ..... หม้าย

2 ..... หย่าร้าง 4 ..... โสด

5. ระดับการศึกษาสูงสุดของท่าน

1 ..... ไม่ได้ศึกษาเล่าเรียน 4 ..... ระดับอาชีวะศึกษา หรือสูงกว่า

2 ..... ระดับประถมศึกษา (ป.1- 6) 5 ..... ระดับอุดมศึกษา หรือสูงกว่า

3 ..... ระดับมัธยมศึกษา (ม.1-6)

6. ท่านประกอบอาชีพอะไร

1 ..... คนงาน 5 ..... ลูกจ้างโรงงาน 9 ..... ทหาร

2 ..... เกษตรกร 6 ..... งานบันเทิง 10 ..... อื่นๆ โปรดระบุ.....

3 ..... ประมง 7 ..... ข้าราชการ 11 ..... ว่างงาน

4 ..... แม่บ้าน 8 ..... ตำรวจ

7. รายได้เฉลี่ยต่อเดือน

1….. น้อยกว่า 3,000 บาท 4 ……10,000-50,000 บาท

2 ..... 3,000-6,000 บาท 5 …... มากกว่า 50,000 บาท

3 ….. 6,000-10,000 บาท 6 ……ไม่มีรายได้

หมายเลข.....
ชื่อย่อ.....

8. ท่านได้เข้ารับการรักษาด้วยยาต้านเชื้อไวรัส ตั้งแต่เมื่อใด

เดือน.....พ.ศ.....

ระยะเวลาที่เริ่มยา:

1 ..... 0-6 เดือน 2..... 6-12 เดือน 3..... 12-24 เดือน 4..... มากกว่า 24 เดือน

9. ท่านรู้สึกถึงสุขภาพที่ดีขึ้นหลังจากที่ได้รับการรักษาด้วยยาต้านเชื้อไวรัส หรือไม่ เช่น น้ำหนักตัวเพิ่มขึ้น, ร่างกายแข็งแรงขึ้น, มีสมรรถภาพในการดำเนินชีวิตประจำวันได้ดีขึ้น

1 ..... รู้สึกดีขึ้นมาก 2 ..... รู้สึกดีขึ้นเล็กน้อย 3 .....ไม่รู้สึกว่าดีขึ้น

10. ท่านได้สังเกตบ้างไหมว่าท่านมีความสนใจมากขึ้นในเรื่องการมีเพศสัมพันธ์หลังจากที่ได้รับการรักษาด้วยยาต้านเชื้อไวรัส

1 ..... ใช่ 2 ..... ไม่ใช่

11. ท่านเคยมีความประสงค์ว่าอยากตั้งครรภ์หรืออยากมีลูกก่อนที่จะได้รับการรักษาด้วยยาต้านเชื้อไวรัส หรือไม่

1 ..... มี 2 ..... ไม่มี

12. ท่านเคยมีความประสงค์ว่าอยากตั้งครรภ์หรืออยากมีลูกหลังจากที่ได้รับการรักษาด้วยยาต้านเชื้อไวรัส หรือไม่

1 ..... มี 2 ..... ไม่มี

หมายเลข.....

ชื่อย่อ.....

ตอนที่ 2 คำถามเกี่ยวกับพฤติกรรมทางเพศสัมพันธ์

กรุณาใส่เครื่องหมาย X ลงในช่องว่าง หรือเขียนคำตอบลงในที่ว่าง

13. ท่านเคยมีเพศสัมพันธ์หรือไม่ตั้งแต่ท่านได้รับการรักษาด้วยยาต้านไวรัส

1 ..... เคย 2 ..... ไม่เคย

คำถามต่อไปนี้เป็นคำถามเกี่ยวกับพฤติกรรมของท่านก่อนและหลังที่ได้รับการรักษาด้วยยาต้านเชื้อไวรัส

ก่อนได้รับการรักษาด้วยยาต้านเชื้อไวรัส

14. ท่านมีคู่นอนกี่คนก่อนได้รับการรักษาด้วยยาต้านไวรัส

1 ..... คู่นอนประจำ (สามี/ภรรยา หรือคนที่ท่านมีเพศสัมพันธ์ด้วยเป็นประจำ)..... คน

2 ..... คู่นอนชั่วคราว (คนที่ท่านมีเพศสัมพันธ์ด้วยเป็นครั้งคราว) ..... คน

3 ..... คู่นอนขายบริการ (คนที่ท่านมีเพศสัมพันธ์ด้วยและมีการจ่ายเงินหลังการมีเพศสัมพันธ์) ..... คน

หลังได้รับการรักษาด้วยยาต้านเชื้อไวรัส

15. ท่านมีคู่นอนกี่คนตั้งแต่ท่านเริ่มรักษาด้วยยาต้านไวรัส

1 ..... คู่นอนประจำ (สามี/ภรรยา หรือคนที่ท่านมีเพศสัมพันธ์ด้วยเป็นประจำ) ..... คน

2 ..... คู่นอนชั่วคราว (คนที่ท่านมีเพศสัมพันธ์ด้วยเป็นครั้งคราว) ..... คน

3 ..... คู่นอนขายบริการ (คนที่ท่านมีเพศสัมพันธ์ด้วยและมีการจ่ายเงินหลังการมีเพศสัมพันธ์) ..... คน

16. ก่อนได้รับการรักษาด้วยยาต้านไวรัส ท่านมีคู่นอนกี่คนในเวลาเดียวกัน

1 ..... คู่นอนประจำ (สามี/ภรรยา หรือคนที่ท่านมีเพศสัมพันธ์ด้วยเป็นประจำ) ..... คน

2 ..... คู่นอนชั่วคราว (คนที่ท่านมีเพศสัมพันธ์ด้วยเป็นครั้งคราว) ..... คน

17. ท่านมีคู่นอนกี่คนในปัจจุบันนี้

1 ..... คู่นอนประจำ (สามี/ภรรยา หรือคนที่ท่านมีเพศสัมพันธ์ด้วยเป็นประจำ) ..... คน

2 ..... คู่นอนชั่วคราว (คนที่ท่านมีเพศสัมพันธ์ด้วยเป็นครั้งคราว) ..... คน

หมายเลข.....

ชื่อย่อ.....

ก่อนได้รับการรักษาด้วยยาต้านไวรัส **หลังได้รับการรักษาด้วยยาต้านไวรัส**

18. ท่านเคยมีเพศสัมพันธ์กับผู้ที่ขายบริการทางเพศก่อนได้รับการรักษาหรือไม่
1 ..... เป็นประจำ
2 ..... บางครั้ง
3 ..... ไม่เคย

19. ท่านยังคงมีเพศสัมพันธ์กับผู้ที่ขายบริการทางเพศ อยู่หรือไม่
1 ..... เป็นประจำ
2 ..... บางครั้ง
3 ..... ไม่เคย

ตอนที่ 3 คำถามเกี่ยวกับการใช้ถุงยางอนามัย ความรู้และทัศนคติต่อการมีเพศสัมพันธ์อย่างปลอดภัย

กรุณาใส่เครื่องหมาย X ลงในช่องว่าง หรือเขียนคำตอบลงในที่ว่าง

ก่อนได้รับการรักษาด้วยยาต้านไวรัส **หลังได้รับการรักษาด้วยยาต้านไวรัส**

20. ก่อนได้รับการรักษาเวลาที่ท่านมีเพศสัมพันธ์ท่านและคู่นอนใช้ถุงยางอนามัยบ่อยแค่ไหน
กับคู่นอนประจำ
1 ..... 100% = ทุกครั้ง
2 ..... 75% = เกือบทุกครั้ง
3 ..... 50% = บางครั้ง
4 ..... 25% = แทบจะไม่ใช้
5 ..... 0% = ไม่เคยใช้

21. ปัจจุบันเวลาที่ท่านมีเพศสัมพันธ์ท่านและคู่นอนใช้ถุงยางอนามัยบ่อยแค่ไหน
กับคู่นอนประจำ
1 ..... 100% = ทุกครั้ง,
2 ..... 75% = เกือบทุกครั้ง
3 ..... 50% = บางครั้ง
4 ..... 25% = แทบจะไม่ใช้
5 ..... 0% = ไม่เคยใช้

กับคู่นอนชั่วคราว
1 ..... 100% = ทุกครั้ง
2 ..... 75% = เกือบทุกครั้ง
3 ..... 50% = บางครั้ง
4 .....25% = แทบจะไม่ใช้
5 ..... 0% = ไม่เคยใช้

กับคู่นอนชั่วคราว
1 ..... 100% = ทุกครั้ง,
2 ..... 75% = เกือบทุกครั้ง
3 ..... 50% = บางครั้ง
4 ..... 25% = แทบจะไม่ใช้
5 ..... 0% = ไม่เคยใช้

22. ท่านมีเพศสัมพันธ์บ่อยแค่ไหนก่อนได้รับการรักษา
.....ครั้ง ต่อสัปดาห์
.....ครั้ง ต่อ เดือน

23. ท่านมีเพศสัมพันธ์บ่อยแค่ไหนปัจจุบันนี้
.....ครั้ง ต่อสัปดาห์
.....ครั้ง ต่อ เดือน

หมายเลข.....
ชื่อย่อ.....

24. ท่านและคู่นอนของท่านได้ใช้ถุงยางอนามัยหรือไม่เมื่อครั้งหลังสุดที่มีเพศสัมพันธ์

1 ..... ใช้ 2 ..... ไม่ใช้ 3 ..... ไม่รู้

25. ครั้งหลังสุดที่ท่านมีเพศสัมพันธ์กับผู้ที่ขายบริการทางเพศ ท่านได้ใช้ถุงยางอนามัยหรือไม่

1 ..... ใช้ 2 ..... ไม่ใช้ 3 ..... ไม่รู้

กรุณาตอบคำถามข้างล่างนี้ โดยใส่เครื่องหมาย X ลงในช่องว่างที่ท่านเห็นด้วย

คำถาม	5 เห็นด้วยอย่างยิ่ง	4 เห็นด้วย	3 ไม่แน่ใจ	2 ไม่เห็นด้วย	1 ไม่เห็นด้วยอย่างยิ่ง
26. การใช้ถุงยางอนามัยเป็นเรื่องยุ่งยาก					
27. การใช้ถุงยางอนามัยทำให้ความพึงพอใจในการมีเพศสัมพันธ์ลดลง					
28. การพกถุงยางอนามัยเป็นเรื่องยุ่งยาก					
29. หลายคนหลีกเลี่ยงการใช้ถุงยางอนามัยเมื่อมีเพศสัมพันธ์กับคู่นอน					
30. โรคติดต่อทางเพศสัมพันธ์ / ติดเชื้อไวรัสเอชไอวี / โรคเอดส์ ป้องกันได้ด้วยการใช้ถุงยางอนามัย					
31. เนื่องจากมีวิธีการรักษาโรคติดเชื้อไวรัสเอชไอวี/โรคเอดส์ ทำให้ท่านลดความกังวลที่จะทำให้ผู้อื่นติดเชื้อจากท่าน					
32. การติดเชื้อจะเกิดได้ยากขึ้นกับคู่นอนของท่านโดยไม่ป้องกัน ถ้าท่านได้รับการรักษาด้วยยาต้านเชื้อไวรัสเอชไอวี/เอดส์					

หมายเลข.....

ชื่อย่อ.....

กรุณาตอบคำถามข้างล่างนี้ โดยใส่เครื่องหมาย X ลงในช่องว่างที่ท่านเห็นด้วย

คำถาม	5 เห็นด้วยอย่างยิ่ง	4 เห็นด้วย	3 ไม่แน่ใจ	2 ไม่เห็นด้วย	1 ไม่เห็นด้วยอย่างยิ่ง
33. เราจะเชื่อได้หรือไม่ว่าบุคคลที่เราเห็นว่าสุขภาพแข็งแรงไม่ได้ติดเชื้อไวรัสเอชไอวี เอดส์					
34. ท่านไม่มีความจำเป็นที่ต้องใช้ถุงยางอนามัยกับคู่นอนของท่านที่ติดเชื้อไวรัส เอชไอวี เอดส์					
35. ท่านคิดว่าถุงยางอนามัยสามารถป้องกันการติดเชื้อไวรัส เอชวี เอดส์ ได้ 100% หรือไม่					
36. ท่านคิดว่าผู้ติดเชื้อเอดส์เป็นบุคคลที่น่ารังเกียจ หรือไม่					
37. ท่านคิดว่าผู้ติดเชื้อเอดส์ สามารถแต่งงานกับคนปกติ ได้หรือไม่					
38. ท่านคิดว่าผู้ติดเชื้อเอดส์ สามารถแต่งงานกับผู้ติดเชื้อด้วยกันได้หรือไม่					
39. ท่านคิดว่าผู้ติดเชื้อเอดส์ สามารถมีบุตรได้หรือไม่					
40. ท่านคิดว่าผู้ติดเชื้อเอดส์ จะสามารถ คิดถึงอนาคตของตนเองเหมือนคนทั่วไปได้หรือไม่					
41. ท่านคิดว่าผู้ติดเชื้อเอดส์ จะสามารถมีความรู้สึกภาคภูมิใจในตัวเองเหมือนคนทั่วไปได้หรือไม่					

42. ท่านเคยได้รับการรักษาด้วยโรคติดต่อทางเพศสัมพันธ์ ตั้งแต่ได้รับการรักษาด้วยยาต้านไวรัส

1 ..... โรคหนองใน

2 ..... โรคซิฟิลิส

3 ..... ตกขาว

4 ..... โรคหูดหงอนไก่

5 ..... โรคติดต่อทางเพศสัมพันธ์อื่นๆ ระบุ .....

6 ..... ไม่เคยได้รับการรักษา ด้วยโรคติดต่อทางเพศสัมพันธ์ ตั้งแต่ได้รับการรักษาด้วยยาต้านไวรัส

หมายเลข.....

ชื่อย่อ.....

43. ท่านได้บอกแฟนหรือคู่นอนของท่านให้รับรู้ถึงภาวะการติดเชื้อไวรัสเอชไอวีของท่านหรือไม่

1 ..... บอก 2 ..... ไม่ได้บอก

44. ถ้าท่านมีแฟนหรือคู่นอนคนใหม่ ท่านจะบอกให้เค้าได้รู้ถึงภาวะการติดเชื้อไวรัสเอชไอวีของท่านหรือไม่

1 ..... บอก 2 ..... ไม่บอก 3 ..... ไม่รู้

45. ท่านเคยลืมทานยาต้านไวรัสตามที่แพทย์สั่งหรือไม่

1 ..... ลืมบ่อย 2 ..... บางครั้ง 3 ..... ไม่เคย

ตอนที่ 4 คำถามเกี่ยวกับประสบการณ์ของท่านที่คนรอบข้างไม่ยอมรับ และท่านไม่สามารถอดทนได้

กรุณาตอบคำถามข้างล่างนี้ โดยใส่เครื่องหมาย X ลงในช่องว่างที่ท่านเห็นด้วย

46. ท่านรู้สึกดีขึ้นถึงการยอมรับจากสิ่งแวดล้อมและคนรอบข้าง (ครอบครัว,เพื่อน,ที่ทำงาน, ในสถานพยาบาลต่างๆ) หลังจากที่ท่านได้รับการรักษาด้วยยาต้านไวรัสหรือไม่

	1 ไม่เห็นด้วยอย่างยิ่ง	2 ไม่เห็นด้วย	3 ไม่แน่ใจ	4 เห็นด้วย	5 เห็นด้วยอย่างยิ่ง
1. ที่บ้าน					
2. ที่ทำงาน					
3. กลุ่มเพื่อน					
4. ในสถานพยาบาลต่างๆ					

47. ก่อนการได้รับการรักษาด้วยยาต้านเชื้อไวรัส ท่านเคยมีประสบการณ์ที่ท่านไม่สามารถอดทนได้เนื่องจากการที่ท่านติดเชื้อไวรัสเอชไอวี (การแบ่งแยกจากทางบ้าน, ที่ทำงาน,กลุ่มเพื่อน, ในสถานพยาบาลต่างๆ)

1 ..... 100% = ทุกวัน

2 ..... 75% = เกือบทุกวัน

3 ..... 50% = บางครั้ง

4 ..... 25% = แทบจะไม่เคย

5 ..... 0% = ไม่เคย

หมายเลข.....
ชื่อย่อ.....

48. หลังจากที่ท่านได้รับการรักษาด้วยยาต้านไวรัส ท่านเคยมีประสบการณ์ที่ ท่านไม่สามารถอดทนได้เนื่องจากการที่ท่านติดเชื้อไวรัสเอชไอวี (การแบ่งแยกจากทางบ้าน, ที่ทำงาน , กลุ่มเพื่อน, ในสถานพยาบาลต่างๆ)

1 ..... 100% = ทุกวัน
2 ..... 75% = เกือบทุกวัน
3 ..... 50% = บางครั้ง
4 ..... 25% = แทบจะไม่เคย
5 ..... 0% = ไม่เคย

49. ท่านรู้สึกในทางที่ดีขึ้นต่ออนาคตของท่านเปรียบเทียบระหว่างก่อนและหลังที่ท่านจะได้รับการรักษาด้วยยาต้านเชื้อไวรัส อย่างไร

1 ..... รู้สึกในทางที่ดีขึ้นมาก
2 ..... รู้สึกในทางที่ดีน้อยลง
3 ..... รู้สึกเหมือนเดิม

50. ท่านรู้สึกหดหู่ใจหลังจากที่ท่านได้รับการรักษาด้วยยาต้านเชื้อไวรัสเอชไอวี หรือไม่ อย่างไร

1 ..... รู้สึกหดหู่ใจน้อยลงกว่าก่อนได้รับการรักษา
2 ..... รู้สึกหดหู่ใจบ่อยขึ้นกว่าก่อนได้รับการรักษา
3 ..... รู้สึกเหมือนเดิม

51. ท่านรู้สึกว่าเป็นความยุ่งยากหรือลำบากใจหรือไม่ในการทำแบบสอบถาม

1.....ลำบากใจมาก 2.....ไม่ค่อยลำบากใจ 3 .....รู้สึกเฉยๆ

ขอบคุณอย่างยิ่งที่ท่านให้ความร่วมมือในครั้งนี้

BIOGRAPHY

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EDUCATION

1990-1999	Medical Doctor, University of Vienna; Austria, Faculty of Medicine
2002	Salzburg Association of Emergency Medicine, Salzburg, Austria, Diploma in Emergency Medicine
2005	Diploma in Tropical Medicine & Hygiene, Mahidol University, Bangkok, Thailand
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