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ARE WELL-INFORMED *WARIA* MORE LIKELY TO USE CONDOMS CONSISTENTLY? POST HOC EVALUATIONS OF A NATIONWIDE SURVEY IN INDONESIA

MASTER THESIS

Submitted by

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Master of Public Health
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ACRONYMS AND ABBREVIATIONS

AIDS	:	Acquired Immune Deficiency Syndrome
AIC	:	Akaike Information Criterion
ARRM	:	AIDS Risk Reduction Model
BDG	:	Bandung (capital city of West Java Province)
DFSW	:	Direct Female Sex Worker
Exp(B)	:	Exponentiation of the B coefficient which is an odds ratio
FSW	:	Female Sex Worker
GWL	:	Gay *Waria Lelaki seks lelaki*
HIV	:	Human Immunodeficiency Virus
HRM	:	High-Risk Men
IBBS	:	Integrated Biological Behavioural Surveillance
IDU	:	Injecting Drug User
IFSW	:	Indirect Female Sex Worker
JKT	:	Jakarta (Capital City of Indonesia)
KAP	:	Key Affecting Population
MLG	:	Malang
MARP	:	Most-at Risk Population
MDG	:	Millennium Development Goal
MOH	:	Ministry of Health
MSM	:	Men who have sex with Men
NAC	:	National AIDS Commission
NGO	:	Non-Governmental Organization
NSAP	:	National Strategic Action Plan
OR	:	Odds Ratio
PLWHA	:	People Living with HIV AIDS
PPS	:	Probability Proportional Sampling
PR	:	Prevalence Ratio
PWID	:	Person Who Inject Drug
RAN	:	*Rencana Aksi Nasional* (National Action Plan)
SD	:	Standard Deviation
SE	:	Standard Error
SMG	:	Semarang (capital city of Central Java Province)
SBY	:	Surabaya (capital city of East Java Province)
STI	:	Sexually Transmitted Infection
SIHA	:	*Sistem Informasi HIV AIDS* (HIV AIDS Information System)
TWG	:	Technical Working Group. The TWG for HIV program usually consist of representative from MOH, HIV expert, NAC, WHO, UNAIDS and NGO.
UNAIDS	:	United Nation Agency for AIDS
X^2	:	Chi-Square test value
WHO	:	World Health Organization

GLOSSARY

Backward selection	:	Remove insignificant predictors from a model or variables sets one-by one until all variables are significant
Dildo	:	An artificial penis used for sexual simulation.
Commercial partner	:	Partner for sexual intercourse that involving trading (buying/ selling) or had something in return, either money or goods.
Generalized HIV epidemic	:	HIV prevalence is over 1% in the general population.
Informed consent	:	An agreement to the IBBS requirement include the data confidentiality that need to be signed by the *waria* who participate in the survey. The informed consent form is available on the first page of questionnaire and has to be signed before the survey begins.
Last sex	:	The latest sexual intercourse within 12 months.
Last bought sex	:	The latest sexual intercourse when the *waria* who participate in the survey were buying sex.
Last paid sex	:	The latest sexual intercourse when the *waria* who participate in the survey were selling sex.
Lokalisasi	:	a neighbourhood or area for sex transactions and meeting place of the key population ("red-light area"[1]).
Non-permanent-No-commercial partner	:	a non-permanent male sexual partner include partner for one night stands.
Permanent Partner	:	The primary or principal sexual partner of *waria*, or someone who usually called "hubby" by the *waria*.
Prevalence	:	"A proportion (not a rate) describing the fraction in a population with a certain characteristic (e.g. HIV Infection)"[2].
Sexual intercourse	:	vaginal or anal penetrative sex
Surveillance	:	"The systematic, on-going collection, analysis, interpretation and dissemination of (health) data to monitor the pattern of disease occurrence and potential in a community, in order to control and prevent disease in the community"[2].
Tanah Papua	:	Tanah Papua refers to the provinces of Papua and West Papua. The provinces are in the Papua Island, Eastern of Indonesia.
Waria	:	A man who is identified as a woman or expresses his gender identity as a woman[3] (transgender woman/ Male-to-female transgendered people). The term *waria* derived from Indonesian language of *wanita* (woman) and *pria* (man). The word of *waria* can be used both as one individual transgender woman and community/ group of transgender people.

ABSTRACT

Background: As one of most-at risk HIV population, the growing of *waria* (transgender) in Indonesia as well as their sexual partner, has a huge contribution to the increase of HIV prevalence in Indonesia. *Waria* are at high risk of getting HIV due to unprotected anal sex. Despite the complexities of gender identity, the behaviour change-promotion programs on *waria,* are highly relying on the individual knowledge and awareness of HIV-AIDS to enable *waria* adopt safer sex practice. This study aimed to assess the association between having knowledge on HIV-AIDS and the condoms use behaviour among *waria* from five urban cities in Indonesia.

Methods: This cross-sectional study utilised the existing database of Integrated Biological Behavioural Surveillance (IBBS) collected between February-April in 2015. Sample size was 1003 *waria*. The Phi and Chi-Square tests were used to assess association between *waria* with different knowledge of HIV and their condoms use behaviour in the last sex with the different sexual partners (p-value<0.05). Binary logistic regression analysis was performed in SPSS v.25 to identify the independent associated factors to condoms use behaviour among *waria*.

Result: The *waria* in five urban cities in Indonesia were knowledgeable about HIV-AIDS with 81,5% having moderate to a high-level comprehensive knowledge of HIV-AIDS. Nevertheless, the rates of condoms use among *waria* were relatively low and also varied based on the type of the partners. Overall, the bivariate analysis showed that, there was a significant association between well-informed *waria* and the condoms use behaviour in the last sex with their permanent partners (X^2=6.03; p=0.01), non-permanent-non-commercial partners (X^2=11.1-23.4; p<0.001) and commercial partners (X^2=9.5-15.7; p=0.002). However, the effect of the association was low and negligible (Phi 0.08-0.17). Despite the low effect of the associations, well-informed *waria* are 1.4 to 3.8 times more likely to use condoms compared to *waria* without knowledge of HIV-AIDS. Predictors of condoms use behaviour among *waria* were identified and varied depending on the partner type. “Get free condoms” and attitude that “always bring condoms” were found as the major associated factors to the condoms use behaviour among *waria* in Indonesia.

Conclusion and Recommendation: The assumption that, by providing information and education about HIV may lead to consistency of condoms use does not occur as expected. In order to enable *waria* make an effort on choosing low-risk sexual behaviour, an increase in health literacy that enables *waria* fill the gap of condoms use efforts; an increase of the positive demand pressure from inside the group as well as the availability of free condoms might be an intervention option.

1. INTRODUCTION

This study focused on the association between the *waria* with different knowledge of HIV-AIDS and their condoms use behaviour in sexual intercourse with different partners in Indonesia. The term "*waria"* in Indonesia refers to a man who is identified as a woman or expresses his gender identity as a woman, globally known as a transgender woman[(3)]. In order to illustrate the relevance of this study, background information was provided. Based on that, the study objectives and hypothesis were formulated.

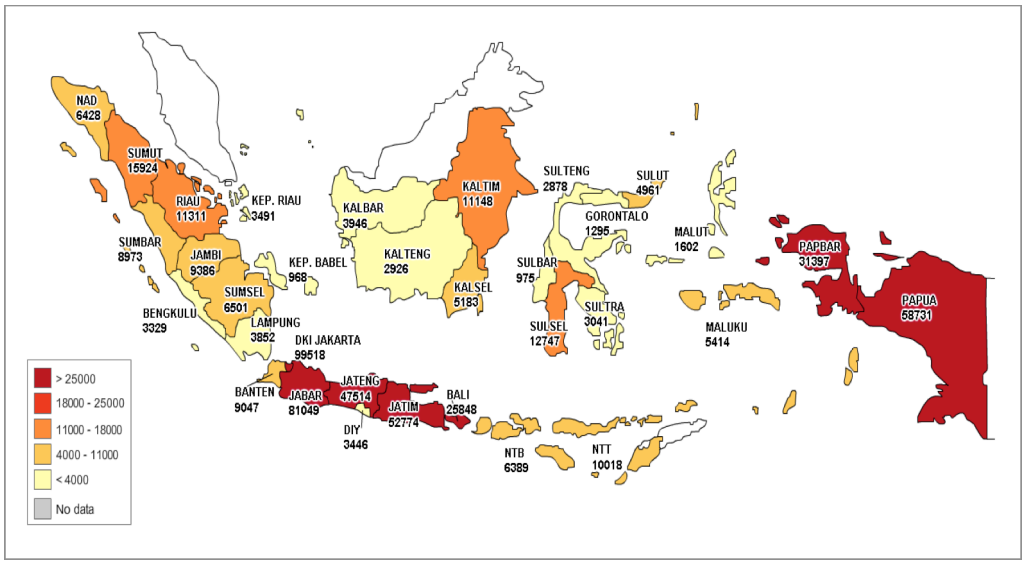
1.1 The current situation of HIV-AIDS epidemic in Indonesia.

The Republic of Indonesia is located in Southeast Asia with more than 13,000 islands. Indonesia is the fourth most populated nation in the world with over 250 million people living in 34 provinces and 511 districts[(4)]. As one of the middle-income countries, Indonesia has a gross national income per capita US$ 3,374 with poverty rate around 11.2% in 2015(4). The health expenditure has increased since the government ran national health insurance called *Jaminan Kesehatan Nasional*[(4)]. Life expectancy for females is 71 years and males 67. According to Indonesia health profile report 2017 cardiovascular disease was the major cause of death, but infectious disease like HIV/AIDS and TB still remains a significant part of the disease burden[(5)].

Indonesia is categorized as a country with concentrated HIV epidemic except for the provinces of Tanah Papua, generalized epidemic. The national HIV prevalence rate among people aged 15 years and above was 0.33% in 2015. Provincial estimates of HIV prevalence range from 0.1% to more than 2.0%, meanwhile in Tanah Papua estimated HIV prevalence 2.3%. There are 613,435 Indonesian estimated living with HIV (PLHIV) in 2012-2016. Most are located in Java, Papua and West Papua[(4)(6)].

Due to the comprehensive HIV-AIDS combating program launched in 2011, the AIDS cases and the death attributed to AIDS in Indonesia are declining. This means that more People are Living With HIV-AIDS (PLWHA) in the country are found and being treated. AIDS cases have declined from 10,146 cases in 2016 to 9,280 cases in 2017 with National AIDS case rate of 36.1%[(7)].

Figure 1. Estimation people living with HIV in Indonesia 2012-2016[8]



Source: the picture was adopting from HIV-AIDS Action Plan 2015-2019, MOH, p21.

Even though global rates of HIV cases declining by the increase of awareness[7], the HIV prevalence in Indonesia is still increasing and the new HIV cases are still uncontrolled. New infections in Indonesia are estimated to be around 49,000 cases per year. Actual reported HIV cases from 34 provinces in 2017 are 48.300 cases[7].

Clearly, sexual transmission is the primary mode of transmission in 2017. Heterosexuality is the major risk factor for HIV transmission; homosexuality runs second, followed by Injecting Drug User (IDU) and others. Based on the risk factor's data taken from the Indonesian HIV AIDS Information System (SIHA) year 2012 until 2017 in **table 1** below, the AIDS cases in all risk groups were declining except in the group of homosexual[7] which was increasing every year.

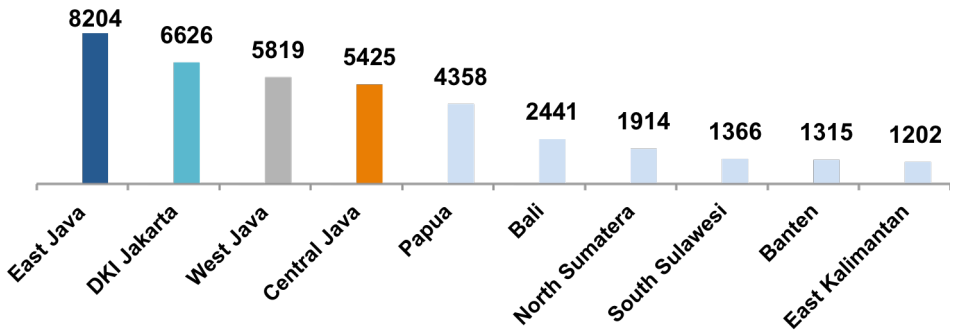
Table 1. Number of national AIDS cases based on risk factors[7]

Risk factors	2012	2013	2014	2015	2016	2017
Heterosexual	8595	9085	7509	7974	7574	6390
IDU	550	466	242	178	248	192
Homosexual	216	403	398	503	1542	1894
Perinatal	344	401	267	340	368	253
Bisexual	37	65	65	55	184	95
Transfusion	38	47	19	16	19	26
Others/ Unknown	1458	1747	254	149	211	430
Total	**11238**	**12214**	**8754**	**9215**	**10146**	**9280**

In addition, the ratio of AIDS cases between male and female in Indonesia were different. In 2017 out of total 9280 AIDS cases, 62% were male and 38% female. This is similar with the findings of a meta-analysis study on HIV prevalence in 15 countries in the worldwide in 2013, which showed male predominance in HIV with prevalence at least 50%. It ranges from 59% found in Brazil and Thailand to 75% in Peru[9].

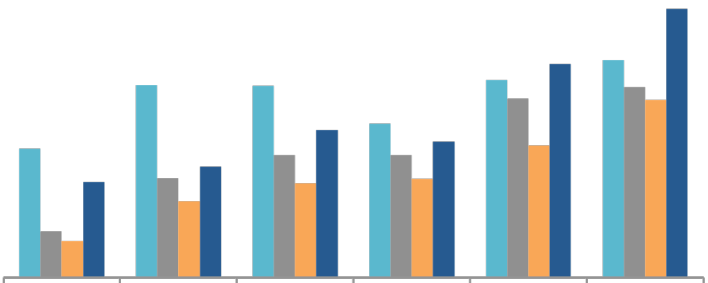
In the year 2017, from total 34 provinces, the Indonesian government has reported the top ten provinces with highest new HIV cases, and four of it were provinces in Java island; West Java, Central Java, East Java and the capital city of Jakarta[7].

Graph 1. The top ten provinces with highest new HIV cases in 2017[7]



Comparing data of new HIV cases in 2016 to 2017, the province of Central Java has the highest increase 26% and followed by East Java 20%[7]. Obviously, the increase of the HIV cases in Indonesia was inseparable from the HIV cases in Key Affecting Population (KAP) in particularly[8].

Graph 2. New HIV Cases increase in four provinces in Java[7]



	2012	2013	2014	2015	2016	2017
DKI jakarta	3926	5865	5851	4695	6019	6626
West Java	1416	3041	3740	3741	5466	5819
Central Java	1110	2322	2867	3005	4032	5425
East Java	2912	3391	4508	4155	6513	8204

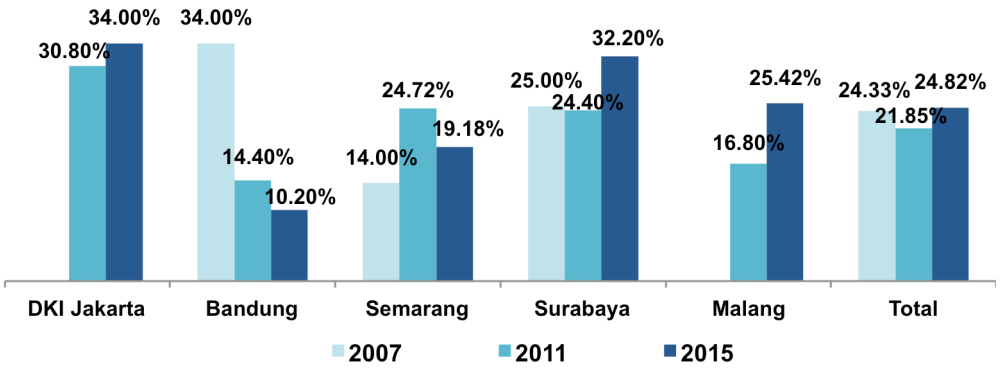
KAP in Indonesia refers to the most-at risk population for HIV and STIs. These populations are divided into Direct and Indirect Female Sex Workers (DFSW/ IFSW) and their clients, men who have sex with men (MSM), *waria* (transgender) and their clients, persons who inject drugs (PWID) and prisoner[10]. Since 2012, the HIV epidemic on the key populations in Indonesia has change and it impacts to the progress of the epidemic nationally. The changes from drugs inject syringe sharing transmission mode to unprotected anal sex among MSM and *waria* as principal control populations of HIV epidemic in Indonesia[6].

1.2 HIV-AIDS burden in the population of *waria* in Indonesia

As in many countries, male-to-female transgendered individuals are not widely recognized culturally and even not socially accepted[11][12]. Transgender have a high risk of HIV infection due to complex social determinants, high-risk sexual behaviour, lack knowledge of HIV and gender identities[13][14][15][16]. The transgender gap report by United Nation Agency for AIDS (UNAIDS) in 2014 estimated the HIV prevalence in worldwide around 19% and the probability for the transgender woman on getting HIV is 49 times higher than other adult population in the productive age group[17]. Prior study on the burden of HIV in transgender woman reported the prevalence among transgender was very high and it ranged from 17.7% to 48.8%[18].

In Indonesia, nationally, from time to time the HIV prevalence of *waria* never had been lower than 20%. The percentage of HIV prevalence among *waria* who is living in the urban area in Indonesia were higher than *waria* in rural area[4]. This similar percentage also found on the prevalence in global which is higher in transgender who live in urban area (6.5%) compare to rural area (2.6%)[19].

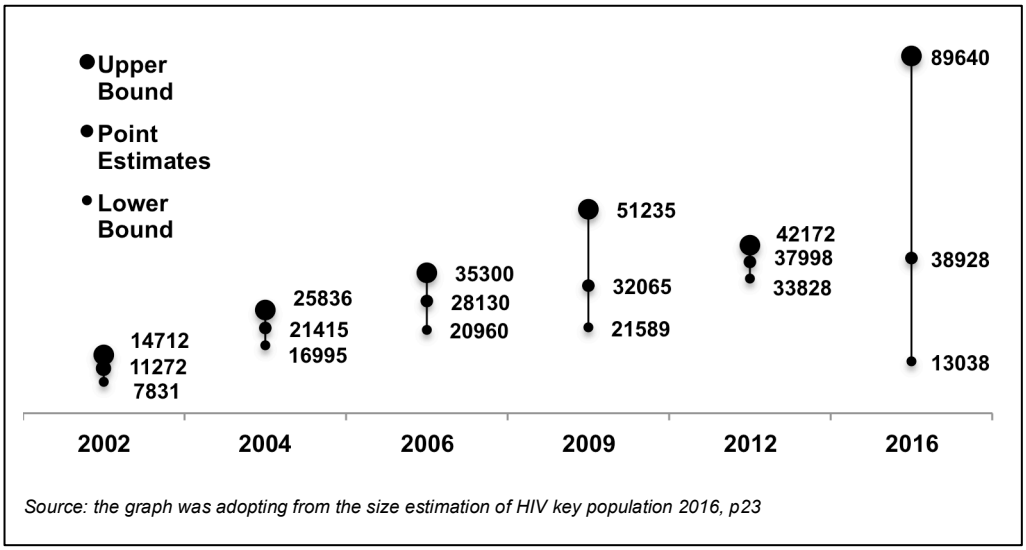
Graph 3. Trends HIV prevalence of *waria* in 5 urban cities in Indonesia[4]



Source: the graph was adopting from HIV Epidemiology review Indonesia p35.

As one of most-at risk HIV population, *waria* in Indonesia play a significant role in the transmission of HIV in line with the increase of the amount of the *waria* population and their groups. In 2015, the size population of *waria* in Indonesia was estimated 0.06% among male/female Indonesian age 15-49 years old. The percentage was lower then Thailand 0.3% and USA also 0.3% on the same year[10]. However, in 2016 the size population estimation in Indonesia has estimated there was a significant increase of the population of *waria*.

Graph 4. Estimation number of *waria* in Indonesia 2001 – 2016[10]



Source: the graph was adopting from the size estimation of HIV key population 2016, p23

The main driver of HIV transmission among *waria* in Indonesia is similar with MSM which is unprotected anal sex[20]. The transgender tend to engage in risky behaviours not only unprotected anal sex[21], but also drugs and alcohol use[22]. Due to unprotected anal sex behaviour, the sexually transmitted infectious (STI) prevalence among *waria* in Indonesia was also high. In 2015 the prevalence of Syphilis was 26.7%, Gonorrhoea 28.7% and Chlamydia 29.7%. With the high prevalence of STI's, *waria* are potentially to be infected and transmit HIV[1].

Several studies definitely have shown that the high HIV risk on transgender woman has relationship with their unprotected anal sex behaviour. Meanwhile the high STIs such as syphilis, Gonorrhoea and Chlamydia occurred because of low rate of condoms use among transgender[18][22][23]. A survey on 397 MSM and transgender in Lima Peru found that the unprotected anal sex has a strong association with the type of sexual partner[24].

Beside of unsafe sexual behaviour, *waria* also facing a lot of challenges in society. A cross-sectional survey on transgender found that transgender experience high rates of discrimination in many area such as healthcare, employment, housing[25], education and society[12]. The difficulty to accept the existence of *waria* in Indonesia's society has made this population being isolated and has limited access especially to employment. Most of *waria* in Indonesia are working as an entertainer, a beauticians and a sex workers[26].

Economically, mostly transgender were from the low economy background and this condition has leads them to engage as a commercial sex worker[26]. In line with the increase amount of *waria* and number of *waria* as a sex workers, the HIV prevalence will continue to be high above 20% without an adequate intervention as estimated[6].

1.3 HIV epidemic monitoring system on key population in Indonesia

Intervention program on *waria* is challenging due to their isolated and invisible status. Generally, *waria* is a migrated person from the rural area to big cities like Jakarta, Bandung and Surabaya. As a migrated person and socially unaccepted gender identity have made high dependency of a *waria* to their community. Usually, they found support and recognition provided by a key person called "*mami"* in their community. The *"mami"* also take a responsibility as a leader in the community[27][28] or a pimp in the community of sex workers *waria*.

Due to the migration of the population and in order to have a better HIV epidemiological analysis of KAP in general, the Indonesian government has implemented a comprehensive HIV surveillance system. Few studies showed that improving the HIV surveillance system will enable to track down the KAP and expanding the intervention especially in MSM and transgender [4][22].

The Integrated Behavioural Biological Surveillance is an important component of the surveillance system for the key population of HIV in Indonesia. Integrated into national HIV strategy and surveillance system, IBBS assessing the HIV burden, the risk factors and the prevention program coverage of HIV/AIDS and STI among KAP. It was performed every 2-3 years in selected provinces and districts[4]. The IBBS in the cities with the high HIV cases included Jakarta, Bandung, Semarang, Surabaya and Malang was performed in 2007, 2011, and 2015. The cross-sectional designed IBBS targeted the population of FWS, MSM, *waria*, PWID and high-risk men

(HRM)[1]. The national Technical Working Group (TWG) led by the Ministry of Health (MOH) carried out the nationwide IBBS. The participant's recruiter and interviewer were well trained. The KAPs mapping and size estimation data are two of IBBS supporting sources. The IBBS collected biological, demographic and behavioural data population by face-to-face interview in the place where the KAP gather such as bars, communities' club, saloons and prostitution areas. Demographic and behavioural data was collected from all the population surveyed with a questionnaire specific for targeted population. Meanwhile, the biological data were collected in two different way: venous blood samples and vaginal or anal smears[1].

The IBBS results were contributing as a baseline data to the HIV-AIDS health promotion program in Indonesia. At the national level, based on the IBBS data results the response to HIV/AIDS has been intensified since 2011. Five years National Strategic Action Plan (NSAP) was developed as a reference for the government and all stakeholders in response to HIV/AIDS in Indonesia. The action plan is also used as a tool to integrate the related program. Implementation of the action plan is reviewed periodically. The implementation of the action plan addressed in order to accelerate the "Getting to Zero" achievement. The achievement's indicator is zero new infection, zero mortality because of HIV/AIDS and zero stigma and discrimination[8]. The significant progress and high commitment were shown through the commitment of the government from national to district level[29]. Due to the unprotected anal sex among transgender in Indonesia, the consistency of condoms use still an indicator of the HIV intervention program succeed.

1.4 HIV education and condoms use interventions among *waria*

Generally, There are three levels of health prevention. The first level of prevention usually is promoting to control the transmission way such as supporting personal hygiene. The second level of prevention is controlling the progression of the diseases, meanwhile the third level of prevention is disease's harmful reduction[30]. In HIV prevention program, consistency of condoms use is categorized as one of the primary prevention[31]. The major goal of the consistency use of condoms is to avoid the manifestation of HIV. However, the consistent condoms use among transgender is known as a difficult negotiation. In 2011, a condoms use study in United State reported 68% transgender were more likely to have had unprotected sex with their permanent partner during past 3 months[32].

Nationally, there was no specific HIV-AIDS intervention program for *waria* in Indonesia. The designed interventions are targeted key population in general. The approach on key populations is focused on scaling up health care access for the population and developing the behavioural intervention to choose lower-risk sexual behaviour. The scaling up program by NAC has been translated into unsafe sex prevention program. The program is implemented through condoms promotion and increase knowledge of HIV among the KAP[29]. The program to increase the consistent use of condoms involved the pimps and the client of *waria* though two main strategies: public service promotion and prevention by a comprehensive program for gay, *waria* and MSM called GWL program[8].

The comprehensive GWL program is an intervention by maximising the networking population of gay, *waria* and MSA as a collaboration centre in HIV-related activities. The activities included program planning, implementation, evaluation and research[8]. Moreover, the program also enables the populations to access more information and basic safe sex package not only in health care facilities but also through the social media, internet access, and outreach workers[8]. The basic safe sex package was contents of free condoms, brochures or books containing HIV-related information. This package delivery makes sure that the targeted population could gain information as much as possible. The basic safe sex package delivery mainly targeted *"lokalisasi"* and hotspot. A *"lokalisasi"* or hotspot refers to a neighbourhood for sex transactions and meeting places of the key population[6].

Unfortunately, the increase of the conservative element attributed with radicalism idealism in society recently had triggered to the "*lokalisasi*" dismissed by Ministry of Social Affair. The dismissal has caused movement of sex workers included *waria* from localized to untraceable places such as in boarding house or received sex order by online. This radicalism and conservative element action also triggered the penalty or punishment and violence against *waria* and the gay man. This action affects the populations' outreach in order to deliver free condoms and comprehensive information related to HIV and STIs[6].

Nevertheless, due to the complexities respond and violence on *waria* in society and the outreach challenges in Indonesia, the prevention program are highly relies on the personal knowledge and awareness of the population. The same pattern of intervention strategy has been implemented for years, with the assumption that, the

increase of individual HIV-AIDS knowledge will automatically be able to increase the rate of condoms use among *waria*.

A few literature and study results are agreed that health knowledge is essential because it is the first step to changing behaviour[33][34][35]. Research on the relationship of health education, health behaviour and practice has been increase in years. Several theories have been proposed as a reference for the behavioural change-related programme. Such as Health belief model, social cognitive theory, stages of change model[36], and the HIV specific model named AIDS risk reduction model[33]. Many intervention programs also developed based on those theories and had been examined.

A study on school student in Fako Cameron has revealed that the students with the medium to high level of HIV-AIDS knowledge were likely to have positive attitudes on their sexual behaviour[37]. However, in the other study done in the same area in Fako Cameron has shown that from 1.120 youths which is 81% had a good knowledge of HIV-AIDS and knowledge of condoms as prevention, 72.7% of them had reported never using condoms[38]. Meanwhile, a critical review study found that knowledge of HIV-AIDS in individual transgender could hardly change the behaviour of condoms use among the population[39].

From the previous study results, undoubtedly, the assumption that by providing information and education about HIV is expected to lead to behavioural change is an uncertain pattern. In addition, despite the program to increase the HIV-AIDS among *waria* were implemented, the Indonesia's HIV epidemic review in 2016 has summarized that *waria* at a high HIV burden have an uncontrolled new HIV cases and the HIV prevalence is still high[4]. At worst, this state of affair keeps growing in line with the growing of *waria*'s population as well as their clients who mostly are MSM.

This fact has brought up a question that not many evidence-based answers can be found. Is the individual HIV-AIDS knowledge and perception functioning in leading the *waria* in Indonesia to use the condoms consistently despite the challenges? Is knowledge of HIV-AIDS itself enough to be the reason for the population of *waria* to adopt a safer sex practice? Or is there any associated factors are involved? In order to answer those questions, there is a need to have a better understanding on the association between the knowledge of HIV-AIDS and the condoms use behaviour

among *waria* in Indonesia. This study that conducted to examine the association between the knowledge of HIV-AIDS and the condoms use behaviour among *waria* also expected to contribute to the HIV intervention program development for population of *waria* in the future.

Furthermore, in order to be able to generalise the results of the study, nationwide collected data were used which is IBBS 2015. This post hoc evaluation utilised the existing IBBS data might also contributed to the 2015 IBBS result evaluations in several ways. Such as providing the depth evaluations on condoms use behaviour among *waria* with different types of partner and specific context. Moreover it extends and supports the previous work of MOH Republic of Indonesia on HIV interventions review 2017, specifically providing the statistically evidence of associated factors to the condoms use behaviour among *waria* in different sexual intercourse context.

2. RESEARCH QUESTION, OBJECTIVES, HYPOTHESIS AND SCOPE OF STUDY

2.1 Research Question

According to the research question, "Is the knowledge of HIV-AIDS prevention associated with the consistency of condoms use among *waria* (transgender) in Indonesia?" this study was established with three objectives.

2.2 Study objectives

The objectives of this study are:

- To determine the HIV-AIDS knowledge and perception about HIV-AIDS in the population of *waria* in five cities in Indonesia.
- To examine the association between *waria* with knowledge of HIV-AIDS and their condoms use behaviour.
- To identify the gap exist and the associated factors of condoms use behaviour among *waria* in Indonesia.

2.3 Hypothesis

The null hypothesis (H_0): There is no association between *waria* who have knowledge of HIV with their condoms use behaviour.

The alternative hypothesis (H_a): The *waria* with knowledge of HIV-AIDS are more likely to use condoms than those who did not have knowledge of HIV-AIDS.

2.4 Scope of this study

This study were focussed on examined the association between *waria* with knowledge of HIV-AIDS and their condoms use behaviour in the last sexual intercourse. Source of data was IBBS 2015 conducted in five cities in Indonesia. Well-informed *waria* was measured based on rate of *waria* who having different knowledge of HIV-AIDS among *waria*. Meanwhile, the condoms use behaviour measured by condoms use among *waria* in the last sexual intercourse with different partner type in the specific sexual intercourse context. The associated factors to condoms use were identified through the multivariate logistic regression analysis on the chosen predictors to condoms use among *waria*. The previous studies related to condoms use behaviour were searched to support this study. Sexual behaviour related books were also collected together with published documents from the Ministry of health of Indonesia and from other international organizations, mainly WHO and UNAIDS.

3 METHODOLOGY

3.1 Data from Integrated Behavioural Biological Surveillance (IBBS) 2015.

This study utilised only IBBS data population of *waria* in five cities, which are Jakarta, Bandung, Semarang, Surabaya and Malang. Conducted in four provinces in Java Island, the 2015 IBBS data were collected between February-April in 2015. The IBBS was questionnaires based survey through face-to-face interview conducted by trained interviewer. A pilot project was conducted prior to survey. The questionnaires of IBBS 2015 were development and validate by TWG of IBBS assisted by international consultant from World Health Organization (WHO) and UNAIDS. The population validity process was included in the population mapping process. The KAP's mapping data were collected from 72 to 114 districts in Indonesia (comprising 14% to 22% of total 511 districts) done partnership between MOH and National Aids Commission (NAC)[8].

The *waria* who participated in the IBBS 2015 were selected by the definition of *waria* in national surveillance system, a person who is a biological males age 15 and more than 15 known as a transgender woman, recognised by their peer, *'mami'* or HIV-STI-related local Non-governmental Organization (NGO) and live in the city of survey for least one month[1]. Participants should be able to speak in *bahasa Indonesia* and participate voluntarily in the survey. Survey sites of IBBS 2015 in 5

cities were selected from pre-listed locations includes bars, cafes, hair salons, organizations and other places where *waria* might gather.

A two-stages Probability Proportional Sampling (PPS) was done in sampling based on the estimated number of *waria*[1]. Total planned sampling result in 5 cities was 1250 *waria*. However the actual recruited participants were 1003, which is 80.2% of the targeted sample[21].

Table 2. Number sample of *waria* in five cities in Indonesia[21]

No.	Province	City	Number of Sample (person)
1	DKI Jakarta	Jakarta	250
2	West Java	Bandung	250
3	Central Java	Semarang	73
4	East Java	Surabaya	250
5	East Java	Malang	180
		TOTAL	**1003**

All respondents' private information of IBBS 2015 was protected confidentially. Each respondent was recognised by a code. Informed concerns were collected from every participant including the interviewer. In return to completing the questionnaire, each respondent received a souvenir costing Rp.50.000 (±3.5 USD, 1$ ∞Rp.14.200).

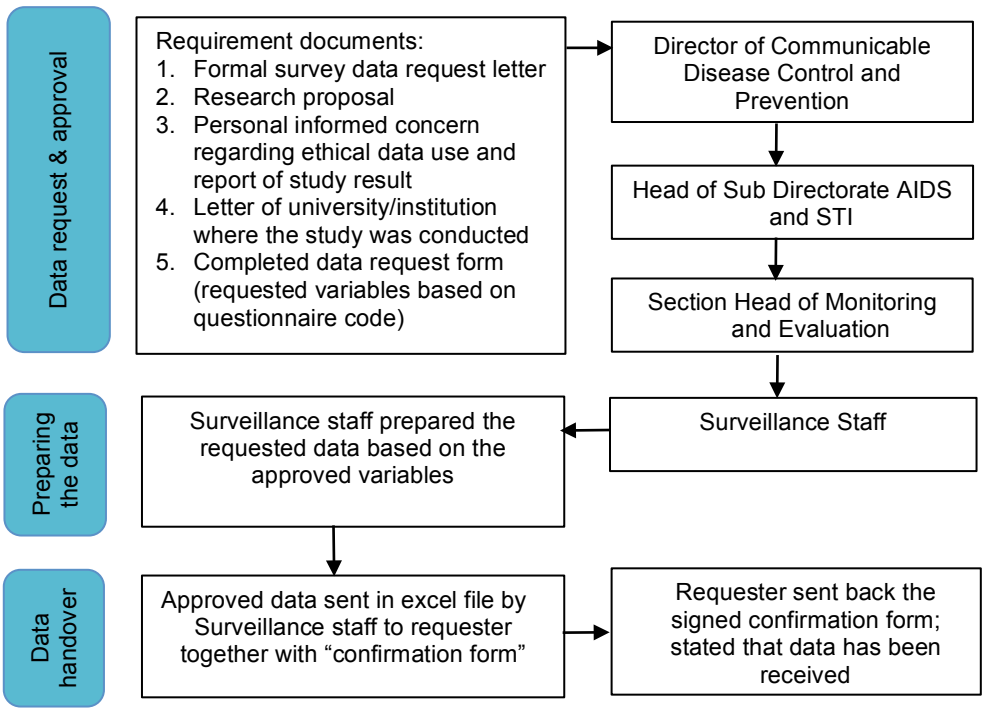
3.2 Access to data of IBBS 2015

The IBBS data belong to the MOH of Indonesia. The data organized and managed by surveillance team in Sub Directorate AIDS and STI, part of Directorate of Communicable Disease Control and Prevention. The approval process was needed in order to obtain the data.

A Formal letter sent to the Director of Communicable Disease Control and Prevention of Ministry of Health of Indonesia on 17 July 2018, and was followed by a verbal explanation regarding the purpose of the data request. In line with the study proposal, the request letter needed to mention clearly: 1) personal identity of requester, 2) the objective or purpose of the data requested, 3) how the data will be used, expected publication and reader. The approval processes started from The Director of Communicable Diseases Control and Prevention to The Head of Sub Directorate AIDS and STI and then The Section Head of Monitoring and Evaluation of Sub Directorate AIDS and STI. Final approved letter were sent to the surveillance

staff to prepare the requested data. Requested data were received in excel file. The whole process took two months in total. For every changes or additional data request, the same processes were carried out. The procedures as shown on the **figure 2** below:

Figure 2. IBBS data request procedures



There were 226 variables based on the questionnaire for population of *waria* and 126 variables related to the study has been requested and has been approved.

3.3 Data Analysis

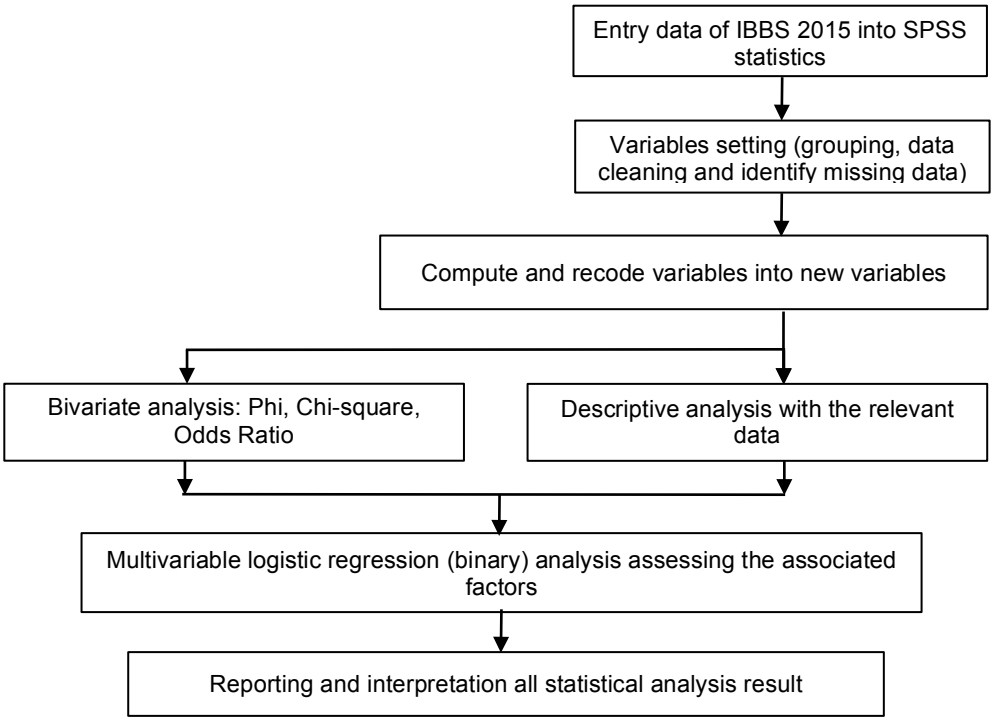
The software of SPSS v.25 was used for the analysis. Total 56 out of 126 variables were included in the analysis due to the relevancy of the variables to the research question. The statistical analysis process was following the algorithm as shown on the **figure 3**. The data analysis was start with the data entry.

Data entry: entry the 56 selected variables into SPSS dataset in wide format ("each row represents data from one respondent and each column represents a variable")[40]. Then followed by variables setting and grouping.

Variables setting: grouping has been done based on demographic data, knowledge of HIV-AIDS and condoms use behaviour among *waria*. Data grouping followed by data cleaning of the incorrect data entry or data code (key punch error) and identify missing data (missing data were left empty).

Through this process some variables were eliminated, such as variable with too many missing data.

Figure 3. Algorithm of the statistical analysis



Compute and recode variables into the new variable: most of the variables were originally consists of 4 categories, which were: ”yes” code 1, ”No” code 2, “Don’t remember” code 8 and “decline to answer” code 9. Recoding process was performed to create the dichotomous variable by coding the category of “don’t remember” and “decline to answer” into “missing system”. Recoding process also done in order to classified the respondents based on the age range and educational background level. Meanwhile, compute variables were performed to create new variable such as variable of “*waria* with basic knowledge of HIV-AIDS”.

Detail variables are shown below:

1. **Demographic and characteristic data**

Link to the IBBS 2015 questionnaire population of *waria* block 1, 3, 4 and 9	**Block 1 : Venue** 101 Province; 102 City; 108 condoms access of respondent’s living or working area **Block 3 : Characteristics** 301 Age; 302 Education level; 303 Marital status; 307 Pimp status; 308 Source of Income **Block 4 : Knowledge** 401 Have received information on HIV-AIDS prior to this interview in the last 12 months 402 Sources of HIV-AIDS information 402a Radio; 402b TV; 402d Poster/leaflet; 402e Health worker; and 402m internet.

	Block 9: Program Coverage 966d get information on condoms use with dildo simulation 966e get information on condoms use negotiation 968 Free condoms access

2. HIV-AIDS knowledge and perception

2.1 Basic knowledge of HIV-AIDS	
Link to the IBBS 2015 questionnaire population of *waria* on the block 4, HIV-AIDS knowledge. The answer of the question were coding 1 for "Yes" and 2 for "No" in the SPSS dataset	Number of respondent who has basic understanding of HIV-AIDS (answer 5 question as requested). The five questions are determined according to indicators of Millennium Development Goals for knowledge of HIV[(1)] Respondent were categorised having basic knowledge of HIV-AIDS if they answer the 5 basic questions correctly. Respondents have to answer all 5 questions in the following way: 403 = No (2) AND 404 = Yes (1) AND 405 = Yes (1) AND 406 = No (2) AND 407 = No (2). This variable compute from 5 existing variables which were: 403 Can you tell if someone is infected with HIV simply by looking at the person? 404 Can people reduce the risk of getting HIV by using condoms properly every time they have sex? 405 Can being faithful to each other reduce the risk of getting HIV? 406 Can people be infected with HIV through a mosquito / insects bite? 407 Can people get HIV by sharing eating or drinking utensils with person already infected with HIV?

2.2 Knowledge of personal risk	
Link to the IBBS 2015 questionnaire *waria* block 4	Respondent who answer: 421 = yes (code as 1 in dataset) 421: Do you think that you are at risk of getting HIV? Reason at risk on 422a [because ever used drugs], 422b [ever had sex], 422c [because ever received blood transfusion].

2.3 Knowledge Condoms use as prevention	
Link to the IBBS 2015 questionnaire *waria* block 4	Respondent who answer the question 404 = yes (code as 1 in dataset) 404 Can people reduce the risk of getting HIV by using condoms properly every time they have sex?

2.4 Knowledge of *waria*-related transmission mode	
Link to the IBBS 2015 questionnaire population of *waria* block 4	Respondent who answer the question: 413 = yes (code as 1); 414 = yes (code as 1). 413 Can people reduce the risk of getting HIV by not having anal sex? 414 Can having less sexual partners reduce the risk of HIV?

2.5 *Waria* with information about condoms and condoms use negotiation	
Link to the IBBS 2015 questionnaire *waria* block 9	Respondent who answer the question 966e = yes (code as 1) 9664 ever received condoms-related information with simulation 966e ever received information about condoms use negotiation

2.6 Comprehensive Knowledge level among *waria*	
Link to the IBBS 2015 questionnaire population of *waria* block 4: HIV-AIDS knowledge The answer of the question were coding 1 for "Yes" and 2 for "No" in the SPSS dataset	The percentage scores were calculated based on the total number of correct answers from each respondent. Total 12 questions which need to be answered as followed: 403= No; 404= Yes; 405= Yes; 406= No; 407= No; 408= No; 409= No; 410= Yes; 411= Yes; 412= Yes; 413= Yes; 414= Yes. The mean of score were used to assess the level of comprehensive knowledge based on the category [37][38]: "Low" for respondents scored ≤ 50% "Moderate" for respondents scored 51% – 74% "High" for respondents scores ≥ 75%

2.7 *Waria* who exposed to activities related to HIV-AIDS prevention promotion program	
Link to the IBBS 2015 questionnaire of *waria* block 9: Program coverage	Respondent who answer "yes" (code as 1) on the following question: 959 In the last 12 months have you ever attend meeting or discussion with health worker on preventing HIV and STI transmission? 961 In last 12 months did you attend an event or sport event that discussed the issue preventing HIV? 963 In last 12 months have you ever received printed material on HIV prevention? 972 Did you discuss as a group on the risk of HIV and the preventing ways?

2.8 *Waria* with positive attitude that always bring condoms	
Link to the IBBS 2015 questionnaire of waria block 5	Respondent who answer the question 516 = yes (code as 1) The question is: 516 Do you usually bring condoms?

3. **Condoms use behaviour among *waria***

The variables of condoms use in this study using the condoms use in the "last sex". This was aimed to avoid missing data or no response from participants who did not have sexual intercourse in the last week or last month.

Condoms use in the last sex	
Link to the IBBS 2015 questionnaire of *waria* block 6: Condoms use behaviour	Respondent's condoms use behaviour were classified into: 610 Use condoms in the last time had sexual intercourse with permanent partner. 615 Use condoms in the last anal sex with non-permanent-non-commercial partner 665 Use condoms in the last sex party 628 Use condoms in the last bought sex (when buy sex) 649 Use condoms the last paid sex (when sell sex)

4. **Predictors of associated factors**

Link to the IBBS 2015 questionnaire of *waria* block 1, 3, 5, 6, 7 and 9	Potential predictive associated factors were: 1. Demography data: 301 Age, 302 educational level and 303 marital status 2. 108 Easy condoms access at living or working area 3. 603 Condoms use in the first sex 4. 628 Condoms breakage experience 5. 968 Get free condoms 6. 701 Alcohol use before sex 7. 702 Drugs use before sex. 8. 516 Always bring condoms

Descriptive analysis: the descriptive statistics include: frequencies and percentages were used to provide simple summaries about the sample. The summary of demographic and characteristic data such as: age, marital status, educational background and the percentages or rates of HIV-AIDS knowledge and the percentages of condoms use among *waria*.

Bivariate analysis: cross-tabulation Chi-square analysis based measurement completed with Phi coefficient and Odd Ratio (OR) were performed to measure the association between two dichotomous variables.

The variables that were included in the cross-tabulation bivariate analysis were categorised into five different knowledge of HIV-AIDS among respondents and condoms use behaviour with five different types of sexual partners as shown below:

Types of knowledge:	Types of sexual partner in specific context:
1) Basic knowledge of HIV-AIDS, 2) Knowledge of personal risk of getting HIV, 3) Knowledge of condoms use as prevention, 4) Knowledge of reduce the risk by avoid anal sex 5) Knowledge of reduce the risk by limits number of partner	1) Condoms use in the last sex with permanent partner, 2) Condoms use in the last sex with non-permanent-non-commercial partners, 3) Condoms use in the last sex party, 4) Condoms use with commercial partners in the last bought sex, and 5) Condoms use with commercial partners in the last paid sex.

The results of bivariate analysis were to determine whether the association was exist and was statistically significant, to identify the strength (effect size) of the association and the direction of the association.

Multivariable logistic regression (binary). Logistic regression analysis using SPSS v.25 were performed to predict the associated factors that contribute to the condoms use among *waria* in the last sex with different type of partners. Logistic regression analysis process divided into 4 steps:

Step 1) The predictor variables were selected based on univariate and bivariate analysis results on 10 potential predictive variables. The 10 potential predictive variables were presented on the **table 3**. The cut-off *p*-value for variables selection was 0.25(41). There were no outliers detected using boxplot in SPSS on all potential predictive variables. The univariate and bivariate descriptive results were as shown on the table below.

Table 3 : Univariate and bivariate analysis results on the potential predictors

Code	Variables	S.E	Permanent partners		Non-permanent-non-commercial partners		In the last sex party	
			Phi	*p*-value	Phi	*p*-value	Phi	*p*-value
1	Age	0.026	**0.11**	**0.02**	0.05	0.53	0.14	0.47
2	Education	0.027	**0.07**	**0.19**	**0.11**	**0.05**	**0.26**	**0.04**
3	Marital status	0.008	-0.002	0.95	**0.10**	**0.01**	-0.03	0.74
4	Get free condoms	0.013	**0.09**	**0.02**	**0.17**	**<0.001**	**0.28**	**0.006**
5	Easy condoms access	0.014	0.03	0.38	0.02	0.60	**-0.13**	**0.15**
6	Condoms use in the first sex	0.011	**0.11**	**<0.001**	**0.10**	**0.03**	**0,23**	**0.01**
7	Condoms breakage experience	0.016	0.01	0.76	0.04	0.30	**0.15**	**0.13**
8	Alcohol use before sex	0.015	-0.01	0.76	0.003	0.94	0.04	0.63
9	Drugs use before sex	0.008	0.01	0.66	**0.04**	**0.22**	-0.4	0.66
10	Always bring condoms	0.014	0.02	0.56	**0.22**	**<0.001**	**0.43**	**<0.001**

Code	Variables	S.E	In the last bought sex		In the last paid sex	
			Phi	*p*-value	Phi	*p*-value
1	Age	0.026	**0.13**	**0.02**	**0.03**	**0.03**
2	Education	0.027	**0.16**	**0.006**	**0.16**	**0.16**
3	Marital status	0.008	-0.002	0.97	**<0.001**	**<0.001**
4	Get free condoms	0.013	0.05	0,32	**0.002**	**0.002**
5	Easy condoms access	0.014	**-0.06**	**0.14**	0.33	0.33
6	Condoms use in the first sex	0.011	0.01	0.81	0.42	0.42
7	Condoms breakage experience	0.016	0.03	0.53	**0.005**	**0.005**
8	Alcohol use before sex	0.015	**-0.07**	**0.12**	0.86	0.86
9	Drugs use before sex	0.008	**0.07**	**0.11**	**0.6**	**0.6**
10	Always bring condoms	0.014	-0.04	0.34	**<0.001**	**<0.001**

Note: Standard Deviation (SD) of all potential variables was less then 5% from its Mean.

Step 2) Model selection. The chosen predictors from each dependent group (types of sexual partner) were set into different possible models or variables sets of predictors. Models were built using backward elimination approach, which start with

the complete variables as the first model and then remove the insignificant models one by one until all the variables were significant. The penalized-likelihood criteria, Akaike Information Criterion (AIC) were used to choose the better-fit set of variables or model. Model with the lowest AIC value considered the best models. AIC of every models were calculated manually.

AIC calculation formula[40]:

AIC = -2*(Log-likelihood) + 2*K	K = number of covariate/variables

Models selection based on backward elimination approach:

Predictors of condoms use in sexual intercourse with permanent partner:

The chosen variables for this group from **table 3** were: **Age** code as 1; **Education** code as 2; **Get free condoms** code as 4; and **Condoms use in the first sex** code as 6. There were 15 possible combinations of variables. The models and its AIS value were shown below. The first model with 4 variables has the lowest AIC. So, model 1 was chosen based on AIC.

Model	Variables	AIC
1	**1, 2, 4, 6**	**1680.4**
2	2, 4, 6	1683.1
3	1, 4, 6	1705.6
4	1, 2, 4	1695.6
5	1, 2, 6	2259.8

Model	Variables	AIC
6	1, 2	2284.4
7	1, 4	1720.6
8	1, 6	2287.6
9	2, 4	1700.6
10	2, 6	2262.8

Model	Variables	AIC
11	4, 6	1708.6
12	1	2309.4
13	2	2289.8
14	4	1725.9
15	6	2290.6

Predictor of condoms use in sexual intercourse with non-permanent-non-commercial partner:

Six chosen variables for this group from **table 3** were: **education** code as 2; **marital status** (code 3); **get free condoms** (code 4); and **condoms use in the first sex** (code 6); **drug use before sex** (code 9) and **always bring condoms** (code 10). The chosen model based on AIC was model 3 (4 predictors). Only 15 models with low AIC were displays below:

Model	Variables	AIC
1	2,3,4,6,9,10	1492.3
2	2, 3, 4, 6,10	1491.3
3	**2, 4, 6, 10**	**1491.1**
4	3, 4, 6,10	1512.0
5	2, 3, 6, 9	1512.0

Model	Variables	AIC
6	2, 4, 10	1492.6
7	4, 6, 10	1511.9
8	4, 6	1556.0
9	2, 6	2130.1
10	2, 4	1552.5

Model	Variables	AIC
11	6, 10	2056.3
12	9, 10	2067.4
13	4, 10	1512.7
14	4	1568.1
15	10	2073.6

Predictors of condoms use in the sex party:

The chosen variables for this group from **table 3** were: **education** code as 2; **get free condoms** (code 4); **Easy condoms access** (code 5); **condoms use in the first sex** (code 6); **condoms breakage experience** (code 7) and **always bring**

condoms (code 10). The chosen model based on AIC was model 6 (4 variables). The 15 models with low AIC were display:

Model	Variables	AIC
1	**2,4,5,6,7,10**	**129.2**
2	2,4,5,6,10	167.1
3	2, 4, 6, 10	174.3
4	2, 5, 6, 10	212.4
5	5, 6, 7,10	173.7

Model	Variables	AIC
6	4, 5, 6,10	171.9
7	2, 5, 10	219.5
8	2, 4, 5	208.1
9	4, 5, 10	176.1
10	4, 6,10	177.8

Model	Variables	AIC
11	4, 5	225.1
12	10, 4	183.9
13	10, 5	230.7
14	4	213.5
15	10	245.3

Predictor of condoms use in sexual intercourse with commercial partner when buying sex:

The chosen variables for this group from **table 3** were: **age** (code 1); **education (**code 2); **easy condoms access** (code 5); **alcohol use before sex** (code 8); and **drugs use before sex** (code 9). The chosen model was model 5. Only 15 models with low AIC were displays below:

Model	Variables	AIC
1	1, 2, 5, 8,9	1171.4
2	2, 5, 8, 9	1188.1
3	1, 5, 8, 9	1190.1
4	1, 2, 5, 8,	1176.8
5	**1, 2, 8, 9**	**1171.3**

Model	Variables	AIC
6	2, 5,9	1194.9
7	2, 5, 8	1189.7
8	1, 2, 9	1172.9
9	1, 2, 5	1176.5
10	2, 8, 9	1192.3

Model	Variables	AIC
11	8. 9	1216.4
12	2, 8	1199.2
13	2, 9	1192.9
14	1, 2	1177.0
15	2	1206.9

Predictor of condoms use in sexual intercourse with commercial partner when selling sex:

The chosen variables for this group from **table 3** were 7 variables: **age** (code 1); **education (**code 2); **marital status** (code 3); **get free condoms** (code 4); **condoms breakage experience** (code 7); **drug use before sex** (code 9) and **always bring condoms** (code 10). The chosen model with lowest AIC was model 3 (5 variables). Only 15 models with low AIC were displays below.

Model	Variables	AIC
1	1,2,3,4,7,9,10	936,5
2	1,2,3,4,7,10	934.7
3	**2, 3, 4,7,10**	**929.4**
4	3, 4, 7,9,10	934.2
5	3, 4, 7, 10	932.2

Model	Variables	AIC
6	3, 7, 9,10	933.1
7	2, 3, 7, 9	976.8
8	3, 4, 7, 9	931.4
9	3, 7, 10	930.7
10	3, 4, 7	981.4

Model	Variables	AIC
11	2, 3, 7	1395.0
12	3, 4, 9	1152.6
13	3, 4	1152.2
14	3, 7	1401.4
15	4, 7	1163.4

To avoid over fitting led by AIC, cross validation were done by evaluate model in various setting using SPSS.

Step 3) Interaction checks were done between the variables in the chosen model using dummy variable compute from the existing variables. Restricting the number of variables as well as avoiding using the highly correlated variables were applied as the final consideration for models in order to avoid multicollinearity and the difficulties in assessing the individual importance of predictors(40)(42). The final variables set from all groups are shown in **table 4** below.

Table 4 : Final variables set of associated factors for logistic regression analysis

Predictors	Permanent partners	Non-permanent-non-commercial	In the last sex party	In the last bought sex	In the last paid sex
	3 variables: education, use condoms on the first sex and get free condoms	4 variables: Education, get free condoms, use condoms at first sex and always bring condoms	3 variables: Get free condoms, condoms use at first sex, always bring condoms	3 variables: Education, alcohol use before sex and drug use before sex	5 variables: Education, marital status, Get free condoms, condoms breakage experience, always bring condoms
AIC	1683.1	1491.1	177.81	1192.34	929.36
Nagelkerte R^2 / Cox-Snell R^2	0.054 / 0.038	0.095 / 0.069	0.279 / 0.186	0.067 / 0.044	0.090 / 0.056
B constant or null model	B = 0.97 S.E = 0.08; *P*<0.001	B = -0.52 S.E = 0.085; *P*<0.001	B = -1.15 S.E = 0.239; *P*<0.001	B = 1.25 S.E = 0.10; *P* <0.001	B = -1.43 S.E = 0.11; *P* = <0.001
Model coefficients	X^2 = 25.81; *P*<0.001	X^2 = 42.821; *P*<0.001	X^2 = 19.80; *P*<0.001	X^2 = 18.55; *P*=0.005	X^2 = 29.0; *P*<0.001

Step 4) Regression binary logistic analysis on the chosen model**.**

Reporting and Interpretation all statistical analysis result.

The output of crosstab bivariate analysis; the Chi-square value (X^2), Phi coefficient (ϕ), and Odds Ratio (OR) were used to measure the existence of an association between two binary variables, the strength or size of the association effect and the direction of an association. Statistical significant level of an association *p*-value <0.05 and confidence interval (CI 95%).

Phi coefficient Interpretation[43]:

Values of Phi	Appropriate Phrases	Values of Phi	Appropriate Phrases
+ 0.70 or higher	Very strong (+) association	- 0.01 to + 0.09	Negligible (-) association
+ 0.50 to + 0.69	Substantial (+) association	- 0.10 to + 0.29	Low (-) association
+ 0.30 to + 0.49	Moderate (+) association	- 0.30 to + 0.49	Moderate (-) association
+ 0.10 to + 0.29	Low (+) association	- 0.50 to + 0.69	Substantial (-) association
+ 0.01 to + 0.09	Negligible (+) association	- 0.70 or higher	Very strong (-) association
0.00	No association		

Meanwhile the output of binary logistic regression reported significant associated factors by *p*-value <0.05 and the effect sizes by odds ratios = Exp(B) with lower and upper point (CI 95%). Included in the report also B value on the constant or null model, Pseudo R (Nagelkerke and Cox-Snell), R^2 (Hosmer-lemeshow) and Chi-square value (X^2).

4 RESULTS

4.1 Descriptive analysis results

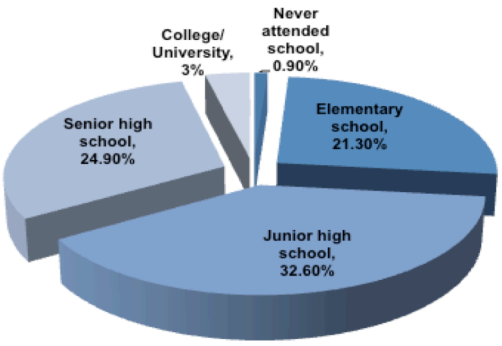
4.1.1 Characteristic of *waria* who participated in the survey

The five survey cities are located in 4 provinces in Java Island, the most populated island in Indonesia. Characteristic of 1003 *waria* who took part in the IBBS 2015 survey from the cities of Jakarta, Bandung, Semarang, Surabaya and Malang are reported in **table 5**. The average age of participants is 35 years old with 60% above 30 (age ranges from 15 to 75 years old). Almost all of them experienced school; only 0.9% never attended school. Out of the total participants, 57.5% at least completed high school (junior and senior high school). The majority of them were single (92.4%) and less than 8% ever been married. Selling sex is quite popular among *waria*. There were 40.9% participants who admitted 'sex work' as their main source of income. About 9.8% of them even ruling as a pimp or in local language called *"Mami"*.

Table 5. Characteristic of *waria* who participated in the survey IBBS 2015

	JKT	BDG	SMG	SBY	MLG	All *waria*
Age						
15-19 years	1.6%	3.6%	1.4%	0.4%	3.9%	2.19%
20-24 years	18.0%	19.6%	5.5%	10.8%	13.9%	15.0%
25-29 years	17.6%	23.2%	16.4%	19.6%	14.4%	18.8%
>30 years	62.8%	19.6%	76.7%	69.2%	67.8%	64.0%
Educational background						
Never attended school	1.2%	0.0%	6.8%	2.0%	0.6%	0.9%
Elementary school (SD)	2.6%	18.4%	17.8%	20.0%	21.7%	21.3%
Junior High School (SMP)	33.2%	42.8%	37.0%	27.2%	33.3%	32.6%
Senior High School (SMU)	37.6%	36.4%	34.2%	46.8%	37.2%	24.9%
College / University	2.0%	2.4%	10.9%	4.0%	6.7%	3.0%
Decline to answer	-	-	-	-	0.6%	0.1%
Marital status						
Single (never married)	88%	94.8%	94.5%	94.0%	92.9%	92.2%
Married	7.2%	2.8%	2.7%	4.0%	4.9%	2.2%
Ever married/ widower	4.8%	2.4%	2.7%	2.0%	2.2%	5.6%
Main sources of income						
Unemployed	2.0%	2.0%	2.7%	0.0%	0.6%	1.3%
Employee salary	6.0%	19.6%	12.3%	8.4%	3.9%	10.1%
Freelance work	26.8%	11.6%	6.8%	5.2%	15.6%	14.2%
Hair salon / massage parlour workers	12.8%	20.0%	27.4%	17.2%	45.0%	22.5%
Sell sex	32.4%	38.4%	45.4%	57.6%	31.1%	40.9%
Others	20.0%	8.4%	5.5%	11.6%	3.9%	11.1%
Pimp Status						
Pimp	7.6%	14.8%	9.6%	8.4%	7.8%	9.8%
Not a Pimp	92.4%	85.4%	90.4%	91.6%	92.2%	90.2%

Graph 5. Educational background of the respondents



4.1.2 Condoms use behaviour among *waria* based on IBBS 2015

In all five cities, the percentages of *waria* who use condoms when having sex with different types of partner or in specific context varied and were relatively low. The highest percentage of condoms use only reached 58.3% when the *waria* sell sex, followed by 48% of *waria* who had sex with their non-permanent-non-commercial partners. The rate of *waria* who use condoms with their permanent partners was less than 27%. The lowest percentage of condoms use among *waria* was found in the sex party (8.8%).

Table 6. Percentage of the condoms use among *waria* in five cities in Indonesia

Number of *waria* who use condoms in the last sex	JKT	BDG	SMG	SBY	MLG	All *Waria*
With their permanent partner	27.6%	27.2%	21.9%	28.7%	22.4%	26.4%
With their non-permanent non-commercial partner	51.2%	41.6%	42.5%	49.8%	49.2%	47.5%
In the last sex party	8.0%	6.0%	2.7%	11.7%	12.4%	8.8%
In the last bought sex	16.4%	11.6%	6.8%	7.7%	19.1%	12.9%
In the last paid anal sex	61.2%	0.8%	54.8%	59.9%	61.7%	58.3%

Despite the low rate of condoms use among *waria*, 71.2% of *waria* reported not having major challenges in obtaining condoms because they lived or worked in the condoms easy-access area. Only respondents from Surabaya (76.4%) claimed that their living or working area limited to condoms access. In the last 3 months, 84.2% *waria* reported to have received free condoms and 72.6% of them received at least once in a month and 15 people claimed they received more than 10 times in 3 months. Only 15.7% had reported never received free condoms. There are two main sources of the free condoms. The first sources provided by Ministry of Health available in HIV-STI clinic mainly in primary health care. The other sources were provided by NAC available in local NGO and outreach workers.

In terms of frequency, the number of *waria* who reported "always" use condoms was relatively low compare to total 1003 respondents (range from 29 to 359 people).

Table 7. The frequency of condoms use among *waria* with different types of partners

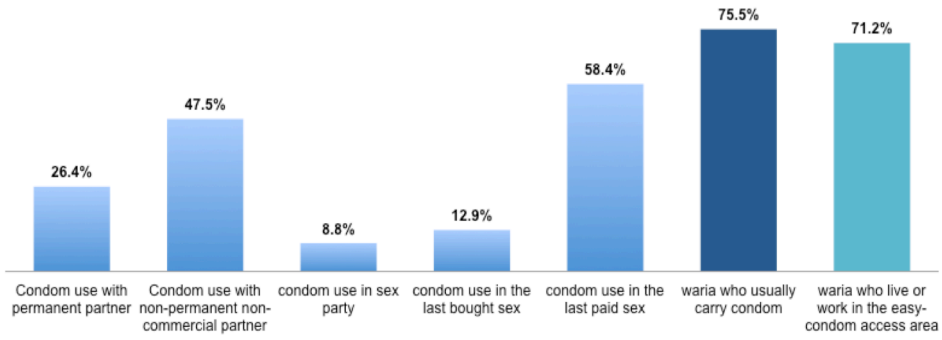
Condoms use with	**permanent partner** (last month)	**non-permanent non-commercial partner** (last month)	**commercial partner when buying sex** (last month)	**commercial partner when selling sex** (Last week)
	N = 406	**N = 361**	**N = 64**	**N = 616**
Never use condoms	22.2%	9.4%	15.6%	14.4%
Seldom/sometimes	22.2%	20.8%	26.6%	7.3%
Often	15.3%	17.2%	12.5%	20.0%
Always	**40.4% (162 people)**	**52.6% (190 people)**	**45.3% (29 people)**	**58.3% (359 people)**

Table 8. The percentages of *waria* who are usually carry condoms and condoms accessibility in their living or working area.

Number of *waria*	JKT	BDG	SMG	SBY	MLG	All *Waria*
Condoms access at the respondent's living or working area - Easy-access - Not easy access	 79.6% 20.4%	 99.2% 0.8%	 89.0% 11.0%	 23.8% 76.4%	 79.4% 20.6%	 71.2% 28.8%
Usually carry condoms	81.2%	77.2%	75.0%	69.8%	76.6%	75.5%
Bring condoms on the day of survey	92.0%	89.2%	89.0%	93.2%	90.0%	91.9%

In order to know the knowledge about condoms among respondents, interviewer of IBBS 2015 presenting a male condoms, showing its content and asked respondents to tell what is it and if they had it with them at that time. More the 90% of respondents knew about condoms, 75.5% reported always carry condoms with them and 91.9% of total respondents actually brought condoms with them on the day of survey.

Graph 6. Percentage of condom use among *waria* in their last sex with different types of partner compared to *waria* who always bring condoms.



4.1.3 Knowledge of HIV-AIDS transmission and prevention among *waria*

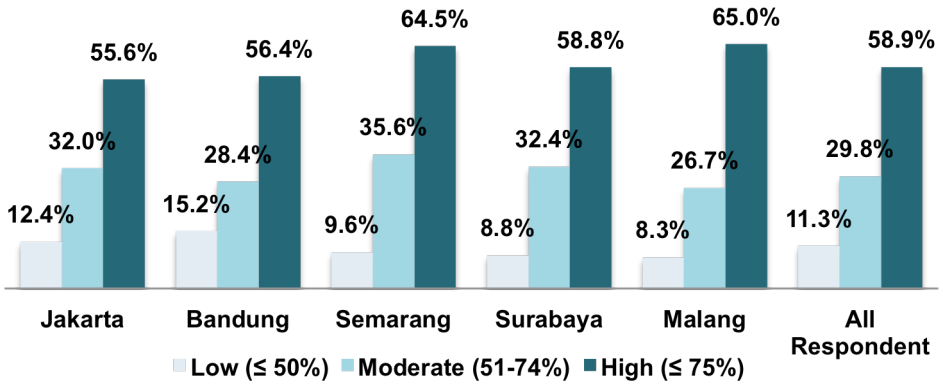
Respondents of IBBS 2015 from five cities, 82% to 91% reported had received HIV-AIDS related information prior to the survey. The highest percentage (90%) was found on the respondents from Surabaya and the lowest percentage was from Bandung. Their HIV-AIDS information sources varied. About 57.1% described receive the information from health care workers, 41.2% from printing material such as posters and brochures about HIV-AIDS, 35.6% gained it from advertisement on TV and 16.7% from radio. Besides that, the respondents also reported that they have got the HIV-AIDS information by attending several HIV-related events and activities such as discussion or health promotion meeting with health workers and sports event that discussed on HIV. Moreover, 70% of respondents revealed that they had received the printed materials on HIV prevention.

Table 9. Percentage of *waria* who attend the HIV-AIDS health promotion activities attended in five cities in Indonesia

***Waria* who ever**	**JKT**	**BDG**	**SMG**	**SBY**	**MLG**	**All *Waria***
attend a meeting or discussion on HIV and STI	57.6%	58.8%	67.1%	78.0%	65.6%	65.1%
attend an event or spot event that discussed on HIV	24.8%	28.0%	32.9%	52,8%	31.1%	34.3%
discuss as a group with an outreach worker on the risk of getting HIV and ways to prevent	44.8%	46.4%	45.2%	75.6%	45.0%	52.9%

As expected from high percentage of respondents who had received the HIV-AIDS information prior to survey, 88.7% of them were categorized as having moderate to high level of comprehensive knowledge of HIV-AIDS. About 11.3% respondents were classified as having low level of comprehensive knowledge with the score of correct answer lower than 50% and only 27 out of 1003 people score below 25%.

Graph 7. Comprehensive knowledge level among *waria* in five cities in Indonesia



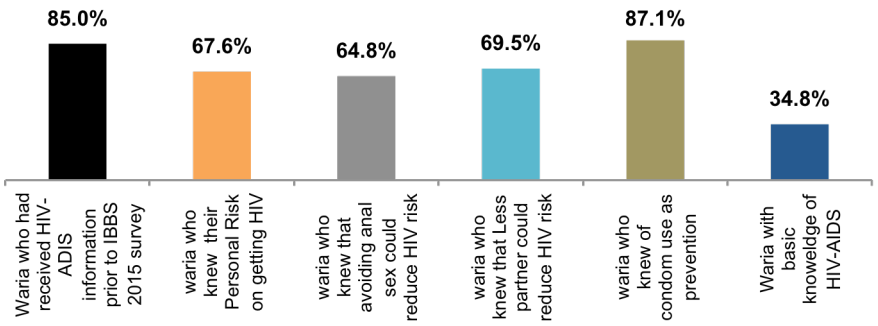
Despite the high score of comprehensive knowledge among *waria*, only 34.8% *waria* were categorized as having basic knowledge of HIV-AIDS based on the definition of basic knowledge in national intervention program. Respondents were categorized as having basic knowledge of HIV-AIDS if they could answer all five basic questions correctly. The five basic questions were also part of the 12 comprehensive questions about HIV-AIDS of the questionnaire. The five basic questions were used in the national HIV-AIDS intervention program as "must know" knowledge in order to increase HIV testing and to reduce the HIV-AIDS related misconception in society. Despite the small percentage of *waria* who gave the correct answer on 5 basic questions, the percentage of *waria* who could answer every question independently was high.

Table 10. The percentages of *waria* who give the correct answer on the five basic questions about HIV-AIDS

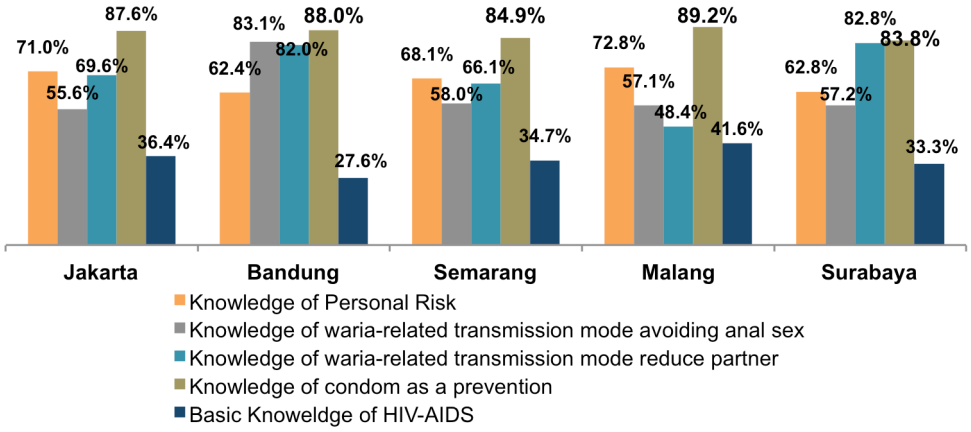
***Waria* who give correct answer to the question**	**JKT**	**BDG**	**SMG**	**SBY**	**MLG**	**All *Waria***
Can you tell if someone is infected with HIV simply by looking at the person?	73.2%	65.2%	78.1%	71.6%	75.6%	71.6%
Can people reduce the risk of getting HIV by using condoms properly every time they have sex?	87.6%	88.0%	84.9%	89.2%	83.3%	87.1%
Can being faithful to each other reduce the risk of getting HIV	78.3%	84.0%	69.4%	75.2%	78.8%	78.4%
Can people be infected with HIV through a mosquito /insect bite?	67.6%	58.0%	75.3%	74.0%	72.7%	94.2%
Can people get HIV by sharing eating or drinking utensils?	78.4%	56.8%	81.9%	80.8%	80.0%	96.2%

Based on the correct answers of respondents on certain HIV-AIDS knowledge related question, this study classified respondents into four groups which were: respondents who knew their personal risk of getting HIV (67.6%); who knew that HIV risk could be reduced by avoiding anal sex (64.8%); who knew that HIV risk could also be reduced by reducing number of sexual partners (69.5%) and the group of *waria* who knew that, proper use of condoms in every time when have sex is a prevention of getting HIV achieved highest rate (87.1%).

Graph 8. Percentage of *waria* with knowledge of HIV-AIDS compared to *waria* who had received HIV-AIDS information prior to the survey



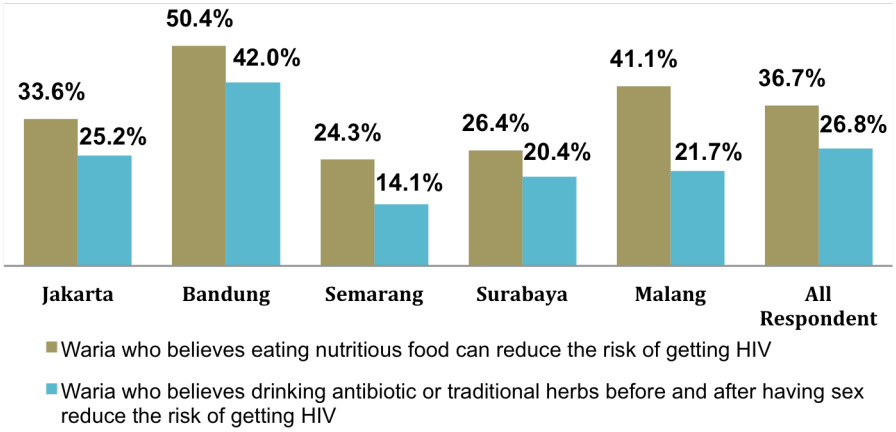
Graph 9. Percentage of *waria* with different knowledge of HIV-AIDS in five cities



The *waria* with different knowledge of HIV-AIDS were evenly distributed in all five cities. The highest percentage of *waria* (89%) who knew the condoms use is prevention from getting HIV was found in the city of Malang.

This study also noticed some misconceptions regarding HIV prevention widespread among *waria*. Up to 27% of *waria* believed that drinking antibiotic before and after having sex can reduce HIV risks, and 37% believed eating the nutritious food. Highest percentage (50%) of misconception was found among *waria* in Bandung. There are 59% of respondent who reported that they had received information on condoms use with dildo simulation, and 74% reported that they had information about condoms use negotiation as well.

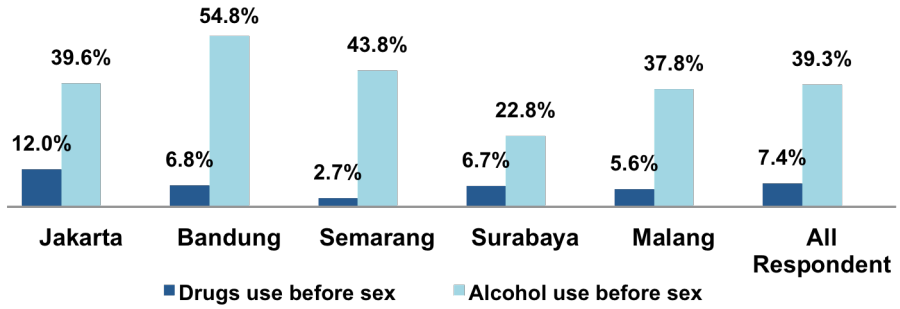
Graph 10. Percentage of misconception among *waria* regarding HIV prevention



4.1.4 Substances use before sex among *waria*

Related to sexual behaviour, there was 39.3% *waria* reported drink alcohol before having sex, and 7.4% admitted using drugs before having sex. From total 1003 respondents, only 13.2% revealed that they used condoms on their first sex.

Graph 11. Percentage of *waria* who use alcohol and drugs before having sexual intercourse with their sexual partner.



4.2 **The association analysis results between *waria* who have knowledge of HIV-AIDS and their condoms use behaviour.**

The summary bivariate associations' results between well-informed *waria* and their condoms use behaviour are reported in **table 11**. Overall, certain knowledge about HIV-AIDS among *waria* was significantly associated with their condoms use behaviour in the last sex with their permanent partners, non-permanent-non-commercial partners and commercial partners when they selling sex ($P<0.05$).

Table 11. Overall bivariate analysis result of the association between *waria* with knowledge of HIV-AIDS and their condoms use behaviour.

All Respondent in the city of Jakarta, Bandung, Semarang, Surabaya and Malang who have	Condoms use with permanent partner		Condoms use with non-permanent non-commercial partner		Condoms use with commercial partner on the last paid sex (sell sex)	
	ϕ and P	OR (CI 95%)	ϕ and P	OR (CI 95%)	ϕ and P	OR (CI 95%)
Basic knowledge of HIV-AIDS	ϕ = 0.08 P = 0.014	1.44 (1.1-1.9)	ϕ = 0.17 P < 0.001	2.12 (1.6-2.9)		
Knowledge of personal risk on getting HIV			ϕ = 0.15 P < 0.001	1.8 (1.4-2.6)		
Knowledge of condoms use as a Prevention			ϕ = 0.13 P < 0.001	3.8 (1.4-3.3)	ϕ = 0.11 P = 0.002	2.1 (1.3-3.4)
Knowledge *waria* related mode of transmission						
Knowledge of condoms use negotiation			ϕ = 0.16 P = 0.001	2.04 (1.4-2.9)	ϕ = 0.17 P < 0.001	2.43 (1.6-3.8)

Note: the blank box mean no association was found, p-value >0.05

The associations between the HIV-AIDS knowledge of *waria* and their condoms use were found with low to negligible of effects (Phi value ranges from 0.11 to 0.17). However, well-informed *waria* were 2 to 4 times more likely to use condoms compared to the *waria* without knowledge of HIV-AIDS. The significant associations were found on the *waria* from the city of Jakarta, Bandung, and Malang. In contrast, there were no evidence of associations between *waria* with knowledge of HIV-AIDS and their condoms use behaviour in their last sex party and when they bought sex.

4.2.1 *Waria* who have basic knowledge of HIV-AIDS

The percentage of *waria* categorised as having basic knowledge of HIV-AIDS from total respondents in five cities ranged from 28%-42% with the highest rate (42%) found among respondents from Malang. The chi-square and *p*-value showed that, the association between *waria* with basic knowledge of HIV and their condoms use behaviour in the last sex with their permanent partners (X^2(1df)=6.03; *P*=0.014) and non-permanent-non-commercial partners (X^2(1df)=23.44; *P*<0.001) were observed on the sample which also exist on the population. This indicates that, there is evidence to support the claim that *waria* who have basic knowledge of HIV-AIDS were more likely to use condoms with their permanent partners (OR=1.44; CI 95%) and their non-permanent-non-commercial partners (OR=2.1; CI 95%).

Meanwhile, the statistical analysis showed that there were no association found between waria with basic knowledge of HIV-AIDS and their condoms use behaviour in the last sex party, in the last sex with their commercial partner whether when they selling or buying sex.

Table 12. Bivariate analysis between *waria* with basic knowledge of HIV-AIDS and their condoms use behaviour with different partner types.

All Respondents	Condoms use with permanent partner		Condoms use with non-permanent non commercial partner		Condoms use at the last sex party		Condoms use with commercial partner			
							In last bough sex (buy sex)		In last paid sex (sell sex)	
	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value
Waria with basic understanding knowledge of HIV	999; 99.6%	**X^2 = 6.03 ϕ = 0.08 *P* = 0.014**	802; 80.0%	**X^2 = 23.44 ϕ = 0.17 *P* < 0.001**	122; 12.2%	X^2 = 1.29 ϕ = 0.10 *P* = 0.26	581; 57.9%	X^2 = 0.95 ϕ = 0.04 *P* = 0.33	770; 76.8%	X^2 = 1.84 ϕ = 0.05 *P* = 0.18

Comparing data in five cities, the negligible effects of association between *waria* with basic knowledge of HIV-AIDS and the condoms use behaviour with their permanent partner was found only among respondents from the city of Bandung (*P*=0.009; ϕ=0.17). *Waria* from Bandung who had basic knowledge of HIV-AIDS were 2 times more likely to use condoms with their permanent partner compare to *waria* who did not have basic knowledge of HIV-AIDS. Meanwhile, the low effect association in the context of last sex with non-permanent-non-commercial partner were found among *waria* in Jakarta, the capital city of Indonesia (*P*=0.001; ϕ=0.24) and in Malang (*P*=0.012; ϕ=0.21). In Jakarta, the *waria* with basic knowledge of HIV-

AIDS were 3 times more likely to use condoms with their non-permanent-non-commercial, while in Malang was 2.5 times.

Table 13. Bivariate analysis between *waria* with basic knowledge of HIV and their condoms use behaviour in five cities in Indonesia

***Waria* with basic knowledge of HIV in**	**Condoms use with permanent partner**		**Condoms use at last sex with non-permanent non commercial partner**	
	N	**X^2, *p*-value, ϕ**	**N**	**X^2, *p*-value, ϕ**
Jakarta	249; 99.6%	X^2 = 0.50 P = 0.48 ϕ = 0.05	196; 78.4%	**X^2 = 10.92 ϕ = 0.24 P < 0.001** OR= 3.0
Bandung	250; 100%	**X^2 = 6.85 ϕ = 0.17 P = 0.009** OR= 2.2	210; 84.0%	X^2 = 1.02; P = 0.31 ϕ = 0.07
Semarang	71; 97.3%	X^2 = 0.66; P = 0.42 ϕ = 0.10	60; 82.2%	X^2 = 2.74; P = 0.10 ϕ =0.21
Surabaya	250; 100%	X^2 = 0.43; P = 0.51 ϕ = 0.041	189; 75.6%	X^2 = 2.70; P = 0.10 ϕ = 0.12
Malang	179; 99.4%	X^2 = 0.8 ϕ = 0.07 P = 0.37	147; 81.7%	**X^2 = 6.40 ϕ = 0.21 P = 0.012** OR= 2.5

As a side note, the descriptive analysis the number of *waria* who use condoms in the last sex, found that the number of condoms use was higher in the group of *waria* who were categorised not having basic knowledge of HIV-AIDS compare to *waria* with basic knowledge of HIV-AIDS.

Table 14. Comparison number of *waria* who have and do not have basic knowledge of HIV-AIDS and their condoms use behaviour.

All Respondents	**Condoms use with permanent partner**		**Condoms use with non permanent non commercial partner**		**Condoms use in the last bought sex (Buy sex)**		**Condoms use in the last paid sex (Sell sex)**	
	Yes	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
Waria with basic knowledge of HIV	109 (11%)	239 (24%)	202 (25.2%)	84 (10.5%)	52 (9%)	161 (27.7%)	222 (28,8%)	60 (7.8%)
Waria without basic knowledge of HIV-AIDS	**157 (15.7%)**	494 (49.5%)	**274 (34.2%)**	242 (26.4%)	**77 (13.3%)**	291 (50.1%)	**363 (47,1%)**	125 (16.2%)

4.2.2 *Waria* with knowledge of their personal risk of getting HIV

More than half (68%) of *waria* answered yes to the question, “Do you think that you are at risk of getting HIV? Among five types of sexual partners, The chi-square value of 18.02 at 1 degree of freedom and *p*-value of smaller than 0.001 showed that, the association between *waria* with basic knowledge of HIV and their condoms use behaviour in the last sex with their non-permanent-non-commercial partners were observed on the sample also exist on the population. This indicates that the statistical result support the hypothesis that *waria* who have basic knowledge of

HIV-AIDS were more likely to use condoms with their non-permanent-non-commercial partner (OR=1.8). However, among fives survey cities, the association occurred only among *waria* from the city of Bandung (P<0.001; ϕ=0.23) with *waria* who knew their personal risk of getting HIV 1.1 times more likely to use condoms compare to the *waria* who did not know their risk of getting HIV.

Table 15. Bivariate analysis results between w*aria* with knowledge of personal risk of getting HIV and condoms use behaviour with their non-permanent-non-commercial partners among *waria* in five cities.

Waria who knew they were at risk of getting HIV in	Condoms use with non-permanent non-commercial partners			
	N	X^2	ϕ	*p*-value
Jakarta	194; 77.6%	0.62	0.06	0.43
Bandung	210; 84%	11.17	0.23	**P = 0.001 OR = 1.1**
Semarang	60; 82.2%	3.34	0.24	0.07
Surabaya	189; 75.6%	3.75	0.14	0.05
Malang	147; 81.7%	0.63	0.07	0.43

4.2.3 *Waria* with knowledge of condoms as prevention of getting HIV

The rate of *waria* who knew that condoms use could prevent them from getting HIV 87% was the highest rate among *waria* with knowledge of HIV-AIDS. The statistical analysis has found that the association between *waria* who knew that use condoms properly could prevent HIV and their condoms use behaviour exist in their last sex with their non-permanent-non-commercial partners (X^2(1df)=13.22; P<0.001; ϕ=0.13) and their commercial partners when selling sex (X^2(1df)=9.55; P=0.002; ϕ=0.11). Thus, there is evidence that *waria* who knew that use condoms properly could prevent HIV more likely to use condoms with their non-commercial partner and commercial partners when selling sex.

Table 16. Bivariate analysis between knowledge of condoms use as prevention and condoms use behaviour among *waria*

All Respondents	Condoms use with permanent partner		Condoms use at last sex with non-permanent-non-commercial partner		Condoms use at the last sex party		Condoms use with commercial partner			
							In last bought sex (buy sex)		In last paid sex (sell sex)	
	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value
Waria who knew comdoms use is prevention of getting HIV	1000; 99.7%	X^2 = 3.95 ϕ = 0.06 P = 0.05	803; 80.1%	**X^2 = 13.22 ϕ = 0.13 P < 0.001**	123; 12.3%	X^2 = 0.01 ϕ = -0.01 P = 0.93	581; 57.9%	X^2 = 0.12 ϕ = 0.02 P = 0.73	770; 76.8%	**X^2 = 9.55 ϕ = 0.11 P = 0.002**

The associations were found in the *waria* from Jakarta and Bandung. In Jakarta, the negligible effects of association were found between *waria* with knowledge of condoms use as prevention and their condoms use behaviour in the last sex with their non-permanent-non-commercial partners (P=0.02; ϕ=0.16), and a low effect of association was found in the last sex with their commercial partner when selling sex (P=0.006; ϕ=0.21). Meanwhile, in Bandung, the association between *waria* who knew that use condoms properly could prevent HIV and their condoms use behaviour were found with negligible effect in the last sex with their commercial partners (P=0.03; ϕ=0.16) and with low effect of association was found in the last sex with their non-permanent-non-commercial partners (P=0.004; ϕ=0.20).

The *waria* in Jakarta who knew that condoms use as prevention of getting HIV were 2 times more likely to use condoms with their non-permanent-non-commercial partners (OR=3) and with their commercial partner (OR=5) when selling sex compare to the *waria* in Jakarta who did not have knowledge of condoms use as prevention of getting HIV.

Table 17. Bivariate analysis between knowledge of condoms use as prevention and condoms use behaviour among *waria* in five cities

***Waria* who have knowledge condoms as prevention in**	**Condoms use at last sex with non-permanent-non-commercial partner**			**Condoms use in last paid sex with commercial partner (sell sex)**		
	N	**X^2, ϕ and *p-value***		**N**	**X^2, ϕ and *p-value***	
Jakarta	196; 78.4%	**X^2 = 5.23 ϕ = 0.16 *P* = 0.02**	OR=2.8	177; 70.8%	**X^2 = 7.42 ϕ = 0.21 *P* = 0.006**	OR=4.8
Bandung	210; 84.0%	**X^2 = 8.30 ϕ = 0.20 *P* = 0.004**	OR=3.8	186; 74.4%	**X^2 = 5.00 ϕ = 0.16 *P* = 0.03**	OR=2.7
Semarang	61; 83.6%	X^2 = 1.29; ϕ = 0.15	*P* = 0.26	58; 79.5%	X^2 = 0.16; ϕ = -0.05	*P* = 0.70
Surabaya	189; 75.5%	X^2 = 2.03; ϕ = 0.10	*P* = 0.15	205; 82.0%	X^2 = 0.07; ϕ = 0.02	*P* = 0.80
Malang	147; 81.7%	X^2 = 0.04; ϕ = - 0.05	*P* = 0.95	144; 80.0%	X^2 = 0.55; ϕ = 0.06	*P* = 0.46

4.2.4 *Waria* with knowledge of *waria*-related transmission mode

Statistical analysis of this study showed that the *waria* with who knew that the risk of getting HIV could be prevent by avoiding anal sex and reduce the sexual partner has no association with their condoms use behaviour in any context of sexual interval. In this case, based on the *p*-value that more than 0.05, the hypothesis null was accepted. Thus, there is not enough evidence to support the claim that *waria* with knowledge of *waria*-related transmission mode were likely to use condoms.

Table 18. Bivariate analysis between knowledge mode of transmission and condoms use behaviour among *waria*

All Respondents	Condoms use with permanent partner		Condoms use with non-permanent-non-commercial partner		Condoms use in last sex party		Condoms use with commercial partner			
							In last bough sex (buy sex)		In last paid sex (sell sex)	
	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value
Know HIV can be reduce by not having anal sex	998; 99.5%	X^2 = 0.14 ϕ = - 0.01 *P*= 0.71	801; 79.9%	X^2 = 0.001 ϕ = 0.001 *P* = 0.1	122; 12.2%	X^2 = 1.51 ϕ = - 0.11 *P*=0.22	769; 76.7%	X^2 = 3.17 ϕ = 0.07 *P*=0.08	580; 57.8%	X^2 = 0.25 ϕ = - 0.02 *P*=0.62
Know that HIV risk can be reduce by having less sexual partner	997; 99.4%	X^2 = 0.32; ϕ = - 0.02 *P*=0.57	802; 79.9%	X^2 = 0.13 ϕ = 0.01 *P*=0.72	122; 12.2%	X^2 = 0.40 ϕ = - 0.06 *P*= 0.53	769; 76.7%	X^2 = 0.97 ϕ = - 0.04 *P*=0.32	580; 57.8%	X^2 = 3.94 ϕ = - 0.07 *P*=0.05

4.2.5 *Waria* who have information of condoms and condoms use negotiation

There were 58.5% *waria* who reported of having receiving information about condoms and the demonstration on how to use properly using dildo simulation. Meanwhile, 74% *waria* reported that, they received information on condoms use negotiation from either outreach workers or health workers. It is important to note, that only 30.4% *waria* reported ever-experienced condoms leak, which indicates that among *waria* who use condoms, almost 70% knew how to use it properly.

The knowledge of condoms and condoms use negotiation was used to analyse the intention of *waria* to negotiate condoms use. Among 74% *waria* with condoms use negotiation information, 51% reported they asked or being asked to use condoms when they were selling sex and 10.3% when they bought sex.

Table 19. Rate of *waria* with information about condoms use negotiations were asked or being asked to use condoms.

Waria with information on condoms use negotiation asked or being asked to use condoms	JKT	BDG	SMG	SBY	MLG	All *Waria*
In the last anal sex with non-commercial partner	41.3% of total N=196	33.1% of total N=145	32.6% of total N=46	39.5% of total N=228	49.2% of total N=126	39.9% of total N=741
In the last bought sex	13.9% of total N=180	8.3% of total N=145	0.0% of total N=46	13.2% of total N=228	6.3% of total N=126	10.3% of total N=725
In the last paid sex	49.0% of total N=196	39.6% of total N=144	48.9% of total N=45	59.5% of total N=227	51.6% of total N=124	**50.8% of total N=736**

Note: N = Total respondents who had received information of condoms use negotiation

Table 20. Percentage of *waria* who had received the information about condoms use negotiation

Waria who had received the information about condoms use negotiation	JKT	BDG	SMG	SRB	MLG	All *Waria*
	72.0%	65.0%	76.1%	76.0%	82.0%	74.0%

Bivariate analysis found that there was a strong significant association between *waria* who had received information of condoms use negotiation and their condoms use behaviour in the last sex with their permanent partners (P=0.001, ϕ=0.16) and with their commercial partners in the last paid sex (P<0.001, ϕ=0.17).

Table 21. Bivariate analysis results between *waria* who have information of condoms use negotiation and their condoms use behaviour

All Respondent	Condoms use with permanent partner		Condoms use with non permanent non commercial partner		Condoms use in last sex party		Condoms use with commercial partner			
							In last bough sex (buy sex)		In last paid sex (sell sex)	
	N	X^2,ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value
Waria with information of condoms use negotiation	728; 72.6%	X^2 = 3.59 ϕ = 0.07 *P* = 0.06	597; 59.5% **OR = 2.04**	**X^2 = 14.73 ϕ = 0.16 *P* = 0.001**	98; 10%	X^2 = 3.80 ϕ = 0.20 *P* = 0.05	420; 42%	X^2 = 1.14 ϕ = - 0.05 *P* = 0.29	566; 56.4% **OR = 2.43**	**X^2 = 15.78 ϕ = 0.17 *P* < 0.001**

4.2.6 *Waria* with knowledge of HIV-AIDS and their attitude of always brings condoms.

Condoms access is a critical component for *waria* to use condoms consistently. Most of the respondents of the IBBS 2015 reported not having major challenges to obtain condoms. Unfortunately, there was no significant association found between *waria* who living or working in the easy access area with their condoms use behaviour. However, *waria* who work or live in area of easy condoms access area only showed strong association with their attitude that always bring condoms (p<0.001). Moreover the *waria* were 1.8 times more likely to bring condoms compare to *waria* who live or work in the area limited to condoms access.

Furthermore, *waria* who always bring condoms statistically showed a significant association with their condoms use behaviour during the last sex party (P<0.001, ϕ=0.4), in the last sex with their non-permanent-non-commercial partners (P<0.001, ϕ=0.2) and commercial partners on the last paid sex (P<0.001, ϕ=0.3). The *waria* who always bring condoms were 10 times more likely to use condoms in the sex party. This is the best odds to use condoms from all association noted in this study.

This result was also strengthened by the percentage of *waria* who use condoms in the last sex with non-permanent-non-commercial partners and commercial partners in last paid sex, which was high (79.2% and 75.8%).

Beside that, this study noted a significant association between *waria* with knowledge of personal risk of getting HIV and their attitude of always having condoms with them (*P*=0.001). The *waria* who knew they are at risk of getting HIV were 1.7 times more likely to bring condoms with them (OR=1.7).

Table 22. The bivariate analysis between *waria* with HIV-AIDS related knowledge and their positive attitude that always bring condoms

All Respondents	Basic knowledge of HIV-AIDS		Knowledge of personal risk		Knowledge of condoms use as prevention		Knowledge of transmission			
							Anal sex		Reduce sex partner	
	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value
Waria who usually bring condoms	991; 98.8%	X^2=5.1 ϕ=0.02 *P*=0.56	989; 98.6%	**X^2=12.0 ϕ=-0.11 *P*<0.001 *OR* = 1.7**	992; 98.9%	X^2=3.5 ϕ= -0.06 *P*=0.06	990; 98.7%	X^2=1.4 ϕ=-0.04 *P*=0.23	989; 98.6%	X^2=0.56 ϕ=-0.24 *P* =0.45

Table 23. The bivariate analysis between *waria* with positive attitude always bring condoms with their condoms use behaviour

All Respondents	Condoms use with permanent partner		Condoms use with non permanent non commercial partner		Condoms use in last sex party		Condoms use with commercial partner			
							In last bough sex (buy sex)		In last paid sex (sell sex)	
	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value	N	X^2, ϕ, *p*-value
Waria who usually bring condoms	989; 98.6%	X^2 = 0.34 ϕ = 0.02 *P*=0.56	794; 79.2%	**X^2 = 38.44 ϕ = 0.22 *P*<0.001 OR=2.92**	120; 12.0%	**X^2 = 21.74 ϕ = 0.43 *P*<0.001 OR = 9.9**	575; 57.3%	X^2 = 0.91 ϕ = - 0.04 *P*=0.34	760; 75.8%	**X^2 = 53.92 ϕ = 0.26 *P*<0.001 OR=4.24**

4.3. Multivariate analysis results on factors that associated with condoms use among *waria* when having sex with different types of partners

The Logistic regression analysis of the fitted models has identified predictors of condoms use behaviour among *waria*, and it was varied depending on the partner type. “Get free condoms” and attitude that “always bring condoms” were found as the major associated factors to the condoms use behaviour among *waria*.

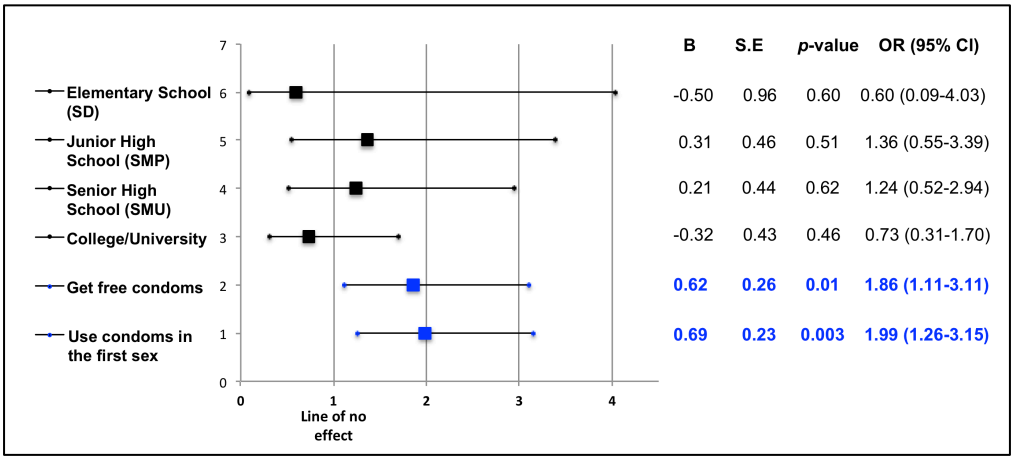
4.3.1 Permanent partners.

Multivariate analysis identified that variable “get free condoms” (*P*=0.01) and “use condoms in the first sex” (*P*= 0.003) were predictor for condoms use among *waria* in

the last sex with their permanent partners. Get free condoms increase the odds 1.8 times of *waria* to use condom. Meanwhile, use condoms in the first sex increase the odds 1.9 times.

Graph 12. Pooled odds ratios of the associated factors for condoms use behaviour among *waria* in the last sex with their permanent partners.

Constant B (S.E; *p*-value) = 0.97(0.08; *p*<0.001) ; Cox-Snell (R^2=0.035); Nagelkerke (R^2= 0.050); Model (X^2=25.81 ; *P*<0.001); Hosmer-lemeshow (X^2= 6.59 ; *P*=0.36); selected cases included in analysis N= 735 (73.3%)



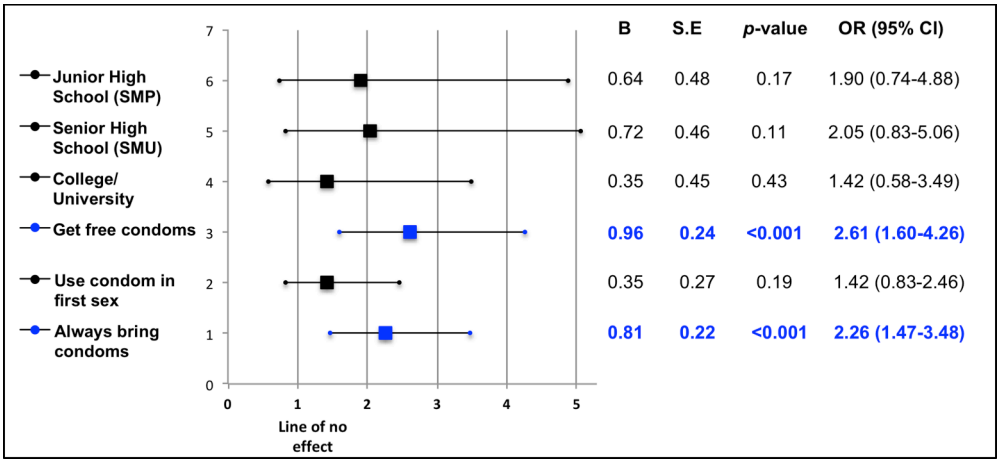
	B	S.E	*p*-value	OR (95% CI)
Elementary School (SD)	-0.50	0.96	0.60	0.60 (0.09-4.03)
Junior High School (SMP)	0.31	0.46	0.51	1.36 (0.55-3.39)
Senior High School (SMU)	0.21	0.44	0.62	1.24 (0.52-2.94)
College/University	-0.32	0.43	0.46	0.73 (0.31-1.70)
Get free condoms	**0.62**	**0.26**	**0.01**	**1.86 (1.11-3.11)**
Use condoms in the first sex	**0.69**	**0.23**	**0.003**	**1.99 (1.26-3.15)**

4.3.2 Non-permanent-non-commercial partners.

In the last sex with their non-permanent-non-commercial partners, ”get free condom” (*P*<0.001) and attitude that “always bring condoms” (*P*<0.001) were identified as predictors for condoms use among *waria.*

Graph 13. Pooled odds ratios of the associated factors for condoms use behaviour among *waria* in the last sex with their non-permanent-non-commercial partners.

Constant B (S.E; *p*-value) = -0.53(0.08; *P*<0.001) ; Cox-Snell (R^2=0.069); Nagelkerke (R^2= 0.09); Model (X^2=42.8 ; *P*<0.001); Hosmer-lemeshow (X^2= 0.93 ; *P*=0.96); selected cases included in analysis N= 595 (59.3%)



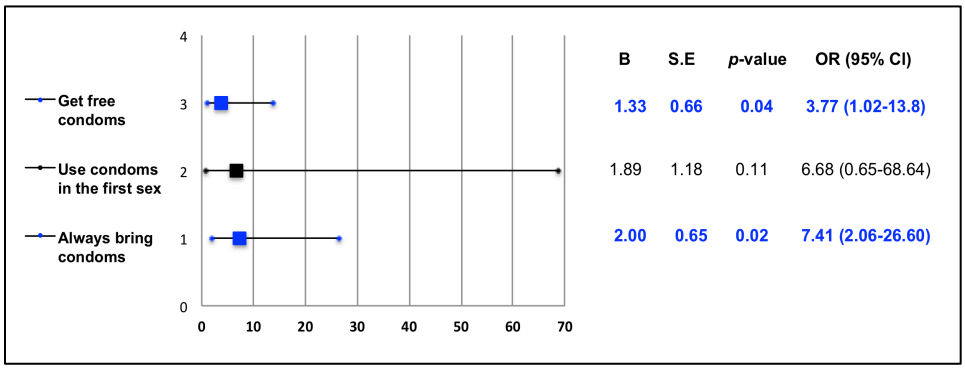
	B	S.E	*p*-value	OR (95% CI)
Junior High School (SMP)	0.64	0.48	0.17	1.90 (0.74-4.88)
Senior High School (SMU)	0.72	0.46	0.11	2.05 (0.83-5.06)
College/ University	0.35	0.45	0.43	1.42 (0.58-3.49)
Get free condoms	**0.96**	**0.24**	**<0.001**	**2.61 (1.60-4.26)**
Use condom in first sex	0.35	0.27	0.19	1.42 (0.83-2.46)
Always bring condoms	**0.81**	**0.22**	**<0.001**	**2.26 (1.47-3.48)**

4.3.3 Partners in the sex party

"Get free condom" (*P*=0.04) and the attitude of "always bring condom" (*P*=0.02) were identified as a predictors in the last sex party among *waria*.

Graph 14. Pooled odds ratios of the associated factors for condoms use behaviour among *waria* in the last sex party.

Constant B (S.E; *p*-value) = -1.15(0.23; *P*<0.001); Cox-Snell (R^2=0.18); Nagelkerke (R^2= 0.27); Model (X^2=19.80 ; *P*=0.001); Hosmer-lemeshow (X^2= 0.97 ; *P*=0.80); Selected cases included in analysis N= 96 (9.6%)

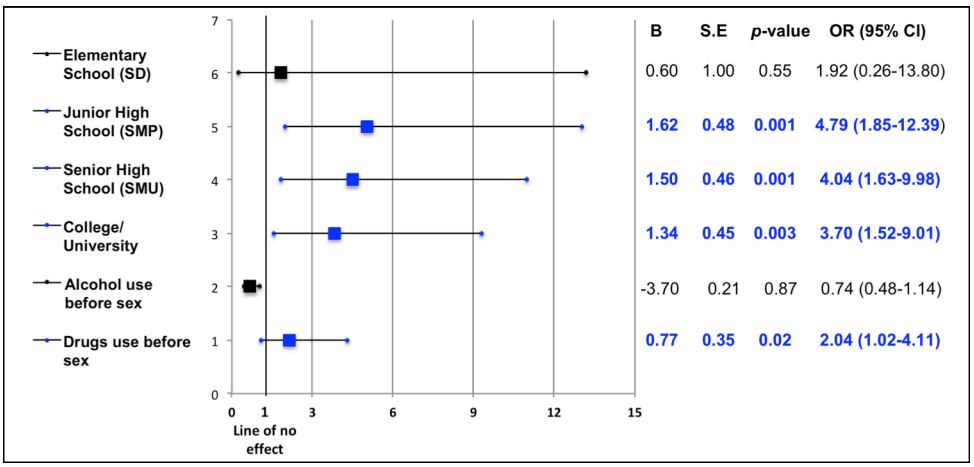


4.3.4 Commercial partners when buying sex

A demographic characteristic of *waria*, which is education background were identified as predictor for condoms use behaviour among *waria* when they were buying sex as well as the "drug use before sex"(*P*=0.02). The results showed that *waria* with education background at least junior high school was more likely to use condoms when buying sex.

Graph 15. Pooled odds ratios of the associated factors for condoms use behaviour among *waria* in the last bought sex.

Constant B (S.E; *p*-value) = 1.25(0.10; *P*<0.001) ; Cox-Snell (R^2=0.03; Nagelkerke (R^2= 0.05); Model (X^2=18.55 ; *P*=0.005); Hosmer-lemeshow (X^2= 3.96 ; *P*=0.68); Selected cases included in analysis N= 579 (57%)

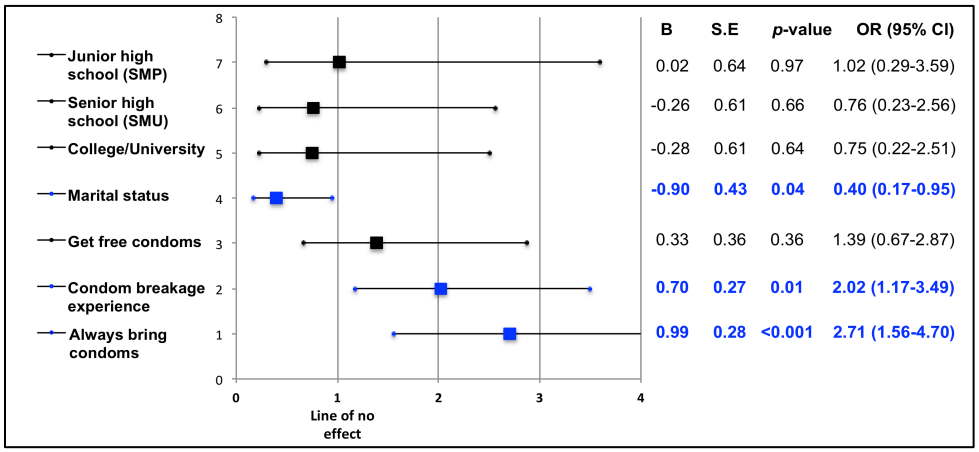


4.3.5 Commercial partners when selling sex

"Marital status" (*P*=0.04), "get free condom" (*P*=0.01) and attitude that "always bring condom" (*P*<0.001) were identified has an influence to the condoms use among *waria* when they selling sex.

Graph 16. Pooled odds ratios of the associated factors for condoms use behaviour among *waria* in the last paid sex.

Constant B (S.E; *p*-value) = -1.43(0.11; *P*<0.001) ; Cox-Snell (R^2=0.05); Nagelkerke (R^2= 0.09); Model (X^2=29.00 ; *P*<0.001); Hosmer-lemeshow (X^2= 8.00; *P*=0.23); selected cases included in analysis N= 499 (49.8%)



5 DISCUSSIONS

5.1 Discussion of the results

Based on the statistical analysis results, this study has showed that there were three different condoms use preferences contexts among *waria* with knowledge of HIV-AIDS in five cities in Indonesia. The contexts included: 1) The preferences not to use condoms although the *waria* were knowledgeable about HIV-AIDS, 2) the preferences to use condoms based on the partner types and in the specific context, and 3) The preferences not to use condoms even though they have a strong condoms use bargaining position.

The *waria* in Indonesia were well informed about HIV-AIDS with 88.7% having a moderate to high-level knowledge of HIV-AIDS. In spite of being knowledgeable, the rates of condoms use among *waria* were remaining low, insufficient and varied depending on the type of their sexual partner compared to 2011 IBBS results in the same cities. The condoms use rate in five cities ranged from 8.8% to 58.3%.

Although statistical analysis result has found that there was a significant association between *waria* with knowledge of HIV-AIDS and their condoms use behaviour, it was a low and negligible effect of association. This finding consistent with the previous research result on condoms use among *waria* in Jakarta, which reveal that only knowledge it is not enough for individuals to change their condoms use behaviour[20]. The low effects of association on condoms use of *waria* who knew they were at risk of getting HIV explained the ignorance attitude of harmful health behaviour. In general, by knowing that they were at risk of getting HIV, people might be motivated to change their attitude, however, it will not happen if the consequences are severe, most people will just ignore it. On the contrary, if the threat is strongly harmful then there might be a change in the behaviour[36].

The preference to choose not to use condoms despite knowledgeable about HIV-AIDS implies there were still some misconceptions widespread among the *waria*, such as the risk of getting HIV can be reduced by taking antibiotic and eat or drink nutritious food. Those misconceptions were also found in the 2011 IBBS result. The basic knowledge about HIV-AIDS among *waria* based on IBBS 2015 only 3% higher than IBBS 2011. This finding showed that the knowledge about HIV-AIDS among *waria* has no significant improvement since IBBS 2011. The percentage condoms use on *waria* who did not have basic knowledge of HIV-AIDS was higher than the one who have basic knowledge of HIV-AIDS. This finding even strengthens the fact that the preferences were exist.

The other preference found based on the condoms use rate showed that *waria* respondents from five cities prefer to use condoms, firstly with their non-permanent-non-commercial partners (condoms use rate 47.5%; frequency “always” use condoms 52.6%) and secondly with their commercial partner when they sell sex (condoms use rate 58.3%; frequency “always” use condoms 58.3%). This finding consistent with prior research that condoms use behaviour of transgender are more likely among their casual partners and commercial partner compare to regular partner[44].

This finding was strengthened by the bivariate analysis result that showed the existence of a significant association between the *waria* with four different groups of HIV-AIDS knowledge and their condoms use behaviour in the last sex with their non-permanent-non-commercial partners ($P<0.001$). This group of partner have the highest preferences 3.8 times more likely to use condoms compare to other groups.

Meanwhile the preference to use condoms during sexual intercourse with their commercial partner on the last paid sex only found in the groups of *waria* with knowledge of condoms use as prevention (*P*=0.014) and *waria* who have the condoms use negotiation information (*P*=0.001).

The first favourable partner demonstrated on condoms use with their non-permanent-non-commercial partner due to the fact that there is no money was involved, so, both of them were on the same bargaining position to ask or to be asked to use condoms. While the condoms use with commercial partners when being paid exists on the groups of *waria* with knowledge of condoms use as prevention and *waria* who have condoms use negotiation information. This showed natural prevention action of *waria* as sex workers.

Still related to the condoms use preferences, few studies have shown that transgender were always in a weak condoms use bargaining position especially in the status as a sex worker. National review of HIV in 2016 in Indonesia had stated that the low condoms use of *waria* is due to the waria positioning as a sexual object namely an 'Industry'. The "industry rule" might put the *waria* in the position as a weak safer sex negotiator[(6)]. On the contrary, this study found that condoms use rate in the last sex with the commercial partners in last sexual intercourse when selling sex was higher than condoms use with their commercial partners when buying sex. Comparing all types of partners, the lowest rate of condoms use among *waria*, in fact, was when they bought sex. Condoms use rate when *waria* bought sex had failed to reach 20%, it ranges from 6.8% to 17.6% from five surveyed cities. In the position as a buyer or clients of sex workers, the *waria* is supposed to have strong bargaining power, however, most of them decided not to use the condoms. Not only the condoms use rate was low but also the efforts to choose a low-risk sex was low. Only 10% of *waria* who had information on condoms use negotiation were actually involved in the negotiation effort when buying sex.

Previous study on condoms use among transgender in worldwide has found that the difficulties of condoms use predominantly associated with: 1) the partnership characteristic[(24)], 2) challenges on obtaining condoms, 3) lack of knowledge and misconception regarding HIV and condoms use[(25)], 4) the discomfort on intercourse and condoms reduce the sexual intimacy pleasure[(24)(45)(35)], 5) substances use such as alcohol and drugs[(46)], and 6) weak bargaining power on condoms use negotiation. Study in The Dominican Republic even showed that there is a strong

association between condoms use and physical violence experienced by the transgender female[47].

Related to the factor associated to condoms use among *waria* in Indonesia, this study has identified two dominant influencing factors to the condoms use among *waria* in Indonesia which were “get free condoms” and positive attitude that “always bring condoms”. Dominant because Its were identified as a predictor of condoms use behaviour among *waria* in the last sex with several types of partners (**graph 12-16**). “Received free condoms” has been found as a predictor to condoms use behaviour among *waria* when having sex with their permanent partners as well as condoms use in the first sex. This finding has open up possibilities to increase condoms use rate among *waria* with their permanent partners, which is has low rate of condoms use. Most of transgender reported that they were not using condoms when having sex with their permanent partner due to the trust and the sexual pleasure[26]. Moreover, “get free condoms” were also associated to condoms use behaviour among *waria* in the sex party. A party where *waria* were engaged in the sexual activities with unknown HIV status people and possibility to have partners more than one. The lowest rates of condoms use were found (8.8%) in the sex party. This finding showed that the availability of free condoms in sufficient amount in a sex party is important. In addition, “received free condoms” increased the odds of *waria* 3.7 times more likely to use condoms in the sex party.

Furthermore, the demographic characteristic of *waria*, which is education level of *waria*, was identified as a predictor in the last sex with their commercial partners when the *waria* were buying sex. The evidence showed that *waria* who graduated from high school increase the odds of *waria* 4 to 4.7 times more likely to use condoms when they bought sex. This finding consistent with the previous study that transgender in Jakarta who with higher education were more likely to use condoms when having sex with their partners[44].

The unexpected finding from the analysis on predictors for condoms use showed that alcohol use before sex was not associated to the condoms use behaviour of *waria* in Indonesia. Meanwhile, the drug use before sex associated with the condoms use among *waria* only when they bought sex. These finding were contrary with previous study on association between substances use and condoms use among transgender that mentioned, unprotected anal sex was significantly associated to alcohol and drug use[18][22][48]. The *waria* who drink alcohol before

having sex with their partner is 39.3%. The rate is not much different with the result of IBBS 2007 that the alcohol use before sex among *waria* which was categorized moderate to low in Indonesia[3]. It is low because the alcohol drink is not common in Indonesia culturally and difficulty to afford alcohol by *waria* due to the high prices. Meanwhile, all kinds of drugs include marijuana are prohibited in Indonesia and the access is limited. Although, 7.4% of respondents out of 1003 respondents of IBBS 2015 admitted had ever used drugs before sex but not frequently.

Furthermore, the finding of significant association between the *waria* who had knowledge of their personal risk of getting HIV and their positive attitude that always brings condoms was demonstrate the evidence that, the concept of knowledge may lead to a positive attitude. However, the association only found in the condoms use among *waria* when they having sex with certain sexual partner. This finding showed that, there was some gap exists on the condoms use efforts.

By giving information and knowledge of HIV-AIDS, might change attitudes, however it does not always change behaviour. It is because the attitude is more general and to change attitudes effectively need requirement such as: persuasive message from expert, and preferences. Meanwhile to change behaviour requires more than cues to change[49]. In Indonesia, despite the fact that the association between HIV knowledge and positive attitude on condoms use was exist, the condition sentiment in society made the association not directly resulting the consistent of condoms use among *waria*. Even though attitude is just generalisation and only need persuasive arguments and trusted expertise to change, the radicalism against *waria* made the *waria* afraid to bring condoms with them because the condoms will be used as an evidence of violations of the law (LGBT and prostitution are illegal in Indonesia)[6]. Despite this situation, *waria* in Indonesia still showed the positive attitude. This showed on the high percentage of *waria* who came along with condoms on the day of survey (91.9%).

Beside of the HIV-AIDS knowledge that influenced the attitude to always bring condoms, *waria* with condoms use negotiation information also showed a significant association with their condoms use behaviour. From 74% of respondents who had received information on the condoms use negotiation are 2 times more likely to use condoms with their non-permanent-non-commercial partner and their commercial partner when they selling sex. This finding showed that in order to adopt safer sex practice, the *waria* need another knowledge and skill that enable them to fill the gap

exist on the condoms use effort beside knowledge of HIV-AIDS, so that they will be more confidence to ask for condoms use. This study result agreed with the term that introduced in the health psychology called “health literacy ability”, which is important to maximise the effectiveness impact of HIV-AIDS knowledge on behaviour change[50].

Health literacy is define as not only ever attended school and be able to read and write but more than that, the individuals need some other additional skills that enable them to digest the health promotion information and take it into action to maintain their health (in this case condoms use). The additional skills include: awareness to the focus issues, negotiation and decision making skill[50]. So, based on the definition of the health literacy, *waria* are not only expected to be able to read and understand all the printed material of HIV-AIDS transmission and prevention, but they need to be able to process all information obtained to take an action for safer sex. To increase the health literacy of *waria* does not always mean to create a specific new training or activities but modifying from the existing intervention program.

The importance of health literacy ability is helping *waria* deal with the condoms use efforts. Proper condoms use in every sexual intercourse require consistent efforts from *waria* and cooperation of both party or all people who involved in the sex activities at that time[51]. There are several steps on condoms use effort, which might not be as simple as stated in the health promotion message on condoms use. *Waria* need to be able to 1) have an access on condoms, 2) identify the proper condoms (size, texture, and taste), 3) to purchase or obtain it freely, 4) negotiate and convince the partner to use it despite any consequences, and finally 5) be able to use the condoms properly. In order to do all steps of condoms use as mentioned consistently, a *waria* needs a specific skill and ability.

Evaluating each one of these steps of effort, one can notice that there still some gap exist. Generally, in the condoms use education, *waria* were taught to always check the expired date of condoms, not to reuse the condoms, and to choose water base lubricant for latex condoms in order to reduce the uncomfortable feeling. Those information are important, however it was not enough for *waria* to convince their partner. Most of *waria* In Indonesia has a good access of condoms, even free condoms from government and NGO. Knowledge of how to use condoms properly usually delivered through condoms use training by dildo simulation. The condoms

breakage experience was only reported from 30.4% of total respondents. This implies through the training *waria* know how to use condoms properly.

The sexual pleasure has been identified as an influencing factor on the condoms use[(22)(35)(45)]. On top of those five efforts, the knowledge for *waria* to choose the proper condoms in order to minimise the condoms disadvantage and increase the sexual pleasure might be more promising to help *waria* on condoms use negotiation.

Nowadays there are different sizes of condoms; shape, texture and taste of condoms available. The availability of new design of condoms especially the one with textures might enable *waria* to choose the condoms with aim to increase the sexual pleasure such as, for *waria* who fast ejaculate could try product which contains a desensitizer that will dampen skin sensitivity in order to prevent premature ejaculation. Besides, there are also available condoms with texture small dot or line embroidery around the condoms that aim to increase the pleasure. So, the *waria* could choose the condoms not just simply for protection, but also to increase the pleasure of intercourse. And this information could be an added value for *waria* on condoms use negotiation.

In addition to double the impact of free condoms as one of major influence factors to condoms use behaviour, more suggestion addressed to free condoms provider: MOH and NAC or donors to provide the free condoms with texture and taste. This intervention might be an attraction for the targeted population to use condoms. This is also an answer for the KAP who always critically reported that the free condoms are low quality condoms and discomfort when using it. That's why their clients were complaining that they were paid for skin-taste sex not rubber-taste sex.

Moreover, despite having good knowledge on HIV-AIDS, proper condoms use, a negotiation knowledge and skill, the *waria* might agree that, it is important to use condoms in every sex. It is important to note that, at the same time, they also need to be satisfied from their sex experiences as well as to be competitive when selling sex in order to fulfil the demand of their clients. The dynamic and progression rate on condoms use were facing more challenges when the condoms use is only one-sided desired. A suggestion to increase the condoms use pressure on might be promising. However, the demand pressure has both sides of effects. The condoms use can be mobilized if each of them is request to use condoms. However if only several individual expect to use condoms but not most of them, the minority demand

might be buried. That's why in the population of *waria*, in order to create demand pressure, it is important to create an intervention that targets the groups not individuals. A critical review of the intervention program on transgender has showed the evidence that condoms use program targeting group level were more effective and might be more promising[16][39]. In Indonesia, group level targeted intervention to increase demand pressure could be done through maximising the existing program of the GWL program.

In order to increase the health literacy and help *waria* to maintain their safer sex behaviour in a very long-term and consistently, the intervention program need repetition as much as possible and not only one time persuasive condoms use promotions. In fact, it is need again and again to be promoted. Burgoon M., and Bettinghaus E.P., on their book "persuasive message strategies" even stated that the health promotion program can not be expected to have a result, if it is not possible to repeat the health promotion message frequently and get all of the targeted groups attending the health promotion activities more than once[52].

5.2 Discussion of the methods and data

The advantage of this study is that secondary data (data of IBBS 2015) was utilised which was obviously time-saving and cost efficient. Specifically the used of the IBBS 2015 data also could maximize the evaluation of the nationwide collected data, which was currently not fully used at country level. In addition, this type of data is of good quality because of the large sample size with adequate sampling strategy and data collection process.

In this study the HIV-related condoms use among *waria* were assessed from the condoms use at the last sex. As mentioned on the systematic reviews by fonner et.al., there were no standardized measurement system available to assess condoms use, and they reported that assessing the condoms use at the last sex was the most frequently used parameter[53]. In this study the approach to assess the condoms use at the last sex rather than last week or last month. This was aimed to avoid missing data or no response from participants who did not have sexual intercourse in the last week or last month. This approach also assumes that the respondents might answer the questionnaire more accurately when related to the "last sex" due to the memory recall. So, that the memory recall bias could be minimised.

Apart from the condoms use behaviour, the knowledge about HIV-AIDS among *waria*, were assessed differently in this study. For the comprehensive knowledge, the measurement was based on the score of correct answer from the 12 HIV-related questions for the comprehensive knowledge, meanwhile the basic knowledge were assessed from 5 “must know” questions. Although 5 questions of the basic knowledge of HIV-AIDS were also part of the 12 comprehensive HIV-AIDS questions, this group of knowledge can not be measure using the same methods due to the different definition of the knowledge groups. The respondents were categorised as having basic comprehensive knowledge if only they could answer five basic questions correctly. If they fail to answer even one question correctly then they were categorised as not having basic knowledge of HIV-AIDS. That’s why the scoring system was inapplicable here.

Moreover, the approach to assess knowledge among *waria* in this study by classified the *waria* who having knowledge of HIV-AIDS based on their correct answer to certain single “yes” or “no” HIV-related questions was a very straightforward approach. That’s why this approach only addresses the knowledge of respondents at the certain point of time, because due to curiosity respondents could exchange information with other participants immediately after the survey and find the correct answer for every HIV knowledge-related questions. Beside that the statistical analysis also included the *waria* with basic knowledge of HIV, which is measured based on 5 different questions about HIV.

Related to the bivariate analysis, most of the dependent and independent variables of this study were recoded into dichotomous variables from the existing variables. Variables with more than 2 categories were recoding into two categories included coding the category of “don’t remember” and “decline to answer” into “missing system. The recoding processes were time consuming, and need to be handled carefully to ensure no mistake was done in the recoding. Some mistake found were mistaken coding “yes”=1 for the “selected”=1 cases when the correct answer supposed to be “No”. or other way round. To avoid the mistake, crosschecks with the original data were done after recoding both by manual check side-by-side new and old variable. Then check using data from descriptive frequency analysis of both variables using SPSS.

The sample size for logistic regression analysis ranged from 9.6% to 71%. This number was lower than total sample size (N=1003) due to missing data. However,

according to the goodness-of-fit-test (Hosmer-lemeshow) of all five final chosen models *p*-value were greater than 0.05, which indicates that there is not enough evidence to conclude the models does not fit to the data.

The backward selection by calculating the AIC manually for multiple logistic regressions was chosen because the variables of predictors were only ten variables. The model building based on the backward selection was exhausting and time consuming because the process was reducing the variables one by one until all variables were significant. The more the variables, the more the possible variable set will be and need to be tested. Although the backward selection might not be the best method, in this study we choose the variable that gives the biggest significant improvement to the model.

In the model selection methods for logistic regression analysis, the AIC in this study was just one of the multiple goodness-of-fit measures. This means that the AIC was not the only consideration for the model selection. The backward selection of models for Logistic regression in this study by using AIC often over fitting variables, the lowest AIC almost always appear on the models with many candidate variables. This procedures also result to the variables that are not really necessary were included. For example model of predictors associated with condoms use with the permanent partner, the lowest AIC was consisting of 4 variables, which included: age, education, gets free condoms and condoms use in the first sex. However when the model was implemented the variable “age” was dropped out because the variable of “age” was totally not associated with the condoms use among *waria* when having sex with their permanent partner. That’s why the final model for permanent partner group consists only three variables: Education; Get free condoms and Condoms use in the first sex. The same process also has been done on the predictors for the group of last sex in the sex party which the chosen model based on lowest AIC value consisted of 6 variables, however 2 variables needed to be drop out because they were not significant.

5.3 Strength and Limitations of the study

Utilisation of the secondary data which were collected for another purposes, has made the analysis plan of this study to be based on the availability of the data. It was also required a lot of computing and recoding work of the existing variables. Moreover, The condoms use analysis might be more broaden the scope of study if completed with the measurement of consistency of condoms use (always use

condoms) through the frequency of condoms use rather than condoms use with different partner types alone. However, in this study, the frequency of condoms use among *waria* were presented as a descriptive data and were not included in the bivariate analysis due to the inconsistent of timeframe. The condoms use frequency when having sex with the permanent partners, the non-permanent-non-commercial partners and the commercial partners when buying sex were measured with timeframe “in the last month”, meanwhile with the commercial partner when selling sex was measured with timeframe “in the last week”. There was also no data available for condoms use frequency in the sex party.

The other limitation of this study was, there was no computing data can be taken due to missing data, Since there were no additional information or original questionnaire sheet from the survey, it was not possible to fill the missing data by computing from available variables, because it will create bias.

The limitation also found that due to the type of question in the questionnaire, in assessing the intention of condoms use negotiation, the data were extracted from the question “whether the respondents were asked or being asked to use condoms”. However the questionnaire did not distinguish the initiator of condoms use between both parties. That’s why in this study only summarise an assumption that the respondents were involved in the negotiations situation rather then their intention to do negotiation to use condoms.

Despite the limitations, the results of this study were able to give an overview of the association between the specific HIV-AIDS knowledge of *waria* and their condoms use behaviour with specific sexual partners and contexts. These findings pointed out a very specific gap exist in the population of *waria* related to their condoms use behaviour. The results let the public health expert know that *waria* in Indonesia had have enough HIV-AIDS knowledge, instead of keep exposed the *waria* with the knowledge about HIV-AIDS transmission and prevention, it would be better to equipped them with the knowledge on how to do negotiation of condoms use and how to fill the gap exist on their condoms use effort.

6 CONCLUSIONS AND OUTLOOK

In conclusion, *waria* in five cities in Indonesia were knowledgeable about HIV-AIDS. Nevertheless, the rates of condoms use among *waria* were relatively low and varied based on the type of the partner. Despite the complexities of the gender identities of *waria*, there was a significant association between well-informed *waria* and their condoms use behaviour in the last sex with certain sexual partners. Well-informed *waria* are 1.4 to 3.8 times more likely to use condoms compared to *waria* without knowledge of HIV-AIDS. However, the significant associations were found only among the respondents from the city of Jakarta, Bandung and Malang. The condoms use among *waria* were depending on the condoms use preferences of *waria*. “Get free condom” and “attitude that always bring condoms” were major factor that might be able to increase the condoms use preferences among *waria* when having sex with different types of partners.

Analysis from the low effects of the association between *waria* with knowledge of HIV-AIDS and their condoms use, the current HIV-AIDS intervention focused on individual knowledge and awareness expecting *waria* to adopt low-risk sexual behaviour might be less effective. At worst, the HIV cases will still continue to rise in line with the rising number of *waria’s* population and group. As a suggestion, free condoms in sufficient amount should be made available for *waria* in all five cities. *waria’s* specific intervention targeted group level in order to increase the demand pressure on condoms use might be more promising. In addition, modify the HIV-AIDS knowledge delivery strategy with several time repetitions in order to increase the health literacy of *waria*, so that they can put all the gained information into action for their health consistently.

Despite the limitation, the approach using secondary data (IBBS) was able to give an overview about the association between the HIV-AIDS knowledge of *waria* and their condoms use behaviour with specific sexual partner type. So, the results could be a baseline when expanding the research to other specific study on condoms use in the future. In the future, it will be interesting to assess the condoms use intention among *waria* with different types of sexual intercourse partner in 12 months.

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APPENDIX

A. Approval letter and data request form to Ministry of Health Republic of Indonesia in original language *(Bahasa Indonesia)*

SURAT PERMOHONAN DATA SURVEI

KEPADA YTH

DIREKTUR P2ML

c q **Kepala Sub Directorate HIV dan IMS**

di Jakarta

Dengan hormat,

Saya yang bertanda tangan di bawah ini:

Nama : Yenny Tju
Alamat : Gojenbersweg 12, 21029 Hamburg, German
HP/email : +49017677016042 / vin yenny@gmail com
Status : Mahasiswa
Institusi : Hochschule für Angewandte Wissenschaften Hamburg (HAW Hamburg)
Alamat institusi : Berliner Tor 5, 20099 Hamburg Telp +49 40 428 75-0

Saya mengajukan permohonan data dasar survey yang telah dilakukan, untuk diajukan sebagai bahan penelitian:

JUDUL : Are Well-Informed Waria More Likely to Use Condom Consistently? Post Hoc Evaluation of A Nation-Wide Survey in Indonesia
TUJUAN : Master Thesis
METODE ANALISIS : Cross Sectional Study; Analisis menggunakan SPSS 24
WAKTU PELAPORAN : February 2019

Bersama surat ini, saya lampirkan seluruh syarat yang dibutuhkan untuk permohonan data Saya harapkan permohonan data ini dapat disetujui Atas kerjasama dan bantuannya, saya ucapkan terima kasih

Hamburg, 17 Juli 2018

Pemohon,

[redacted]

(Yenny Tju)

DAFTAR VARIABEL YANG DIBUTUHKAN

BERSAMA INI SAYA MEMOHON VARIABEL YANG DIBUTUHKAN:

NAMA SURVEI	TAHUN
• SSP	--
• STHP	--
• STBP (IBBS)	Tahun 2015, populasi Waria, Kota: Jakarta, Bandung, Malang, Semarang, Surabaya
• RTI STUDY	--

NO.	NAMA VARIABEL / NOMER KUESIONER	TUJUAN PENGGUNAAN VARIABEL
1	Blok 1 : 101,102, 103, 107-108, 110, 111	Semua variabel akan dipergunakan untuk analisa korelasi antara pengetahuan waria tentang pencegahan HIV-AIDS dengan kebiasaan pemakaian kondom secara konsisten pada populasi waria
2	Blok 3 : 302-304, 306-310	
3	Blok 4 : 401-407, 408-412, 413-423	
4	Blok 5 : 501-517	
5	Blok 6 : 601-, 603, 606-626, 628, 630, 634-635, 637-638, 649, 651, 654-655, 659, 661-665,	
6	Blok 7 : 701-707	
7	Blok 9 : 959-973, 981-984	

Seluruh variable yang tersebut di atas, dibutuhkan dalam penelitian saya Untuk itu, saya mohon variable tersebut dapat saya gunakan

Hormat saya,

Hamburg, 17 Juli 2018

Pemohon

[redacted]

(Yenny Tju)

SURAT PERNYATAAN PEMOHON

Saya yang bertanda tangan di bawah ini:

Nama	:	Yenny Tju
Alamat	:	Gojenbersweg 12, 21029 Hamburg, German
HP/email	:	+49 17677016042 / vin.yenny@gmail.com
Status	:	Mahasiswa
Institusi	:	Hochschule für Angewandte Wissenschaften Hamburg (HAW Hamburg)
Alamat institusi	:	Berliner Tor 5, 20099 Hamburg Telp. +49 40 428 75-0

Setuju menggunakan data yang dimohonkan untuk:

JUDUL	:	Are Well-Informed Waria More Likely to Use Condom Consistently? Post Hoc Evaluation of A Nation-Wide Survey in Indonesia
TUJUAN	:	Master Thesis
METODE ANALISIS	:	Cross Sectional Study; analisis SPSS 24
WAKTU PELAPORAN	:	February 2019

Untuk itu, saya menyatakan:

1. Bersedia menyerahkan hasil analisa dan laporan akhir kepada Kemenkes sesuai dengan waktu pelaporan atau maksimal 1 minggu setelah selesai pelaporan.
2. Penggunaan data ini sesuai dengan surat pemohon, dan tidak dapat menggunakan untuk kepentingan lainnya.

Pernyataan ini, saya buat dalam keadaan sadar dan sehat walafiat tanpa tekanan siapapun.

Hamburg, 17 Juli 2018

Pemohon,

[redacted]

(Yenny Tju)

B. IBBS 2015 questionnaire for the population of *waria* (English Translation)

IBBS15–TRANSGENDER
CONFIDENTIAL

Apply sticker here

Integrated Biological and Behavioural Survey (IBBS) 2015
Ministry of Health of the Republic of Indonesia

INFORMED CONSENT FORM (ICF)

This informed consent form has been read to me and I have had the opportunity to inquire about this activity and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate in this activity and understand that I reserve the right to withdraw from this activity. I will be provided with a copy of this signed consent form for me to hold as proof of participation.

☐ I agree to participate in the activity and agree to have blood sample drawn from my veins and a vaginal swab	Apply barcode sticker	DATE/MONTH/2015
Signature of Respondent / Interviewer	Signature Respondent/ Interviewer	DATE/MONTH/2015

This questionnaire has been checked for completeness and consistency of answers by the Supervisor,		
Name and code of Supervisor	Signature	Date (dd/mm/yy)
☐☐		☐☐☐☐☐☐

IBBS15–TRANSGENDER
CONFIDENTIAL

Apply sticker here

Block 1. Venue Information

			Answer code
101	Province	☐☐	101
102	District/city	☐☐	102
103	Name of Location		103
104	Type of Location	*Park/street* 1; *Bar/Discotheque/Pub/Cafe* 2; *Salon* 3; *Organizat on/meeting place* 4; *House/room* 5; *Skills train ng centre* 6; *Other* 7	☐ 104
105	Locat on Number	☐☐	105
106	Sub-location Number	*(if the selected locat on is not divided into sub-locations record 00 on the box for the sub-locat on code)* ☐☐	106
107	Respondent Number	☐☐	107
108	Is condom easy to get here? **(Interviewer's Observation)**	*Yes, inside* 1; *Yes, outside* 2; *Yes, inside and outside* 3; *No* 4	☐ 108
109	If yes, what brand names are available?		109
		a. Sutra Yes 1 No 2	☐
		b. Durex Yes 1 No 2	☐
		c. Fiesta Yes 1 No 2	☐
		d. BKKBN Yes 1 No 2	☐
		e. Artika Yes 1 No 2	☐
		f. Other : Yes 1 No 2	☐
110	Is lubricant easy to get here? **(Interviewer's Observation)**	*Yes, inside* 1; *Yes, outside* 2; *Yes, inside and outside* 3; *No* 4	☐ 110
111	At this venue, are there posters or brochures promoting condoms and lubricants?	*Yes* 1; *No* 2	☐ 111

Block 2. Interviewer Information

			Answer code
201	Date of document check	*(dd/mm/yy)*	☐☐☐☐☐☐ 201
202	Signature of Supervisor		202
203	Name and code of Interviewer I		☐☐ 203
204	Sex at birth	*Ma e* 1 *Fema e* 2	☐ 204
205	Date of interv ew	*(dd/mm/yy)* ☐☐☐☐☐☐	☐☐☐☐☐☐ 205
206	Signature Interviewer I		206
	Answers to this questionnaire have been checked for their completeness and consistency		
207	Name and code of Interviewer II		☐☐ 207
208	Date of document check	*(dd/mm/yy)* ☐☐☐☐☐☐	☐☐☐☐☐☐ 208
209	Signature Interviewer II		209

Block 3. Characteristics

No.	Question	Category code		Continue to	Answer code
301	What is your date of birth?	*Month* _____ *Year* _____			301
302	What is your highest level of education?	*Never attended school* *D d not complete primary evel/equivalent* *Completed primary evel/equivalent* *Did not complete lower secondary evel/equivalent* *Completed lower secondary level/equivalent* *Did not complete upper secondary evel/equivalent* *Completed upper secondary evel/equivalent* *Did not complete col ege/university* *Completed col ege/university* *Decline to answer*	0 1 2 3 4 5 6 7 8 9		302
303	What is your current marital status? (married to a woman) *(read the answers)*	*Single/never married* *Married* *Divorced* *Widowed* *Decline to answer*	1 2 3 4 9		303
304	How many iving biological ch ldren do you have?	_____ *peop e* *No living biolog cal children* *Decline to answer*	00 99		304
305	Where are you originally from?	*a. Prov nce* *b. District/city*			305
306	Who do you live with now? *(read the answers)*	*Alone* *With fr ends* *With family or sibling* *With permanent transgender partner* *With a wife or permanent fema e partner* *With permanent male partner* *No permanent p ace of stay* *Other* _____ *Decline to answer*	1 2 3 4 5 6 7 8 9		306
307	Are you the pimp here?	*Yes* *No* *Pimp in another p ace*	1 2 3		307
308	What is your main source of income in the last month?	*Unemployed* *Employee salary* *Freelance work* *Work in hair salon/massage parlour* *Student pocket money* *Sell sex* *Own business* *Other* _____ *Decline to answer*	0 1 2 3 4 5 5 6 9		308
309	How long have you lived in this city (name of city)? *(read the answers)*	_____ *year(s)* *If less than 1 year* *Whole life* *Don t remember* *Don t know* *Decline to answer*	00 96 97 98 99		309

Block 3. Characteristics

No.	Question	Category code		Continue to	Answer code
310	Where do you most often meet fe low transgender people? *(on y one answer)*	*Mall* *Bar/discotheque/pub/café/restaurant/cinema* *Massage parlour/hair salon* *Home/rented place of stay* *Park/street* *Hotel/inn/sports centre* *Bus terminal/train station/harbour/a rport* *Internet kiosk* *Campus* *Other*_____ *Never*	01 02 03 04 05 06 08 09 11 12 00		310

Block 4. Knowledge on HIV/AIDS, Risks, and Prevention

No.	Question	Category code			Continue to	Answer code
401	In the last year have you ever received information on HIV/AIDS prior to this interview?	*Yes* *No* *Don t know* *Decline to answer*	1 2 8 9	→403 →403 →403		401
402	In the last year where did you get your information on HIV/AIDS from?					402
	Source of information	*Yes*	*No*			
	a. Radio	1	2			a
	b. TV	1	2			b
	c. Newspaper/magazine	1	2			c
	d. Poster/leaflet/booklet	1	2			d
	e. Health worker	1	2			e
	f. Field worker	1	2			f
	g. Extension worker	1	2			g
	h. Peer	1	2			h
	i. Counsellor	1	2			i
	j. Case manager	1	2			j
	k. Pimp (define)	1	2			k
	l. Performance/edutaiment/film/ infotainment	1	2			l
	m Internet/website/blog	1	2			m
	n. Hotline service/SMS	1	2			n
	o. Social media/chatting	1	2			o
	p. Other: _____	1	2			p
403	Can you tell if someone is infected with HIV simply by looking at the person?	*Yes* *No* *Don t know* *Decline to answer*	1 2 8 9			403
404	Can people reduce the risk of getting HIV by using a condom properly every time they have sex?	*Yes* *No* *Don t know* *Decline to answer*	1 2 8 9			404
405	Can being faithful to each other reduce the risk of getting HIV?	*Yes* *No* *Don t know*	1 2 8			405

Block 4. Knowledge on HIV/AIDS, Risks, and Prevention

No.	Question	Category code		Cont nue to	Answer code
		Decline to answer	*9*		
406	Can people be infected with HIV through a mosquito/insect bite?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*		☐ 406
407	Can people get HIV by sharing eating or drinking utensils with a person already infected with HIV?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*		☐ 407
408	Can drinking antibiotics or traditional herbs before and after having sex reduce the risk of getting HIV?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*		☐ 408
409	Can eating nutritious food reduce the risk of getting HIV?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*		☐ 409
410	Can people get HIV through the sharing of previously used needles and syringes?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*		☐ 410
411	Can HIV be transmitted from mother to ch ld during pregnancy?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*		☐ 411
412	Can HIV be transmitted from mother to ch ld when breastfeeding?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*		☐ 412
413	Can people reduce the risk of getting HIV by not having anal sex?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*		☐ 413
414	Can having less sexual partners reduce the risk of getting HIV?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*		☐ 414
415	Can people with HIV receive treatment that a lows them to lead healthier lives longer? This is also referred to antiretroviral therapy (put in local language terms)	*Yes* *Can t be treated* *Don t know* *Decline to answer*	*1* *2* *8* *9*	 →419 →419 →419	☐ 415
416	If yes how long is the treatment?	_____ *month(s)* *L fe ong* *Unt l cured* *Don t know* *Decline to answer*	 *991* *992* *998* *999*		☐☐☐ 416
417	Do you know where such treatment for HIV can be obtained from in your city?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*		☐ 417
418	Do you think that you w ll be able to obtain such treatment should you need it?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*		☐ 418
419	Do you know where people can go for confidential testing to know whether they are infected with HIV or not? *(Confidential means no one will know the test resu ts un ess otherwise stated by you)*	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*		☐ 419

Block 4. Knowledge on HIV/AIDS, Risks, and Prevention

No.	Question	Category code				Continue to	Answer code
420	Are prevention measures still needed for sexual partners who are both HIV positive?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*				☐ 420
421	Do you think that you are at risk of getting HIV?	*Yes* *No* *Don t know* *Decline to answer*	*1* *2* *8* *9*			 →423 →423 →423	☐ 421
422	If yes why do you think you are at risks? **[there may be more than one answer]**		*Yes*	*No*	*Don t know*		☐ 422
	a. Because have ever used drugs		*1*	*2*	*8*		☐ a.
	b. Because have ever had sex		*1*	*2*	*8*		☐ b.
	c. Because have ever received blood transfusion		*1*	*2*	*8*		☐ c.
	d. Other:	*12*			*8*		☐ d.
423	What have you done to reduce the risk of getting HIV?						423
	Effort made	*Yes*		*No*			
	a. Always use a condom and lubricant	*1*		*2*			☐ a
	b. Reduce number of sexual partner	*1*		*2*			☐ b
	c. Visit an STI clinic when symptoms appear	*1*		*2*			☐ c
	d. Take antibiotics as prescribed by the doctor/health worker	*1*		*2*			☐ d
	e. Other:	*1*		*2*			☐ e

This section contains questions on condom and lubricant, and their use.

We will keep your information and answers confidential. Your honesty is extremely useful for us to develop services and assistance according to the needs and expectations of people in the same profession as you. If you feel uncomfortable and are reluctant to answer questions truthfully, please let us know if you decline to answer and we will continue with the next question. If you do not wish to continue with the interview, please also let us know.

Block 5. Condom and Lubricant

No.	Question	Category code		Cont nue to	Answer code
501	Do you know what this is? (while present ng a male condom and showing its content. If the respondent does not know, tell that it is a 'condom)	*Yes, right answer* *Yes, wrong answer* *Don't know*	*1* *2* *8*	→513	☐ 501
502	If "Yes " (R. 501 1atau 2), do you have one?	*Yes* *No*	*1* *2*	→504	☐ 502
503	If yes (R. 502 1), can you show it?	*Yes* *No*	*1* *2*		☐ 503
504	If yes, how many male condoms did you have in the last week? *(record the number of condoms. If mentioned as a packet of condom, convert it to pieces of condom)*	_____ *piece(s)* *Do not have a condom*	*999*		☐☐☐ 504
505	In the last month, how did you obtain a condom?	*Never had a condom* *Buy* *Get for free* *Buy and get for free* *Don't remember* *Dec ine to answer*	*0* *1* *2* *3* *8* *9*	→511 →509 →511 →511	☐ 505
506	If bought, where did you mostly buy it from in the last month? *(do not read answers and only one answer)*	*Stall/shop* *Pharmacy/drugstore* *Bar/hotel/inn* *Pimp* *NGO* *Other:* _____ *Don't remember* *Decline to answer*	*1* *2* *3* *4* *5* *6* *8* *9*		☐ 506
507	How many condoms d d you buy n the last month? *(record the number of condoms. f mentioned as a packet of condom, convert it to pieces of condom)*	_____ *piece(s)* *Don't remember* *Decline to answer*	*998* *999*		☐☐☐ 507
508	How much is the average price of 1 (one) piece of condom that you bought in the last month? *(1 piece of condom, not 1 packet of condom)*	*Rp.* _____ *Don't remember* *Decline to answer*	*9999998* *9999999*		☐☐☐☐☐☐ 508
509	If got for free, where did you mostly obta n it from in the last month?	*Hea th faci ity* *Friend* *Client* *Pimp* *NGO* *Other:* _____ *Don't remember* *Decline to answer*	*1* *2* *3* *4* *5* *6* *8* *9*		☐ 509
510	How many free condoms did you get in the last month? *(record the number of condoms. If mentioned as a packet of condom convert it to pieces of condom)*	_____ *piece(s)* *Don't remember* *Decline to answer*	*998* *999*		☐☐☐ 510

511	Which brand name of condoms do you most often use?	*Sutra* *F esta* *Durex* *BKKBN/KB* *Art ka* *Other:* _____	*1* *2* *3* *4* *5* *6*		☐ 511
512	In the last month, have you ever experienced a torn/leaked condom when in use?	*Never used a condom in the last month* *I have, once* *I have, more than once* *Never tear/leak* *Don't remember* *Decline to answer*	*0* *1* *2* *3* *8* *9*		☐ 512
513	Have you or your male partner ever used lubr cant when having anal sex? *(Something that can make your pen s or that of your male partner s become s ippery and easier to enter the anus)*	*Yes* *No* *Don't remember* *Decline to answer*	*1* *2* *8* *9*	→516 →516 →516	☐ 513
514	What kind of lubricant did you or your male partner use at the last anal sex?	*Saliva* *Oil/baby oil* *Water-based lubricant* *Cream/body lotion* *Water* *Gel* *Other:* _____ *Don't know* *Decline to answer* *Didn't use lubricant in the last anal sex*	*1* *2* *3* *4* *5* *6* *7* *8* *9* *0*	→516 →516 →516 →516 →516 →516 →516 →516 →516	☐ 514
515	What is the brand name of the water-based lubricant that you most often use?	*KY Gel/VIGEL* *Sutra Lubricant* *Durex* *Other:* _____ *Don't know* *Decline to answer*	*1* *2* *3* *4* *8* *9*		☐ 515
516	Do you usua ly bring a condom?	*Yes* *No*	*1* *2*		☐ 516
517	Do you usua ly bring lubricant?	*Yes* *No*	*1* *2*		☐ 517

Consider asking lubricant questions with all partner types in the lubricant section instead of in the sexual partners section:

In the last month/week (THIS IS JUST AN EXAPMPLE QUESTION TO GET RID OF ALL THE QUESTIONS ABOUT LUBRICANT ABOVE) with whom did you use lubricants.

Mark as many as feasible.

Instructions for the Interviewer:

The interviewer tells the respondent that the following questions are personal by nature and the interviewer guarantees the confidentiality of the respondent's answers and asks the respondent to answer each question truthfully.

Say the following to the respondent:

The following questions are extremely personal because they are related to sexual behaviour and condom use.
You need not worry because the confidentiality of your answers is guaranteed.
Please answer or explain truthfully the following questions that I will be asking you.

Block 6. Sexual Behaviour

Now we are agoing to ask you questions about your sexual behavior. We will ask you questions about sexual intercourse. Sexual intercourse is defined as vaginal or anal penetrative sex.

No.	Question	Category code	Cont nue to	Answer code
601	At what age did you sexual intercourse for the first time? *(includ ng rape not nc ud ng oral sex)*	_____ *years* *Don t remember* 98 *Decline to answer* 99		601
602	The first time you had sexual intercourse was your sexual partner a male female or transgender?	*Male* 1 *Female* 2 *Transgender* 3 *Don t remember* 8 *Decline to answer* 9		602
603	The first time you had sexual intercourse did you use a condom during your entire sexual intercourse?	*Yes* 1 *No* 2 *Don t remember* 8 *Decline to answer* 9		603
604	The first time you had sexual intercourse were you forced to do it?	*Yes* 1 *No* 2 *Don t remember* 8 *Decline to answer* 9		604
605	In which cities have you ever had sexual intercourse before this city? *(name the last three d stricts/c ties)*			*Provinc al code C ty code* 605
	a. District/city:	Province: Duration: _____ month(s)		*Provnc al code Dis-trct/city* a *Durat on month*
	b. District/city:	Province: Duration: _____ month(s)		*Provnc al and D strict/c ty code* b *Durat on month*
	c. District/city:	Province: Duration: _____ month(s)		*Provnc al and d strict/c ty code* c *Durat on month*
	Sexual intercourse with a permanent partner			
606	Do you have a permanent sexual partner?	*Yes* 1 *No* 2 →614 *Decline to answer* 9 →614		606
607	f yes is the permanent sexual partner a male female or transgender?	*Male* 1 *Female* 2 *Transgender* 3 *Decline to answer* 9		607
608	Does your permanent sexual partner also have another sexual partner?	*Yes* 1 *No* 2 →610 *Don t know* 8 →610 *Decline to answer* 9 →610		608
609	f yes is the partner male female or transgender?	*Male* 1 *Female* 2 *Transgender* 3 *Don t know* 8 *Decline to answer* 9		609
610	The last time you had sexual intercourse did you use a condom?	*Yes* 1 *No* 2 *Don t remember* 8 *Decline to answer* 9		610

Block 6. Sexual Behaviour

Now we are agoing to ask you questions about your sexual behavior. We will ask you questions about sexual intercourse. Sexual intercourse is defined as vaginal or anal penetrative sex.

No.	Question	Category code	Continue to	Answer code
611	The last time you had sexual intercourse did you use lubricant?	*Yes* 1 *No* 2 *Don t remember* 8 *Decl ne to answer* 9		611
612	In the last month how many permanent sexual partners did you have?	_____ *people* *No permanent sexual partner in the last month* 00 →614 *Don t remember* 98 *Decl ne to answer* 99		612
613	In the last month how often did you/your permanent sexual partner use a condom when having sex?	*Never* 0 *Seldom/sometimes* 1 *Often* 2 *Always* 3 *Don t remember* 8 *Decl ne to answer* 9		613
	Sexual intercourse with a non-permanent male partner (non-commercial, non-transgender)			
614	In the last year have you ever had anal sex with a non-commercial male (not transgender?	*Yes* 1 *No* 2 →625		614
615	In the last anal sex above did you/your partner use a condom?	*Yes* 1 *No* 2 *Don t remember* 8 *Decl ne to answer* 9		615
616	In the last anal sex above did you/your partner use lubricant?	*Yes* 1 *No* 2 *Don t remember* 8 *Decl ne to answer* 9		616
617	In the last anal sex with a non-commercial male did you/your partner ask to use a condom?	*Yes* 1 *No* 2 *Don t remember* 8 *Decl ne to answer* 9		617
618	In the last anal sex with a non-commercial male did you/your partner ask to use lubricant?	*Yes* 1 *No* 2 *Don t remember* 8 *Decl ne to answer* 9		618
619	In the last month did you have non-commercial anal sex?	*Yes* 1 *No* 2 →625		619
620	If yes how many men did you have non-commercial anal sex with?	_____ *people* *Don t remember* 98 *Decl ne to answer* 99		620
621	In the last month how often did you/your partner use a condom when having anal sex with a non-commercial male?	*Never* 0 *Seldom/sometimes* 1 *Often* 2 *Always* 3 *Don t remember* 8 *Decl ne to answer* 9		621
622	In the last month how often did you/your partner use lubricant when having anal sex with a non-commercial male?	*Never* 0 *Seldom/sometimes* 1 *Often* 2 *Always* 3 *Don t remember* 8 *Decl ne to answer* 9		622
623	In the last month how often did you/your partner ask to use a condom	*Never* 0 *Seldom/sometimes* 1		623

Block 6. Sexual Behaviour

Now we are agoing to ask you questions about your sexual behavior. We will ask you questions about sexual intercourse. Sexual intercourse is defined as vaginal or anal penetrative sex.

No.	Question	Category code		Cont nue to	Answer code
	when having anal sex with a non-commercial male?	*Often*	*2*		
		Always	*3*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
624	In the last month, how often did you/your partner ask to use lubricant when having anal sex with a non-commercial male?	*Never*	*0*		624
		Seldom/sometimes	*1*		
		Often	*2*		
		Always	*3*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
	Sexual Intercourse with a Man (Buy Sex)				
625	Have you ever bought sex (i.e., you gave someone money or goods n exchance for sex)?	*Yes*	*1*		625
		No	*2*	→637	
626	At what age did you buy sex for the first time?	*_____ years*			626
		Don't remember	*98*		
		Decl ne to answer	*99*		
627	How long have you been buy ng sex in this city?	*_____ year(s) _____ month(s)*			(in months) 627
		Don't remember	*998*		
		Decl ne to answer	*999*		
628	The last time you bought sex, did you/your partner use a condom?	*Yes*	*1*		628
		No	*2*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
629	The last time you bought sex, did you/your partner use lubricant?	*Yes*	*1*		629
		No	*2*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
630	The last time you bought sex, did you/your partner ask to use a condom??	*Yes*	*1*		630
		No	*2*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
631	In the last year, have you ever given something in return (buy sex) to a man to have sex with you?	*Yes*	*1*		631
		No	*2*	→637	
		Don't remember	*8*		
		Decl ne to answer	*9*		
632	Have you ever given something in return for anal sex with you in the last month?	*Yes*	*1*		632
		No	*2*	→637	
633	When you bought sex in the last month, how many men d d you give someth ng in return for having anal sex with you?	*_____ people*			633
		Don't remember	*98*		
		Decl ne to answer	*99*		
634	When you bought sex in the last month, how often did you/your partner use a condom?	*Never*	*0*		634
		Seldom/sometimes	*1*		
		Often	*2*		
		Always	*3*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
635	When you bought sex in the last month, how often did you/your partner ask to use a condom?	*Never*	*0*		635
		Seldom/sometimes	*1*		
		Often	*2*		
		Always	*3*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
636	When you bought sex in the last month, how often did you/your partner use lubricant?	*Never*	*0*		636
		Seldom/sometimes	*1*		
		Often	*2*		
		Always	*3*		

Block 6. Sexual Behaviour

Now we are agoing to ask you questions about your sexual behavior. We will ask you questions about sexual intercourse. Sexual intercourse is defined as vaginal or anal penetrative sex.

No.	Question	Category code		Continue to	Answer code
		Don't remember	*8*		
		Decl ne to answer	*9*		
	Sexual Intercourse with a Male Client (Sell Sex)				
637	Have you ever sold sex (i.e., someone gave you money or goods to someone in exchange for sex)?	*Yes*	*1*		637
		No	*2*	→662	
638	At what age did you have sex in return for something, either money or goods, for the first time? *(have client(s) that you serve sexually)*	*_____ years*		→640	638
		Don't remember	*98*		
		Decl ne to answer	*99*		
639	For how long have you had sex for something in return, either money or goods, in this city?	*_____ year(s) _____ month(s)*			(in months) 639
		Don't remember	*9998*		
		Decl ne to answer	*9999*		
640	In the last year, have you ever had sex for something in return, either money or goods, from a man (not transgender)?	*Yes*	*1*		640
		No	*2*	→662	
		Don't remember	*8*		
		Decl ne to answer	*9*		
641	In the last week, how many men to whom you sold sex (non-transgender male) clients have had repeated visits (someone you have sold sex to more than X times?	*_____ people*			641
		No client n the last 1 week	*00*		
642	In the last week, how many men to whom you sold sex (non-transgender male) are new customers?	*_____ people*			642
		No client n the last 1 week	*00*		
643	How many of men to whom you sold sex (non-transgender male) in the last day of work are repeat clients?	*_____ people*			643
		No client in the last 1 day	*00*		
644	How many men to whom you sold sex (non-transgender male) in the last day of work are new clients?	*_____ people*			644
		No client in the last 1 day	*00*		
645	In general, which do you have more, repeat cl ents or new clients?	*More repeat clients*	*1*		645
		More new cl ents	*2*		
		Almost the same	*3*		
		Other, _____	*8*		
		Decline to answer	*9*		
646	Where did you last meet your male client?	*Never meet c ient*	*00*	→662	646
		Mall	*01*		
		Bar/discotheque/pub/café/restaurant	*02*		
		Massage parlour/hair salon	*03*		
		Home/rented place of stay	*04*		
		Park/street	*05*		
		Hotel/inn	*06*		
		Sports centre	*07*		
		Bus terminal/train station/harbour/airport	*08*		
		Internet kiosk	*09*		
		Cinema	*10*		
		Campus	*11*		
		Other: _____	*12*		
647	How many times d d you have anal sex with the last male client?	*_____ time(s)*			647
		Don't remember	*98*		
		Decl ne to answer	*99*		
648	How many rupiahs were you paid by the last client?	*Rp. _____*			(in rupiah) 648
		Don't remember	*99999998*		
		Decl ne to answer	*99999999*		

Block 6. Sexual Behaviour

Now we are agoing to ask you questions about your sexual behavior. We will ask you questions about sexual intercourse. Sexual intercourse is defined as vaginal or anal penetrative sex.

No.	Question	Category code		Continue to	Answer code
649	In the last pa d anal sex with a male cl ent, did you/your partner use a condom?	*Yes*	*1*		649
		No	*2*		
		Don't remember	*8*		
		Dec ine to answer	*9*		
650	In the last pa d anal sex with a male cl ent, did you/your partner use lubricant?	*Yes*	*1*		650
		No	*2*		
		Don't remember	*8*		
		Dec ine to answer	*9*		
651	In the last pa d anal sex with a male cl ent, did you ask to use a condom?	*Yes*	*1*		651
		No	*2*		
		Don't remember	*8*		
		Dec ine to answer	*9*		
652	In the last year, for how many months have you not sold sex?	*_____month(s)*			652
		Don't remember	*98*		
		Dec ine to answer	*99*		
653	In the last month, for how many days have you not sold sex?	*_____day(s)*			653
		Don't remember	*98*		
		Dec ine to answer	*99*		
654	In the last week, have you had anal sex with a male client?	*Yes*	*1*		654
		No	*2*	→656	
655	If yes, how many times have you had anal sex w th a male client?	*_____time(s)*			655
		Don't remember	*98*		
		Decline to answer	*99*		
656	In the last week, how many different male clients have you had anal sex with?	*_____people*			656
		Don't remember	*98*		
		Dec ine to answer	*99*		
657	In the last week, have you ever had anal sex w th a client of foreign nationality?	*Yes*	*1*		657
		No	*2*	→659	
658	If yes, how many of these foreign clients have you had anal sex with?	*_____people*			658
		Decline to answer	*99*		
659	In the last week, how often d d you or your male client use a condom during anal sex?	*Never*	*0*		659
		Seldom/sometimes	*1*		
		Often	*2*		
		Always	*3*		
		Don't remember	*8*		
		Dec ine to answer	*9*		
660	In the last week, how often d d you or your male client use lubricant during anal sex?	*Never*	*0*		660
		Seldom/sometimes	*1*		
		Often	*2*		
		Always	*3*		
		Don't remember	*8*		
		Dec ine to answer	*9*		
661	In the last week, how often d d you ask your client to use a condom during anal sex?	*Never*	*0*		661
		Seldom/sometimes	*1*		
		Often	*2*		
		Always	*3*		
		Don't remember	*8*		
		Dec ine to answer	*9*		
Questions on Sex Party					
662	In the last year, have you ever been involved in a sex party?	*Yes*	*1*		662
		No	*2*	→667	
663	If you have, how many times have you participated in a sex party n the last year?	*_____ time(s)*			663
		Don't remember	*98*		
		Dec ine to answer	*99*		

Block 6. Sexual Behaviour

Now we are agoing to ask you questions about your sexual behavior. We will ask you questions about sexual intercourse. Sexual intercourse is defined as vaginal or anal penetrative sex.

No.	Question	Category code		Continue to	Answer code
664	In the last sex party, how many people were involved?	*_____ orang*			664
		Don't remember	*98*		
		Decline to answer	*99*		
665	In the last sex party, did participants use a condom?	*Yes*	*1*		665
		No	*2*		
		Don't remember	*8*		
		Decline to answer	*9*		
666	In the last sex party, did participants use lubr cant?	*Yes*	*1*		666
		No	*2*		
		Don't remember	*8*		
		Decline to answer	*9*		
General Questions on Male and Female Sexuality					
667	Have you ever been circumcised?	*Yes*	*1*		667
		No	*2*		
668	In the last 12 months, have you ever been forced under threat to engage in sexual intercourse?	*Yes*	*1*		668
		No	*2*		
		Don't remember	*8*		
		Decline to answer	*9*		

Say the following to the respondent:

I will be asking sensitive issues related to drugs.
Let me remind you that your answers are confidential, so please answer truthfully.

Block 7. Alcohol and Drug Use

No.	Question	Category code		Cont nue to	Answer code
701	In the last 3 months, have you ever drank alcohol (liquor, palm wine, beer, whiskey, etc.) unt l intoxicated before hav ng sex?	*Yes*	*1*		701
		No	*2*		
		Decline to answer	*9*		
702	In the last 3 months, have you ever consumed drugs, such as marijuana, ecstasy, amphetamines, methamphetamines, etc., for fun or to get high or to fantasize before hav ng sex?	*Yes*	*1*		702
		No	*2*		
		Decline to answer	*9*		
703	Have you ever used drugs by way of injecting?	*Yes*	*1*		703
		No	*2*	→705	
		Decline to answer	*9*	→705	
704	If you have, did you do it in the last year?	*Yes*	*1*		704
		No	*2*		
		Decline to answer	*9*		
705	The last time you injected, did you share a needle or syringe with someone else?				705
706	Has any of your sexual partners ever used drugs before having sex with you?	*Yes*	*1*		706
		No	*2*	→801	
		Don't know	*8*		
		Decline to answer	*9*		
707	Has any of your sexual partners ever used drugs by way of inject ng?	*Yes*	*1*		707
		No	*2*		
		Don't know	*8*		

Block 7. Alcohol and Drug Use

No.	Question	Category code		Continue to	Answer code
		Decline to answer	9		
708	Reasons for using drugs and alcohol before having sex?	*Dec ine to answer*	9		☐ 708

Block 8. Other Risk Behaviours

No.	Question	Category code		Continue to	Answer code
801	Have you ever been tattooed using an unsterile needle?	*Yes*	1		☐ 801
		No	2		
		Decline to answer	9		
802	Have you ever been pierced?	*Yes*	1		☐ 802
		No	2		
		Decline to answer	9		
803	Is the needle used for the piercing or tat- too new?	*Yes*	1		☐ 803
		No	2		
		Don't know	8		
		Decline to answer	9		
804	Is the piercing or tattoo done by taking turns with another person and was the same needle used?	*Yes*	1		☐ 804
		No	2		
		Don't know	8		
		Decline to answer	9		
805	Have you or your fr end/someone else ever njected silicone into certain parts of your body in the last year?	*Yes*	1		☐ 805
		No	2		
		Don't know	8		
		Decline to answer	9		

Block 9. Programme Coverage

No.	Question	Category code		Continue to	Answer code
	Questions on HIV Testing Services				
901	Have you ever been offered to test for HIV?	*Yes*	1		☐ 901
		No	2	→904	
		Don't know	8	→904	
		Decline to answer	9	→904	
902	If yes, who was the last to offer/refer you for HIV testing?	*Field/NGO worker*	1		☐ 902
		Hospital health worker	2		
		Hea th worker n primary healthcare centre	3		
		Fr end	4		
		Partner	5		
		Other:_____	9		
903	In the last 3 months, have you ever been offered/referred to by an NGO or a friend for HIV testing?	*Yes*	1		☐ 903
		No	2		
		Don't know	8		
		Decline to answer	9		
904	Have you ever had a blood test to find out about your HIV status?	*Yes*	1	→906	☐ 904
		No	2		
		Don't remember	8	→906	
		Decl ne to answer	9	→906	

Block 9. Programme Coverage

No.	Question	Category code		Continue to	Answer code
905	Reasons for not taking a blood test to determine your HIV status?	*Feel healthy/not at risk*	1		☐ 905
		Service centre too far	2		
		Service costs too expensive	3		
		Refuse, because do not want to know about status	4		
		Don't know where serv ce centre is	5		
		Don't know if need to test for HIV	6		
		Other:_____	7		
906	When was the last time you tested for HIV?	*Never been tested for HIV*	0	→920	☐ 906
		Less than a month ago	1		
		1-12 months ago	2		
		More than a year ago	3		
		Don't remember	8	→920	
		Dec ine to answer	9	→920	
907	What was the main reason for taking the last HIV test?	*For statement letter*	1		☐ 907
		For consent to marry/get engaged	2		
		Feel at risk	3		
		Feel ill	4		
		Requested/suggested/referred to by a health worker	5		
		Requested/suggested by a field/outreach worker	6		
		Other:_____	7		
		Don't know	8		
		Decline to answer	9		
908	In the last HIV test, was it of your own accord (not forced, voluntary)?	*Yes*	1		☐ 908
		No	2		
		Decline to answer	9		
909	How many rupiahs did you have to pay for the last HIV test?	*Services and Medic ne: Rp._____*			☐☐☐☐ 909
		Transport Rp._____			☐☐☐☐
		Did not pay	0000000		
		Don't know	9999998		
		Decline to answer	9999999		
910	Where was the last HIV test taken?	*Primary healthcare centre*	1		☐ 910
		Hosp tal	2		
		Private clinic	3		
		NGO	4		
		Mobile VCT	5		
		Other,_____	6		
		Don't remember	8		
		Decline to answer	9		
911	Main reason for choosing the last HIV testing site?	*Far from family/community*	01		☐☐ 911
		Near from home	02		
		Clinic understands the needs of gays/MSM	03		
		Comfortable	04		
		Inexpensive	05		
		Confidentiality assured	06		
		Referral from fie d worker/NGO	07		
		Other:_____	08		
		Don't remember	98		
		Decline to answer	99		
912	How long does it take to go to the last HIV testing site?	*Less than 1 hour*	1		☐ 912
		1-3 hours	2		
		More than 3 hours	3		
		Don't remember	8		
		Decline to answer	9		
913	Was your consent sought when your blood was drawn for the last HIV test?	*Yes*	1		☐ 913
		No	2		
		Decline to answer	9		
914	In the last HIV test ng, d d you receive counse ling before given the results?	*Yes*	1		☐ 914
		No	2		

Block 9. Programme Coverage

No.	Question	Category code		Continue to	Answer code
		Decline to answer	*9*		
915	In the last HIV testing, did you receive the results?	*Yes* *No* *Decline to answer*	*1* *2* *9*	→919 →919	915
916	In the last HIV testing, how long after your blood was exam ned did you receive the results?	*Less than 2 hours* *2 - 12 hours* *More than 12 hours up to a day* *More than a day* *Decline to answer*	*1* *2* *3* *4* *9*		916
917	In the last HIV testing, did you inform your permanent partner or family about the results?	*Yes* *No* *Decline to answer*	*1* *2* *9*	→919 →919	917
918	If the answer is no, what was the reason? (read the answers)				918
	Reasons for not te ling about the HIV test results	*Yes* *No*			
	a. Fear of discrimination	*1* *2*			a
	b. Fear of losing job	*1* *2*			b
	c. Fear of losing partner	*1* *2*			c
	d. Fear of be ng distanced by family	*1* *2*			d
	e. Other _____	*1* *2*			e
919	In the last HIV testing, did the health worker give you a referral?	*No referral* *Yes, referred to STI services* *Yes, referred to TB testing* *Yes, referred to fol ow-up HIV services* *Referred to other services* *Don't remember* *Decline to answer*	*0* *1* *2* *3* *4* *8* *9*		919
920	Has your permanent partner ever been tested for HIV?	*No permanent partner* *Yes* *No* *Don't know* *Decline to answer*	*0* *1* *2* *8* *9*	→922	920
921	D d you suggest to your permanent partner or fr end to test for HIV?	*Yes* *No* *Don't know* *Decline to answer*	*1* *2* *8* *9*		921
	Questions on Follow-up HIV Treatment Services				
922	Have you ever received further HIV treatment services (ART services)?	*Yes* *No* *Don't know* *Decline to answer*	*1* *2* *8* *9*	→926 →926 →926	922
923	Where was the HIV treatment services provided? (read the answers)	*The same c in c providing HIV test ng serv ces* *The same clinic providing STI serv ces* *A different clinic than for HIV testing and STI services* *Don't know* *Decline to answer*	*1* *2* *3* *8* *9*		923

Block 9. Programme Coverage

No.	Question	Category code		Continue to	Answer code
924	How long did it take to get there?	*Less than 1 hour* *1-3 hours* *More than 3 hours* *Don't remember* *Decline to answer*	*1* *2* *3* *8* *9*		924
925	How many rupiahs d d you have to pay for the last follow-up HIV treatment serv ces?	*Services and Med cine: Rp. _____* *Transport Rp. _____* *Did not pay0000000* *Don't know9999998* *Decline to answer9999999*			925
	Questions on Sexually Transmitted Infection (STI) Services				
926	In the last year, have you ever experienced the following symptoms	*Yes* *No* *Don't know* *Decl ne to answer*			926
	a. severe pain (burn ng pain) when urinating	*1* *2* *8* *9*			A
	b. warts around genitals	*1* *2* *8* *9*			B
	c. warts around the anus	*1* *2* *8* *9*			C
	d. sores or blisters around genitals	*1* *2* *8* *9*			D
	e. sores or blisters around the anus	*1* *2* *8* *9*			E
	f. abnormal discharge from the penis	*1* *2* *8* *9*			F
	g. abnormal discharge from the anus	*1* *2* *8* *9*			g
	h. bumps/swelling around the anus	*1* *2* *8* *9*			H
		If no symptoms		→944	
927	Have you ever been treated by a health worker when experiencing symptoms listed in R.926?	*Yes* *No* *Don't remember*	*1* *2* *8*	→929 →929	927
928	If yes, where did you seek treatment from?	*To the primary healthcare centre/hosp tal* *To a pract cing physician* *Other: _____* *Don't remember* *Decline to answer*	*1* *2* *3* *8* *9*	→930 →930 →930 →930 →930	928
929	If no, what d d you do?	*Did nothing/left untreated* *Self-treatment* *Sought treatment from a traditional healer* *Other: _____* *Don't remember* *Decline to answer*	*1* *2* *3* *4* *8* *9*		929
930	Have you ever been tested for STI?	*Yes* *No*	*1* *2*	→943	930
931	When was the last time you tested for STI?	*Less than a month ago* *1– 3 months ago* *4 month - 1 year ago* *More than a year ago*	*1* *2* *3* *4*		931

Block 9. Programme Coverage

No.	Question	Category code		Continue to	Answer code
		Don't remember	*8*	→942	
		Dec ine to answer	*9*	→942	
932	The main reason you last tested for STI?	*Routine check*	*1*		☐ 932
		Suggested by the administrator	*2*		
		Suggested by a field worker	*3*		
		Suggested by other health workers	*4*		
		Show symptoms or feel at risk	*5*		
		Other:_____	*6*		
		Decline to answer	*8*		
933	*Who suggested that you go to an STI service centre for the last test?(read all answers)*	*Yes*	*No*		933
	a. Own accord	*1*	*2*		☐ A
	b. Friend/outreach worker	*1*	*2*		☐ B
	c. Person running the prostitut on area	*1*	*2*		☐ C
	d. Other	*1*	*2*		☐ D
934	How many rupiahs did you have to pay for the last STI test ng?	*Services and Medicine: Rp. _____*			
		Transport Rp._____			☐☐☐☐ 934
		D d not pay	*0000000*		☐☐☐☐
		Don't know	*9999998*		
		Decline to answer	*9999999*		
935	In the last STI testing, how long was the test and treatment?	*Less than 2 hours*	*1*		☐ 935
		2 - 12 hours	*2*		
		More than 12 hours up to a day	*3*		
		More than a day	*4*		
		Decline to answer	*9*		
936	Where was the last STI testing taken?	*Primary hea thcare centre*	*1*		☐ 936
		Hospital	*2*		
		Private clinic	*3*		
		NGO	*4*		
		Mobile VCT	*5*		
		Other, _____	*6*		
		Don't remember	*8*		
		Decline to answer	*9*		
937	The main reason for choosing the last STI test ng site?	*Far from fam ly/commun ty*	*01*		☐☐ 937
		Near from home	*02*		
		C inic understands the needs of transgender persons	*03*		
		Comfortable	*04*		
		Inexpensive	*05*		
		Confidential assured	*06*		
		Referral from NGO/Foundation	*07*		
		Other:_____	*08*		
		Don't remember	*98*		
		Decline to answer	*99*		
938	How long to get to the last STI test ng site?	*Less than 1 hour*	*1*		☐ 938
		1-3 hours	*2*		
		More than 3 hours	*3*		
		Don't remember	*8*		
		Decline to answer	*9*		
939	Have you ever contracted STI?	*Yes*	*1*		☐ 939
		No	*2*	→941	
		Don't know	*8*	→941	
		Decline to answer	*9*	→941	

Block 9. Programme Coverage

No.	Quest on	Category code		Continue to	Answer code
940	When asked by the hea th worker, d d you tell that you have ever had sex w th a man at the last STI test?	*Yes, did tell*	*1*		☐ 940
		Yes, have told before	*2*		
		No	*3*		
		Don't remember	*8*		
		Decline to answer	*9*		
941	In the last STI testing, did the health worker provide you with a referral?	*No referral*	*0*		☐ 941
		Yes, referred to HIV test ng	*1*		
		Yes, referred to TB test ng	*2*		
		Yes, referred to other serv ces	*3*		
		Dec ine to answer	*9*		
942	In the last STI testing, did you ask/suggest to your permanent partner to test for STI?	*No permanent partner*	*0*	→944	☐ 942
		Yes	*1*	→944	
		No	*2*	→944	
		Don't remember	*8*	→944	
		Decline to answer	*9*	→944	
943	The main reason you never tested for STI?	*Feel hea thy/not at risk*	*1*		☐ 943
		Service centre too far	*2*		
		Service cost too expensive	*3*		
		Refuse, because did not want to know about status	*4*		
		Don't know where serv ce centre is	*5*		
		Don't know if need to test for STI	*6*		
		Other:_____	*7*		
944	In the last 3 months, have you ever been referred to by a health worker/outreach worker/fr end to an STI clinic for a health examination or STI testing?	*Yes*	*1*		☐ 944
		No	*2*		
		Don't remember	*8*		
		Decline to answer	*9*		
945	In the last 3 months, have you ever visited a health facility to test for STI?	*Yes*	*1*		☐ 945
		No	*2*	→947	
		Don't remember	*8*	→947	
		Decline to answer	*9*	→947	
946	If yes, how many t mes did you vis t the health facility to test for STI?	*_____ time(s)*			☐☐ 946
		Decline to answer	*99*		
947	In last 3 months, have you ever had an anal exam nation when checking nto the STI cl n c?	*Yes*	*1*		☐ 947
		No	*2*		
		Don't remember	*8*		
		Decline to answer	*9*		
	Questions on TB Services				
948	Have you ever had a cough for more than 2 weeks in the last year?	*Yes*	*1*		☐ 948
		No	*2*		
		Don't remember	*8*		
		Decline to answer	*9*		
949	Have you ever been examined for TB?	*Yes*	*1*		☐ 949
		No	*2*	→959	
		Decline to answer	*9*	→959	
950	When was the last time you went to a TB clinic?	*Less than a month ago*	*1*		☐ 950
		1–3 months ago	*2*		
		4 month - 1 year ago	*3*		
		More than 1 year ago	*4*		
		Don't remember	*8*	→958	
		Decline to answer	*9*	→958	
951	Have you been examined for TB in the past year (example sputum	*Yes*	*1*		☐ 951
		No	*2*		

Block 9. Programme Coverage

No.	Question	Category code		Cont nue to	Answer code
	test, x-ray)?	*Don't remember*	*8*		
		Decline to answer	*9*		
952	If yes, did you know the results?	*Yes*	*1*		☐ 952
		No	*2*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
953	Where did you last receive such services?	*The same clinic as for STI or HIV testing*	*1*		☐ 953
		A different clinic	*2*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
954	How long did it take to get to the last TB testing site?	*Less than 1 hour*	*1*		☐ 954
		1-3 hours	*2*		
		More than 3 hours	*3*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
955	How many rupiahs did you have to pay for the last TB testing?	*Services and Medic ne: Rp. _____*			☐☐☐☐ 955
		Transport Rp. _____			☐☐☐☐
		Did not pay	*0000000*		
		Don't know	*9999998*		
		Decline to answer	*9999999*		
956	Have you ever received TB treatment services for 6 months or more?	*Yes*	*1*		☐ 956
		No	*2*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
957	Are you currently receiving TB treatment services?	*Yes*	*1*		☐ 957
		No	*2*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
958	Were you offered for HIV testing from the TB clinic?	*Yes 1*			☐ 958
		No	*2*		
		Don't remember	*8*		
		Decl ne to answer	*9*		
	Questions on Other Prevention Services				
959	In the last year, have you ever attended a meeting or discussion with hea th workers on prevent ng HIV and STI transmission?	*Yes*	*1*		☐ 959
		No	*2*	→961	
		Don't remember	*8*	→961	
		Decl ne to answer	*9*	→961	
960	If you have, who organized it?	*(there may be more than one answer, but do not read the answers)*			960
		Yes	*No*		
	a. Local health office/hospital/primary healthcare centre	*1*	*2*		☐ a
	b. Local social affairs office	*1*	*2*		☐ b
	c. Local tourism off ce	*1*	*2*		☐ c
	d. Place of work	*1*	*2*		☐ d

Block 9. Programme Coverage

No.	Question	Category code		Continue to	Answer code
	e. NGO/Social Organization/KDS	*1*	*2*		☐ e
	f. Other	*1*	*2*		☐ f
961	In the last year, did you attend an event or sports event that discussed the issue of preventing HIV transmission among men having sex with men?	*Yes*	*1*		☐ 961
		No	*2*	→963	
		Don't remember	*8*	→963	
		Dec ine to answer	*9*	→963	
962	In the last year, how many times have you attended an event or sports event that discuss the issue of preventing HIV transmission among men having sex with men?	_____ *time(s)*			☐☐ 962
		Dec ine to answer	*99*		
963	In the last year, have you ever received printed materials (booklet, brochure, calendar, leaflet) on HIV prevent on and transmission among men having sex with men?	*Yes*	*1*		☐ 963
		No	*2*		
		Don't remember	*8*		
		Dec ine to answer	*9*		
964	In the last year, have you ever received/heard/watched audio visual material (cassette, VCD, DVD) on HIV prevention and transmission among men having sex with men?	*Yes*	*1*		☐ 964
		No	*2*		
		Don't remember	*8*		
		Dec ine to answer	*9*		
965	Have you ever met with a hea th worker/outreach worker to discuss HIV/STI prevention and transmission?	*Yes, ess than a month ago*	*1*		☐ 965
		Yes, 1 - 12 months ago	*2*		
		Yes, more than a year ago	*3*		
		Never	*4*	→974	
		Don't remember	*8*	→974	
		Dec ine to answer	*9*	→974	
966	If yes, what did you get from the f eld worker/outreach worker?				966
	I received	*Yes*	*No*		
	a. Explanat on on HIV	*1*	*2*		☐ A
	b. Explanat on on the risk factors of HIV transmission	*1*	*2*		☐ B
	c. Explanat on on the myths surrounding HIV transmission	*1*	*2*		☐ C
	d. Condom use negotiation	*1*	*2*		☐ D
	e. Condom use w th dildo	*1*	*2*		☐ E
	f. Referral to STI clinic	*1*	*2*		☐ F
	g. Referral to HIV testing services	*1*	*2*		☐ G

Block 9. Programme Coverage

No.	Question	Category code		Continue to	Answer code
	h. Information on follow-up HIV services	1	2		H
	i. Free condom	1	2		I
	j. Free lubricant	1	2		J
	k. Brochure leaflet booklet	1	2		K
	l. CD/DVD	1	2		L
	m. Other _____	1	2		M
967	In the last 3 months how many times have you received condoms from a field/outreach worker?	_____ time(s) Never 00 Don t remember 98 Decline to answer 99			967
968	In the last 3 months how many times have you received free condoms?	_____ time(s) Never 00 Don t remember 98 Decl ne to answer 99			968
969	In the last 3 months how many times have you been contacted by a field/outreach worker to discuss ways of HIV/STI prevention and transmission?	_____ time(s) Never 00 Don t remember 98 Decline to answer 99			969
970	Did you discuss personally with the field/outreach worker on the risk of getting HIV and ways of preventing it?	Yes 1 No 2 Decline to answer 9		→972 →972	970
971	If yes when was the last time you discussed personally with the field/outreach worker on the risk of getting HIV and ways of preventing it?	Less than 3 months ago 1 Last 4 months – 1 year ago 2 More than a year ago 3 Don t know 8 Decline to answer 9			971
972	Did you discuss as a group with a field/outreach worker on the risk of getting HIV and ways of preventing it?	Yes 1 No 2 Decline to answer 9		→974 →974	972
973	When was the last time you discuss as a group with a field/outreach worker on the risk of getting HIV and ways of preventing it?	Less than 3 months ago 1 Last 4 months – 1 year ago 2 More than a year ago 3 Don t know 8 Decline to answer 9			973
	Questions on Prevention Services through the Electronic Media				
974	Do you often access the internet?	Never 0 Yes 1 No 2		→983 →983	974
975	How often do you access the internet?	Every day 1 Every week 2 Every month 3 Other_____ 4			975
976	Have you ever visited a transgender/MSM website?	Yes 1 No 2		→978	976

Block 9. Programme Coverage

No.	Question	Category code		Cont nue to	Answer code
977	Which transgender/MSM website do you most frequently visit	International transgender/MSM website 1 National transgender/MSM website 2 Local transgender/MSM website 3 Other:_____ 4			977
978	Are you a member of a gay/MSM mailing list?	Yes 1 No 2		→980	978
979	Which mailing list group is most often followed?	Yahoo name of mai ing list_____ 1 Other:_____ 4			979
980	Which social networking site do you most often visit?	Never joined a social networking site 0 Facebook 1 Tw tter 2 Path 3 Instagram 4 Other:_____ 5			980
981	In the last 3 months how many times did you access a website/internet to seek information on HIV prevention and transmission among men having sex with men?	_____ time(s) Never 00 Decline to answer 99			981
982	In the last 3 months how many times did you communicate through the internet on HIV prevention and transmission?	_____ time(s) Never 00 Decline to answer 99			982
983	In the last 3 months how many times did you receive text messages providing information on preventing HIV transmission among men having sex with men?	_____ time(s) Never 00 Decline to answer 99			983
984	In the last 3 months how many times did you contacted a hot ine service for information on HIV?	_____ time(s) Never 00 Decline to answer 99			984
985	Have you ever heard of hepatitis?	Yes 1 No 2 Decline to answer 9			985
986	Have you ever been vaccinated for hepatitis B?	Yes 1 No 2 Don t remember 8 Dec ine to answer 9			986

Block 10. Notes

(Is there a third party? Does the respondent look uneasy? And other notes that affected the interview).

Before ending the interview, recheck the completeness of the questionnaire/respondent's answers. Thank the respondent for his or her participation

Statutory declaration

I hereby confirm that I am the author of this Master Thesis presented. I have written this Master thesis independently and unassisted by other, using the sources and references stated in the “Reference”.

Hamburg, 10 March 2019

Yenny Tju