FACTORS RELATED TO SEXUAL RISK BEHAVIOR OF HIV INFECTION AMONG MIGRANT FISHERMEN IN RANONG, THAILAND

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FACTORS RELATED TO SEXUAL RISK BEHAVIOR FOR HIV INFECTION AMONG MIGRANT FISHERMEN IN RANONG, THAILAND

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ABSTRACT

This cross-sectional study aimed to describe sexual risk behaviour for HIV infection among migrant fishermen in Ranong, Thailand.

Between January and February 2004, 159 migrant fishermen from 15-49 years of age in Muang district, Ranong, Thailand were asked to complete a face to face structured interview on sexual risk behavior for HIV infection and related factors.

The results showed that 81% of respondents were under 25 years old and nearly one-third were married or living with sexual partners. Most respondents (81.8%) had education at primary and secondary school. Just under 65% had had sexual intercourse during the past 12 months. Of these, two-thirds reported that they had consistently used condoms when having sex with sex workers. These respondents were more likely to know that condom use and having only one uninfected faithful sex partner could protect them from HIV, and more likely to know how to obtain condoms from pharmacies than the respondents who inconsistently used condoms with sex workers. In addition, only about one half of the respondents reported that clinics or hospitals were available for STI treatment near their boat's berth or their residence. Over 40% of those respondents who inconsistently used condoms with sex workers reported that they had tried addictive drugs during the past 12 months.

It is recommended that new HIV intervention should target migrant fishermen and distribute understandable information and knowledge of HIV/STI prevention. Local clinics, hospitals and pharmacies (drug store) should provide better STI/HIV prevention and care services for migrant fishermen. Drug abuse among migrant fishermen calls for further study.

KEY WORDS: MIGRANT FISHERMEN / SEXUAL RISK BEHAVIOR / HIV
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LIST OF ABBREVIATIONS

AIDS	:	Acquired Immune Deficiency System
BSS	:	Behaviour Surveillance Surveys
CSWs	:	Commercial Sex Workers
FSW	:	Female Sex Worker
HIV	:	Human Immunodeficiency Virus
IDU	:	Injecting Drug User
NGOs	:	Non-Government Organisations
STIs	:	Sexually Transmitted Infections
UN	:	United Nations
UNAIDS	:	Joint United Nations Programme on HIV/AIDS
UNDP	:	United Nations Development Program
USAID	:	The US Agency for International Development
IEC	:	International Education Communication

CHAPTER I
INTRODUCTION

1.1 Rational and justification

Human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) has become one of the big issues globally (1). In Thailand, HIV/ AIDS has already emerged as serious public health and social problems. Sexual contact transmission is responsible for 82.2 percent of HIV infection (2). While, it is impossible to remove prostitution from any society. It is to be extremely difficult given the nature of the male sexual drive (3). Taking safer sexual behavior can reduce the vulnerability of HIV infection (4).

Fishing is a major part of Thailand's economy, contributing over 17 billion Baht (USD $680 million) to the GDP in 1986 (5). Fishing activities are concentrated in the south and central regions of the country.

Migrant fishermen have mobile population and migrant characteristics. Migrant workers escaping the chronic poverty in Cambodia and the political and economic situation in Myanmar now constituded the majority of fishermen working in Thailand (6). More than half of the 161,667 registered migrant fishermen were employee (not family member), of whom about 42 percent were documented migrants from either inside or outside Thailand [12,750 from Myanmar (Burma) and Cambodia] (7). These figures are likely to be an underestimate. Many go uncounted, since there is a considerable turnover and a high number of illegal immigrants among migrant fishermen. Migrant fishermen are primarily between the age of 16 to 30 years olds and generally have low levels of education and literacy (8). Most migrants come to Thailand as single men. A majority of men on boats have been working as migrant fishermen in Thailand for about four years. Most come from landlocked areas. Three ethnic groups, each with their own language, constitute the significant majority of

migrant populations working at sea: Khmer from Cambodia , and Mon and Burmese from Myanmar. Other ethnic groups present to a lesser degree include the Tavoy and Karen from Myanmar, Laotians from lowland Laos, PDR, and Issan Thais from Northeast Thailand (6). They usually work on boats for prolonged period of time—several weeks or months. In Ranong, they spent 7 days to 2 years at sea (12).

Migrant fishermen are vulnerable to STI/HIV/AIDS infection. They often engaged in sexual risk behaviors (9,10,11), when they arrive ashore, since they are young, away from home, separation from culture and social constraints, lower educated, with constant peer pressure, facing risk environment such as alcohol and commercial sex readily available on shore. Visiting prostitutes is as a bonus of their hard work (12). Moreover, migrant fishermen faced some difficulties in accessing to health information or services due to their migrant status and language barriers. For example, in Ranong province, the provincial public health department and Ranong hospital cannot provide both prevention and care services to migrants since its budgets is calculated on the basis of the official resident population (12). Some culture belief and misconceptions among migrant fishermen also further increase vulnerability to HIV infection. They often do penis-enlargement by inserting beads or injecting hair spray under the foreskin. Both practices exacerbate risk of HIV transmission because they involve unclean instruments and the beads on penis can cause condoms easy to break. And some migrant fishermen believe that when women are infected with STIs, their bodies will be hot, their pulse fast, or vagina hot (12).

Migrant fishermen in Thailand are one of highest risk groups for HIV infection. Firstly, About 60 percent of the surveyed fishermen had admitted to having multiple partners and visited commercial sex worker while away from home (13). Secondly, they have high prevalence of HIV infection. Cumulative number of AIDS of fishermen is about 1,200, accounting for 1.5 percent of total AIDS cases in Jan. 1998 (2). About 15 percent prevalence of HIV/AIDS in 2000 is among the surveyed migrant fishers in Thailand (14). Seroprevalence data among fishermen in Ranong reveals alarmingly high levels of HIV from 7 percent HIV+ in 1991 to 14 percent in 1992 and 22 percent in 1993 (15). The monitoring data in 1998 showed high antiHIV

seropostive prevalence (24.5 percent) in fishermen in Songkhla Province in the southern region of Thailand (16), compared to 1.8 percent of estimated adults (15-49) rate of living with HIV/AIDS in end of 2001 (17). Thirdly, condom usage was low when they have sex with commercial sex workers. A study showed that only about 31.1 percent of the surveyed fishermen practice safe sex by using condom (13). Finally, STD morbidity in the countries of origin of many migrant fishermen, Cambodia or Myanmar (Burma) is higher than in Thailand (18,19), where STD morbidity have been continuously declining, dropping from 7.43 reported cases per 1000 people in 1988 to only 0.27 cases per 1000 people in 1999 (20). About 30 percent of fishermen in one study reported that they had ever had a STD in their lifetime (21).

Ranong province is located in the southeast of Thailand, with long land border to Myanmar. Ranong is also a major port for trawlers destined for Myanmar waters and Indian Ocean ports.

There were 5687 registered Myanmar migrant fishermen, accounting for 40.15 percent in total alien population, in Ranong in September 2003 (50). As reported, AIDS was the third leading cause of death in 2003 in Ranong (50). There were 721 AIDS patients and Symptomatic HIV/AIDS people and 220 died of AIDS in alien worker group in Thailand-Myanmar border area since 1985.

In addition, Ranong HIV sentinel surveillance in December 2002 showed that HIV prevalence was 31.4 percent in Myanmar female sex workers and 6.5 percent in Myanmar migrant fishermen (50).

However, migrant fishermen in Thailand are not aware of the risk for HIV infection (14). Before, there were some rapid assessments of seafarers in larger ports of Ranong, Mahachai, Songkhla and Samut Sakorn province, in seafaring communities in the Mekong subregion and in source communities of 19 provinces in the Northeast Thailand. So far, none of the agencies had effectively undertaken HIV intervention measures among migrant fishermen (12). UNAIDS reported that neither

Uganda nor Thailand has collected data on HIV among their substantial forced-migrant populations (17). No study was reported on factors related to sexual risk behavior of HIV infection among migrant fishermen in Ranong, Thailand.

Therefore, it is felt deemed necessary to implement research among migrant fishermen in Ranong, Thailand.

1.2 Research question

What factors are related to sexual risk behavior of HIV infection among migrant fishermen in Ranong, Thailand?

1.3 Research objective

1.3.1 General objectives

To study factors related to sexual risk behavior of HIV infection among migrant fishermen in Ranong, Thailand.

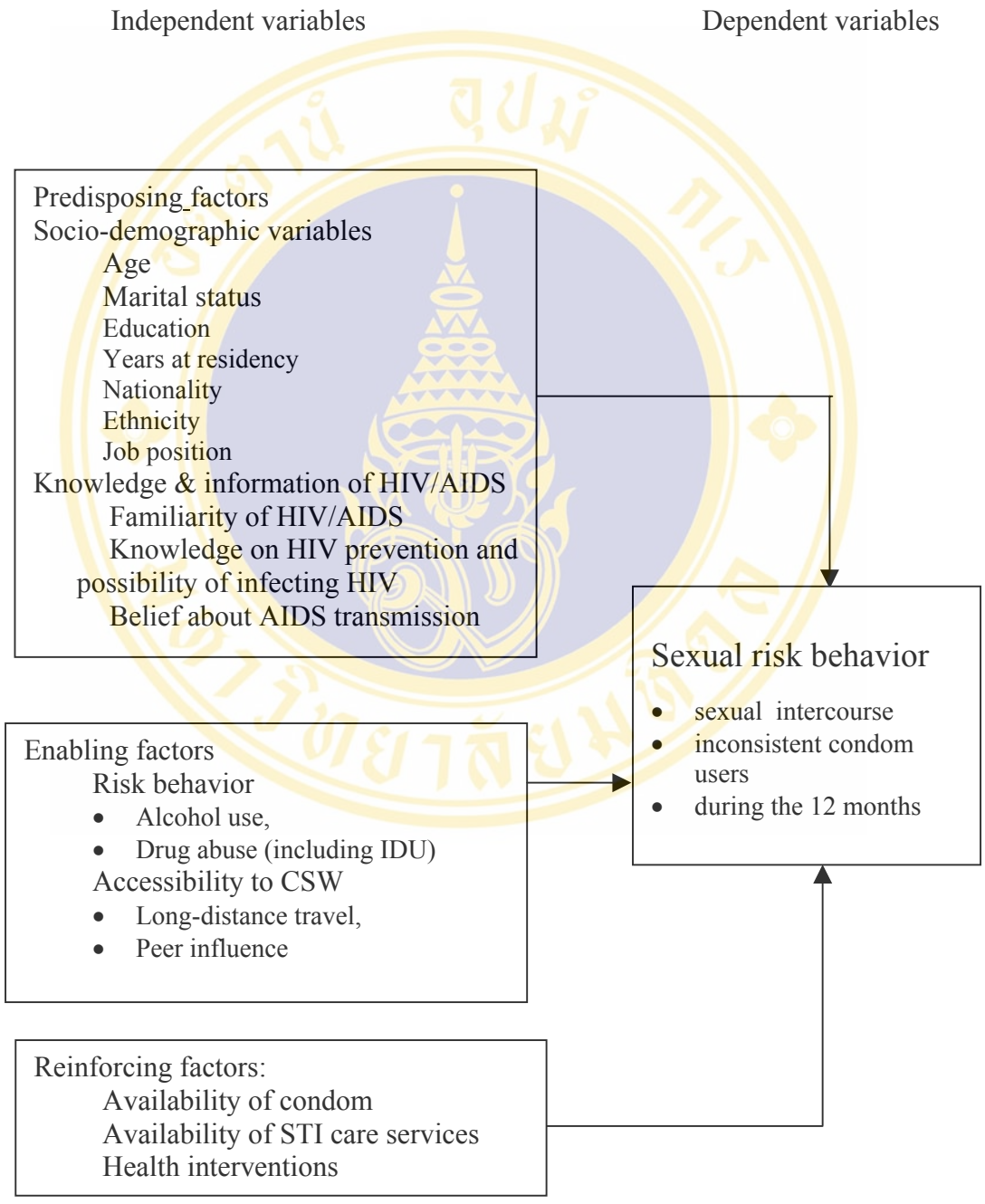
1.3.2 Specific objectives

To describe sexual risk behavior among migrant fishermen.

To describe predisposing factors, enabling factors and reinforcing factors related to sexual risk behavior among migrant fishermen.

To identify the relationship between sexual risk behavior and factors mentioned above

1.4 Conceptual framework



1.5 Research hypotheses

There may be a relationship between predisposing factors (socio-demographic characteristics and knowledge of HIV/AIDS) and sexual risk behavior among migrant fishermen in Ranong, Thailand.

There may be a relationship between enabling factors (risk behavior, accessibility to CSW and availability of condoms) and sexual risk behavior among migrant fishermen in Ranong, Thailand.

There may be a relationship between reinforcing factors (STI experience, availability of STI care services and health interventions) and sexual risk behavior among migrant fishermen in Ranong, Thailand.

1.6 Operational definition

Sexual risk behavior: Having sexual intercourse (penetrative vaginal or anal sex) with sexual partners without consistent using condom during the past 12 months (Nominal scale).

Sexual partners: refer to partners with whom respondent had sexual intercourse in the past 12 months, including regular, non-regular and commercial partners. **Regular partners** refer to spouse or sexual partners living –in more than 12 months. **Commercial partners** refer to partners with whom respondent had sex in exchange for money; **Non-regular partners** refer to sexual partners that respondent is not married to and has never lived with and did not pay. (All above being Nominal scale).

Consistent condom uses refer to respondent always use a condom with sexual partner during the past 12 months (Nominal scale).

Fishermen refer to men work on commercial fishing trawler, aged 15-49.

Age: refer to 15-49 years old (adult), categorized as 15-19, 20-24, 25-29, 30-49 (Interval scale).

Education refers to the highest level of school the respondent completed such as primary school, secondary school and higher education (Ordinal scale).

Knowledge of HIV/AIDS: **Knowledge** refers to knowing and understanding the facts about prevention of HIV/AIDS.

Alcohol use: refers to respondent had drinks containing alcohol during the last 4 weeks (Ordinal scale).

Drugs abuse: refers to interviewee uses a substance that stimulates the nervous system, especially on that is addictive and more support to taking sexual risk behavior e.g. heroine, marijuana, amphetamine (Nominal scale).

Accessibility to commercial sex worker: Is it easy for fishermen to find sex worker near living and working place? (Ordinal scale)

Peer influence: refer to fishermen visit female sex workers together. It is measured by 3 questions: Do you go alone when you visit CSW? Does your friend have commercial sex act? Did your friend ask you go to brothel? (Nominal scale)

Availability of condom: Knowing of how to obtain condoms (Nominal scale) and time of obtaining condoms (Ordinal scale) measure this indicator.

STI experience (Nominal scale) and **availability of STI care services** (Nominal scale)

CHAPTER II
LITERATURE REVIEW

2.1 Review about theory of the study

Sexual behavior, which remains the primary target of AIDS prevention efforts worldwide, is widely diverse and deeply embedded in individual desires, social and cultural relationships and environmental economic process (25).

The Precede-Proceed Model (26) is mainly used for health promotion, which has 9 major phases. The first 5 steps involve assessment of the health, social and environmental issues. The remaining 4 steps involve program implement and evaluation designed to intervene. The Prcede and Proceed emphasized two fundermental proposition: (1).Health and health risks are caused by multiple factors. (2).Efforts to affect behavioral, enviornmental and social change must be multidimensional or multisectional. We apply step 4--the educational and organizational diagnosis of the Precede Model in this study for the determinants of sexual risk behavior.

The predisposing factors refer to the factors which can increase or decrease the motivation of the individual to change behavior, such as age, marital status, education and knowledge and information of HIV/AIDS. Years at residency, nationality, ethnicity and job position as demographic factors were put in predisposing factors though these factors don't increase or decrease the motivation of the individul to change behavior.

Enabling factors are barriers for people to change their risk behavior. Barries are originated in the society. For example, risk behaviors such as alcohol use, drug

abuse (including IDU), as well as easy access to CSW are barriers for migrant fishermen to change sexual risk behavior in the society.

Reinforcing factors are related to an on-going system and support system within the community.STI care services, health interventions and condoms promotion are systems which support people to change sexual risk behavior.

2.2 Review about the outcome variable

Sexual risk behavior

In Thai society, males are the dominant figure in the family. If any male returns late, he is never questioned so that it causes him towards the exposure of extramarital relationship. The primary factor contributing to HIV transmission among heterosexual men is unsafe sex with female prostitutes. Numerous studied have shown that about 50 percent of Thai men have sex before they are 18 years old, and most of them have their first sexual experience with a commercial sex worker. A large proportion of Thai males continues to patronize sex workers even after marriage. The major risk for becoming infected with HIV among housewives is simply after being married, with the husband as the source of HIV infection. Women who do not want to conceive and have access to condoms have difficulty in persuading their husbands to use them without jeopardizing the relationship (27).

The rapid transmission of HIV has largely taken place because prostitution is major component of Thailand's sexual culture. Female sex workers (FSWs) are part of a heterosexual network where by their clients predominately Thai men, spread sexually transmitted infections (STIs) including HIV to the general population. Infections continue to be transferred back and forth between client and FSW. Consequently, the risk of HIV infection is extremely high for women who are sex workers and men who patronize commercial sex are at substantial risk. Substantial numbers of Thai men continue to visit prostitutes and women/girls continue enter the commercial sex field (28). The rapid emergencies and worldwide spread of human

immune-deficiency virus (HIV) during the last decade has given rise to a wide and focusing array of prescriptions for safe sexual behavior and prompted grave concerns, both rational and irrational, about human sexual behavior (29). Meanwhile the same study showed that there are mostly the teenagers and the young adults, who may have more than one sexual partner or engage in premarital sex

The most important mode of HIV transmission in Thailand is heterosexual intercourse (accounting for 65.5 percent) (2). Taking safer sexual behavior can control HIV infection (4). Condom proper use presents the most effective method of protection against either receiving or transmitting the virus, and will reduce the chance of HIV transmission to almost zero (30). Consistent use of condom for heterosexual intercourse is highly effective in preventing the transmission of HIV. Among couples not using condoms regularly, the risk of HIV transmission varies widely (31). Recent survey indicates that most young Thai men have visited prostitutes and many do so without the protection of condoms. Still significant proportions of men who didn't appear to be aware of the potential consequences continue to engage in unprotected sex with prostitutes (32).

Migrant fishermen in Thailand have characteristics of mobile population and migrants. They often engaged in sexual risk behavior (9,10,11), with lower condom usage having sex with CSW (13).

About 60 percent of the surveyed fishermen had admitted to having multiple partners and visited commercial sex worker while away from home (13). The more sexual encounters, the greater the chance of coming in contact with an infected partner. Data from the surveillance survey indicated that majority of Thai women are facing with the most risk of HIV infection from sexual relationship with their husbands or sex partners. An overlap of two patterns, having sex with a girlfriend and sex with a commercial sex worker, is a common practice among Thai boyfriends, which is the major risk for becoming infected of HIV infection (33). The study also has shown that the proportion of infected individuals rising with episodes of receptive ejaculation was very high. Reducing the number of sexual partners overall, avoiding

anonymous sexual partners, have been identified as behaviors that reduce risk of HIV infection.

2.3 Review about the independent variables

Age: a study in sexual attitudes and experience of rural Thai youth found that the youth who have had sexual intercourse rose steeply with age, with almost more than 70 percent having experienced intercourse by the end of their teenage year (34). John Langone has mentioned that about 90 percent of all AIDS victims throughout the world are between the ages of 20 and 39 (35). The average age of the surveyed fishermen in one study was less than 30 years old (14).

Education: education helps to increase the knowledge of adolescents about HIV and in some extent it has been found modifying their attitudes and intentions to practice HIV preventive behavior (40).

Nationality: Nationality of fishermen included Thai, Cambodia, Myanmar (Burma) and Lao, PDR.

Ethnicity: There were three main ethnic groups among fishermen in Thailand such as Khmer from Cambodia, Mon and Burmese from Myanmar. Other ethnic groups include Tuvoy and Karen from Myanmar, Laotians from lowland Lao, PDR, and Issan Thais from Northeast Thailand (6).

Knowledge of HIV/AIDS: A study conducted by Pimonpan Isarabhakdi showed that the question on (34) knowledge about HIV/AIDS correlates with sexual behavior. The more knowledge about HIV infection prostitute's patrons has, the more likely they use condoms consistently. Among people who visited prostitutes, almost 30 percent of the respondents were not sure whether AIDS is a curable disease, and about 41 percent didn't use condoms consistently (39). Almost half of males who ever visited prostitutes believed that prostitutes are free of venereal diseases because prostitutes have routinely physical examination. Approximately 20 percent believed

that they can treat STIs by themselves, and these proportions were slightly lower among males who never visited prostitutes (34).

Alcohol use: Young men, aged 12-25 years old, characteristically exhibit risk taking behaviors which appear to be influenced by alcohol use. Alcohol has been implicated as a " gateway" drug, which leads to impaired judgement and risky sexual behaviors. One consequence of these risky sexual behaviors is sexually transmitted disease (STDs). Among all sexually active people, teenagers have the highest rates of STIs of any age groups. As these numbers reflect, many teens place themselves at significant risk for HIV infection through engaging in high-risk sexual behavior (40). Research on alcohol expectancies may help to clarify the alcohol-risky sex connection. In experiments with pace conditions, mobilization of alcohol expectancies has increased sexual interest (41) Studies (42,43,44) showed that men who visit prostitutes usually had whisky or beer before going to brothels.

Fishermen have alcohol consumption habit (12).

Drugs abuse: AIDS is associated with sexual behavior and drugs abuse (46). Lowery et al. analyzed data from the 1990 youth risk behavior survey (n=11,631) and found those students who used cigarettes or alcohol had significant increases in the likelihood of having had intercourse and of having had four or more sexual partners. Lowery surveyed 544 ninth grade urban high school students and found the best predictor of sexual risk behavior was alcohol and drugs abuse (47). Drug abuse among fishermen was reported (20,22).

Accessibility to commercial sex workers (CSW): In the Philippines, the YAFS-II survey showed that report of premarital sex tended to be higher among men (general population) who lived in urban areas. About 8 percent of the men interviewed during the YAFS-II survey had visited a commercial sex worker (CSW) at some time in their lives. Men in urban areas were more likely to have visited a CSW during the 12 months before they survey, 26 percent had paid for sex monthly or more frequently, 22 percent occasionally, and most of the remainder only once.

Almost half of respondents reported that they changed sexual partners each time, while another quarter reported visiting the same partner repeatedly.

One study showed that, sex industry in the port city presents strong, and with the highest level of HIV infection among the Migrant fishermen and the general population (e.g. pregnant women) (45).

Peer influence: Peer influence has an important role in sexual risk behavior among fishermen in Thailand (6,8,22). According to Mark Vanlandingham (37), male peer groups are closely linked with both the initiation of and the continued participation in sexual activity involving commercial sex workers. His survey evidence indicates that commercial sex patronage among young unmarried Thai men, often including first intercourse, is very common and that Thai men usually patronize commercial sex establishments in small groups. This peer group context is important for commercial sex visitation among both single and married men. Unsafe sexual behavior is often influenced by peer pressure. In Cambodia, if there were no peer education program, then the HIV epidemic would spread very fast among the military (38).

Availability of condom: A key public health strategy against sexual transmission of HIV and STIs is the provision of the high quality, low cost condom to sexually active people and the creation of supportive social environment to encourage their use through active promotion.

STI experience and availability of STIs care services: There is already evidence that people, who have several concurrent infections, may develop AIDS more easily than others. A previous history of sexually transmitted diseases (STDs) could stimulate some interaction between various organisms and the HIV through genital breaks. Meanwhile, sex partners get infection more easily when they have unsafe sex with STIs patient. Sexually transmitted diseases fuel the epidemic. STIs, if left untreated, increase the risk of HIV infection by 300-400% (49). But STI control helps to slow its progression: Efforts in primary prevention of STIs, such as

promoting safer sexual behavior, and early diagnosis and treatment of STIs are a key strategy for preventing HIV infection. In a study in Mwanza district in Tanzania early treatment of STIs was associated with a 42 percent low rate of new HIV infections.

In Ranong, the provincial public health department and Ranong hospital cannot provide both prevention and care services to migrants since its budgets is calculated on the basis of the official resident population (12).

Health interventions: HIV is preventable. It is known that HIV is transmitted from an infected to uninfected individual through sexual intercourse and injection of infected blood, and from an infected mother to her fetus. Such knowledge is an important armament against this lethal virus, but, sadly, such knowledge is not sufficient to protect people from HIV. Prevention science and practice have yielded strategies that can decrease new HIV infections. Behavior interventions are currently the only effective way of slowing the spread of HIV infection. Recent research indicated that aggressive promotion of safer sexual behavior and prevention of substance abuse could avert tens of thousands of new HIV infection and potentially save millions of dollars in health care costs. HIV prevention requires efforts at the level of individual, the couple and family, the community and law and policy. An individual intervention provides an individual with AIDS prevention skills and motivation for their use. A dyadic intervention can teach the couple how to negotiate the use of those prevention skills. A community intervention can change the social norms of the group so that individual decision to be safe can be encouraged and reinforced. A policy change can provide easy and legal access to the resources to be safe (sterile needles and /or condoms) when needed.

Health intervention is used to prevent HIV risk behavior and needs to be stepped up for migrant fishermen through peer education, sex /reproductive education, life skills training etc. Promoting increased condom use in all sexual relationship is therefore a major health intervention method, and efforts should be launched to improve the availability of condom for migrant fishermen. At present, partnerships between government, NGOs, community organizations and business sector seem

inadequate to bring about the desired reduction in infections among migrant fishermen (6,12).

CHAPTER III
RESEARCH METHODOLOGY

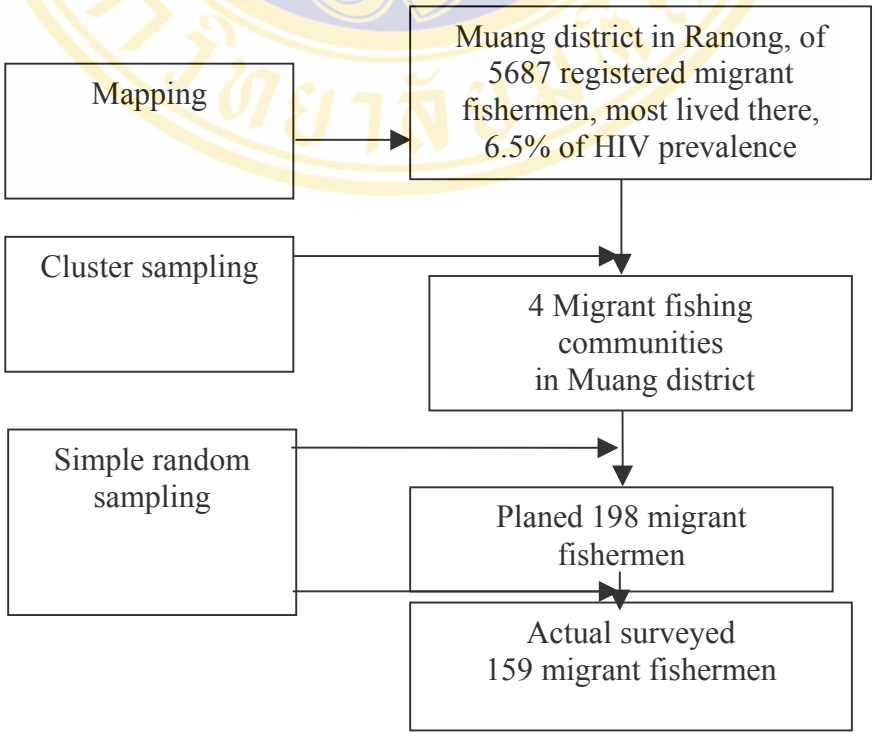
3.1 Study design

Cross-sectional survey

3.2 Study population and place

The target population in this study was migrant fishermen at reproductive age (15-49 years old) in selected Muang district in Ranong Province, Thailand, one of Thailand-Myanmar border areas with higher HIV prevalence among migrant fishermen.

3.3 Sampling frame



3.4 Sample size

$$n = \frac{(Z_{\alpha/2})^2 PQ}{d^2} = 198$$

Where:

n= estimated sample size, Sampling number: 198 (1+ 10%) =220

P= proportion of migrant fishermen having sex without condom use.

P=68.9% (13)

Q= 1-P =31.1%

d= 0.05

$Z_{\alpha/2} = 1.96 (\alpha = 0.05)$

3.5 Research instruments

Structured questionnaire (in Thai) was used for surveyed in the field. This questionnaire English version was modified from a behavioral surveillance survey questionnaire for adult target groups aged 15-49 of Family Health International 2000 (22), and a similar questionnaire for survey of partner relations and risk of HIV infection in 1990 in Thailand (23) is taken as a reference. The BSS of FHI is typically used with adult occupational group such truck drivers and seafarers, and was applied for behavioral surveillance survey among seafarers/fishermen in Vietnam 2000 (36) and Lao PDR 2000-2001 (48). Among the BSS of FHI, the questionnaire asks respondents to report sexual history on their number of regular (cohabiting or spousal) sexual partners in the past year, commercial (paid) sexual partners and other non-regular partners. And the questionnaire also asks respondents to report on their last time and consistent condom use for each of these partner categories.

The questionnaire in this study reduced the questions on sexual history from 27 in BSS of FHI to 6. Most questions of the questionnaire in this study focused on factors related to sexual risk behavior and added many new questions such as job

position, accessibility to CSW and peer influence, etc in order to fit objective of the study and the setting of migrant fishermen in Ranong, Thailand.

The questionnaire includes 4 sections, 45 questions.

Section 1. Predisposing factors (19 Questions)

(1). Socio-demographic variables (6 Questions)

Age: Q1
Education : Q2
Years at residency: Q3
Nationality : Q4
Ethnicity: Q5
Job position: Q6

(2). Knowledge and information of HIV/AIDS (13 Questions, Q7--- Q19)

Familiarity of HIV/AIDS: Q7, Q8, Q9
Knowledge on prevention of HIV and possibility of infection HIV: Q10, Q12, Q13, Q15, Q17 -Q19
Belief about AIDS admission: Q11, Q14, Q16

Section 2. Enabling factors (4 Questions)

Alcohol use: Q20, Q21
Drug abuse (including IDU): Q22, Q23

Section 3. Reinforcing factors (9 Questions)

Availability of condom: Q24, Q25.Q26
Health interventions: Q27, Q28 Q29

STI experience: Q30, Q31

Availability of STI care services: Q32

Section 4. Sexual risk behavior and accessibility to CSW (13 Questions)

Marital status: Q33

Sex intercourse and condom use: Q34—Q36, Q41, Q45

Accessibility to CSW: Q37, Q39, Q40

Long-distance travel: Q38,

Peer influence: Q42, Q43, Q44

3.6 Data collection

During 24 to 29 January and 9 to 14 February 2004, the trained local male health personnel conducted face to face interview individually on ashore. Interview was in settings where others could not overhear questions and answers in order to reduce the likelihood that respondents will give "socially desirable" answers rather than telling the truth. Respondents can communicate with interviewers in Thai. Before question began, interviewers explained carefully the purpose of the study to selected respondents, and obtained their full consent to participate.

3.7 Data analysis

Univariate analysis: Described the distribution of single variable by number and percentage.

Bivariate analysis: Pearson Chi-square test assessed the relationship between categorical variables. The fisher exact test was applied when n was less than 20 or if n was between 20 and 40 and one of the expected frequencies was less than 5. Epi info 6 program was used to calculate p-value. Statistical tests were two-tailed and interpreted at 5% significant level.

CHAPTER IV
RESULTS

The results of this study are divided into univariate analysis and bivariate analysis. The findings were presented with single variable distribution and association between categorical variables respectively among respondents.

Regarding factors, presentation of the study covers predisposing factors such as socio-demographic characteristics, knowledge and information of HIV/AIDS; enabling factors such as risk behaviors (alcohol use and drug abuse), and accessibility to CSW; reinforcing factors such as availability of condoms, STI experience, availability of STI care services and health intervention. Also, sexual risk behavior and its association with factors are reported.

4.1 Univariate analysis

Table 1 Socio-demographic characteristics

Characteristics	Number n=159	Percentage %
Age		
15-19	50	31.4
20-24	79	49.7
25-29	18	11.3
30-49	12	7.6
Min: 15, Max: 48, Median: 21		
Marital status		
Married or living with sexual partners	51	32.1
Neither married nor living with sexual partners	108	67.9

Table 1 Socio-demographic characteristics (cont.)

Characteristics	Number n=159	Percentage %
Highest Level of education		
None	1	0.6
Primary	76	47.8
Secondary	70	44.0
Higher	12	7.6
Years at residency		
≤1 year	13	8.2
2 years	27	17.0
3 years	41	25.8
4 years	36	22.6
> 4 years	42	26.43
Nationality		
Myanmar	159	100.0
Ethnicity		
Burmese	85	53.5
Dawei	27	17.0
Mon	27	17.0
Myeik	9	5.7
Karen	8	5.0
Rakhing	3	1.8
Job position		
Foremen (captain)or assistant	7	4.4
Crewmember	136	85.5
Fishing net master	16	10.1

Table 1 showed that respondents were quite young. Of 159 respondents, 129 respondents' (81.1%) age was under 25. Minimum age was 15; maximum age was 48; median age was 21.

In relation to marital status, only 32.1 percent of them were currently married or living with sexual partners.

With respect to education, most respondents had lower education level. 47.8 percent attended primary school; 44.0 percent finished education in secondary school of the Myanmar education system.

Regarding years at residency, about 75 percent of respondents stayed in local community more than three years. Only 8.2 percent of respondents stayed in community for one year or less.

In this study, all respondents' nationality was Myanmar, which consisted of six ethnic groups such as Burmese (53.5%), Dawei (17.0%), Mon (17.0%), Myeik (5.7%), Karen (5.0%), and Rakhing (1.8%). Before and during the study, we did not intend to survey only respondents from Myanmar.

Job position of respondents indicated that most respondents held position in crewmember (85.5%) and fishing net master or assistents (10.1%); only 4.4 percent were foremen (captain) or assistant.

Table 2 Familiarity of HIV/AIDS

Familiarity	Number n=159	Percentage %
Have heard of HIV/AIDS		
Yes	156	98.1
No	3	1.9
Know anyone with AIDS		
Yes	77	48.4
No	82	51.6

Table 2 Familiarity of HIV/AIDS (cont.)

Familiarity	Number n=159	Percentage %
Have close relative or friend with HIV/AIDS		
Yes, a close relative	3	1.9
Yes, a close friend	48	30.2
Yes, neighbor or acquaintance	5	3.1
No	103	64.8

Table 2 indicated that nearly all respondents (98.1%) had heard of HIV/AIDS before. 48.4 percent of them knew someone infected with HIV or died of AIDS. 30.2 percent reported that they had close friends with HIV/AIDS.

Table 3 Knowledge on prevention of HIV and possibility of infecting HIV

Knowledge	Number n=159	Percentage %
Condom use can protect themselves from HIV		
Can	137	86.2
Can not	8	5.0
Don't know	14	8.8
Having only one uninfected faithful sex partner can protect themselves from HIV through sexual transmission		
Can	116	73.0
Can not	31	19.5
Don't know	12	7.5

Table 3 Knowledge on prevention of HIV and possibility of infecting HIV (cont.)

Knowledge	Number n=159	Percentage %
Abstaining from sexual intercourse can protect themselves from HIV through sexual transmission		
Can	70	44.0
Can not	60	37.7
Don't know	29	18.3
Sharing syringe in injection can have more chance to be infected HIV		
Can	139	87. 4
Can not	0	0
Don't know	20	12.6
Infected pregnant women can transmit HIV virus to her unborn child		
Can	120	75.5
Can not	1	0.6
Don't know	38	23.9
HIV/AIDS infected women can transmit the virus to her newborn child through breastfeeding		
Can	87	54.7
Can not	3	1.9
Don't know	69	43.4
What can a pregnant woman do to protect her unborn child from HIV?		
General medication	18	11.3
Antiretrovirals	35	22.0
Nothing can protect her unborn child from HIV	84	52.8
Don't know	12	13.9

Table 3 showed that 86.2 percent of respondents knew that condom use can protect themselves from HIV; 73.0 percent knew that having only one uninfected faithful sex partner can be one of HIV prevention method. 87.4 percent had knowledge on sharing syringe in injection having more chance to be infected HIV. In addition, 75.5 percent acknowledged that infected pregnant women can tranmit HIV virus to her unborn child.

However, 44.0 percent of respondents anwered that abstaining from sexual intercourse can protect themselves from HIV. 54.7 percent answered that HIV/AIDS infected women can transmit HIV virus to her newborn child through breastfeeding. 22.0 percent recognized that antiretrovirals can be used for a pregnant woman to protect her unborn child from HIV.

Table 4 Belief about AIDS transmission

Belief	Number n=159	Percentage %
Person get HIV from mosquito bites		
Right belief	35	22.0
Wrong belief	78	49.1
Don't know	46	28.9
Person get HIV by sharing a meal with HIV infected person		
Right belief	2	1.3
Wrong belief	157	98.7
HIV infected person can be healthy looking		
Right belief	41	25.8
Wrong belief	56	35.2
Don't know	62	39.0

Table 4 showed that wrong belief about AIDS transmission still existed among respondents. Almost every respondents (98.7%) believed that HIV can be tranmitted by sharing a meal with HIV infected person. Only 22.0 percent of them held right belief on person not getting HIV from mosquito bites; 25.8 percent believed that HIV infected person can be healthy looking.

Table 5 Risk behaviors

Risk behaviors	Number n=159	Percentage %
Alcohol use		
Had drinks containing alcohol in the last four weeks		
Yes	131	82.4
No	28	17.6
Frequency of alcohol use in the last four weeks	(n=131)	
Two to four times a week	30	22.9
Once a week	79	60.3
Less than once a week	22	16.8
Drug abuse		
Tried addictive drugs during the past 12 months		
Yes	44	27.7
No	115	72.3
Injected addictive drugs using a syringe	(n=44)	
Yes	0	0
No	44	100.0

As table 5 showed, 82.4 percent of respondents had drinks containing alcohol during the past 12 months. Frequency of alcohol use was not quite offten. Only 22.9 percent drank two or four times a week. Most respondents (77.1%) drank alcohol once a week or less.

Regarding drug use, 27.7 percent of respondents had tried addictive drug during the past 12 months. But, no respondents tried injecting addictive drugs using a syringe.

Table 6 Accessibility to CSW

Accessibility	Number n=159	Percentage %
Find commercial sex worker near residency or docking		
Easy	115	72.3
Not easy	43	27.0
Don't know	1	0.7
Long-distance travel out of Andeman Sea during the past 12 months		
Yes	158	99.4
No	1	0.6
Heard of commercial sex services on mobile boat at sea		
Yes	75	47.2
No	84	52.8
Used commercial sex services on mobile boat at sea	(n=75)	
Yes	4	5.3
No	71	94.7
Had sexual intercourse and visited CSW		
Yes	71	44.7
No	88	55.3

Table 6 Accessibility to CSW (cont.)

Accessibility	Number n=159	Percentage %
Go alone when visiting CSW	(n=71)	
Yes	2	2.8
No	69	97.2
Friend visiting CSW	(n=71)	
Yes	70	98.6
No	0	0
Don't know	1	1.4
Friend ask to go to brothel	(n=71)	
Yes	25	35.2
No	46	64.8

Table 6 indicated that it is quite easy for respondents to access to CSW. 72.3 percent of respondents reported that they can easily find commercial sex worker near residency or docking. Nearly all respondents had expericence of long-distance travel out of Andeman Sea during the past 12 months. 47.2 percent of respondents had heard of commercial sex services on mobile boat at sea. However, only 5.3 percent of those who had heard of commercial sex services on mobile boat at sea had used this commercial sex services.

Regarding peer influence, table 6 showed that most respondents those who had sexual intercourse and visited CSW during the past 12 months visited CSW in group. Only 2.8 percent went to the brothel alone. In addition, they reported that almost all their friends (98.6%) visited CSW; 35.2 percent of them reported that their friends asked them go to the brothel.

Table 7 Availability of condom among condom users

Availability	Number n=159	Percentage %
Used condoms (always or sometimes)		
Yes	75	47.2
No	84	52.8
Knowing of where to obtain condom	(n=75)	
Pharmacy	33	44.0
Sex worker	25	33.3
Friend	14	18.7
Traditional birth attendant	1	1.3
Bar/guest house/hotel	2	2.7
Time of obtaining condom	(n=75)	
At once	20	26.7
Under 1 hour	52	69.3
Don't know	3	4.0

Note: No reported knowing to obtain condoms from conveinent shop (7 Eleven), market, clinic, hospital, family planning center and peer educator.

Table 7 showed that among 75 condom users, 44.0 percent knew that they can buy condoms at drug store (pharmacy); 18.7 percent of condom users knew that they can obtain condom from friends. 33.3 percent reported that they can get condoms from sex workers. The time of obtaining condoms was not too long. Almost every condom users can get condoms within one hour. 26.7 percent reported that they can obtain condom at once.

Table 8 STI experience and availability of STI care services

STI care services	Number n=159	Percentage %
STIs experience		
Had a genital discharge during the past 12 months		
Yes	5	3.1
No	154	96.9
Had a genital ulcer/sore during the past 12 months		
Yes	8	5.0
No	150	94.3
Others (oil injection pain)	1	0.7
Availability of STIs care services		
Clinic or hospital available for STI treatment near docking or residency		
Yes	78	49.1
No	46	28.9
Don't know	35	22.0

Table 8 showed that 3.1 percent reported a genital discharge; 5.0 percent reported a genital ulcer or sore during the past 12 months.

Regarding availability of STI care services, 49.1 percent of respondents reported that a clinic or hospital was available for STI treatment near their docking or residency.

Table 9 Health interventions

Health intervention	Number n=159	Percentage %
Seen information about HIV/STI prevention around residency		
Yes	113	71.0
No	46	29.0
Seen peer education activity around residency		
Yes	49	30.8
No	110	69.2
Attended peer education activity for HIV/STI prevention or condom use	(n=49)	
Yes	5	10.2
No	44	89.8

Table 9 showed that there were health intervention activities near residency. 71.1 percent of respondents reported that they had seen information about HIV/STI prevention around residency; 30.8 percent had seen peer education activities around residency. However, only 10.2 percent of respondents who had seen peer education activities attended the peer education activities for HIV/STI prevention or condom use.

Table 10 Reported sexual intercourse

Sex partners	Had sexual intercourse		No sexual intercourse	
	n	%	n	%
All sex partners	103	64.8	56	35.2
Sex workers	65	63.1	38	36.9

Table 10 showed that 103 respondents (64.8%) had sexual intercourse during the past 12 months. Among them, 65 respondents (63.1%) reported having sex with sex workers during the past 12 months.

Table 11 Condom use

Sex partners	Inconsistent Condom users		Consistent Condom users	
	n	%	n	%
Sex workers	22	33.9	43	66.1
Non-regular partners	47	56.6	36	43.4
Regular partners	66	75.0	22	25.0

Table 11 showed that of 65 respondents who had sex with sex workers during the past 12 months, 66.1 percent reported that they consistently used condoms. 33.9 percent reported inconsistently using condoms with sex workers. Consistent condom usages of respondents with non-regular partners and regular partners were 43.4 percent and 25.0 percent, respectively.

Table 12 Condoms use among respondents who inconsistently used condoms with CSW

Sex partners	Sexual intercourse				Condoms users			
	Yes		No		Inconsistent		Consistent	
	n	%	n	%	n	%	n	%
Non-regular partners	19	86.4	3	13.6	18	94.7	1	5.3
Regular partners	16	72.7	6	27.3	14	66.7	2	33.3

Table 12 showed that among 22 surveyed respondents who inconsistently used condoms with CSW, 19 respondents (86.4%) had sex with non-regular partner; 18 respondents (94.7) reported that they inconsistently used condoms when they had sex with non-regular partners. Similarly, 72.7 percent of them reported that they had sex with regular partners, and 66.7 percent inconsistently used condoms with regular partners.

4.2 Bivariate analysis

Presentation of the study in bivariate analysis focuses on factors by condom use among respondents who had sex with sex workers during the past 12 months.

Table 13 Socio-demographic characteristics by condom use among respondents who had sex with sex workers

Characteristics	Inconsistent condoms users		consistent condoms users		P- value	
	n=22	%	n=43	%	χ^2	Fisher
Age					0.204	
15-19	6	25.0	18	75.0		
20-49	16	39.0	25	61.0		
Min: 16, Max:30						
Marital status						0.545
Married or living with sexual partners	4	25.0	12	75.0		
Neither married nor living with sexual partners	18	36.7	31	63.3		

Table 13 Socio-demographic characteristics by condom use among respondents who had sex with sex workers (cont.)

Characteristics	Inconsistent condoms users		consistent condoms users		P- value	
	n=22	%	n=43	%	χ^2	Fisher
Highest Level of education					0.255	
Primary	13	40.6	19	59.4		
Secondary or higher	9	27.3	24	72.7		
Years at residency					0.050	
≤3 years	6	20.7	23	79.3		
4 years	8	38.1	13	61.9		
>4 years	8	53.3	7	46.7		
Job position						1.000
Foremen (captain)or assistant	1	50.0	1	50.0		
Crewmember and Fishing net master	21	33.3	42	66.7		

From table 13, indications can be described as follows:

In relation to age group, respondents who had sex with sex workers during the past 12 months were very young. Minimum age 16, maximum age 30.

Regarding years at residency, respondents who consistently used condoms with sex workers were more likely to stay at residency equal or less than 3 years than respondents who inconsistently used condoms with sex workers during the past 12 months (p=0.050)

The significant difference was not identified among foremen and crewmember (or fishing net master) between inconsistent condom users and consistent condom users who had sex with sex workers.

Table 14 Familiarity of HIV/AIDS by condom use among respondents who had sex with sex workers

Familiarity	Inconsistent condoms users		consistent condoms users		P- value	
	n=22	%	n=43	%	χ^2	Fisher
Have heard of HIV/AIDS						0.338
Yes	21	32.8	67.2			
No	1	100.0	0			
Know anyone with AIDS					0.255	
Yes	13	40.6	19	59.4		
No	9	27.3	24	72.7		
Have close relative or friends with HIV/AIDS					0.906	
Yes	8	34.8	15	65.2		
No	14	33.3	28	66.7		

Table 14 showed that the significant difference was not identified in familiarity of HIV/AIDS between inconsistent condom users and consistent condom users with CSW.

Table 15 Knowledge on HIV prevention and possibility of infecting HIV by condom use among respondents who had sex with sex workers

Knowledge	Inconsistent condoms users		consistent condoms users		P- value	
	n=22	%	n=43	%	χ^2	Fisher
Condom use can protect themselves from HIV						**<0.01***
Can	17	28.3	43	71.7		
Can not	5	100.0	0	0		
Having only one uninfected faithful sex partner can protect themselves from HIV					**0.016***	
Can	11	24.4	34	75.6		
Can not	11	55.0	9	45.0		
Abstaining from sexual intercourse can protect themselves from HIV					0.189	
Can	7	25.0	21	75.0		
Can not	15	40.5	22	59.5		
Sharing syringe in injection can have more chance to be infected HIV						0.736
Can	19	35.9	34	64.1		
Can not	3	25.0	9	75.0		

*Significant level at p<0.05

Table 15 Knowledge on HIV prevention and possibility of infecting HIV by condom use among respondents who had sex with sex workers (cont.)

Knowledge	Inconsistent condoms users		consistent condoms users		P- value	
	n=22	%	n=43	%	χ^2	Fisher
HIV/AIDS infected pregnant women can transmit the virus to her unborn child					0.365	
Can	14	30.4	32	69.6		
Can not	8	42.1	11	57.9		
HIV/AIDS infected women can transmit the virus to her newborn child through breastfeeding					**<0.01 ***	
Can	6	16.2	31	83.8		
Can not	16	57.1	12	42.9		
Antiretrovirals can be used for a pregnant woman to protect her unborn child from HIV						0.654
Can	1	16.7	5	83.3		
Can not	21	35.6	38	64.4		

*Significant level at $p<0.05$

Table 15 showed respondents who consistent used condoms with sex workers were more likely to know that condom use and having only one uninfected faithful sex partner can protect themselves from HIV than respondents who inconsistent used condoms with sex workers ($p<0.05$). In addition, respondents who consistently used

condoms with sex workers were more likely to have knowledge about HIV/AIDS infected women tranmitting HIV virus to her newborn child through breastfeeding ($p < 0.05$).

Table 16 Risk behaviors by condom use among respondents who had sex with sex workers

Risk behaviors	Inconsistent condoms users		consistent condoms users		P- value	
	n=22	%	n=43	%	χ^2	Fisher
Alcohol use						
Had drinks containing alcohol in the last four weeks					0.417	
Yes	17	30.1	38	69.9		
No	5	50.0	5	50.0		
Frequency of alcohol use	(n=17)		(n=38)			1.000
Two to four times a week	3	30.0	7	70.0		
Once a week or less	14	31.1	31	68.9		
Drug abuse						
Tried addictive drugs during the past 12 months					0.205	
Yes	9*	45.0	11	55.5		
No	13	28.9	32	71.1		

*40.9 percent of respondents who inconsistently used condoms with CSW reported to have tried addictive drugs during the past 12 months.

Table 16 showed that the significant difference was not identified in alcohol use and drug abuse between inconsistent condom users and consistent condom users with CSW.

There was no reports about injecting addictive drugs with a syringe among respondents as well.

Table 17 Accessibility to CSW by condom use among respondents who had sex with sex workers

Accessibility	Inconsistent condoms users		Consistent condoms users		P- value	
	n=22	%	n=43	%	χ^2	Fisher
Find commercial sex worker near residency or docking						1.000
Easy	18	34.0	35	66.0		
Not easy	4	33.3	8	66.7		
Long-distance travel out of Andeman Sea during the past 12 months						1.000
Yes	22	34.4	42	65.6		
No	0	0	1	100		
Heard of commercial sex services on mobile hotel at sea					0.663	
Yes	12	36.4	21	63.6		
No	10	31.3	22	68.7		

Table 17 Accessibility to CSW by condom use among respondents who had sex with sex workers (cont.)

Accessibility	Inconsistent condoms users		Consistent condoms users		P- value	
	n=22	%	n=43	%	χ^2	Fisher
Used commercial sex services on mobile boat at sea	(n=12)		(n=21)			1.000
Yes	1	33.3	2	66.7		
No	11	36.7	19	63.3		
Go alone when visiting CSW						1.000
Yes	1	33.3	2	66.7		
No	21	33.9	41	66.1		
Friend visiting CSW						1.000
Yes	22	34.4	42	65.6		
No	0	0	1	100		
Friend ask to go to brothel					0.662	
Yes	6	30.0	14	70.0		
No	16	35.6	29	64.4		

Table 17 showed the significant difference was not identified in peer influence between inconsistent condom users and consistent condom users.

Table 18 Availability of condoms by condom use among respondents who had sex with sex workers

Availability	Inconsistent condoms users		Consistent condoms users		P- value	
	n=22	%	n=43	%	χ^2	Fisher
Knowing of where to obtain condom	(n=14)		(n=43)			**<0.01***
Pharmacy	1	4.2	23	95.8		
Sex worker, Friend and Bar/guest house/hotel	13	39.4	20	60.6		
Time of obtaining condom	(n=13)		(n=42)		0.486	
At once	7	28.0	18	72.0		
Under 1 hour	6	20.0	24	80.0		

*Significant level at p<0.05

As table 18 showed, all respondents can obstain condom within one hour. About half can obstain condoms at once. In addition, respondents who consistently used condoms with sex workers were more likely to know to buy condoms at pharmacy (drug store) than respondents who inconsistently used condoms with sex workers during the past 12 months (p<0.05)

Table 19 Availability of STI care services by condom use among respondents who had sex with sex workers

Availability	Inconsistent condoms users		consistent condoms users		P- value	
	n=22	%	n=43	%	χ^2	Fisher
STIs experience						
Had a genital discharge during the past 12 months						0.262
Yes	2	66.7	1	33.3		
No	20	32.3	42	67.7		
Had a genital ulcer/sore during the past 12 months						0.326
Yes	3	60.0	2	40.0		
No	19	31.7	41	68.3		
Availability of STIs care services						
Clinic or hospital available for STI treatment near docking or residency					0.389	
Yes	13	30.2	30	69.8		
No	9	40.9	13	59.1		

Table 19 showed that the significant difference was not identified in STI experience and availability of STI care services between inconsistent condom users and consistent condom users with CSW during the past 12 months.

Table 20 Health intervention by condom use among respondents who had sex with sex workers

Health intervention	Inconsistent condoms users		consistent condoms users		P- value	
	n=22	%	n=43	%	χ^2	Fisher
Seen information about HIV/STI prevention around residency					**0.052**	
Yes	13	27.1	35	72.9		
No	9	52.9	8	47.1		
Seen peer education activity around residency					0.594	
Yes	7	38.9	11	61.1		
No	15	31.9	32	68.1		
Attended peer education activity for HIV/STI prevention or condom use	(n=7)		(n=12)			1.000
Yes	1	50.0	1	50.0		
No	6	35.3	11	64.7		

Table 20 indicated that respondents who consistently used condoms with sex workers were more likely to have seen information about HIV/STI prevention around residency than respondents who inconsistently used condoms with sex workers during the past 12 months (p=0.052).

CHAPTER V
DISCUSSION

Some main findings of the study and strengths and limitations of study were discussed.

5.1 Sexual risk behavior

Situations on HIV/AIDS have improved much among fishermen in Ranong. The HIV prevalence of fishermen in Ranong droped down from 22 percent in 1998 (12) to 6.5 percent in 2002 (50). The results showed that inconsistent condom usage with CSW was 33.9 percenet, which was lower than 68.9 percent among fishermen in the Gulf of Thailand and the Andaman Sea in 2001 (21).

However, results of the study showed that among respondents who had sex intercourse during the past 12 months, 63.1 percent reported to have sex with CSW, 33.9 percent of them inconsistently used condoms with CSW. Other studies also reported that migrant fishermen in Thailand have characteristics of mobile population and often engaged in sexual risk behavior (9,10,11). About 60 percent of the surveyed fishermen had admitted to having multiple partners and visited commercial sex worker while away from home (13).

In addition, Ranong HIV sentinel surveillance in December 2002 showed that Myanmar female sex workers had 31.4 percent of HIV prevalence. This study found that migrant fishermen were a significant bridge population for transmission of HIV. An overlap of three patterns, having sex with CSW, with non-regular partners, with regular partners, was found in this study. For example, among respondents who inconsistently used condoms with CSW, only 5.3 percent consistently used condoms with non-regular partners, 33.3 percent consistently used condoms with regular partners. This was one of major risks to be infected HIV (33). Reducing the number

of sexual partners overall, avoiding anonymous sexaul partners are behaviors that reduce risk of HIV infection.

5.2 Socio-demographic characteristcs

Age: Since one of objectives of the study is to describe sexual risk behavior, age of respondents in this study was set at reproductive age (15-49 years old). Results of the study showed that respondents were quite young. 80 percent of them were under 25 years old. The reasons may be due to occupation characteristics of fishermen. Fishermen had hard work. Migrants can easy find job as fishermen in Ranong (6,7,8).

The age range are known to be sexual active and risky taking. A study in sexual attitudes and experience of rural Thai youth found that almost more than 70 percent youth had experienced intercourse by the end of their teenage year (34). John Langone has mentioned that about 90 percent of all AIDS victims throughout the world are between the ages of 20 and 39 (35). The average age of the surveyed fishermen in one study was less than 30 years old (14).

This study showed that age range of respondents who had sex with CSW was 16 to 30. Thus they were considered to be most vulnerable group for HIV infection.

Education: Education could help to increase the knowledge of adolescents about HIV and has been found modifying their attitudes and intentions to practice HIV preventive behavior in some extent (40).

The study showed that respondents had primary or secondary school education status in the education system of Myanmar and the significant difference was not identified in education level between inconsistent condom users and consistent condom users with CSW. This may suggest that information about HIV/AIDS/STI prevention and care service should be adjusted to be understandable and acceptable for migrant fishermen as well as the technique and means for transfering knowledge

should be appropriated, especially in terms of simple language and directly education method.

Nationality and ethnicity: Nationality of all respondents was Myanmar. Respondents came from six ethnic groups, such as Burmese, Dawei, Mon, Myeik, Karen and Rakhing.

Immigration status of migrant fishermen and migrant policy of Thailand government affected attitudes and practices of sexual risk behaviors among migrant fishermen. Language barrier was one of big obstales for migrant fishermen to reach local health intervention and HIV/STI care services as well as health education media.

Job postion: The work status determined the level of income that would affected the style of living, personal health behavior and also choices of service. Some studies on migrant fishermen in Thailand (6,12) found that both crewmeber and captian had sex with CSW. The difference in two groups was to chose different sexual services.

The study showed only 4.4 percent of respondents were foremen or assistant. Most respondents were crewmember or fishing net master. Among respondents who had sex with CSW, the significant difference was not identified in foremen and crewmember (or fishing net master) between inconsistent condom users and consistent condom users.

5.3 Knowledge and information of HIV/AIDS

A quatitative study among seafarers in Northest Thailand (8) reported that perceiving close friend's die of AIDS changed seafarers' attitudes and reduced practices of sexual risk behavior with CSW.

In this study, the significant difference was not identified in familiarity of HIV/AIDS between inconsistent condom users and consistent condom users with

CSW though 30 percent of respondents resported that they had close friends with HIV/AIDS.

A study conducted by Pimonpan Isarabhakdi (34) showed that the question on knowledge about HIV/AIDS correlates with sexual behavior. The more knowledge about HIV infection prostitute's patrons has, the more likely they use condoms consistently. The results of this study showed that respondents who consistently used condoms with CSW were more likely to know that condom use and having only one uninfected faithful sex partner can protect themselves from HIV than respondents who inconsistently used condoms with CSW ($p<0.05$). In relation to knowledge that HIV/AIDS infected women can transmit the virus to her newborn child through breastfeeding, respondents who consistently used condoms with CSW were more likely to have the knowledge than respondents who inconsistently used condoms with CSW during the past 12 months ($p<0.05$). This may suggest that knowledge of HIV prevention was effective for taking safer sexual behavior (consistently using condoms) to prevent HIV infection.

Meanwhile, the result showed that knowing rate of some questions was still lower. For example, half reported that abstaining from sexual intercourse can protect themselves from HIV, and HIV/AIDS infected women can transmit HIV virus to her newborn child through breastfeeding. Only 22 percent recognized that antiretrovirals can be used for a pregnant women to protect her unborn child from HIV. In addition, wrong belief about AIDS tranmission existed widely among respondents. This may suggest that lots of work should be done to improve knowledge and information of HIV among migrant fishermen in Ranong.

5.4 Risk behavior

Alcohol use: Young men, aged 12-25 years old, characteristically exhibit risk taking behaviors which appear to be influenced by alcohol use. Alcohol has been implicated as a “gateway” drug, which leads to impaired judement and sexual risk behaviors. Research on alcohol expectancies may help to clarify the alcohol-risky sex

connection. In experiments with pace conditions, mobilization of alcohol expectancies has increased sexual interest (41). Studies (42,43,44) showed that men who visit prostitutes usually had whisky or beer before going to brothels. Fishermen have alcohol consumption habit (12).

In this study, 82.4 percent of respondents had drinks containing alcohol in the past four weeks. However, only 22.9 percent of respondents drank alcohol two to four times a week in the past four weeks. The significant difference was not identified in alcohol use between inconsistent condom users and consistent condom users. This may indicate that alcohol use could not be main factors for sexual risk behavior among respondents.

Drug use: AIDS is associated with sexual behavior and drug abuse (46). Drug abuse among fishermen was reported before (20,22). Some drugs could cause migrant fishermen to be more vulnerable to HIV/AIDS.

In this study, no respondents reported injecting addictive drug with a syringe. But, 27.7 percent of respondents reported that they had tried addictive drugs such as during the past 12 months. And 40.9 percent of respondents who inconsistently used condoms with CSW reported to have tried addictive drugs during the past 12 months.This may suggest that addictive drug using could be one of reasons for enhancing sexul risk behavior among respondents who had sex with CSW. The information derived from this survey is sufficient to call for education/ prevention activities among migrant fishermen. Also there is need to do a further in-depth study on the magnitude of drug abuse among larger samples of these populations.

5.6 Accessibility to CSW

One study showed that sex industry in the port city presents strong and with the highest level of HIV infection among fishermen and general population (e.g. pregnant women) (45).

In this study, most respondents reported that it was easy to find commercial sex workers near residency or docking or at sea. And 97.2 percent reported that they went to the brothel with friend.

However, only 5.3 percent of those respondents who had heard of commercial sex services on mobile boat at sea reported that they used this services. And there was not significant difference in accessibility to CSW by condom use among respondents who had sex with CSW during the past 12 months. This may suggest that accessibility to CSW around Muang district, Ranong could not be a key factor to affect condom use among respondents.

5.7 Availability of condom

A key public health strategy against sexual transmission of HIV and STIs is the provision of the high quality, low cost condom to sexually active people and the creation of supportive social environment to encourage their use through active promotion.

The study showed that respondents can obtain condoms within one hour. One-fourth of them can obtain condoms at once. The main sources to provide respondents with condoms were pharmacy (drug store), sex worker and friend. And the study also showed that respondents who consistently used condoms with sex workers were more likely to know to obtain condoms at pharmacy (drug store) than respondents who inconsistently used condoms with sex workers ($p<0.05$). This may suggest that pharmacy (drug store) should be enforced as one of main outlets for condom promotion and HIV/STI information distribution.

5.8 STI experience, availability of STI care services and health intervention

STI experience: There is already evidence that people, who have several concurrent infections, may develop AIDS more easily than others. A previous history of sexually transmitted diseases (STDs) could stimulate some interaction between

various organisms and the HIV through genital breaks. Meanwhile, sex partners get infection more easily when they have unsafe sex with STIs patient. Sexually transmitted diseases fuel the epidemic. STIs, if left untreated, increase the risk of HIV infection by 300-400% (49). STI control helps to slow its progression. Efforts in primary prevention of STIs, such as promoting safer sexual behavior, and early diagnosis and treatment of STIs are a main strategy for preventing HIV infection. In a study in Mwanza district in Tanzania early treatment of STIs was associated with a 42 percent low rate of new HIV infections.

The study showed that about 3 to 5 percent of respondents reported STI experience during the past 12 months, which was lower than 31.1 percent of STI history among fishermen in the Gulf of Thailand and the Andeman Sea in 2001 (21).

Availability of STI care services: Half respondents reported that clinic or hospital was available for STI treatment near docking or residency.

It was reported (12) that the regulation of Thai government agency in no way ensured that migrant workers received benefits, such as seafarer access to medical services. Moreover, the Burmese who form the bulk of these seafares, are particularly vulnerable, since they are not entitled to utilise necessary support services available from Thai government agencies. In Ranong, the provincial public health department and Ranong hospital can not provide both prevention and care services to migrants since its budgets was calculated on the basis of the official resident population. This may raise an issue about improvement of health service and health policy for migrant fishermen in Ranong.

Health intervention: Behavior interventions are currently the only effective way of slowing the spread of HIV infection. Recent research indicated that aggressive promotion of safer sexual behavior and prevention of substance abuse could avert tens of thousands of new HIV infection and potentially save millions of dollars in health care costs. HIV prevention requires efforts at the level of individual, the couple and family, the community and law and policy. An individual intervention provides an

individual with AIDS prevention skills and motivation for their use. A dyadic intervention can teach the couple how to negotiate the use of those prevention skills. A community intervention can change the social norms of the group so that individual decision to be safe can be encouraged and reinforced. A policy change can provide easy and legal access to the resources to be safe (sterile needles and /or condoms) when needed.

The results of study showed respondents who consistently used condoms with sex workers were more likely to have seen information about HIV/STI prevention around residency than respondents who inconsistently used condoms with sex workers (p=0.052). This may suggest that distribution about HIV prevention information was one of effective methods for condom promotion among respondents.

However, the study showed only 30.8 percent of respondents reported that they had seen peer education activity around residency. Among them, 10.2 percent reported that they attended peer education activity for HIV/STI prevention or condom use. At present, partnerships between government, NGOs, community organizations and business sector seem inadequate to bring about the desired reduction in infections among migrant fishermen (6,12).

Therefore, new HIV interventions should be carried out to target migrant fishermen through peer education, sex /reproductive education, life skills training etc. Promoting condom use in all sexual relationship is a major health intervention method, and efforts should be launched to improve the availability of condom for migrant fishermen.

5.9 Strengths and limitations of the study

Strengths

The study tried to explore factors related to sexual risk behavior of HIV infection among migrant fishermen in Ranong, Thailand by applying educational and organizational diagnosis of the Precede Model.

Regarding representative of sample, we did mapping Muang district in Ranong province first and selected four fishing communities in Muang district, and then simple random sampling 159 migrant fishermen. Face to face interview was conducted because most migrant fishermen had lower education status. In order to reduce the language barriers, and get the true answer to the sensitive question, we trained male local health personnel as interviewers. Respondents in Muang district can communicate with interviews in Thai. Before questioning began, interviewers explained the purpose of the study, and obtained the respondents' full consent to participant, reducing refusal bias.

With respect to the instruments, the questionnaire was modified from HIV/AIDS/STIs behavioral surveillance survey questionnaire (2000) of Family Health International (22), which was applied for behavioral surveillance survey among seafarers/fishermen in Vietnam 2000 (36) and Lao PDR 2000-2001 (48). A similar questionnaire for survey of partner relations and risk of HIV infection in 1990 in Thailand (23) was taken as a reference. The questionnaire Thai version was used for survey in the field.

In relation to the bias in behavioral surveys, several studies (24) have shown that trends in reported risk behavior are usually reflected in STI trends, that trends in reported condom use are matched by trends in condom distribution, and that there is remarkably high agreement between couples when questioned separately about their sexual behavior.

For the study quality control, Ranong Provincial Deputy Chief Official well organized the survey. Interview was done during 24 to 29 January and 9 to 14 February 2004 when respondents were on shore. Quality of questionnaires was good. No data missing and answers of questions were consistent logically.

Limitations

This study was conducted in Ranong, Thailand and sample size was small. So, the result can not be generalized to migrant fishermen in the whole country.

We did not have chance to conduct focus group discussion and in-depth interview for further analysis, such as collecting detailed community-level data on social, culture and economic organization, and family-level data on sexual behavior.

Data collection was difficult. Since limit time for survey and insufficient financial resources, we collected 159 questionnaires instead of 198. Now some interesting results of the study could be identified in further research.

CHAPTER VI
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Myanmar migrant fishermen in Ranong, Thailand are mobile population at high risk for HIV infection. The prevalence of HIV was 6.5 percent in 2002. Sexual intercourse was a main HIV transmission mode. No study was reported on factors related to sexual risk behavior of HIV infection among migrant fishermen in Ranong, Thailand before. The survey was conducted among Myanmar migrant fishermen in Muang district (Thailand-Myanmar border area), Ranong province, Thailand to describe sexual risk behavior and factors related to sexual risk behavior, as well as to identify the relationship between sexual risk behavior and factors among Myanmar migrant fishermen.

Main findings of the study are as follows:

Respondents reported very high sexual risk behavior. Among respondents who had sexual intercourse during the past 12 months, about 63.1 percent reported to have sex with sex worker and about 33.9 percent of them inconsistently used condoms with CSW. The study also showed that migrant fishermen were a significant bridge population for HIV transmission. An overlap of three patterns, having sex with CSW, with regular partners and with non-regular partners, was found in this study.

Knowledge on prevention of HIV and possibility of infecting HIV correlated with consistent condom use. Respondents who consistently used condoms with CSW were more likely to know that condom use and having only one uninfected faithful sex partners can protect themselves from HIV than respondents who inconsistently used condoms with CSW ($p<0.05$). Moreover, distribution of HIV prevention information showed effect on condom use among respondents. Respondents who

consistently used condoms with CSW were more likely to have seen information about HIV/STI prevention around residency than respondents who inconsistently used condoms with CSW (p=0.052)

The study showed that it was not easy for respondents to access to local STI care services. Only half respondents reported that clinic or hospital was available for STI treatment near docking or residency. In addition, Pharmacy (drug store) was one of main places for obtaining condoms. Respondents who consistently used condoms with CSW were more likely to know to obtain condoms from pharmacy (drug store) than respondents who inconsistently used condoms with CSW ($p<0.05$).

Drug abuse rang an alarming bell among migrant fishermen. 40.91 percent of respondents who inconsistently used condoms with CSW reported to have tried addictive drugs during the past 12 months.

6.2 Recommendation

6.2.1 Recommendation for action

Based on above findings, new HIV intervention should target migrant fishermen. Understandable HIV/STI prevention information and knowledge should be distributed further among migrant fishermen. Better health prevention and care services including STI care services and condom promotion should be provided to migrant fishermen through local clinic, hospital and pharmacy (drug store).

Role of government agencies: Need to engage in discussions with MOPH at national level, with Ranong provincial office or hospital at provincial level and with other concerning establishment of an independent body to oversee the HIV intervention program. This would include delivery of necessary services and provision of medical officers and staff who speak the native languages used by migrant fishermen in Ranong. Such an initiative can be locally sustained and self-sufficient over the long term.

Role of recruiting agents**:** Some agents working in Ranong have participated in the existing intervention activities undertaken by the WVFT project (12). Their involvement in the HIV program has filled a gap in helping to reduce migrant fishermen vulnerability to HIV through providing an institutional and enabling environment for behavior change. Agents and fishing companies based in Myanmar need to be approached to identify their potential for similar participation.

Developing an industry workplace policy: Working directly to pier and boat owners. Advocating collaboration includes cost-benefit aspects of prevention, documenting, and promoting case studies of 'good practices', promoting individual philanthropy, providing community responsibility awards, and identifying clear and specific organizational networks between Myanmar and Thailand that could be linked up with HIV/AIDS initiatives.

Cross border issues: Myanmar government agencies and Thai government agencies should have regular meeting to discuss health problems in border areas.

6.2.2 Recommendation for further study

The information derived from this survey is sufficient to call for education/ prevention activities about drug abuse among migrant fishermen. Moreover, there is need to do a further in-depth study on the magnitude of drug abuse among larger samples of these populations.

Sample size could be increased to further identify factors related to sexual risk behavior among migrant fishermen.

Focus discussion and in-depth interview could be arranged for research.

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APPENDEX

APPENDIX A
QUESTIONNAIRE

FACTORS RELATED TO SEXUAL RISK BEHAVIOR OF HIV INFECTION AMONG MIGRANT FISHERMEN IN RANONG, THAILAND

001 QUESTIONNAIRE IDENTIFICATION NUMBER |___|___|___|

002 INTERVIEWER : Code [____|____] Name_____

003 DATE INTERVIEW : __\ ____ \ _____

CHECKED BY SUPERVISOR : Signature _____ Date _____

Introduction: Before interview, please introduce yourself to respondent that we're interviewing fishermen here in Ranong Province in order to find out about factors related to sexual risk behavior of HIV infection among migrant fishermen

Confidentiality and consent: "I'm going to ask you some very personal questions that some people find difficult to answer. In case you don't feel satisfaction, you can stop answer the questions. Your answers are completely confidential. Your name will not be written on this form, and will never be used in connection with any of the information you tell me. We would greatly appreciate your help in responding to this survey. The survey will take about 15 minutes to ask the questions. Would you be willing to participate?"

(Signature of interviewer certifying that informed consent has been given verbally by respondent)

Result codes : Completed 1; Respondent not available 2; Refused 3; Partially completed 4; Other 5.

The questionnaire includes the 4 sections, 45 questions.

No.	Questions and filters	Coding categories	Skip to
	Section 1. Predisposing factors		
	(1). Socio-demographic variables		
1.	In what month and year were you born?	☐ MONTH, YEAR ☐ DON'T KNOW ☐ OTHERS (SPECIFY).....	
2.	What is the highest level of	☐ PRIMARY	

school you completed: primary, secondary or higher?
Check/tick one

☐SECONDARY
☐HIGHER
☐OTHERS (SPECIFY)..…

3. How many years have you lived here in (NAME OF COMMUNITY ……
/TOWN NEIGHBORHOOD/ VILLAGE) ?

☐DON'T KNOW
☐OTHERS (SPECIFY).....

4. What is your nationality ?

☐Thai
☐Myanmar
☐Cambodia
☐Lao, PDR
☐Other (specify) …….

5. What is your ethnic group?

☐Khmer
☐Mon
☐Burmese
☐K a r e n
☐Laotian
☐Issan
☐Other (specify)…….

6. What job position are you in?

☐Foremen (Captain)
☐Crewmember
☐Other (specify)…….

(2). Knowledge and information of HIV/AIDS

7. Have you ever heard of HIV or the disease called AIDS ?

☐YES
☐NO ——→ **Q20**
☐OTHERS (SPECIFY).....

8. Do you know anyone who is infected with HIV or who has died of AIDS?
- ☐YES
- ☐NO
- ☐DON'T KNOW
- ☐OTHERS (SPECIFY).....

9. Do you have a close relative or close friend who is infected with HIV or has died of AIDS?
- ☐YES, A CLOSE RELATIVE
- ☐YES, A CLOSE FRIEND
- ☐NO
- ☐OTHERS (SPECIFY).....

10. Can people protect themselves from the HIV virus that causes AIDS by using a condom correctly every time they have sex?
- ☐YES
- ☐NO
- ☐DON'T KNOW
- ☐OTHERS (SPECIFY).....

11. Can a person get HIV from mosquito bites?
- ☐YES
- ☐NO
- ☐DON'T KNOW
- ☐OTHERS (SPECIFY).....

12. Can people protect themselves from HIV by having only one uninfected faithful sex partner?
- ☐YES
- ☐NO
- ☐DON'T KNOW
- ☐OTHERS (SPECIFY).....

13. Can people protect themselves from HIV by abstaining from sexual intercourse?
- ☐YES
- ☐NO
- ☐DON'T KNOW
- ☐OTHERS (SPECIFY).....

14. Can a person get HIV by sharing a meal with someone who is infected?
- ☐YES
- ☐NO
- ☐DON'T KNOW
- ☐OTHERS (SPECIFY).....

15. Can people have more chance to get HIV by sharing syringe with other people?
- ☐YES
- ☐NO
- ☐DON'T KNOW
- ☐OTHERS (SPECIFY).....

16. Can HIV infected person be healthy looking?
- ☐YES
- ☐NO
- ☐DON'T KNOW
- ☐OTHERS (SPECIFY).....

17. Can a pregnant woman infected with HIV or AIDS transmit the virus to her unborn child?
- ☐YES
- ☐NO
- ☐DON'T KNOW
- ☐OTHERS (SPECIFY).....

18. What can a pregnant woman do to protect her unborn child from HIV?
- ☐GENERAL MEDICATION
- ☐(Antiretrovirals)
- ☐DON'T KNOW
- ☐OTHER (specify) ……

19. Can a woman with HIV or AIDS transmit the virus to her newborn child through breastfeeding?
- ☐YES
- ☐NO
- ☐DON'T KNOW
- ☐OTHERS (SPECIFY).....

Section 2. Enabling factors

20. During the last 4 weeks did you have drinks containing alcohol?
- ☐YES
- ☐NO ——▶ **Q22**

21. During the last 4 weeks how often have you had drinks containing alcohol?
- ☐Every day
- ☐At least once a week
- ☐Less than once a week or never
- ☐DON'T KNOW
- ☐OTHERS (SPECIFY).....

22. Have you ever tried addictive drugs during the past 12 months?
- ☐YES
- ☐NO → **Q24**

23. Have you injected addictive drugs using a syringe in the last 12 months? **(DRUGS INJECTED FOR MEDICAL PURPOSES OR TREATMENT OF AN ILLNESS DO NOT COUNT)**
- ☐YES
- ☐NO

Section 3. Reinforcing factors

24. Have you been using condom when having sex?
- ☐YES
- ☐NO → **Q27**

25. From which places or persons you can obtain condoms?
- ☐Convenient shop (7 Eleven)
- ☐Pharmacy
- ☐Market
- ☐Clinic
- ☐Hospital
- ☐Family planning center
- ☐Bar/guest house/hotel
- ☐Peer educator
- ☐Friend
- ☐Other(specify)…….
- ☐DON'T KNOW

26. How long would it take you to obtain a condom close to your house or to where you work?
- ☐Under 1 hour
- ☐1 hour to 1 day
- ☐More than 1 day
- ☐OTHERS (SPECIFY).....
- ☐DON'T KNOW

27. Do you see any information about HIV/STI prevention around your place?
- ☐YES
- ☐NO

28. Is there any peer education activity around your place?
☐YES
☐NO → **Q30**

29. Did you attend peer education activity for HIV/STI prevention or condom use?
☐YES
☐NO

30. Have you had a genital **discharge** during the past 12 months?
☐YES
☐NO
☐DON'T KNOW
☐OTHERS (SPECIFY).....

31. Have you had a genital **ulcer**/sore during the past 12 months?
☐YES
☐NO
☐DON'T KNOW
☐OTHERS (SPECIFY).....

32. Is there a clinic or hospital available for STI treatment near your docking or residency?
☐YES
☐NO
☐DON'T KNOW

Section 4. Sexual risk behavior and accessibility to CSW

33. Are you *currently* married or living with woman with whom you have a sexual relationship?
☐YES
☐NO

34. Have you had sexual intercourse in the last 12 months?
☐YES
☐NO → **Q37**
☐OTHERS (SPECIFY).....

35 Did you always use a condom with your regular partner (spouse or living-in sexual partner)during the past 12 months?
☐YES
☐NO
☐DON'T KNOW
☐OTHERS (SPECIFY).....

36. Did you always use a condom with your non-regular partner (casual sexual partner) during the past 12 months?
☐YES
☐NO
☐DON'T KNOW
☐OTHERS (SPECIFY).....

37. Is it easy for you to find commercial sex worker near your residency or your docking?
☐YES
☐NO

38. Did you have long-distance travel out of the Andaman Sea during the past 12 months?
☐YES
☐NO

39. Did you hear of commercial sex services on mobile boat at sea?
☐YES
☐NO → **Q41**

40. Did you use this service during the past 12 months?
☐YES
☐NO

41. Did you visit CSW during the past 12 months?
☐YES
☐NO → **Q43**

42. Did you go alone when you visited CSW?
☐YES
☐NO

43. Does your friend visit CSW?
☐YES
☐NO

44. Did your friend ask you go to brothel?
☐YES
☐NO

45. Did you always use a condom with your commercial partner during the past 12 months?
☐YES
☐NO

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