

**HIV PREVENTION IN FEMALE SEX WORKERS
IN INDONESIA: A LITERATURE REVIEW**



**Yusie Luciana Permata
Indonesia**

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KIT (Royal Tropical Institute)
Development Policy & Practice /
Vrije Universiteit Amsterdam
Amsterdam, The Netherlands



**HIV Prevention in Female Sex Workers in Indonesia:
A Literature Review**

A thesis submitted in partial fulfillment of the requirement for the degree
of Master in International Health

By Yusie Luciana Permata
Indonesia

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List of abbreviations

ART	Antiretroviral Therapy
CUP	Condom Use Program
FSW	Female Sex Worker
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IBBS	Integrated Biological and Behavioral Survey
IDHS	Indonesia Demographic and Health Survey
IDU	Injecting Drug User
MDG	Millennium Development Goal
MOH	Ministry of Health
MSM	Men who have Sex with Men
NAC	National AIDS Commission
NCD	Non-Communicable Disease
NGO	Non-Government Organization
PLWH	People Living with HIV
STI	Sexually Transmitted Infection
UN	United Nations
UNDP	United Nations Development Program
UNFPA	United Nations Population Fund
UNGASS	UN General Assembly Special Session on HIV/AIDS
VCT	Voluntary Counseling and Testing
WHO	World Health Organization

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Abstract

Introduction: Female sex workers (FSWs) in Indonesia are more vulnerable to HIV infection due to numerous determinant factors such as their individual characteristics, social networks, organizational factors, cultural norms, and structural factors. The prevalence of HIV in direct female sex workers in Indonesia was 10% in 2011, compare to 3.6% in 2002. Effective prevention programs are important to reduce the incidence and prevalence of HIV in FSWs.

Objectives: This thesis reviews the determinant factors that influence FSWs' vulnerability to HIV infection in Indonesia and critically analyzes the current HIV prevention program in FSWs and evaluate whether the programs address the factors that make FSWs more vulnerable to HIV infection.

Methodology: The socioecological model adapted from Texas HIV/STD Prevention Plan was used as conceptual framework to analyze the determinant factors. Literatures, journals, reports, and official documents from many organizations were also used for the analysis.

Findings: Factors from individual, interpersonal, organizational, community, and structural level contribute to FSWs' vulnerability to HIV infection in Indonesia. PMTS program, the existing HIV prevention program for FSWs in Indonesia, has not addressed factors of FSWs' characteristics, community and structural level sufficiently.

Conclusion: Factors influencing FSWs' vulnerability to HIV infection varied from individual factors to structural factors. Sexual behavior is the most important determinant because it is related to many other factors.

Recommendation: Political advocacy for legal status of sex work and improvements in PMTS program need to be done for creating conducive environments and facilitating healthy and safer sexual behavior among female sex workers.

Key words: HIV, female sex workers, Indonesia, determinant factors, vulnerability, prevention

CHAPTER 1: Background

1.1 Geographical location

Indonesia is the largest archipelago country located in the South East Asia.¹ Indonesia consists of 13,466 islands, with the land size of about 1.9 million square kilometers (735,358 square miles) and 54,716 kilometers (33,998 miles) coastlines.^{1,2,3} The capital of Indonesia is Jakarta. Indonesia shares land borders with Malaysia on Borneo Island (Kalimantan), with Papua New Guinea on the island of Papua (Irian Jaya), and with East Timor on the island of Timor. Other neighboring countries of Indonesia are Singapore, Philippines, Australia, and Andaman and Nicobar Islands.¹ Lying on the equator line, the climate of Indonesia is tropical with hot and humid weather in the low lands. Indonesia has two distinct monsoon seasons, dry and wet or rainy season.³



Figure 1. Map of Indonesia

1.2 Population

Indonesia is the fourth most populous country in the world. Based on Indonesia Central Statistic, the country population in 2010 was 237,641,326, of which 50.5% were male and 49.5% were female. Indonesia is the world's largest Muslim country; 86.1% of Indonesian is Muslim. Annually, the rate of population growth is 1.5%. The population distribution in Indonesia is highly different between regions. Out of 33 provinces, West Java is the most populated province with 43 million populations, while West Papua is the least populated one with only 760,422 populations. Half of Indonesian population lives in urban areas. The population composition by age mainly consists of adult aged 20–49 (46.3%) and children or under 19 (37.6%).⁴

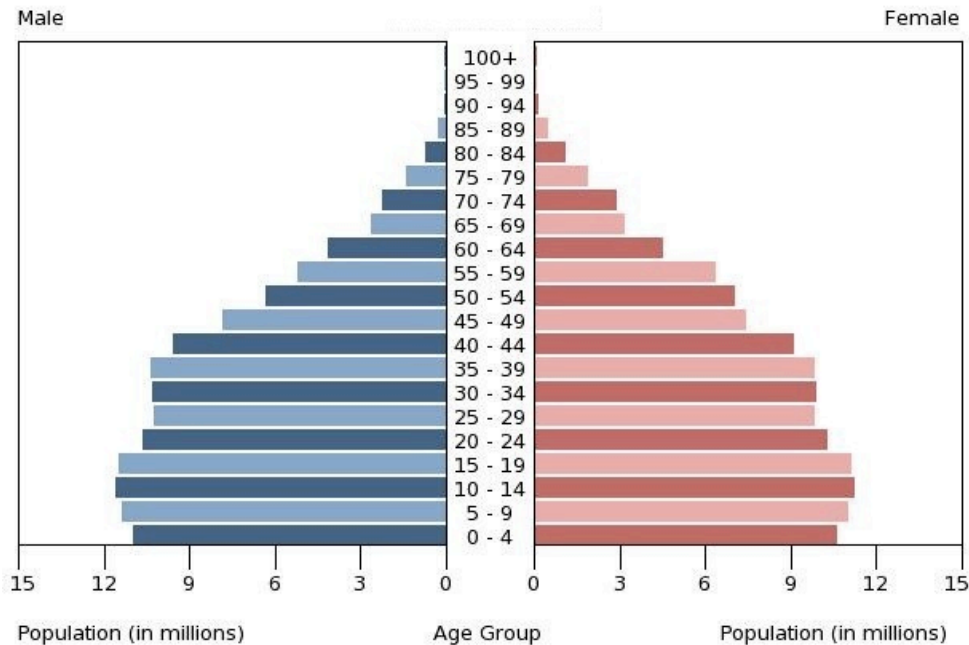


Figure 2. Indonesia population pyramid
(Source: Statistics Indonesia 2014)

1.3 Administrative structure

Indonesia is a democratic republic with a presidential system, where the president as both the head of state and the head of government.⁵ The president and vice president are voted for by the nation through general election that is held every 5 years. Indonesia has 34 provinces, which are led by a governor. Due to decentralization, each province has their regional autonomy. Even though Indonesia is the biggest Muslim country, the civil legal system in Indonesia is based on Roman-Dutch model instead of Islamic (sharia) law.⁶

1.4 Economic status

According to the World Bank, Indonesia is categorized as a lower middle-income country. In 2012, the country's gross national income per capita was \$3,420, the gross domestic products (GDP) was \$878 billion, with GDP growth 6.2%.⁷ Indonesia's main commodities are oil and gas, rubber, plywood, electrical appliances, and textiles; with Japan and China as the main partners that import Indonesian products.⁶ Out of 237 million populations, around 7.2 million (5.9%) are unemployed and 28 million people (11.4%) live in poverty in Indonesia. The poverty line in Indonesia is set at 289,041 rupiahs per month (\$24).⁸

1.5 Education

Indonesia allocates 3% of their GDP for education. It is estimated that 92.8% of the population is literate.⁶ Indonesian government has made

the first 9 years of education (elementary and junior secondary school) free for all through the School Operational Assistance program.⁹ In 2012, the primary school participation rate was 97.8% nationally.¹⁰ However, between urban and rural areas, the children's progress to higher levels of education is different. In urban area, 80% of the children advance to junior secondary school and around two-third enter senior secondary school; while in rural area, only 55% of the children make it to junior secondary school and less than 25% enroll in senior secondary.¹¹

1.6 Health situation and health system in Indonesia

Indonesia Demographic and Health Survey (IDHS) 2012 showed that infant and under five mortality rate were 32 and 40 deaths per 1,000 live births, respectively. Maternal mortality rate in Indonesia is still high; the figure was 359 deaths per 100,000 births in 2012. In 2010, life expectancy at birth was 73 years for male and 69 years for female.¹² As a developing country located in the tropics, Indonesia is burdened by many infectious diseases, mainly tuberculosis, malaria, dengue fever, hepatitis A, typhoid fever, and HIV.¹³ However, in the last few years, Indonesia was additionally burdened by non-communicable diseases (NCDs) particularly diabetes, cardiovascular diseases, and cancer. In 2010, NCDs caused an estimated 64% of all deaths in Indonesia.¹⁴

The health system in Indonesia is decentralized; each province and district has autonomy to make policies, and determine their priorities and spending. The Ministry of Health Republic of Indonesia (MOH) is the central body that performs government affairs in the health sector in Indonesia. MOH duties include formulating and implementing policies and strategies regarding health issues in the country.¹⁵ In the effort to fight HIV, Indonesia founded the National AIDS Commission (NAC) in the year 1994. NAC is funded by the national budget. NAC works together with MOH, non-government organizations (NGOs), and international organizations to control the epidemic of HIV in Indonesia.¹⁶

Indonesia health expenditure is among the lowest in the world. In 2011, Indonesia government only allocated 2.7% of the country's GDP for health.¹⁷ Health service is provided by the government and also private institutions. Government health services are *Puskesmas* (Community Health Centre), which are located in every district or village, and public hospitals, which are located in the cities or regencies.¹³ Physician density in Indonesia was 0.2 physicians per 1,000 population in 2012.⁹ Half of Indonesian people do not have health insurance, and most of the health expenditure in Indonesia is out-of pocket (75.7%).¹⁸ However, in January 2014, Indonesian government launched an universal healthcare coverage program that is expected to cover the entire population by the year 2019.¹⁹

CHAPTER 2: Statement of problem, objectives, and methodology

2.1 Statement of problem

Sex workers are one of the key populations who are at higher risk of HIV infection. They can be classified as direct and indirect sex workers. Direct sex workers identify themselves as sex workers and earn living primarily from selling sex; while indirect sex workers may work as waitress, hair dressers, massage girls, or street vendors who sell sex occasionally and sex work is not their main source of income. Women and girls are the largest group involve in sex work, while the number of men and boys involved is growing. Transgender people are also known to be in sex work, even though the number are much less than female or male sex workers. Sex workers are more vulnerable of getting HIV due to many factors such as their personal characteristics, organizational factors, and structural factors.^{20,21,22}

Indonesia is one of the countries in Asia with the fastest-growing HIV epidemic. In the beginning of its epidemic, HIV in Indonesia was classified as a low level epidemic. However, since 2004, HIV epidemic in Indonesia is a concentrated epidemic, where the prevalence is more than 5% in certain subpopulations and less than 1% in general population. Until late 2000, the epidemic of HIV was driven by injecting drug users (IDUs). In 2004, NAC reported that drug injecting contributed to 69% of total HIV cases; while in 2011, only 19% of total new reported cases were related to unsafe injection.^{23,24,25} The main mode of HIV transmission in Indonesia has shifted from unsafe injection to heterosexual contact. In 2012, 78% of HIV cases were transmitted through heterosexual intercourse.²⁶ Nationally, the prevalence of HIV in Indonesia was 0.4% in the year 2012.²⁷ The prevalence was found to be 10% in direct female sex workers (FSW), 3% in indirect FSW, and 22% in transgender sex workers or '*waria*'.²⁸ There is no data on the prevalence of HIV in male sex workers. Compared to non-infected HIV women, women infected with HIV have 13.5% increased odds of being a sex worker.²² In 2006, it was estimated that 221,000 women and 21,000–35,000 transgender were working in sex industry in Indonesia.^{29,30} Yet, there is no data available on the number of male sex workers in Indonesia.

The sex industry in Indonesia has been started in the pre-colonial era; and its legal status has been a national debate for a long time as well. In Indonesia, there is no law that explicitly states that being a sex worker is an offense; only pimping and soliciting that are mentioned as illegal acts in Indonesian Criminal Code. However, prostitution in Indonesia is widely considered as a crime against morality, decency and social norms.

Indonesia NAC is the main institution that is responsible to prevent and control the epidemic of HIV in Indonesia. Several programs have been

implemented to prevent HIV in sex workers in Indonesia. To prevent sexual transmission of HIV among sex workers, 100% condom use program (100% CUP) was one of the strategies that had been included in National AIDS Strategy since 2003. However, the program did not seem to work sufficiently. Condom use among sex workers in Indonesia remained low. Also, HIV cases due to heterosexual contact were rising from 37% in 2001–2005 to 71% in 2011. 100% CUP was no longer promoted after the year 2007; and subsequently, Indonesian NAC introduced a new comprehensive strategies to address the challenges of HIV sexual transmission, the prevention of sexual transmission of HIV (PMTS) program.^{27,31} Another crucial HIV prevention effort for sex workers in Indonesia is sexually transmitted infections (STIs) services. In Integrated Biological and Behavioral Survey (IBBS) 2011, direct FSW was the group who most often accessed STI services (64%) in the last 3 months before the survey; yet, around 78% of indirect FSW and transgender never visited STI clinics in the last 3 months. HIV testing service and treatment are also provided for sex workers in Indonesia. In 2011, there were 500 voluntary counseling and testing (VCT) sites located in 142 districts and cities; mobile testing services are also available in some locations. Based on IBBS 2011, transgender sex workers are the population who get tested for HIV the most (72%); while only 36% of indirect FSW and 57% of direct FSW have ever had an HIV test.²⁸ There was no data on this in relation to male sex workers. For the coverage of antiretroviral therapy (ART), there was also no data on it specifically for sex workers in Indonesia. However, in general, only 40% of those who were eligible for treatment were on ART.²⁷

Despite all the efforts, the prevalence of HIV in sex workers in Indonesia has increased significantly. In 2002, the prevalence of HIV in direct female sex workers and transgender sex workers was 3.6% and 11.8% respectively.³² In 2011, the prevalence was 10% in direct female sex workers and 22% in transgender sex workers.²⁷ Data for indirect FSWs (in 2002) is not available for similar comparison. There is also no data on the trend of HIV epidemiology in male sex workers in Indonesia. Effective HIV prevention programs for sex workers are very crucial to halt the spreading of HIV, not only among sex workers and their clients, but also to general population through sex workers' partners or clients.

This thesis will explore the HIV prevention programs in female sex workers in Indonesia. The focus will be only on female sex workers because of limited data on *waria* and male sex workers in Indonesia. This thesis aims to answer the following questions: What are the determinant factors of HIV in female sex workers in Indonesia? Do HIV prevention programs in female sex workers in Indonesia address determinant factors that increased female sex workers vulnerability to HIV? What are other successful HIV prevention programs in female sex workers in other countries that can be adopted by Indonesia?

2.2 Objectives

2.2.1 General Objective

To critically analyze determinant factors affecting female sex workers vulnerability to HIV in Indonesia and whether HIV prevention program in Indonesia take those factors into account in order to give recommendations to improve and strengthen the program.

2.2.2 Specific Objectives

1. To review factors that influence female sex workers vulnerability to HIV infection in Indonesia
2. To analyze the current HIV prevention program in female sex workers in Indonesia and evaluate whether all of the determinant factors of HIV in female sex workers in Indonesia are being addressed
3. To compare HIV prevention program in female sex workers in Indonesia with another country (Sonagachi project in India)
4. To formulate recommendations for Indonesian National AIDS Commission and Ministry of Health for program improvement

2.3 Methodology

A literature review has been conducted to answer the objectives of the thesis. The review has been done through literature search using search engines of Google Scholar, as well as database of PubMed and Scopus. Relevant journals and publications has also been retrieved from the websites of Indonesian NAC, Ministry of Health, WHO, and UNAIDS.

Keywords: HIV, AIDS, HIV infection, sex workers, female sex workers, prevention program, Indonesia, determinant factors, risk factors, vulnerability, transmission risk, age, sex, education, marital status, sexually transmitted infections, STIs, reasons to enter sex work, condom use, injecting drug use, alcohol use, sexual practice, anal sex, sexual partners, female sex workers' clients, knowledge, attitude, perceptions, female sex workers' network, circumcision, working condition, sex establishments, condom availability, policy, access to health services, stigma, discrimination, gender inequality, legal status, criminalization, violence. In order to limit the number of articles to get essential information, the keywords were combined using the connector AND.

Inclusion criteria: English or Indonesian language, available in free full text, and published between the years 2000–2014. The rationale for the time period chosen (the last 14 years) is because during that period there are significant differences in HIV epidemiology in Indonesia and also in the responses.

2.4 Conceptual framework

To analyze the influencing factors of female sex workers' vulnerability to HIV infection, socioecological model will be used (adapted from Texas HIV/STD Prevention Plan: Socio-ecological model of HIV prevention; 2011). The original model was used for HIV prevention in the general population. Therefore, only the factors that are relevant to female sex workers –based on literature search– are used in this thesis. In addition, the 'Public Policy' component of the model will be referred as structural factor. The conceptual framework used can be seen in Figure 3.

The socioecological model is used because the model reviews the interaction between individual, interpersonal, organizational, community, and structural factors that make female sex workers more vulnerable to HIV infection. This model allows us to design prevention strategies that address multiple levels of the model.

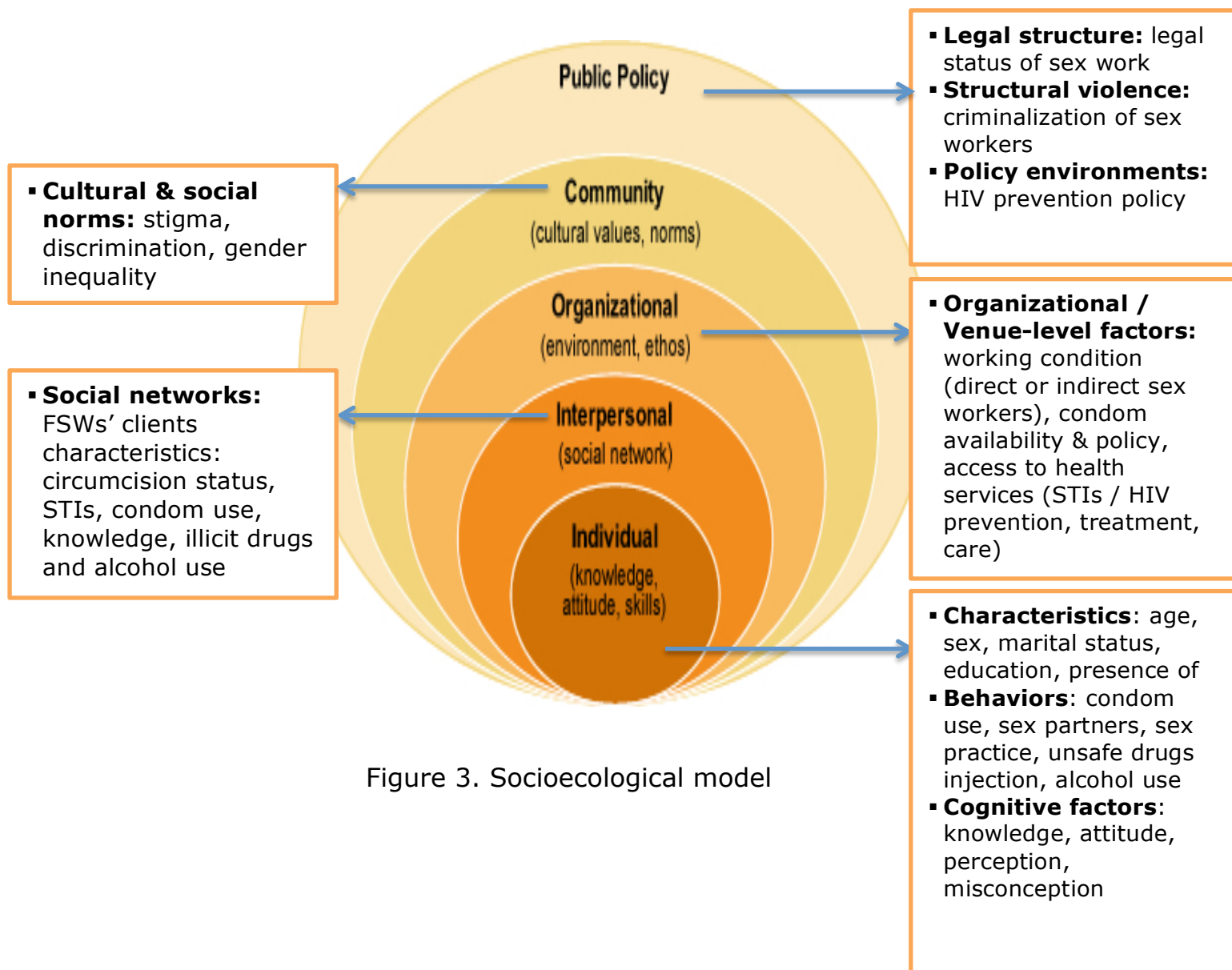


Figure 3. Socioecological model

2.5 Limitations of the study

Limitations of the study include very limited studies from Indonesia about relationship of the determinant factors of HIV with the vulnerability of female sex workers to HIV infection, and lack of data on the coverage of several components of HIV prevention program for female sex workers in Indonesia (e.g. condom availability, post-exposure prophylaxis). There is also no available data on the efficiency and effectiveness of the prevention program in Indonesia.

CHAPTER 3: Factors influencing female sex workers' vulnerability to HIV infection in Indonesia

For analyzing the determinant factors that make female sex workers more vulnerable to HIV infection and structuring the findings, the conceptual framework (Figure 3) will be used; starting from individual factors to structural factors.

3.1 Individual factors

Individual factors that make female sex workers more vulnerable to HIV infection will be divided into characteristics, behaviors, and cognitive factors.

Characteristics

There are several personal characteristics that female make sex workers are at higher risk to contract HIV such as their age, sex, marital status, education, the presence of STIs, and their reasons to enter sex work.

A certain **age** group is more vulnerable to get HIV infection than others. UNAIDS reported that young people aged 15–24 years are at the highest risk for infection.³³ Young people are more vulnerable to HIV infection due to many reasons such as risky sexual behavior, not perceiving themselves to be at risk, illicit drug use, unawareness, poverty, little decision making power, and lack of access to HIV information and prevention services.^{34,35,36}

According to Integrated Biological and Behavioral Survey (IBBS) 2011, most of female sex workers in Indonesia were aged over 30 year-old (48% of direct FSW and 41% of indirect FSW). Sex workers aged between 15–24 years old were 26% for direct FSW and 30% indirect FSW.²⁷ The prevalence of HIV among younger female sex workers, aged below 25 years old, was slightly higher (10.4%), compare to FSW aged 25 years old and above (10.1%).³⁷

Sex is another determinant of HIV infection. Due to extended availability of HIV targets in vaginal mucous, women are two to eight times more likely to be infected with HIV than men through heterosexual contact.³⁸ Worldwide, the majority of sex workers are women. In Indonesia, it was estimated that there were 221,000 women working in the sex industry.³⁹

Marital status is associated with female sex workers' vulnerability to HIV. A study among female sex workers in India found that female sex workers who are not married, divorced, separated, or widowed had an increased odd of being HIV positive than female sex workers who are married. While married female sex workers had fewer clients, female sex workers who had separated with their husband or unmarried had larger

number of clients and they relied on sex work as their primary source of income.⁴⁰

In Indonesia, only 13% of direct FSWs and 28% of indirect FSWs were currently married. Most of the direct female sex workers (71%) and indirect FSWs (49%) were ever married (widowed / divorcee).²⁷ Marriage as such is not an issue, yet, the fact that widowed or divorcee FSWs have more clients (sexual partners) make them more vulnerable to HIV.

Education is a highly effective tool to prevent HIV. UN and the World Bank said that education could be 'the single most effective prevention weapon against HIV'. Education is also known as a 'social vaccine' for HIV because it can provide people with the information and knowledge they need to protect themselves against HIV infection, equip them with healthy decisions and healthy behaviors, and provide chance for better economic prospect which leads to greater prosperity.^{41,42,43} A study by Glynn et al in four cities in Africa found that higher level of education associated with lower HIV infection rates and less risky sexual behavior.⁴⁴ Women who have completed primary school were five times more likely to have knowledge about HIV compare to illiterate women; while illiterate women were four times more likely to regard that HIV infection cannot be prevented.^{45,46} Result from a study in Uganda showed that educated individuals were more common to use condom and to visit VCT centers.⁴⁷ Furthermore, education is one of the most important means in reducing girls' vulnerability to HIV infection. Putting girls in school is found to be related with delayed marriage, delayed sexual debut, greater gender equality, reducing poverty, increased self-confidence, and greater decision-making power.^{46,48,49} Poorly educated girls will have limited opportunity for employment and earning an income, which enforce them to enter sex work.⁵⁰

In Indonesia, the majority of both direct and indirect female sex workers had low levels of education (junior high school and below). Based on IBBS 2011, the majority of direct FSWs were only primary school graduates (41%) and most of indirect FSWs completed junior high school (40%).²⁷ Low level of education among most of FSWs in Indonesia makes them more vulnerable to HIV. Distribution of sex workers by educational level can be seen in Figure 4.

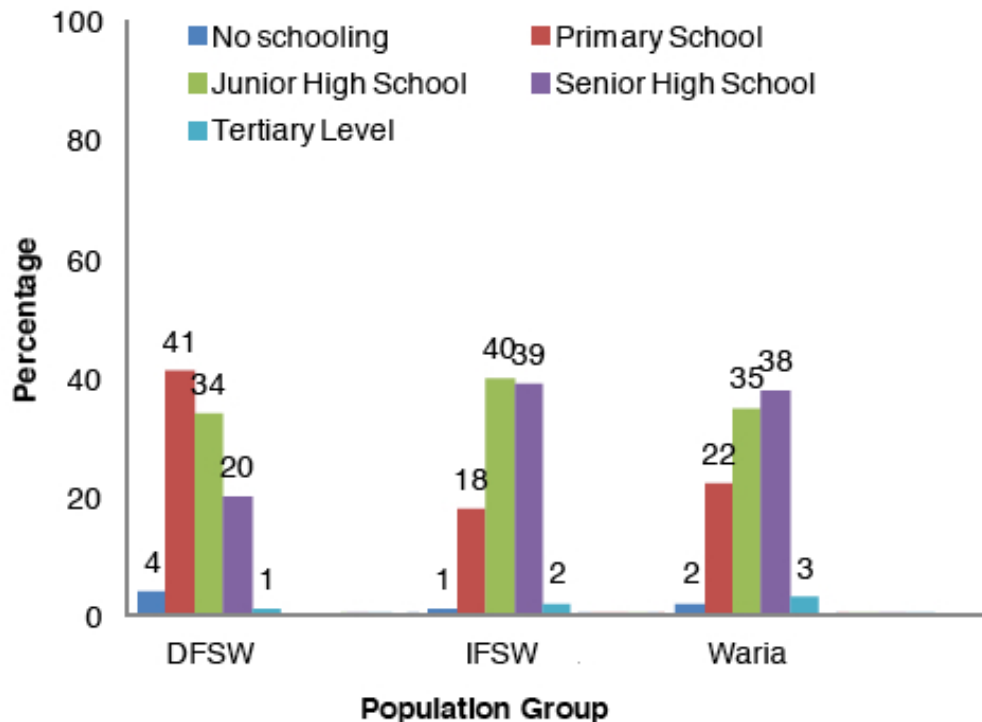


Figure 4. Sex workers' distribution by educational level
(Source: IBBS 2011)

The **presence of sexually transmitted infections (STIs)** has found to be associated with both acquiring and transmitting HIV. People who have STIs are more likely to get HIV infection than those without STIs. Sexually transmitted infections increase susceptibility to HIV infection due to the damage in genital mucous membrane or skin (in genital ulcer diseases such as chancroid, syphilis, or herpes) and higher concentration of CD4+ cells, the target cell of HIV, which is induced by the inflammation process of ulcerative or non-ulcerative STIs (such as gonorrhea, chlamydia, or trichomoniasis). HIV-infected individuals who have STIs are also more likely to transmit HIV to their sex partners. The HIV load in semen or genital secretions of people who are infected with both HIV and STIs is 10-fold higher than those with HIV infection only.^{51,52} A systematic review by Boily et al showed that existing or history of genital ulcers in one of the couple higher per-act infectivity 5.3 times compare to non-ulcers STIs.⁵³ A cohort study in MSM in the USA found that there was an 8-fold increase risk of HIV infection associated with prior repeated rectal chlamydia or gonorrhea infections.⁵⁴

Sexually transmitted infections are common among female sex workers, which makes them more vulnerable to HIV infection. In Indonesia, the most prevalent STI in female sex workers was chlamydia. In 2011, the prevalence of chlamydia infection in both direct and indirect female sex workers in Indonesia was 41%. The prevalence of gonorrhea was 38% in direct FSW and 19% in indirect FSW.²⁷

There are various **reasons for entry into sex work**. Difficult life circumstances (such as no basic education, marital break-up, domestic violence, having husband or other family members with chronic diseases), being forced and entering voluntarily (by their own choice, family tradition) were also among the rationales of sex work entry. A study conducted among female sex workers in India found that reasons of sex work entry were related to condom use. Female sex workers who entered sex work due to economic motives and difficult life circumstances were less likely to use condom consistently compare to those who entered sex work willingly. In Indonesia, a study by Sihalo and Nasution found that poor economic condition, disappointed by their partner, materialism, bad influence from friends as the causes of entering sex work among young girls.^{55,56}

Behaviors

Sex workers' sexual behaviors affect their vulnerability to HIV infection. **Condom use** and practicing safer sex are an effective way to prevent the sexual transmission of HIV infection. Even though it does not provide 100% protection, latex condom is a potent fence and impenetrable for sexually transmitted infections pathogens including HIV. A systematic review by Weller and Davis showed that using (male) condom in every act of sexual contact could reduce the incidence of HIV by 80% when used correctly.⁵⁷ Aside from male condoms, female condoms were found to be effective to prevent HIV and other STIs infections. It also gives possibility of HIV prevention methods that empower the women to protect themselves when they fail to persuade their partners to use condoms. If being used correctly and consistently, female condom is estimated to be 94–97% effective to lessen HIV infection risk.^{58,59}

In Indonesia, unprotected heterosexual contact is the main driver of HIV epidemic. IBBS 2011 reported that only 47% of direct FSWs always used condom during commercial sex, while the number were 35% for indirect FSW.²⁷ A study by Basuki et al found that, out of 204 female sex workers in Indonesia, only 12 FSWs (5.9%) used condom consistently during 2-week observation period. The rate was even lower in the 4-week period, which was only 1.5% (only three FSWs).⁶⁰

There are many reasons of why sex workers do not use condom consistently. Basuki et al found that female sex workers in Indonesia did not use condom in transactional sex because of clients' refusal (due to reducing pleasure, sex may not last for long time, not feeling comfortable), considering that their clients are healthy (clean body and healthy-looking clients who is not skinny and walks well), and fear of losing their clients. Poor negotiation skill and power to persuade clients to use condom is also a barrier of condom use in sex workers. Most of sex workers stopped convincing their clients to use condoms once the clients

rejected it on the first try. Sex workers were also more likely to use condom with foreign clients than with the native ones because they believed that foreigner put them at higher risk of getting HIV infection. When having sex with their boyfriend, female sex workers from three big cities in Indonesia reported that they did not use condom because they did not perceived themselves to be at risk of contracting HIV when doing sex with their regular non-paying partner.⁶⁰ Another study conducted in Jakarta and West Java suggested that unavailability of condoms and no support regarding condom use in from management or pimps in sex workplace also deterred female sex workers and clients to use condom consistently.⁶¹ Inconsistent and low condom use among FSWs in Indonesia make them more vulnerable to HIV infection.

Number of **sexual partners** and risky **sexual practice** are important determinants in the spread of HIV. Unprotected sexual contacts with multiple clients or partners increased vulnerability to HIV infection. Sex workers are one of the high-risk populations with large number of clients or multiple sexual partners.⁶²

In Indonesia, majority of female sex workers sold sex to men.⁷ Number of FSWs' clients in the past week varied between provinces. Based on IBBS 2007, the number of clients for direct FSWs ranged between 2–7 in Papua and 8–22 in Bali; while for indirect FSWs', the number of clients was the fewest in Papua (0–2), and the highest in Jakarta with 3–9 clients in the past week.⁶³

Unprotected anal intercourse is a high-risk sexual practice that mainly drives the epidemics of HIV in men who have sex with men (MSM) population. However, anal intercourse is also common in heterosexual relationships, such as between female sex workers and their clients.⁶⁴ A study in Canada found that young female sex workers were more likely to do anal intercourse compare to young female who has never involved in sex work.⁶⁵ Anal intercourse increased the risk of HIV transmission due to the thin lining of rectal mucosa that can be easily disrupted during sex, which allow the transmission to occur. A systematic review by Boily et al showed that male-to-female anal sex increased the risk of HIV transmission significantly (1.69% per act) compare to penile-vaginal intercourse (0.076% per act).⁵³ However, there was no difference of per act infectivity of anal intercourse between heterosexual contact and homosexual (male-to-male) contact.⁶⁴ The risk of HIV transmission was the lowest in oral sex. Baggaley et al found that per act infectivity of orogenital intercourse was 0.045 and 0.02%.⁶⁶

In Indonesia, female sex workers do oral, vaginal, and anal intercourse with their clients.⁶³ However, there is no data on the prevalent of each sexual practice among FSWs and clients.

Unsafe injecting drug use is one of the primary modes of HIV transmission. Globally, an estimate 15.9 million people were injecting drug users (IDUs). Around 3 million of those who inject drugs worldwide were living with HIV.⁴¹ Sharing unclean needles and syringes are an efficient way to transmit HIV. HIV-infected blood, which is left in the contaminated needles or syringes, can directly enter the bloodstream once that needles or syringes are reused to inject drugs. HIV infection can be transmitted not only through intravenous injection, but also through intramuscular (injecting into the muscle) and subcutaneous (injecting into the fat layer beneath the skin) injection.⁶⁷ After a single shoot with used injecting drug equipment, HIV infection might not immediately happen. A systematic review by Baggaley et al found that infection risk of HIV for IDUs was 0.6%–2.4% per injection.⁶⁸

In many parts of the world, injecting drug users also engage in sex work.³³ Injecting drug use is one of the reasons people sell sex. Some sex workers entered sex work for economic reasons, to earn money to support their lifestyle, including illicit drugs use.⁶⁹ Both injecting drug users and female sex workers are the key populations in which HIV is mostly concentrated. The overlap of injecting drug use and sex work significantly increased the risk for contracting and transmitting HIV. A study by Strathdee et al found that drug-injecting female sex workers were more likely to be infected with HIV and to have at least one STI. Female sex workers who had IDUs as their regular partners and be friend with other FSWs who also injected drugs were more likely to be IDUs-female sex workers.⁷⁰

Injecting drug use was the primary mode of HIV transmission in Indonesia. The number of injecting drug users in Indonesia was between 73,633–201,131 people; 36% of those were living with HIV.⁷¹ Based on IBBS 2011, injecting drug use among female sex workers in Indonesia was still low. The percentage of direct FSWs and indirect FSWs who injected drugs in the last year was 0.4% and 0.3%, respectively. The rate of sharing needle in IDUs in Indonesia was also quite low, which was 13% in the last time injecting drugs.²⁷ Although the rates of drug injecting among FSWs in Indonesia were low, FSWs who also inject drugs are more susceptible to be contracted with HIV through needle sharing.

Alcohol use before sexual intercourse is also common among female sex workers and their clients. Alcohol consumption increases the risk of HIV infection. A systematic review by Fisher et al found that among high-risk groups population who drink alcohol, the odds of being HIV-positive was 2-fold higher.⁷² In Indonesia, a study conducted by Safika et al found that female sex workers drank alcohol prior to commercial sex in almost half of their total interactions with clients (48%). Alcohol consumption before sex were more likely in FSWs aged 25 and older, had higher than primary school education, were soliciting in bars or discotheques, had sex with

regular clients, and worked in establishments with no HIV-related policies implemented.⁷³

Cognitive Factors

Knowledge, attitude, and perception are personal cognitive factors that are related to behavior and health.

Knowledge is one of the key determinants of people's behavior. Comprehensive knowledge of HIV may lead to sexual behavior change and reduce stigma associated with HIV that is caused by misconception about how HIV spreads.^{74,75} Comprehensive knowledge of HIV has been the cornerstone of HIV prevention programs since it was set at the United Nations General Assembly Special Session on HIV/AIDS (UNGASS) in 2001. According to Millennium Development Goals' (MDGs) indicators, comprehensive correct knowledge of HIV define as knowing correctly about two principal methods to prevent HIV (condom use, being faithful to one uninfected sex partner), knowing correctly that neither mosquito bites nor sharing food can transmit HIV, knowing correctly that a healthy-looking person can possibly have HIV infection and transmit it.⁷⁶ A study by Ochako et al found that one of the most important determinants associated with having comprehensive HIV knowledge is education.⁷⁵

UNAIDS 2010 Global Report revealed that, in most of the countries which have high HIV prevalence, incidence and prevalence of HIV declines with the increase of comprehensive correct knowledge.¹ Even though knowledge does not always translate into practice, yet, it can motivate female sex workers to practice safer sex (e.g. condom use) to protect themselves from HIV infection.^{77,78} In Indonesia, comprehensive correct knowledge about HIV among female sex workers is still very low. IBBS 2011 reported that only 15% of direct FSWs and 16% of indirect FSWs had comprehensive correct knowledge about HIV. Out of total five indicators of comprehensive knowledge, question about whether condom use can prevent HIV transmission is the one that got the most correct answer (80% of direct FSWs and 74% of indirect FSWs answered it correctly). Around 35% of FSWs did not know that a healthy-looking person could have HIV infection.²⁷ Low comprehensive correct knowledge about HIV among FSWs in Indonesia rises their vulnerability to HIV.

Attitude is linked to feelings, beliefs, and how a person's react towards particular things. Female sex workers' attitude towards HIV contributes to their vulnerability to HIV infection. Attitude is affected by knowledge, although adequate knowledge do not always convert to positive attitude.^{73,79} A study conducted among female sex workers in Surabaya, Indonesia, found that only 50.6% of FSWs had positive attitude towards HIV prevention. More than half (63.4%) of FSWs agreed that HIV-positive FSWs could still work and do sexual intercourse without condom. Around 64% of FSWs were also still willing to do sex without condom if the clients

refuse to use it.⁸⁰ Poor attitude towards HIV among FSWs in Indonesia increases their vulnerability to be infected with HIV.

Perception and misconception about HIV and its transmission also affects one's susceptibility to HIV infection. Incorrect beliefs, such as a healthy-looking person cannot have HIV, taking antibiotic can reduce the risk of contracting HIV, and mosquito bites and sharing food can transmit HIV, decrease motivation to practice safer sexual behavior.^{27,76} In Indonesia, misconception about HIV prevention and transmission was slightly higher among indirect FSWs (38%) compared to direct FSWs (33%). In addition, risk perception among indirect FSWs was lower, where only 62% of them perceived that they are at risk of acquiring HIV. Risk perception of contracting HIV among direct FSWs were 79%.²⁷

3.2 Interpersonal factors

Social networks of female sex workers are crucial not only in relation to their risky behaviors but also as the point for intervention. A study by Tucker et al reported that social networks of female sex workers in South China had a role in encouraging condom use (where to obtain the condoms, how to use it correctly) and dealing with clients who refuse to use condoms.⁸¹ Among female entertainment workers in China, those who talked more with peers about condoms and got more support from peers to use condoms were more likely to use condoms consistently.⁸² Female sex workers' social networks also had a positive influence on health-seeking behavior (e.g. to get tested for HIV or other STIs, to attend clinics for treatment) and provide help during police anti-prostitution raids.^{81,83} A study conducted in Swaziland reported that FSWs in Swaziland had strong social networks in assisting members of their community in difficult situations and in supporting condom use.⁸⁴ Yet, there is no data about female sex workers' networks and their influences in Indonesia.

Sex workers' clients have a role in transmitting HIV infection not only to female sex workers but also to their wives or regular non-paying sexual partners. In Indonesia, there were an estimated 6.7 million clients of female sex workers. Clients of FSWs in Indonesia, referred to as high-risk men, are primarily men in their productive age who live separately from their families due to their work (e.g. seafaring men, construction workers, long-distance drivers) and have sex with FSWs as a recreation.^{85,86} Based on the IBBS report, most of the high-risk men were currently married (71%).⁷² The prevalence of HIV among high-risk men was 0.75% in 2009.⁸⁷

Circumcision status of female sex workers' clients affects FSWs' vulnerability to HIV. A Cochrane systematic review found that male circumcision has a prevention effect on the acquisition of HIV infection.⁸⁸ Circumcision reduced the risk of acquiring HIV by 60% in heterosexual men.⁸⁹ The plausible explanation for this study result is mainly biological.

The mucosal of penile foreskin, which is cut off during circumcision, have large number of Langerhans (one of the target cells of HIV). Thus, circumcision reduces the risk of getting HIV infection by removing its possible entry points. Circumcision might also reduce the risk of transmitting HIV from infected men to their HIV-negative partners. A study conducted in Uganda found that male circumcision declined HIV transmission when the viral loads lower than 50,000/ml.⁹⁰

In Indonesia, around 90% of the population is Muslim; and due to religious custom, all of Muslim men are circumcised. Circumcision rate among non-Muslim male population was 25%.⁹¹ There is no actual data on clients of female sex workers' circumcision rates. However, taking into account that around 90% of the male in Indonesia is circumcised, HIV vulnerability among female sex workers might decrease.

Sexually transmitted infections are not uncommon among men who bought sex from female sex workers. Among clients of FSWs in Indonesia, syphilis infection was the most frequent STIs (the prevalence ranged from 1.6% to 12%), followed by chlamydia (1.3–7%) and gonorrhea (0.7–7%). In five cities surveyed by IBBS 2007, except Jakarta, more than half of FSWs' clients (52–71%) who were infected with STIs tried to cure themselves and did not go to seek treatment. In Jakarta, around 68% of FSWs' clients went to either *Puskesmas*/private clinic or hospital to cure the STIs.⁹²

Condom use among high-risk men (HRM) in Indonesia was very low. Survey conducted in 6 regions in Indonesia showed that consistent condom use rates among clients of FSWs within the last three months were varied between only 7% in Medan and 45% in East Java. **Knowledge** about condom ability to protect against HIV infection during sex was also low among men who bought sex from FSWs (36–55%).⁹² Inconsistent condom use and poor knowledge among HRM increase FSWs' susceptibility to HIV infection.

Illicit drugs use and **alcohol** among clients also associated with FSWs' vulnerability to HIV. Illicit drug use and alcohol were found to be related with unsafe sex practice and sexual violence, which elevate the risk of contracting HIV.⁷¹ In Indonesia, around 75,000 (1.1%) of FSWs clients were also injecting drug users.⁸⁵ There is no data on alcohol use among FSWs' clients nationally. However, a study conducted among 50 clients of FSWs in Bali, Indonesia, found that 56% of clients drank alcohol prior to their sexual intercourse with FSWs.⁹³

3.3 Organizational factors

Organizational factors of FSWs' vulnerability to HIV infection include their working condition, condom availability and condom use policy in the sex work place, as well as access to health care.

Sex workers' **working condition** influences their susceptibility to HIV. Sex workers can be differed by their soliciting places. Direct sex workers are generally based in formal sex venues (brothel-based) or obviously sell sex in open spaces such as on the street or park (street-based). Indirect sex workers sell sex on the roadsides stalls, salons, or in entertainment establishments such as pubs, bars, karaoke lounges, and massage parlors. Nowadays, Internet and mobile phone have made sex to be more readily available and easier to sell. It also has facilitated female sex workers to move from establishments to more indirect and flexible type of sex work.⁹⁴ Sex work forms are related to sex workers' personal and public health potential hazards, where indirect sex work has greater risks than direct sex work. Indirect sex workers are more vulnerable to HIV infection due to no proper regulation that restricts them and their clients (about condom use, drugs, duration, price), very little protection from establishments' owners, and less peer supports.^{95,96} Excessive alcohol use was an issue for indirect sex workers in entertainment venues.⁹⁷ Indirect FSWs also have less access to health services and less likely to be covered by health promotion programs. In contrary to other direct FSWs who work indoor, street-based sex workers are the most visible ones and they posses greatest risk to harassment, police raid, or being criminalized.^{95,98,99}

Condom availability and policy in sex work establishments are crucial determinants of HIV in FSWs. A study conducted in China found that provision of condom and the presence of **condom use policy** in commercial sex venues were significantly related with consistent condom use among male clients of FSWs.¹⁰⁰ A study by Morisky et al showed that FSWs who work in establishments with pro-condom policy were 2.6 more likely to use condom consistently compare with establishments without such policy.¹⁰¹ Employers' support and encouragement were also found to be related with safer sexual behavior and condom use.¹⁰² In addition, the availability of condom in sex work places was associated with condom use negotiation among FSWs and their clients.¹⁰³ FSWs' vulnerability to HIV might reduce on the condition that condom is available and pro-condom policy is implemented in establishments.

Female sex workers are one of most-at-risk population groups who have poor **access to health care**. There are many factors that hindrance FSWs to access health services such as occupational stigma, discrimination, health providers' judgmental attitude, lack of confidentially, inappropriate operating time, location, and expensive cost

of services. Fear of public exposure and of being labeled as sex workers were also one of the barriers for FSWs to access health care. Furthermore, attitudes of establishments' owner or manager were related with utilization of health services.^{104,105,106,107} A study conducted in the Philippines showed that sex work venues where the managers were supportive regarding health practice had the most FSWs to attend STI clinics.¹⁰⁸

In Indonesia, both direct and indirect FSWs in Indonesia are still having inappropriate working condition, which makes them difficult to protect themselves against HIV infection.¹⁰⁹ Based on a study by Sianturi, it is found that FSWs in Indonesia were more likely to use condom and negotiate condom use with clients when condoms are available in the sex establishments.¹¹⁰ However, there is no data on the rates of condom availability in sex establishments in Indonesia.

3.4 Community Factors

In the society, female sex workers are among the most stigmatized and discriminated group of population. UNAIDS reported that stigma and discrimination, together with gender inequality, are the major barriers to HIV prevention, support, treatment and care.¹¹¹

Stigma is 'a powerful social process of devaluing people or groups based on a real or perceived difference' such as gender, sexual orientation, behavior, or occupation. Stigma is followed by **discrimination**, which refers to inequitable treatment towards someone based on his or her social label.¹¹² Stigma and discrimination is mainly caused by fear and lack of comprehensive knowledge.¹¹³ Female sex workers are commonly stigmatized as the sinners, immoral, and reservoirs of HIV infection. Stigma drive FSWs away from social and health services as they are terrified by the judgment, humiliation, and discrimination they might receive, including from the health professionals.^{96,114}

Stigma and discrimination were related to lower- or no-participation in HIV information meeting and counseling; decreased and delayed disclosure of HIV serostatus to partners, family, or health providers; and delayed in getting tested for HIV.^{114,115} A study conducted in Semarang, Indonesia, found that higher utilization of VCT clinic by female sex workers was related with less HIV-related stigma towards them.¹¹⁶

Gender inequality is another social and cultural factor that affects FSWs' vulnerability to HIV transmission. Gender is defined as a common norms or expectations within society which differentiates the proper roles, behavior, or characteristic for men and women. Gender inequality caused women, including female sex workers, to be more susceptible to HIV infection. Gender inequality favors men to be more powerful than women,

which put women at a disadvantage to negotiate safer sex and may lead to sexual coercion and violence against women. Gender issues might also affect women's access to HIV prevention, treatment and care due to limited decision-making power, restricted mobility, and lack of control over resources.^{117,118,119}

Among female sex workers in Indonesia, gender inequality is also an issue that increased their vulnerability to HIV. Most women in Indonesia, including those who work as sex workers, have less power to negotiate condom use to their sexual partners, spouses, and clients. In addition, the norms that favor men to be more powerful and stronger than women might also leads to abusive and violent behavior towards FSWs.^{121,122}

3.5 Structural Factors

Legal framework for sex industry is another crucial determinant of female sex workers' vulnerability to HIV infection. Illegal status of sex work, which makes FSWs being criminalized, tends to increase the risk of FSWs to be contracted with HIV. Criminalization of sex work forced FSWs to go underground, which makes their work environments more hazardous due to less power to negotiate safer sex and condom use, sexual coercion, and being harassed or abused by police. Furthermore, FSWs' unfavorable interaction with police hampers FSWs' possibility to report violence aimed towards them, either by their clients or partners (domestic violence). Turn to police for help might also force FSWs to open up about their illegal work and be arrested. Reporting about experienced violence would incriminate not only the FSWs but also their employer, and may cause them to loss work and income. Criminalization impedes FSWs' access to health services, HIV testing, treatment, also HIV-related care and support. In addition, United Nation said that criminalization of sex work exacerbate stigma and discrimination, and negatively impacts FSWs' human rights.¹²⁰⁻¹²⁶

Decriminalization of sex work would improve sex workers' health and safety, which may reduce their susceptibility to HIV. Decriminalization enables sex workers to have their basic rights and better working conditions with occupational safety standards. A collaborative study by UNAIDS, UNFPA, and UNDP reported that in New Zealand and New South Wales state (Australia), where sex work is decriminalized, sex workers' access to HIV and sexual health services was increased, and their condom use rates were high. In New Zealand, decriminalization also significantly makes the relationship between police and sex workers better. Recognizing sex work as a legitimate job would also address human rights violations faced by sex workers and allow sex workers to be engaged in advocacy regarding the needs of their community.^{125,126}

Indonesia is one of the countries in Asia where sex work is not legal. In Indonesia, sex work is regarded as a disgrace, immoral, and contradicting the religious norms. There is no national law that specifically mentioned that being sex workers is an offence. Only those who work as pimp and do activities related to soliciting are considered to act against law, based on Indonesia Criminal Code article 296 and article 506. Islamic law (*Shari'a law*) on fornication (*zina*) is also commonly used to accuse married female sex workers and clients in Indonesia.^{29,127,128}

Indonesia started to decentralize the government since the year 2001. Due to decentralization, policy about sex work varies within each province, depends on the local authorities.¹²⁹ The absence of national criminal law regarding legal status of sex workers caused provincial or regional governments to initiate various regulations to control the sex industry. In many regions throughout the country, there is Regional Law (*Perda*) that explicitly bans sex work and its related activities. However, some regions allow registered brothel complexes (*lokalisasi*) to operate in the areas. *Lokalisasi* generally consist of several brothels, where each brothel manages by a pimp, who enlisted a number of female sex workers to live full-time in the establishment. Most of *lokalisasi* in Indonesia operate in the regions where sex work is illegal and opposed by the communities. Therefore, *lokalisasi* are regulated by police or military personals who also get monetary benefits from the pimps and sex workers. Establishments' owners or managers have to pay monthly charge to the police/military personals to keep their business running and to fend off being raid or closed down by the local governments.^{128,130}

Jakarta is one the provinces in Indonesia where sex work is illegal. Based on Jakarta Regional Law 8/2007 article 42:2, being sex workers, pimps, or clients of sex worker is a crime and those who act against this law will be imprisoned from 20 days up to three months, or they required to pay fine from 500,000 Indonesian rupiah (US\$ 42) to maximum 30 million rupiah (US\$ 2500).¹³¹ Other regions in Indonesia, such as Aceh, West Sumatra, South Sumatra, Riau, and Gorontalo also have Regional Law that forbids prostitution, with the definition of prostitution varied from 'sexual intercourse between woman and man outside marriage' to 'immoral, sinful, and social disease'. In the areas with anti prostitution law, the local governments regularly organize raids conducted by the Civil Service Task Force (*Satpol PP*) and arrest female sex workers they encounter, either on the street or in establishments. In Bantul, Jogjakarta, once the female sex workers got caught in a raid, they had to pay fine around US\$ 20–35, or face imprisonment from up to 3 months. In some other areas, female sex workers who are caught in raids will be registered by the Social Affairs Office and placed in rehabilitation center.^{128,132,133}

In Minister of Health Regulation (*Permenkes*) No. 21/2013 about HIV prevention in Indonesia, female sex workers are mentioned as one of the key populations, together with their clients / partners, IDUs, MSM / transgender, and prisoners. In the regulation, it is stated that everyone – including female sex workers– has equal right to access HIV prevention services, which consist of health promotion, HIV testing, treatment, care, and support, and rehabilitation. The regulation obligates all health professionals in Indonesia to provide comprehensive services to everyone without discrimination. All provinces in Indonesia are also required to adopt the regulation or make Regional Law in lines with this Ministerial Regulation in attempt to halt HIV epidemic in the regions. Out of 34 provinces, 17 provinces in Indonesia already had regional law about HIV prevention. However, based on study by Asa et al, regulations about HIV prevention in Indonesia are not effectively applied in the regions due to many reasons such as inadequate socialization, poor commitment from the governors / regional leaders, and limited resources. Regulation about HIV prevention is aimed to reduce HIV incidence in Indonesia and make the key populations including FSWs to be less vulnerable to HIV infection.^{30,134,135}

CHAPTER 4: HIV Prevention Programs in Female Sex Workers in Indonesia and Other Country's HIV Prevention Success Story

4.1 HIV Prevention Programs in Female Sex Workers in Indonesia

Indonesian government initiated to respond the epidemic of HIV in 1988, a year after the first case of HIV was found in Bali, Indonesia. Through Minister of Health Decree No. 339/IV/1988, the first HIV prevention committee was launched in 1988. To advance and intensify the effort to fight HIV across the nation, through Presidential Decree No. 36/1994, the government established National AIDS Commission (NAC) in 1994. Indonesian NAC works not only in the national level but also in the regional (sub-national) level where they have office in each province/city of Indonesia, with a governor or head of the region as the chief of the commission.^{136,137,138}

After more than a decade of the commission's establishment, HIV epidemic in Indonesia did not seem to ameliorate. Therefore, in 2006, the government of Indonesia released the Presidential Regulation No. 75/2006 to transform the organization and intensify the function of its National AIDS Commission. Indonesian NAC is directly responsible to the president; and it is accountable to promote "more intensive, holistic, integrated and coordinated prevention and management of the response to AIDS". NAC also has other duties that include making policies, strategic plans, and guidelines; building both national and international partnerships; and doing monitoring and evaluation of HIV programs across the country. Indonesian NAC's goals are to prevent and reduce HIV transmission, to improve the quality of life of people living with HIV (PLWH), and to diminish the socio-economic effects of HIV.^{111,113} Sources of fund for HIV programs in Indonesia are from national budget, bilateral funds (mainly USAID, AusAID), Global Fund and other development partners. In 2010, the total spending for HIV in Indonesia was US\$ 69.1 million; where the national budget financed 40% of it, while the rest 60% were from international sources. Majority of spending were allocated for HIV care and treatment (35%), followed by prevention programs (30%), and program management (19%).^{37,139}

Indonesian NAC formulated its first national strategic to prevent HIV (*Stranas*) in 1994. During the period of 1994–2010, Indonesian NAC had seven priority areas to counteract HIV, which included prevention of HIV; treatment, support, and care for PLWH; HIV surveillance and STIs services; research; conducive environments; multi-sector partnership; and program continuity. 100% CUP in high-risk sex was one of the most important strategies of HIV prevention in 2003–2007. However, due to many challenges, the program did not work effectively to reduce STIs and HIV in most-at-risk population groups.^{30,140}

In 2009, Indonesian NAC developed a new national strategic and action plan to prevent HIV for the period of 2010–2014. HIV prevention programs for FSWs in Indonesia are mainly under the 'prevention and behavior change' working areas, particularly on the prevention of sexual transmission (*Pencegahan Melalui Transmisi Seksual*, PMTS) program. Indonesia NAC designed a comprehensive PMTS program in purpose to change sexual behavior and reduce the prevalence and incidence of HIV among key populations, including in female sex workers and clients. Comprehensive PMTS program for FSWs in Indonesia consists of four components, those are expanding the roles of local stakeholders, behavior change communication (BCC), management of condoms and lubricant' distribution, and STIs and HIV management. In implementing the PMTS program for FSWs, direct and indirect, Indonesian NAC work together with the Ministry of Health, Ministry of Tourism, Social Department, Regional AIDS Commission, nearby *Puskesmas*, local working groups, establishments' or entertainment places' owners, local officials (police, civil service task force, community leaders, local security), and local FSWs' organization.^{138,139,141}

Expanding the roles of local stakeholders

This component empowers stakeholders or those locally concerned in sex work places, such as establishments' owners, pimps, sex workers, condom sellers, local officials, and community leaders to make regulations and create conducive environments that intended to promote condom use and healthy sex behavior. Activities of this component include forming and training local working groups (*Pokja*), who are responsible as coordinators of PMTS programs; deciding local commitments that establishments' owners and pimps should always provide condom, FSWs always remind clients to use condom, and FSWs together with pimps or owners must refuse clients who do not want to use condom; and making commitment that each FSW have to come to STIs service center regularly. Condom use promotion through leaflets or posters placed in sex work sites also part of the activities, which should be done by the pimps or establishments' owners.^{109,142}

Involving civil societies and activists is an important part of the component. In the last few years, Indonesian NAC has built good relationship with the organization of sex workers (OPSI) and involved them in many discussion forums, including in formulating the national strategic and action plan to fight against HIV, and in monitoring and evaluation of HIV programs. Policies about HIV are also crucial to create enabling environments to prevent HIV. In 2013, there were 55 regional regulations about HIV prevention exists across Indonesia (17 in provincial level, 11 in cities, 27 in regencies). Commitment from pimps and establishments' owner regarding condom provision also encourages FSWs to use condom. However, IBBS 2011 reported that only 21% of direct sex workers received condom from pimps or establishments' owners.^{27,31,109}

Behavior change communication (BCC)

BCC component aims to increase FSWs' knowledge and awareness about HIV and STIs and its prevention measures, to empower and increase their confidence and skill regarding condom use negotiation with clients, and to encourage FSWs to access STIs services. Activities of BCC component are conducting seminars and discussion forums that disseminate information about HIV for FSWs, clients, and local officials / stakeholders, creating and distributing BCC media (such as posters, leaflets, radio/TV ads, etc), mass education through campaign, promoting STIs / HIV services that is integrated in other BCC activities, as well as organizing and training peer educators (who are also FSWs). Providing mobile VCT is also part of BCC activities. Mobile VCT is provided to reach people who are difficult to access health services due to its locations or working hours.^{31,109}

Based on IBBS 2011, most of direct FSWs got information about HIV from health care workers (75%), followed by field workers (75%), and only 47% got information from their peers. Most of indirect FSWs got information about HIV from television (82%); only 56% indirect FSWs received knowledge about HIV from health professionals and 44% from field workers.²⁷

Management of condoms and lubricants' distribution

This component aims to provide condoms and lubricants that are easily accessible to the key populations, including female sex workers. Activities of this component include managing condoms and lubricants' supply chain and building condom outlets. There are three types of condom distributed for the program namely free condom, subsidized condom, and commercial condom. Free condoms are provided by the NAC, in cooperation with National Population and Family Planning Board (BKKBN) and Family Health International; while the subsidized condoms are supplied with the support from private sectors. During the year 2009–2011, PMTS program has distributed male condoms in 7,235 outlets and female condoms in 1,000 outlets in 33 provinces and 137 districts / cities of Indonesia. Commercial condom sales also raised from 80,4 million pieces in 2006 to 158,5 million by the end of 2011.^{31,86,109}

STIs and HIV management

This component provides STIs testing and treatment, VCT services, regular screening for STIs, and post-exposure prophylaxis (PEP). HIV treatment or ART service for FSWs is not mentioned as part of PMTS strategies. STIs and HIV management is interlinked with BCC, the component that promote STIs and HIV services to FSWs. In 2011, there were 643 STIs services available in community health centers (*Puskesmas*), private clinics and company clinics. For HIV testing, 500 VCT sites are available in 142 districts / cities throughout the nation. Despite that BCC component aims to increase access to STIs services, the

frequency of visiting STI services by FSWs in 2011 was still low. For regular screening, the frequency of visiting STIs clinic in the previous three months was 64% for direct FSWs; while the number was only 23% for indirect FSWs. For seeking treatment when experiencing STIs symptoms, only 45% of direct FSWs and 43% of indirect FSWs came to the STIs services for last STIs symptoms. There is no data on the number and coverage of mobile VCT in Indonesia. There is also no data on post-exposure prophylaxis program for FSWs in Indonesia.^{27,31,86,109}

The four components of comprehensive PMTS were also designed for high-risk men or clients of FSWs. For high-risk men who work as employees in companies, Indonesian NAC works in partnership with the Ministry of Work Force and private companies to create policy regarding HIV prevention programs in working places, conducting seminars, distributing BCC media in the office, providing VCT service, STIs testing and treatment, and providing condoms and HIV PEP in the company clinics. For high-risk men in community (such as truck drivers, motor taxi drivers, port workers, sea-faring men), Indonesian NAC works together with Ministry of Transportation, transportation companies, harbor / terminal managers, NGO, community organization, and community working groups to perform all of the PMTS activities: PMTS program for clients of FSWs is crucial, especially to motivate them to use condoms and to facilitate condom negotiation for FSWs. However, there is no data available on the coverage of the program.^{109,142}

4.2 Success Story: Sonagachi Project in India

Sonagachi Project, originally called Sexually Transmitted Diseases / HIV Intervention Project (SHIP), began in Kolkata, India, in 1991. The goals of the project are not only to reduce the risk of STI and HIV transmission among sex workers, but also to advocate for STI and HIV to be recognized as occupational hazards and to promote the human rights of sex workers. Sonagachi Project is a multilevel HIV prevention intervention that is proven to be successful because it addresses five factors required for an effective HIV prevention programs, those are providing framework to motivate change; increasing knowledge about HIV protective and risk factors; building behavioral, affective, cognitive skills; reducing environmental obstacles; retaining community support for sustainability. In Kolkata, condom use among sex workers increased significantly from 3% in 1992 to 90% in 1999. Besides, while the HIV rate among sex workers in other three big cities of India (Delhi, Bombay, Chennai) were more than 50%, the rate among sex workers in Calcutta was only about 10% in 2002.

Sonagachi Project empowered sex workers as peer educators and outreach workers. Peer educators/outreach workers are trained to have respectful and nonjudgmental attitudes in conducting all of the project's

programs. The key components of Sonagachi Project address individual, group (interpersonal), and community (structural and organizational) factors of sex workers' susceptibility to HIV. At the **individual level**, the project provided sex workers with information, education, and skills related to condom use and STI services. Trainings were conducted to raise awareness about HIV and how to prevent HIV. Peer outreach workers also held monthly meeting with sex workers to build the workers' positive perception about themselves and motivate them to initiate economic moves like starting a side business as other source of income. At the **interpersonal level**, Sonagachi Project changed the social relationship of sex workers with their fellow sex workers and various stakeholders. Outreach workers are appointed to visit a group of sex workers every week, give free antibiotics for STIs treatment, and helping sex workers to solve problems regarding their health. Outreach workers will do home visit to the sex workers who received free medication and encourage them to take the medicine as suggested. In the project, family and children of sex workers are also provided with free health care. In addition, peer outreach workers can also help in condom use negotiation and consulting about STIs treatment for sex workers and their regular partners. At the **structural and organizational level**, Sonagachi Project redefined sex work as an employment and sex workers as a workforce. Thus, eliminating occupational hazards of sex work will be a crucial agenda for numerous stakeholders (such as establishments' owners, pimps, police, and local officials) who have economic interests in the sex industry. Redefining sex work as an occupation and involving sex workers in decision making of the programs might change the perspective that HIV is not only an individuals' problem but also the community's. By redefining the problem, stigma towards the individual sex workers is also reducing. Besides, the project also did political advocacy to articulate that sex work is an occupation, sex workers have a right to have good health and speak out, and children of sex workers deserve to have education.

Sonagachi Project also addressed several other barriers that hinder sex workers in performing healthy behaviors. Health clinics were built to provide STIs treatment and HIV testing exclusively for sex workers. Sex workers who were illiterate also being taught to read by professional volunteers and peer outreach workers. Free education was also given to sex workers' children. To help sex workers who are in urgent need of money, loan program was created with little interest and reasonable payment scheme. Furthermore, Sonagachi Project gathered support from sex workers and created a trade union to advocate sex work as occupation and speak out their rights as workers.^{143,144,145}

CHAPTER 5: Discussion

As reviewed above, there are many determinant factors of female sex workers' susceptibility to HIV infection in Indonesia. Factors in individual, interpersonal, organizational, community, and structural level contribute to FSWs' vulnerability; and those factors are interlinked with other factors at the same level as well as across different levels. Sexual behavior (especially condom use) is found to be the determinant that has most links with others determinant factors in all levels. In Indonesia, even though heterosexual intercourse is the primary mode of HIV transmission, it is critical to realize that HIV transmission in sex work is associated with unsafe sexual practice, not to the exchange of sex for money.

In individual level, female sex workers' characteristics (age, education) and cognitive factors (knowledge, attitude, perception) are related to sexual behavior. FSWs who aged young, have low level education, poor attitude, and wrong perception about HIV are more likely to engage in risky sexual behaviors; while correct knowledge about HIV can encourage FSWs to practice safer sex. Reasons of sex work entry are also related to FSWs' sexual behavior, where FSWs who entered sex industry due to difficult economic circumstances were less likely to use condom consistently. In interpersonal level, supports from peers have positive effect on condom use in female sex workers; while illicit drugs and alcohol use among FSWs' clients were related to unprotected sexual practice. In organizational level, FSWs' working condition –which determined by the type of sex workers, direct or indirect– is also linked with condom use among FSWs and clients. Direct FSWs are more likely to do safe sexual intercourse with clients due to other determinant factors such as support from their social networks, and if any, regulation about condom use and condom availability in the sex work place. In community level, gender inequality puts FSWs in inferior position to negotiate condom use with their male clients and partners.

Legal status of sex work also linked with FSWs sex behavior. Illegal status of sex work in Indonesia has made FSWs being criminalized, which is related to low condom use and might cause FSWs to be more difficult to reach by HIV prevention programs. Illegal status of sex work is also linked to lack of policy / regulation regarding condom use, healthy sexual practice, as well as illicit drugs and alcohol use in sex industry.

Indonesian National AIDS Commission designed HIV prevention strategies for FSWs in Indonesia. The current national strategy for HIV prevention, called the prevention of sexual transmission (PMTS) program, is specifically designed for the key population groups in Indonesia where HIV epidemic is concentrated, including female sex workers. PMTS brings out inclusive principle, where female sex workers, pimps, local officials, and various stakeholders are involved. Through its four components,

PMTS program has addressed several factors that make FSWs more susceptible to HIV infection in Indonesia.

Expanding roles of local stakeholders component of PMTS is planned to address structural issues related to HIV and sex work aiming to create conducive environments for healthy and safe sexual behavior. Poor working condition and lack of regulations/policies that protect FSWs' health, such as policy for consistent condom use, limiting the working time or number of clients, and policy about alcohol or illicit drugs use in establishments are supposed to be addressed in the first component of PMTS. However, there is no data available on the program's favorable outcome to create better working environments for FSWs. Out of 34 provinces, 17 provinces in Indonesia already have regional regulation regarding the management and prevention of HIV. Yet, the regulation is not specifically targeting the organization of sex industry since sex work in Indonesia is illegal.

Behavior change communication program aimed to address the inferior cognitive factors of FSWs (poor knowledge, bad attitudes, misconception about HIV and its prevention), which will subsequently affect their behavior. Knowledge and skills gained from the BCC programs will be beneficial to empower FSWs in negotiating condom use and motivate them to access health centers. BCC program also trained peer educators, which have significant influences in healthy sex practice and health-seeking behavior among FSWs. Management of condom distribution program addresses the factors that are related to condom use (personal behavior in individual level, condom availability in venue-level); while STIs and HIV management component tackles the biomedical factors that make FSWs more vulnerable to HIV. Factors that are not addressed by PMTS program are factors that determined FSWs' characteristic (age, education, sex work entry motives), stigma, discrimination, and legal status of sex work and FSWs. Issues of gender also have not been addressed adequately.

PMTS program in Indonesia applied the same approach with Sonagachi Project in India, a multilevel intervention that aimed to create enabling environments for healthy sex behavior. However, Sonagachi Project has been proved to be effective in increasing condom use rate and reducing HIV prevalence among FSWs in India; while PMTS program in Indonesia is still far from success. Compare to Sonagachi Project, PMTS program in Indonesia has several drawbacks. To begin with, PMTS does not have scheme that could motivate FSWs to start business as alternative source of income other than selling sex. Secondly, STIs services in PMTS are fixed in both government and private health facilities and no active follow up on FSWs who are in treatment; while in Sonagachi Project, peer outreach workers visit the house of sex workers who are being treated to check their adherence to treatment and motivate them to consume the

medication appropriately. Sonagachi Project also has STIs centers specifically for FSWs, which might increase FSWs access to STIs services. Next, PMTS has not address the structural issues adequately, as well as stigma and discrimination towards sex work. Sonagachi Project redefined that sex work is an occupational hazard, and HIV-related problems are not only individuals' responsibility of FSW but also the community's. Thus, stigma and discrimination towards sex workers is reduced. Lastly, PMTS program in Indonesia has not considered the family and children of FSWs as an important part of HIV prevention; while Sonagachi Project provided free education for FSWs' children and free health services for both their family and children. Supporting FSWs' children might prevent FSWs, especially the single-mother or widowed FSWs, to engage in risky behavior (more number of clients, willing to do sex without condom) for the purpose of earning more money.

The main challenge of HIV prevention program for FSWs in Indonesia is in structural level. In Indonesia, there is no law or policies that regulate or protect FSWs so that they have better working conditions and hindered from abusive and high-risk sexual practices. In fact, numerous provinces of Indonesia ban and criminalize prostitution and FSWs. Criminalization of FSWs leads to stigmatization and isolation, which enforce them to work even more undercover. This condition makes FSWs to be inaccessible for HIV prevention programs. If there were legal policy to regulate sex industry in Indonesia, it would be much easier to control and reach female sex workers, to require them to consistently use condom, as well as to regularly visit STI clinics and get tested for HIV. Brothels' owners and pimps could also be forced to provide condoms and to insist their FSWs and clients to use condom in every sexual contact. In addition, decentralized government system in Indonesia is also an important issue for HIV prevention program, since the commitments to adopt and implement the national strategies are all in hand of regional authorities.

CHAPTER 6: Conclusion and recommendations

6.1 Conclusion

Factors that make female sex workers in Indonesia more vulnerable to HIV infection are varied from individual level to structural level. Sexual behavior (especially condom use) is the most important determinant factors since it is interlinked with many other factors in all levels of the model. Current HIV prevention program for female sex workers in Indonesia, so-called PMTS program, has been implemented since 2009 and has four components: expanding the role of stakeholders, BCC, management of condom distribution, and STIs and HIV management. Through its components, PMTS has addressed most of the determinant factors, mainly in individual, interpersonal, and organizational level, that increase FSWs' susceptibility to HIV. PMTS program has not adequately addressed determinant factors of FSWs' characteristic (age, education, reasons to enter sex industry), factors in community level (stigma, discrimination, gender inequality), and structural issues (legal status) of sex work.

Compare to Sonagachi Project, a successful multilevel HIV intervention program for sex workers in India, PMTS program is still inferior. In order to improve the national PMTS program and achieve favorable outcomes, there are several things that can be learned from the Sonagachi Project of India. Also, the factors that have not been taken into account by the prevention program need to be addressed. Indonesian National AIDS Commission, together with Ministry of Health and other NGOs or sex workers unions, should do stronger political advocacy so that female sex workers can have better working conditions and can be protected from legal issues that disadvantage FSWs and violate their rights.

6.2 Recommendations

Policy level

- Do political advocacy for legal status of sex work or for recognition of sex work as an occupation so that FSWs have equal rights with other workers (to have safe and proper working environments, insurance, not being exploited)
- In the area where *lokalisasi* exists, policy regarding condom use and illicit drugs/alcohol use should be implemented

For intervention

- Promote free education for all and put girls in school so that they have higher level of education, better opportunity, and not forced to enter sex work in the first place

- Training programs to equip female sex workers with skills to negotiate condom use should be improved since the sex industry does not seem to ever end
- Build program to reduce financial burden of FSWs, including free health services for FSWs' family and children
- Conduct trainings to provide skills for FSWs to create business that can be their alternative sources of income so that FSWs are discouraged to do risky sex behavior to earn more money
- Build STIs and health centers specifically for FSWs that provide non-judgmental service to improve FSWs access to health care
- Strengthen the role of peer educators of PMTS program; not only to encourage FSWs to go to STIs services but also to follow up on FSWs who are on treatment for STIs (similar to what peer outreach workers in Sonagachi Project do)
- Create loan program to help FSWs who are in emergency need of money to prevent FSWs' attempt to offer sex service to larger number of clients or without condom for higher payment

For research

- Study on FSWs' social networks and its influenced in Indonesia is required since peer educators are one of the key elements of PMTS program
- Studies on the coverage of various activities in PMTS program, both for female sex workers and their clients, are also needed
- For subsequent improvement, evaluation of the efficiency and effectiveness of PMTS program needs to be done

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