

# Integrated Biological and Behavioural Surveillance (IBBS) Survey 2022

HIV/STI/Hep C Sector  
Disease Control Division  
Ministry of Health Malaysia





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# LIST OF ABBREVIATIONS

AIDS	Acquired immune deficiency syndrome
ART	Anti-retroviral therapy
CCM	Country Coordinating Mechanism
FSW	Female sex workers
HIV	Human immunodeficiency virus
IBBS	Integrated Biological Behavioural Surveillance
KP	Key populations
MMT	Methadone maintenance therapy
MOH	Ministry of Health
MSM	Men having sex with men
NADA	National anti-drugs agency
NSEP	Needle and syringe exchange programme
PLHIV	People living with HIV
PeP	Post-exposure prophylaxis
PrEP	Pre-exposure prophylaxis
PSE	Population size estimates
PWID	People who inject drugs
QR	Quick response
RDS	Respondent-driven sampling
SPSS	Statistical package for the social sciences
STI	Sexually transmitted infection
TGW	Transgender women
U=U	Undetectable=Untransmittable
WHO	World Health Organization

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The editorial team extends its sincere gratitude to all individuals and organizations who made significant contributions to the successful execution of the 2022 Integrated Biological and Behavioural Surveillance (IBBS) survey among the four primary key populations (KP) in Malaysia.

We would like to express our heartfelt appreciation to the Malaysian AIDS Council and their affiliated partners for their professional and dedicated support throughout the entirety of this research endeavor. Their valuable assistance has been instrumental in ensuring the study's success.

Furthermore, we wish to extend our deepest thanks to all the respondents who generously devoted their precious time and provided blood samples for this survey. Your participation has been invaluable in advancing our understanding of the subject matter.

We are optimistic that the survey's finding will provide us with new insights and information that guide our future planning efforts in pursuit of the ambitious goal of for Ending AIDS by 2030.



**Ending AIDS in 2030:  
Together we will end AIDS**

# EXECUTIVE SUMMARY

## Introduction

In Malaysia, there has been a consistent decline in the number of new HIV infections over the years, largely attributed to the significant reduction in cases related to injecting drug use. However, there is growing concern that the shifting trend in HIV infections from primarily injecting drug use to an increased sexual transmission, could potentially lead to a resurgence of the HIV epidemic in the near future.

Since 2009, Malaysia has adopted the IBBS survey as part of its national HIV surveillance system to comprehensively monitor and understand the spread of HIV epidemic by collecting data on both biological markers (such as HIV prevalence) and behavioral factors (such as risk behaviors and knowledge) among specific populations. This survey, is conducted at regular interval every two to three years and the findings are utilized for estimations of the epidemic and disease progress over time.

The Respondent Driven Sampling (RDS) method was used to conduct this round of IBBS in thirteen states between July and December 2022. A total of 2877 respondents participated in this study, including men who have sex with men (MSM = 1047), transgender women (TGW = 523), people who inject drugs (PWID = 824), and female sex workers (FSW = 483). This study comprised of two components. The first component was behavioural survey, conducted using a self-administered online questionnaire through a web-based platform. The second component was the biological component where respondents were instructed to attend the community-based testing sites of their choosing for blood testing after completing the online survey. All consented respondents received rapid tests for HIV and syphilis, while PWID had an additional Hepatitis C test. Participation in this study was on a voluntary basis and no personal information was asked to maintain anonymity.

## Key findings

### **Men who have sex with men (MSM)**

MSM respondents' median age was 27, and 34.8% of them were in the 25-29 age range. Majority of them were Malay (66.1%), Muslim (74.4%), had a tertiary education (75.1%), unmarried (96.3%), and were employed (79.8%).

MSM had their first anal sex on average 20 years old. Seventy-five percent (75%) stated they used a condom the last time they engaged in anal sex with a man. A total of 37.3% of respondents admitted to having a regular sexual partner, with many of them (96.7%) having a male partner.

Only 10.6% and 7.6% of respondents, respectively, claimed to have sold or paid for anal sex, whereas the majority (87.4%) claimed to have engaged in consensual anal sex. Slightly more than half of respondents (53.8%) always used condoms during paid anal sex, whereas 44.1% and 49.9% always used condoms when they have anal sex with clients and consensual partner, respectively.

Regarding HIV test, 87.5% of respondents had their blood ever tested for HIV. In terms of STI, 18.4% of respondents reported visiting a STI clinic in the past 3 months.

In the past month, 10.6% of respondents acknowledged to consuming alcohol before having sex. Additionally, some respondents reportedly used drugs before having sex, with syabu being the most popular drug (4.5%). A total of 12.6% of respondents reported that their partners had used drugs before sex as well.

In total, 60.4% of MSM respondents reported receiving information on HIV/STI/safer injecting use in the past 3 months. In terms of knowledge on HIV, 77.6% of the respondents reported to have adequate overall knowledge on HIV.

Overall, HIV prevalence among MSM in the country has reduced from 21.6% in 2017 to 12.9% in 2022, highest in Selangor.

### **Transgender women (TGW)**

TGW respondents' median age was 31, and the majority (58.3%) of them were in the 25-39 age range. They primarily belonged to the Malay ethnic group (61.8%), Muslims (78.2%) and had at least a secondary education (75%). Thirteen was the median age of the TGW debut.

In recent years, there has been a notable rise in the number of TGW turning to sex work as a means of supporting themselves. In 2022, the highest percentage to date - 28.3% - reported working as sex workers, compared to 2.2% in 2012, 27.4% in 2014, and 25.4% in 2017. It is worth noting that the majority of TGW respondents in 2022 reported having a male partner as their regular sexual partner, which has been consistent over time. When it comes to condom use, 41.8% of respondents stated that they always use condoms with clients, followed by 32.9% with consensual partners, and 29.1% with paid sexual partners.

In 2022, a lower percentage of respondents reported consuming alcohol before engaging in sexual activity. Specifically, this percentage dropped from 38.7% in 2014 to 28.5% in 2017 and then further decreased to 28.1% in 2022. As for drug use, ecstasy was the substance most frequently used prior to sexual activity in 2022. What's particularly interesting is that the percentage of people who used syabu before engaging in sexual activity dropped significantly from 17.9% in 2012 to 19.3% in 2014, then 19.2% in 2017, and finally to 4% in 2022.

Compared to previous cycle, more TGW (83.7%) and their permanent partners (45.4%) got tested for HIV in 2022. However, the trend was opposite when it came to STI check-ups, showing a general decline from 11.3% in 2017 to 9% in 2022.

When compared to previous cycle, the overall HIV knowledge of TGW showed a marked increase from 47.1% in 2017 to 86.8% in 2022.

The prevalence of HIV among TGW in Malaysia has decreased by almost half from 10.7% in 2017 to 5.9% in 2022. Johor has the highest HIV prevalence at 14%, followed by Perak at 6.5% and Kuala Lumpur at 6.1%.

**Female sex workers (FSW)**

Based on the survey, the FSW who participated had a median age of 31 years old, with the largest age group being between 30 to 39 years old. Many of the respondents were Malay (68.1%), Muslim (86.7%), and had completed secondary school education (60.5%). Furthermore, most of them were unmarried (61.1%). More than half of the respondents (57.6%) were part-time sex workers who often sought clients through phone, SMS, or social media (36.2%). Other methods of finding clients included brothels (17.4%), street solicitation (11.6%), and hotels/motels/stalls (11.4%).

The median age of first sexual activity was 19 years, while the median age of first sex in exchange for money or in kind was 23 years. The median number of recent clients served in the last month was 15, while the median number of regular and one-time clients served in the last three months was 5 and 10, respectively.

In all four rounds of surveys, condom use with recent clients remained consistently high while condom use with a recent boyfriend or husband, slightly decreased, from 47.9% in 2017 to 40.8% in 2022.

Alcohol consumption before sexual activity increased from 34% to 41.6% between 2017 and 2022. Compared to earlier years, ecstasy was employed by more respondents than syabu before engaging in sexual activity in 2022.

In 2022, a lower number of respondents received HIV and STI tests. Nonetheless, there was a notable surge in the proportion of permanent partners who underwent an HIV test between 2012 and 2022. In 2012, only 19.2% of partners underwent testing, which increased to 36.6% in 2014, experienced a decline to 16.5% in 2017, and subsequently rose to 46.7% in 2022.

Overall, the national prevalence of HIV among FSW has typically decreased in each survey cycle (4.2% in 2012, 7.3% in 2014, 6.3% in 2017 and 1.9% in 2022). All states were observed to be on a descending trend.



**People who inject drugs (PWID)**

Among PWID respondents, the largest age group was between 40-49 years old, making up 40.7% of the total. The median age of the respondents was 42 years old, and the majority identified as Malay (93.9%) and Muslim (96.4%). Around 83.9% had completed at least secondary school, and almost half were not married (49.4%). A significant proportion of the respondents (66.4%) had stable work and a regular income. On average, the respondents had lived in the city for 37 years.

Most of the respondents (94.7%) were chronic injectors who had been injecting for at least five years, with heroin being the most injected drug (92.1%). The median duration of injecting was approximately 18 years.

A significant proportion of PWID respondents, specifically 93.3% underwent HIV test and were notified of the results. More than half (54.6%) of respondents were enrolled in MMT program. Interestingly, 90% of PWID respondents reported engaging in sexual activity without using a condom during their most recent sexual encounter.

In general, the HIV prevalence has demonstrated a decline each year, reducing from 13.4% in 2017 to 7.5% in 2022, coinciding with consistently low injection frequency and significant adherence to safe injecting practices during the last injection. Notably, Kelantan has the highest HIV prevalence among the states, standing at 13.9%, followed by Terengganu at 12.2% and Johor at 12.1%.

# INTRODUCTION

## Background

In Malaysia, at the end of 2022, there were estimated 86,417 people living with HIV (PLHIV). Among them, 69,589 (81%) knew their status. By December 2022, 47,067 (68%) of PLHIV were receiving life-saving anti-retroviral therapy (ART). Notably, the number of new HIV infections has decreased by over 50%, dropping from 6,978 cases in 2002 to 3,721 cases in 2022.

It's worth highlighting that Malaysia is characterized by a concentrated epidemic, with HIV prevalence exceeding 5% in specific sub-populations while remaining below 1% in the general population. Initially, PWID was the primary driver of the HIV epidemic in Malaysia. However, recent data in 2021 indicates a shift in the trend, with sexual transmission, particularly among MSM, now being the predominant mode of transmission (MOH, 2021).

The IBBS is carried out as a part of the national HIV surveillance that helps to anticipate the future trajectory of the HIV epidemic by analyzing the behaviour of KP as well as HIV prevalence. This is essential for directing the development of interventions and providing policymakers with reliable data on the effectiveness of interventions and areas that require further attention.

## Rationale of study

Malaysia is making efforts towards reaching the target populations with prevention services and these are evaluated through periodic implementation of IBBS. This report provides most comprehensive nationwide data that serve as foundation for evidence-based programming tailored to KP.

## Objectives of study

The main objective of IBBS 2022 is to determine HIV prevalence and associated behaviour among KP. The specific objectives of this study are to identify the socio-demographic characteristics, risk behaviours practices, knowledge of HIV/AIDS, prevalence of HIV and STI, and attributes of HIV prevalence among KP.

# METHODOLOGY

## Study population

This study was conducted among KP who are at risk for HIV in Malaysia - MSM, TGW, FSW and PWID.

### *Inclusion criteria:*

MSM : Individual who is biological male aged 18 years or older, who had engaged in anal penetrative sex with men at least once in the previous six months.

TGW : Individuals who is biologically male aged 18 years or above, but with female identity and had anal penetrative sex at least once in the previous six months.

FSW : Women aged 18 years of above reporting having been paid in cash or in kind for penetrative sex within the last three months with more than one client.

PWID : Current injectors aged 18 years or above and had been injecting drugs for at least six months prior to the date of survey.

### *Exclusion criteria:*

- a) Unable to understand English or Malay language;
- b) Member of the IBBS research team; and
- c) Paid staff of the site organizations.

## Sample size

The sample size was calculated with a 5% margin of error, 95% confidence, a design effect of three and HIV prevalence of the KP from the previous IBBS 2017 survey. Using these inputs, the sample size was calculated using the following formula:

$$n = DEFF \times (Z^2_{1-\frac{\alpha}{2}} \times P \times (1 - P)) \div d^2$$

Where,

$n$  = minimum sample size required

DEFF = design effect

$Z_{1-\alpha/2}$  = z-score for the desired confidence interval

$P$  = expected proportion

$d$  = precision

Based on these calculations, the sample size was further inflated by 20% to accommodate for possibility of missing data or non-responder and is presented in Table 1.

For each KP, study sites (by states) were selected based on the distribution of population size estimates (PSE) by state. For PWID, TGW, and FSW, states with PSE distribution  $\leq 10\%$  were assigned to 100 samples while states with PSE distribution  $> 10\%$  were assigned with 150 - 200 samples.

As for MSM, states with PSE distribution  $\leq 5\%$  were assigned with 150 samples, states with PSE distribution  $> 5\%$  to  $10\%$  were assigned with 200 samples and states with PSE distribution  $> 10\%$  were assigned with  $> 200$  samples. The final sample size by states is presented in Table 2.

**Table 1: Estimations and parameters for calculation of sample size**

Key populations (KP)	z-score	Expected proportion, P	Precision, d	Sample size, n	Total sample size after inflated 20%
PWID	1.96	13.4%	0.05	642	700
MSM	1.96	21.6%	0.05	937	1000
TGW	1.96	10.7%	0.05	529	550
FSW	1.96	6.3%	0.05	327	350
Total					2600

Table 2: Sample size distribution for each study population by state

Key populations (KP)	State	PSE by state	Distribution of PSE	Sample size
PWID	Penang	5721	7.6%	100
	Selangor	7891	10.5%	150
	Negeri Sembilan	6319	8.4%	100
	Johor	7913	10.6%	150
	Pahang	14143	18.9%	150
	Terengganu	5068	6.8%	100
	Kelantan	3417	4.6%	100
	Melaka	4294	3.9%	100
	Kedah	5033	6.7%	100
MSM	Penang	10927	4.9%	150
	Kedah	5464	2.5%	100
	Kuala Lumpur	53923	24.3%	250
	Johor	20972	9.5%	200
	Sabah	19465	8.8%	200
	Selangor	39417	17.8%	250
	Sarawak	4022	1.8%	100
TGW	Penang	1975	13.2%	150
	Perak	763	5.1%	100
	Kuala Lumpur	2040	13.6%	150
	Selangor	2040	13.6%	150
	Johor	1505	10.0%	100
	Sabah	900	6.0%	100
	Sarawak	1451	9.7%	100
FSW	Kuala Lumpur	7115	32.3%	200
	Selangor	7115	32.3%	200
	Pahang	1298	5.9%	100
	Sabah	496	2.3%	100
	Sarawak	957	4.4%	100
Total				3850

## **Study design**

RDS was used to recruit respondents into the study because it is a sampling strategy designed to be effective in reaching hard to reach or invisible populations for which there is no sampling-frame (Heckathorn, 1997).

This study involved two types of study respondents i) seeds and ii) new survey respondents recruited by the previous survey respondents.

This study was divided into two components. The first component comprised of a behavioural survey conducted through a self-administered online questionnaire survey on a web-based platform. The second component was the biological component. After completing the online survey, respondents were instructed to visit their chosen community-based testing sites for blood testing. Rapid tests for syphilis and HIV were administered to all respondents by trained community health workers. Additionally, for PWID, an extra rapid test for Hepatitis C was conducted.

### **Respondent-driven sampling (RDS)**

RDS is specifically designed to avoid many of the biases and issues of other chain referral system, such as snowballing and has been demonstrated to be an effective sampling approach for hidden and hard to reach or invisible populations that have no sampling frame.

### **Selection of seeds**

For each study site, the person in charge pre-selected three to five seeds, but only one seed was planted at a time to start the recruiting process. If no new recruits were found or the recruiting rate was too slow, new seed was planted. To ensure diversity, seeds were chosen based on geographic, demographic and key outcome variables such as HIV status, locations where clients were solicited (venue or street), socio-economic status, age, gender, and their acquaintance with diverse people.

### **Recruitment of respondents**

Prior to enrollment, each respondent underwent eligibility screening using predetermined questions to exclude those not meeting the study criteria. Three quick response (QR) codes were issued to each seed for enlisting the first wave of respondents among his/her peers in his/her network once they had completed the online survey and blood test. The QR code was

valid for five days. Up until the target sample size is met, each wave of respondents recruited the following wave.

Respondents received an incentive of RM40 for completing the online survey and blood tests. This incentive was provided to cover for the transport, time/effort, and costs that they had incurred whilst taking part in this study. They also received additional RM10 as incentive for each successful referral (up to a maximum of RM30). To ensure anonymity, no personal information was requested from the respondents.

## **Study instrument**

The study utilized a self-administered online questionnaire survey which was conducted via a web-based platform. The questionnaire was adapted from Family Health International (FHI) guidelines for repeated behavioural surveys in populations at risk of HIV. It was written in the two main languages of the region, Malay and English. The survey gathered information on respondents' socio-demographic characteristics, sexual and drug use behaviors, STI symptoms, services utilisation, HIV knowledge, and social networks.

## **Data collection, management and analysis**

HIV/STI/Hep C Sector, under the purview of Ministry of Health Malaysia, assumed responsibility for data collection and management for this study. A secure website was specifically designed to facilitate data capture for the research, incorporating i) an intuitive interface for validated data entry; ii) audit trails for tracking data manipulation and export procedures; iii) automated export procedures for seamless data downloads to common statistical packages; iv) QR codes management and v) procedures for importing data from external sources. Statistical analysis was conducted using the Statistical Package for Social Sciences (SPSS 26.0) software.

## **Limitations**

This study had several limitations that merit attention when interpreting the results. As is common in research of this domain, the conclusions drawn from these findings are based on self-reported responses, rendering them susceptible to reporting biases and social desirability biases.

# MEN WHO HAVE SEX WITH MEN (MSM)

## Network characteristics

A total of 1047 MSM including seeds were recruited from six different states. The recruitment process begins with nine seeds, and Selangor had a relatively longer recruitment wave as compared to other states (Table 3). This study was first conducted in seven states, however, data from Sarawak was not included in this analysis due to insufficient respondents. Only 25 respondents from 2 different seeds were successfully recruited in Sarawak.

**Table 3: Distribution of respondents and seeds by states**

States	No of seed	No of wave	No of respondents	Sample size	% fulfilled sample size
<b>North Peninsular</b>					
Penang	2	6	166	150	111.0
Kedah	1	7	75	100	75.0
<b>West Peninsular</b>					
Kuala Lumpur	2	7	264	250	106.0
Selangor	1	17	250	250	100.0
<b>South Peninsular</b>					
Johor	1	8	149	150	99.3
<b>Borneo</b>					
Sabah	2	9	143	200	71.5
Total	9		1047	1100	95.2



## Socio-demographic characteristics

The socio-demographic characteristics of the MSM respondents are summarized in Table 4. The median age of MSM respondents was 27, and 34.8% were between the ages of 25 and 29. The median age of respondents by state ranged from 26 to 29. It's interesting to note that most respondents in Penang and Sabah were under 25 years old.

The survey indicated that majority MSM respondents were Malays, except in Sabah, where Pribumi Sabah predominated. A significant portion (74.4%) of these respondents practiced Islam. Across all states, most respondents were unmarried.

Educational attainment among MSM respondents was high, with the majority having completed tertiary education. In Kuala Lumpur, only a small fraction (0.8%) had no formal education. Regarding employment, 79.8% of respondents were employed, and nearly half (48.3%) classified themselves as professionals. Most respondents (69.2%) reported earning more than RM 2000 per month.

## Sexual behaviours

Table 5 presents sexual behaviours of the MSM respondents. It reveals that 94.7% of respondents have ever used a condom during sexual activities. In regard to condom accessibility, 83.1% reported they could obtain condoms in the last three months, mainly from NGO outreach workers (76.2%) and, retail outlets such as 7-Eleven, small stores and supermarkets (49.4%). The respondents' median age at first anal sex was 20 years. In their most recent anal sex with a male partner, 75% stated they used a condom.

Among the survey respondents, 37.3% acknowledged they have a regular sexual partner, and of these, a significant majority (96.7%) indicated their regular partner is male. Additionally, over half of these respondents (51.2%) reported using condoms during sexual encounters with their regular partners.

A small number of respondents (10.6% and 7.6%, respectively), reported they had either sold or paid for anal sex. However, most of them (87.4%) said they had consensual anal sex. Only a few had ever had sex with a female partner or FSW. Among those who did, 65.9% used condoms with FSW, and 53.8% always used condoms during paid anal sex.

Table 4: Socio-demographic characteristics among MSM by states, IBBS 2022 (N=1,047)

States	Penang		Kedah		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Age</b>														
≤ 24	66	39.8	15	20.0	84	31.8	83	33.2	25	16.8	56	39.2	329	31.4
25-29	52	31.3	32	42.7	98	37.1	87	34.8	53	35.6	42	29.4	364	34.8
30-39	38	22.9	16	21.3	77	29.2	72	28.8	55	36.9	40	28.0	298	28.5
40-49	9	5.4	7	9.3	4	1.5	7	2.8	13	8.7	5	3.5	45	4.3
≥ 50	1	0.6	5	6.7	1	0.4	1	0.4	3	2.0	0	0.0	11	1.1
Median	26 (19-59)		28 (19-59)		27 (18-51)		27 (18-58)		29 (21-63)		26 (18-42)		27 (18-63)	
<b>Ethnicity</b>														
Malay	119	71.7	74	98.7	179	67.8	226	90.4	77	51.7	17	11.9	692	66.1
Chinese	41	24.7	1	1.3	38	14.4	10	4.0	60	40.3	5	3.5	155	14.8
Indian	3	1.8	0	0.0	23	8.7	4	1.6	5	3.4	0	0.0	35	3.3
Pribumi Sabah	0	0.0	0	0.0	12	4.5	6	2.4	2	1.3	115	80.4	135	12.9
Pribumi Sarawak	0	0.0	0	0.0	12	4.5	2	0.8	5	3.4	2	1.4	21.0	2.0
Orang Asli	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	1	0.1
Others	3	1.8	0	0.0	0	0.0	1	0.4	0	0.0	4	2.8	8	0.8
<b>Religion</b>														
Islam	119	71.7	73	97.3	183	69.3	236	94.4	80	53.7	88	61.5	779	74.4
Buddhism	37	22.3	2	2.7	22	8.3	8	3.2	44	29.5	1	0.7	114	10.9
Hinduism	3	1.8	0	0.0	20	7.6	4	1.6	5	3.4	0	0.0	32	3.1
Christianity	4	2.4	0	0.0	29	11.0	2	0.8	11	7.4	50	35.0	96	9.2
Sikhism	1	0.6	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	2	0.2
No religion	2	1.2	0	0.0	9	3.4	0	0.0	9	6.0	4	2.8	24	2.3
Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>Marital status</b>														
Unmarried	162	97.6	67	89.3	262	99.2	242	96.8	140	94.0	135	94.4	1008	96.3
Married	3	1.8	6	8.0	1	0.4	4	1.6	7	4.7	4	2.8	25	2.4
Divorced	1	0.6	2	2.7	1	0.4	4	1.6	2	1.3	3	2.1	13	1.2
Widower	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.7	1	0.1
<b>Education level</b>														
No schooling	0	0.0	0	0.0	2	0.8	0	0.0	0	0.0	0	0.0	2	0.2
Primary	0	0.0	0	0.0	0	0.0	1	0.4	4	2.7	8	5.6	13	1.2
Secondary	30	18.1	29	38.7	29	11.0	48	19.2	47	31.5	63	44.1	246	23.5
Tertiary	136	81.9	46	61.3	233	88.3	201	80.4	98	65.8	72	50.3	786	75.1
<b>Source of income</b>														
Employed	109	65.7	61	81.3	234	88.6	194	77.6	132	88.6	105	73.4	835	79.8
Unemployed	4	2.4	9	12.0	4	1.5	9	3.6	10	6.7	18	12.6	54	5.2
Student	53	31.9	5	6.7	26	9.8	47	18.8	7	4.7	20	14.0	158	15.1

Table 5: Sexual behaviours among MSM by states, IBBS 2022 (N=1,047)

States	Penang		Kedah		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Ever used condom during sex</b>														
Yes	161	97.0	71	94.7	254	96.2	233	93.2	143	96.0	130	90.9	992	94.7
<b>Had access to condom in the last 3 months</b>														
Yes	106	65.8	59	83.1	247	97.2	199	85.4	115	80.4	98	75.4	824	83.1
<b>Places condoms were obtained (multiple response)</b>														
Retail outlets	25	23.6	21	35.6	171	69.2	123	61.8	25	21.7	42	42.9	407	49.4
Pharmacy	7	6.6	3	5.1	14	5.7	23	11.6	16	13.9	11	11.2	74	9.0
Clinic	6	5.7	1	1.7	3	1.2	6	3.0	2	1.7	5	5.1	23	2.8
Outreach workers from NGO	90	84.9	44	74.6	226	91.5	118	59.3	94	81.7	56	57.1	628	76.2
Bar/sauna/hotel/club	1	0.9	1	1.7	3	1.2	4	2.0	0	0.0	1	1.0	10	1.2
Online (e.g. Lazada, Shopee etc)	22	20.8	12	20.3	34	13.8	46	23.1	23	20.0	13	13.3	150	18.2
Others	3	2.8	0	0.0	1	0.4	4	2.0	0	0.0	1	1.0	9	1.1
<b>Age at first had anal sex with men</b>														
Median	17 (8-25)		19 (15-38)		20 (10-27)		20 (8-71)		20 (15-35)		20 (11-34)		20 (8-71)	
Mean	16.7		19.5		19.9		19.8		20.8		20.2		19.5	
<b>Condom use the last time had anal sex</b>														
Yes	131	78.9	63	84.0	236	89.4	166	66.4	91	61.1	98	68.5	785	75.0
<b>Had a regular sex partner</b>														
Yes	57	34.3	28	37.3	86	32.6	90	36.0	56	37.6	74	51.7	391	37.3
<b>Frequency of condom used with regular sex partner</b>														
Always	32	56.1	10	35.7	66	76.7	40	44.4	13	23.2	39	52.7	200	51.2
Not always	20	35.1	15	53.6	17	19.8	41	45.6	40	71.4	33	44.6	166	42.5
Never use	5	8.8	3	10.7	3	3.5	9	10.0	3	5.4	2	2.7	25	6.4
<b>Had sex with men in exchange for money or in kind (selling sex)</b>														
Yes	3	1.8	3	4.0	35	13.3	45	18.0	6	4.0	19	13.3	111	10.6
<b>Frequency of condom used with clients during selling sex</b>														
Always	2	66.7	2	66.7	23	65.7	14	31.1	3	50.0	5	26.3	49	44.1
Not always	1	33.3	1	33.3	10	28.6	30	66.7	3	50.0	14	73.7	59	53.2
Never use	0	0.0	0	0.0	2	5.7	1	2.2	0	0.0	0	0.0	3	2.7
<b>Had paid men for sex</b>														
Yes	6	3.6	1	1.3	26	9.8	19	7.6	16	10.7	12	8.4	80	7.6
<b>Frequency of condom used with men during paid sex</b>														
Always	5	83.3	1	100.0	21	80.8	7	36.8	5	31.3	4	33.3	43	53.8
Not always	1	16.7	0	0.0	3	11.5	12	63.2	11	68.8	8	66.7	35	43.8
Never use	0	0.0	0	0.0	2	7.7	0	0.0	0	0.0	0	0.0	2	2.5
<b>Had consensual sex</b>														
Yes	163	98.2	60	80.0	244	92.4	220	88.0	134	89.9	94	65.7	915	87.4
<b>Frequency of condom used with sex partner during consensual sex</b>														
Always	95	58.3	33	55.0	190	77.9	67	30.5	42	31.3	30	31.9	457	49.9
Not always	65	39.9	26	43.3	46	18.9	142	64.5	91	67.9	58	61.7	428	46.8
Never use	3	1.8	1	1.7	8	3.3	11	5.0	1	0.7	6	6.4	30	3.3

Cont.

States	Penang		Kedah		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Had sex with female sex worker</b>														
Yes	5	3.0	1	1.3	27	10.2	18	7.2	15	10.1	19	13.3	85	8.1
<b>Condom used with female sex worker</b>														
Yes	5	100.0	1	100.0	26	96.3	9	50.0	7	46.7	8	42.1	56	65.9
<b>Had sex with female partner in the last 1 month</b>														
Yes	8	4.8	8	10.7	14	5.3	16	6.4	17	11.4	19	13.3	82	7.8

## Alcohol and substances use

Table 6 outlines alcohol and substances use among the MSM respondents. In the last month, 10.6% admitted to consuming alcohol before and during sexual activities. Among the states, Kedah had the lowest number of pre-sex alcohol consumption (4%), in contrast to Sabah highest rate (23.8%). The most prevalent drug of choice before and during sex was methamphetamine (locally termed syabu), with 4.5% of respondents reporting its usage. Additionally, 12.6% indicated that their partners also used drugs in similar contexts.

Among 1,047 respondents, only nine admitted injecting drugs in the past month, with seven of these individuals' sharing needles and/or syringes, raising concerns. Additionally, two respondents reported challenges in accessing clean needles and/or syringes, attributing this to limited outreach and enforcement raids.

**Table 6: Alcohol and substances use among MSM by states, IBBS 2022 (N=1,047)**

States	Penang		Kedah		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Ever consumed alcohol before/during sex</b>														
Yes	12	7.2	3	4.0	20	7.6	21	8.4	21	14.1	34	23.8	111	10.6
<b>Substances used before/during sex</b>														
Ecstasy	3	1.8	0	0.0	0	0.0	4	1.6	0	0.0	1	0.7	8	0.8
Syabu/ice	12	7.2	5	6.7	0	0.0	16	6.4	8	5.4	6	4.2	47	4.5
Cocaine	1	0.6	0	0.0	0	0.0	1	0.4	0	0.0	0	0.0	2	0.2
Heroin	0	0.0	1	1.3	0	0.0	1	0.4	0	0.0	1	0.7	3	0.3
Others	32	19.3	1	1.3	4	1.5	2	0.8	4	2.7	2	1.4	45	4.3
Not taking drug	131	78.9	69	92.0	260	98.5	233	93.2	137	91.9	135	94.4	965	92.2
<b>Sexual partner(s) ever used drugs before/during sex</b>														
Yes	27	16.3	17	22.7	11	4.2	36	14.4	26	17.4	15	10.5	132	12.6
<b>Sexual partner(s) ever injected drugs</b>														
Yes	6	3.6	3	4.0	2	0.8	8	3.2	2	1.3	3	2.1	24	2.3

## Prevention services

Table 7 summarizes HIV information and outreach services for MSM respondents. About 60.4% received information on HIV/STI/safer injecting use in the last three months. A total of 57.3% of respondents had been approached face-to-face. Also, 63.2% and 64.9% of respondents, respectively, received condoms and lubricants, and counselling on condom uses and safe sex.

**Table 7: HIV information and outreach services among MSM by states, IBBS 2022 (N=1,047)**

States	Penang		Kedah		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Ever received information on HIV/STI/safer injecting use in the past 3 months</b>														
Yes	139	83.7	57	76.0	81	30.7	162	64.8	90	60.4	103	72.0	632	60.4
<b>HIV/STI prevention services received from outreach workers (multiple response)</b>														
STI testing	66	39.8	35	46.7	157	59.5	130	52.0	24	16.1	65	45.5	477	45.6
New needle and syringe	2	1.2	2	2.7	1	0.4	19	7.6	1	0.7	8	5.6	33	3.2
Condoms and lubricants	88	53.0	44	58.7	229	86.7	136	54.4	96	64.4	69	48.3	662	63.2
Counselling on condom use and safe sex	130	78.3	39	52.0	218	82.6	124	49.6	88	59.1	80	55.9	679	64.9
Did not received any services	18	10.8	13	17.3	18	6.8	76	30.4	48	32.2	40	28.0	213	20.3

Table 8 displays the use of HIV/Hepatitis C/STI services by MSM respondents. About 87.5% had HIV blood test, with Kuala Lumpur having the highest and Sabah the lowest testing rates. 75.9% of respondents were tested less than six months ago, and majority (79.5%) accessed HIV test through community-based testing. Also, 43.8% of their regular partner/spouse were tested.

Among respondents, 90 identified as PLHIV, in which eight never on ART due to financial reasons (12.5%), not being offered treatment (25%) and other reasons (62.5%). One defaulted on ART due to time constraint. 56.8% reported that their viral load suppressed.

A total of 28.3% have never been tested for Hepatitis C, mainly due to lack of knowledge about Hepatitis C testing and treatment (57.8%).

In terms of STI, 18.4% visited an STI clinic in the past three months. The most frequent symptoms reported in the last 12 months were extreme burning pain when urinating (dysuria)

(4.1%) and penile discharge (2.7%). Nearly half (49.2%) of those diagnosed with an STI sought treatment at a government health facility.

Table 9 shows that 78.6% of respondents with self-reported HIV-negative or unknown HIV status were aware of pre-exposure prophylaxis (PrEP) and 59.7% knew about post-exposure prophylaxis (PeP). Of these, 89 used PrEP and 43 used PeP in the past 12 months, with, over half getting them from private clinics.

About 42.4% were not interested in PrEP, mainly due to lack of interest (33.8%). The majority (72.5%) preferred condoms over PrEP for HIV prevention.

Table 8: HIV/Hepatitis C/STI services utilization among MSM by states, IBBS 2022 (N=1,047)

States	Penang		Kedah		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>HIV</b>														
<b>Ever had blood tested for HIV</b>														
Yes	137	82.5	70	93.3	259	98.1	210	84.0	127	85.2	113	79.0	916	87.5
<b>Last HIV test</b>														
< 6 months ago	97	70.8	52	74.3	243	93.8	160	76.2	51	40.2	92	81.4	695	75.9
6 to 12 months ago	20	14.6	18	25.7	7	2.7	34	16.2	55	43.3	17	15.0	151	16.5
> 12 months ago	20	14.6	0	0.0	9	3.5	16	7.6	21	16.5	4	3.5	70	7.6
<b>Access to HIV testing (multiple response)</b>														
Government clinic	48	35.0	10	14.3	23	8.9	82	39.0	70	55.1	21	18.6	254	27.7
Private clinic	34	24.8	11	15.7	7	2.7	34	16.2	6	4.7	9	8.0	101	11.0
Community based	105	76.6	59	84.3	248	95.8	153	72.9	76	59.8	87	77.0	728	79.5
Self-testing	21	15.3	4	5.7	10	3.9	26	12.4	13	10.2	18	15.9	92	10.0
<b>Regular sex partner(s)/spouse ever tested for HIV</b>														
Yes	48	35.0	26	37.1	128	49.4	103	49.0	37	29.1	59	52.2	401	43.8
No	11	8.0	13	18.6	17	6.6	25	11.9	20	15.7	22	19.5	108	11.8
No permanent partner(s)/spouse	78	56.9	31	44.3	114	44.0	82	39.0	70	55.1	32	28.3	407	44.4
<b>Knew HIV status</b>														
HIV positive	11	8.0	2	2.9	8	3.1	42	20.0	16	12.6	11	9.7	90	9.8
HIV negative	121	88.3	67	95.7	247	95.4	163	77.6	111	87.4	100	88.5	809	88.3
Indeterminate	5	3.6	0	0.0	1	0.4	1	0.5	0	0.0	0	0.0	7	0.8
Do not know HIV status	0	0.0	1	1.4	3	1.2	4	1.9	0	0.0	2	1.8	10	1.1
<b>HIV treatment status</b>														
On ART	9	81.8	1	50.0	7	87.5	39	92.9	16	100.0	10	90.9	82	91.1
Still on ART	9	100.0	1	100.0	7	100.0	38	97.4	16	100.0	10	100.0	81	98.8
Defaulted ART	0	0.0	0	0.0	0	0.0	1	2.6	0	0.0	0	0.0	1	1.2
Never on ART	2	18.2	1	50.0	1	12.5	3	7.1	0	0.0	1	9.1	8	8.9
<b>Viral load suppression among those on treatment</b>														
Yes	6	66.7	1	100.0	6	85.7	22	57.9	9	56.3	2	20.0	46	56.8
No	1	11.1	0	0.0	1	14.3	5	13.2	5	31.3	5	50.0	17	21.0
Not sure/not remember	2	22.2	0	0.0	0	0.0	11	28.9	2	12.5	3	30.0	18	22.2
<b>Hepatitis C</b>														
<b>Ever had blood tested for Hepatitis C</b>														
Yes	113	68.1	51	68.0	234	88.6	134	53.6	117	78.5	102	71.3	751	71.7
<b>Reason did not get tested (multiple response)</b>														
Did not aware about Hepatitis C test and treatment	39	73.6	7	29.2	10	33.3	62	53.4	28	87.5	25	61.0	171	57.8
Don't know where to get tested	23	43.4	8	33.3	9	30.0	73	62.9	10	31.3	11	26.8	134	45.3
Refused to get tested	6	11.3	1	4.2	6	20.0	13	11.2	0	0.0	8	19.5	34	11.5
Testing facilities not available or too far	10	18.9	3	12.5	2	6.7	22	19.0	0	0.0	11	26.8	48	16.2
Others	5	9.4	7	29.2	6	20.0	2	1.7	0	0.0	0	0.0	20	6.8

Cont.

States	Penang		Kedah		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>STI</b>														
<b>Ever visited STI clinic in the past 3 months</b>														
Yes	23	13.9	15	20.0	19	7.2	78	31.2	36	24.2	22	15.4	193	18.4
<b>Experienced symptoms in the past 12 months (multiple response)</b>														
Dysuria	9	5.4	5	6.7	5	1.9	7	2.8	11	7.4	6	4.2	43	4.1
Penile ulcer	2	1.2	1	1.3	1	0.4	3	1.2	0	0.0	1	0.7	8	0.8
Penile discharge	5	3.0	7	9.3	2	0.8	4	1.6	5	3.4	5	3.5	28	2.7
Rectal discharge/bleeding	0	0.0	2	2.7	3	1.1	3	1.2	0	0.0	2	1.4	10	1.0
No STI symptoms	154	92.8	66	88.0	257	97.3	235	94.0	137	91.9	133	93.0	982	93.8
<b>Action taken the last time had STI symptoms</b>														
Did not treat	1	8.3	0	0.0	0	0.0	4	26.7	3	25.0	0	0.0	8	12.3
Self-treated/sought advice from pharmacy	1	8.3	0	0.0	0	0.0	2	13.3	0	0.0	2	20.0	5	7.7
Sought treatment from government health facility	5	41.7	2	22.2	6	85.7	9	60.0	5	41.7	5	50.0	32	49.2
Sought treatment from private health facility	5	41.7	5	55.6	1	14.3	0	0.0	3	25.0	3	30.0	17	26.2
Went to traditional healer	0	0.0	0	0.0	0	0.0	0	0.0	1	8.3	0	0.0	1	1.5
Others	0	0.0	2	22.2	0	0.0	0	0.0	0	0.0	0	0.0	2	3.1



Table 9: PrEP and PeP uptake and acceptability among MSM by states, IBBS 2022 (N=957)

States	Penang		Kedah		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>PrEP</b>														
<b>Heard about PrEP</b>														
Yes	137	88.4	51	69.9	215	84.0	165	79.3	98	73.7	86	65.2	752	78.6
<b>Taken PrEP in the past 12 months</b>														
Yes	17	12.4	7	13.7	19	8.8	13	7.9	21	21.4	12	14.0	89	11.8
<b>Access to PrEP</b>														
Private clinic	6	35.3	7	100.0	16	84.2	10	76.9	7	33.3	3	25.0	49	55.1
Pharmacy	5	29.4	0	0.0	2	10.5	0	0.0	14	66.7	4	33.3	25	28.1
Online	0	0.0	0	0.0	0	0.0	2	15.4	0	0.0	5	41.7	7	7.9
Others	6	35.3	0	0.0	1	5.3	1	7.7	0	0.0	0	0.0	8	9.0
<b>Interested in taking PrEP in the future</b>														
Yes	71	59.2	36	81.8	49	25.0	124	81.6	62	80.5	40	54.1	382	57.6
<b>Reason for not interested in taking PrEP in the future</b>														
Lack of interest in PrEP	2	4.1	1	12.5	79	53.7	6	21.4	5	33.3	2	5.9	95	33.8
Financial problem	11	22.4	1	12.5	9	6.1	8	28.6	1	6.7	7	20.6	37	13.2
Too expensive	5	10.2	1	12.5	9	6.1	6	21.4	4	26.7	7	20.6	32	11.4
Not ready for PrEP	12	24.5	3	37.5	20	13.6	3	10.7	4	26.7	11	32.4	53	18.9
Afraid of stigma or rejection	2	4.1	0	0.0	2	1.4	1	3.6	0	0.0	0	0.0	5	1.8
Afraid of the side effects of PrEP	10	20.4	2	25.0	15	10.2	2	7.1	1	6.7	4	11.8	34	12.1
No risk of being infected with HIV	5	10.2	0	0.0	12	8.2	1	3.6	0	0.0	2	5.9	20	7.1
Others	2	4.1	0	0.0	1	0.7	1	3.6	0	0.0	1	2.9	5	1.8
<b>Prefer as HIV prevention</b>														
PrEP	50	32.3	35	47.9	24	9.4	91	43.8	33	24.8	30	22.7	263	27.5
Condom	105	67.7	38	52.1	232	90.6	117	56.3	100	75.2	102	77.3	694	72.5
<b>PeP</b>														
<b>Heard about PeP</b>														
Yes	79	51.0	39	53.4	201	78.5	119	57.2	89	66.9	44	33.3	571	59.7
<b>Taken PeP in the past 12 months</b>														
Yes	4	5.1	4	10.3	7	3.5	8	6.7	12	13.5	8	18.2	43	7.5
<b>Access to PeP</b>														
Private clinic	2	50.0	3	75.0	6	85.7	6	75.0	7	58.3	0	0.0	24	55.8
Pharmacy	0	0.0	1	25.0	0	0.0	1	12.5	5	41.7	4	50.0	11	25.6
Online	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	50.0	4	9.3
Others	2	50.0	0	0.0	1	14.3	1	12.5	0	0.0	0	0.0	4	9.3

## Awareness on HIV, risk, and prevention efforts

Table 10 presents MSM respondents' understanding and opinions on HIV/AIDS. A total of 58.1% perceived themselves at risk of HIV infection. Overall, 77.6% demonstrated strong knowledge about HIV, with over 90% answering all HIV-related questions correctly. Notably, 69.7% were familiar with the Undetectable=Untransmittable (U=U) concept.

**Table 10: Knowledge and opinion on HIV/AIDS among MSM by states, IBBS 2022 (N=1,047)**

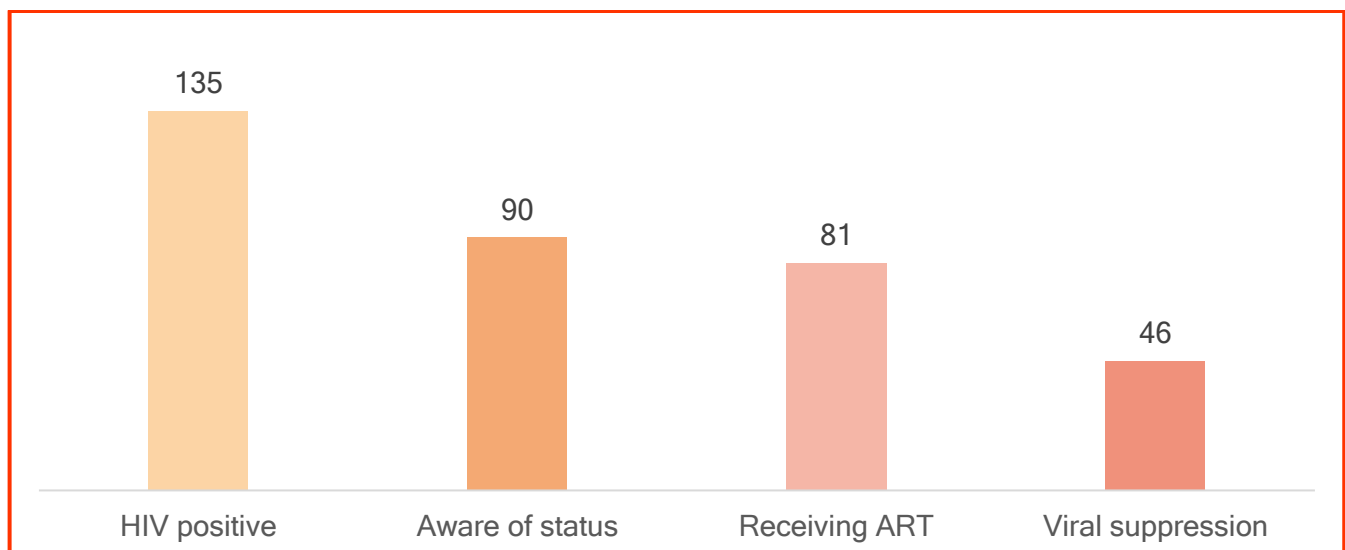
States	Penang		Kedah		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Felt at risk of being infected with HIV</b>														
Yes	81	48.8	49	65.3	119	45.1	168	67.2	126	84.6	65	45.5	608	58.1
<b>HIV knowledge score</b>														
0 score	0	0.0	0	0.0	0	0.0	1	0.4	1	0.7	0	0.0	2	0.2
1 score	0	0.0	0	0.0	0	0.0	0	0.0	3	2.0	1	0.7	4	0.4
2 score	1	0.6	2	2.7	0	0.0	3	1.2	6	4.0	3	2.1	15	1.4
3 score	4	2.4	3	4.0	2	0.8	13	5.2	8	5.4	7	4.9	37	3.5
4 score	20	12.0	21	28.0	29	11.0	61	24.4	21	14.1	25	17.5	177	16.9
5 score	141	84.9	49	65.3	233	88.3	172	68.8	110	73.8	107	74.8	812	77.6
<b>Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?</b>														
Correct answer	161	97.0	66	88.0	253	95.8	202	80.8	144	96.6	120	83.9	946	90.4
<b>Can a person reduce the risk for getting HIV by using a condom every time they have sex?</b>														
Correct answer	166	100.0	73	97.3	264	100.0	237	94.8	138	92.6	140	97.9	1018	97.2
<b>Can a healthy-looking person have HIV?</b>														
Correct answer	153	92.2	73	97.3	251	95.1	245	98.0	136	91.3	141	98.6	999	95.4
<b>Can a person get HIV from mosquito bites?</b>														
Correct answer	162	97.6	68	90.7	259	98.1	236	94.4	122	81.9	130	90.9	977	93.3
<b>Can a person get HIV from sharing food with someone who is infected?</b>														
Correct answer	157	94.6	62	82.7	260	98.5	229	91.6	133	89.3	132	92.3	973	92.9
<b>Aware of the concept U=U</b>														
Yes	92	55.4	42	56.0	234	88.6	167	66.8	99	66.4	96	67.1	730	69.7

## HIV prevalence and care cascade

Table 11 provides a summary of HIV prevalence and care cascade among MSM respondents. The overall prevalence of HIV was 12.9%, with the highest rates in Selangor (20.4%), Johor (18.1%) and Penang (11.4%). For HIV cascade analysis, out of 135 respondents who tested positive in this study, 90 (66.7%) were already aware of their HIV status before participating in this survey, 81 (90%) were receiving ART, and among them, 46 (56.8%) have successfully achieved viral suppression (Figure 1).

**Table 11: HIV prevalence and cascade among MSM by states, IBBS 2022 (N=1,047)**

States	Penang		Kedah		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>HIV prevalence</b>														
18-24 years	9	13.6	2	13.3	10	11.9	15	18.1	7	28.0	7	12.5	50	15.2
>24 years	10	10.0	3	5.0	9	5.0	36	21.6	20	16.1	7	8	85	11.8
Overall	19	11.4	5	6.7	19	7.2	51	20.4	27	18.1	14	9.8	135	12.9
<b>Number of HIV positive</b>	19		5		19		51		27		14		135	
<b>Number of PLHIV who know their status</b>	11		2		8		42		16		11		90	
<b>Number of PLHIV who know their status receiving ART</b>	9		1		7		39		16		10		81	
<b>Number of PLHIV on ART with viral suppression</b>	6		1		6		22		9		2		46	



**Figure 1: HIV cascade among MSM**

## Syphilis prevalence

The overall syphilis prevalence among MSM respondents was 7.1% (Table 12).

**Table 12: Syphilis prevalence among MSM by states, IBBS 2022 (N=1,047)**

States	Penang		Kedah		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Syphilis prevalence</b>														
18-24 years	5	7.6	0	0	4	4.8	8	9.6	2	8.9	1	1.8	20	6.1
> 24 years	8	8.0	1	1.7	8	4.4	17	10.2	17	13.7	3	3.4	54	7.5
Overall	13	7.8	1	1.3	12	4.5	25	10.0	19	12.8	4	2.8	74	7.1

## Socio-demographic characteristics - National

When examining the age distribution of MSM respondents over a decade, it is observed that the demographic is aging, evidenced by a growing percentage of individuals aged 25 to 39 years and a concurrent decline in the proportion of respondents under 25 years of age (Table 13).

The ethnicity trends among MSM respondents show a definitive increase in Malay and Chinese participants, while the representation of other ethnic groups has been consistently decreasing.

Throughout each round of the survey, the majority of respondents have consistently been unmarried, reaching the peak percentage of 96.3% in 2022. Simultaneously, the proportion of those married to a woman has steadily decreased.

Regarding education, the data indicates upward trend of MSM completing tertiary education, rising from 38.9% in 2017 to 75.1% in 2022. Concurrently, the ten-year period from 2012 to 2022, exhibited a declining trend in primary and secondary educations.

In terms of income sources, the analysis for the year 2022 reveals nearly equal distribution of MSM across professional and non-professional occupational sectors.

Table 13: Socio-demographic characteristics of MSM respondents for the 2012-2022 surveys

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
<b>Age</b>				
≤ 24	38.6	47.8	40.8	31.4
25 - 29	29.6	20.0	21.4	34.8
30 - 39	23.3	16.6	23.5	28.5
40 - 49	5.5	8.9	9.5	4.3
≥ 50	3.0	6.8	4.8	1.1
<b>Ethnic</b>				
Malay	43.3	44.8	49.7	66.1
Chinese	25.8	8.3	13.9	14.8
Indian	2.7	5.1	9.1	3.3
Pribumi Sabah	18.6	35.8	21.7	12.9
Pribumi Sarawak	6.3	4.3	4.1	2.0
Orang Asli	-	-	-	0.1
Others	3.3	1.3	1.5	0.8
<b>Education</b>				
No schooling	-	1.5	2.5	0.2
Primary	3.3	8.5	5.9	1.2
Secondary	53.7	60.1	52.8	23.5
Tertiary	43.0	29.9	38.9	75.1
<b>Marital status</b>				
Unmarried	92.8	89.8	86.5	96.3
Married to woman	3.6	4.9	-	2.4
Married to man	-	0.8	-	-
Divorced	-	4.0	-	1.2
Widower	-	0.6	-	0.1
<b>Source of income</b>				
Employed	64.6	-	-	79.8
Unemployed	5.2	18.1	-	5.2
Student	14.1	11.3	14.5	15.1
Professional	-	12.6	9.4	48.3
Non-professional	-	30.2	46.9	42.6
Self-employed	-	13.9	13.0	9.1

## Sexual practices and substance abuse – National

The data presented in Table 14 indicates a notable increase in the median age of first anal sex MSM, rising from 17 years in 2017 to 20 years in 2022. Additionally, the period from 2012 to 2022, observed a consistent decline in the proportion of MSM engaging in both buying and selling sex, with lowest observed rates occurring in 2022.

There was also a discernible decrease in the percentage of MSM reporting a regular sex partner, from 55.3% in 2014 to 37.3% in 2022. Correspondingly, there was a reduction in the number of MSM who reported having sexual encounters with female partners or sex workers across successive survey cycles, with the lowest rate appearing in 2022. In terms of safe sex practices, the 2022 data revealed an increase in condom use during the most recent anal sex encounter, with 75% of respondents indicating usage, compared to 65.4% in 2017. However, fewer MSM reported consistent condom use during anal sex over the past 12 months, decreasing from 65.4% in 2017 to 49.3% in 2022.

**Table 14: Sexual history and condom use pattern among MSM respondents in 2012-2022 surveys**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
Median age of first anal sex with a man (years)	-	17 (8-61)	17 (10-60)	20 (7-35)
Median duration of risk behavior (years)	7	7	19	20
Ever had sex with men in exchange for money or in kind in the last 12 months	19.5 <sup>a</sup>	39.4	34.0	10.6
Ever had sex with men with payment in the last 12 months	10.7 <sup>a</sup>	19.8	14.7	7.6
Had regular sex partner	51.5	55.3	44.7	37.3
Had male regular sex partner	42.2	43.0	38.6	96.7
Had female regular sex partner	4.9	11.6	4.3	8.2
Had transgender regular sex partner	3.8	2.6	1.9	0.5
Had used condom during last anal sex	74.0 <sup>b</sup>	56.7	65.4	75.0
Had always used condom during anal sex in the last 12 months	50.1 <sup>c</sup>	28.3 <sup>d</sup>	65.4	49.3 <sup>c</sup>
Had sex with woman in the last 12 months	28.0 <sup>e</sup>	32.1	20.8	7.8 <sup>f</sup>
Had sex with FSW in the last 12 months	-	14.7	13.6	8.1

*a: The time frame used in IBBS 2012 was 'during the last 6 months'.*

*b: This data was recalculated from IBBS 2012 data as 'had used condom during last anal sex regardless of type of partner'.*

*c: Percentage is derived from average of 'always use condom' with selling sex, paid sex and consensual sex.*

*d: Percentage is derived by subtracting 'Percentage who had sex without condom in the past 12 months from 100%.*

*e: The data refer to 'ever had sex with a woman'.*

*f: The time frame used in IBBS 2022 was 'in the last 1 month'.*

Over the last 10 years, there have been a notable reduction in the consumption of alcohol and substances prior to having sex among MSM (Table 15). The proportion of respondents who reported injecting drugs has markedly decreased from 4.4% in 2017 to 0.9% in 2022. However, there was a slight increase in the proportion of sex partners who inject drugs, rising from 1.6% in 2017 to 2.3% in 2022.

**Table 15: Comparison of substance abuse among MSM in 2012-2022 surveys**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
Ever consumed alcohol before and during sex in the last 1 month	31.8	38.7	32.1	10.6
Used ecstasy before and during sex in the last 12 months	7.4	5.8	3.7	0.8
Used syabu/ice before and during sex in the last 12 months	19.7	19.3	11.4	4.5
Used cocaine before and during sex in the last 12 months	1.6	4.3	0.3	0.2
Used heroine before and during sex in the last 12 months	1.6	1.5	5.1	0.3
Sexual partners ever used drugs before having sex	15.9	29.1	13.8	12.6
Have ever injected drugs in the last 1 month	3.6	2.8	4.4	0.9
Have sexual partners who injected drugs	3.9	7.6	1.6	2.3

### **Pattern of HIV services utilization – National**

There has been a significant increase in the use of HIV and STI services among MSM, as detailed in Table 16. These services, provided by NGO or healthcare workers, range from the distribution of preventive materials such as condoms to conducting blood tests and STI screenings. In 2022, a higher number of MSM respondents reported being approached by outreach workers from NGO or healthcare workers in the preceding three months, compared to previous years. The year 2022 also saw the highest proportion of respondents receiving free condoms. Additionally, there was an uptick in the number of respondents undergoing STI check-ups and receiving diagnoses in 2022. Moreover, both respondents and their partners were more likely to have undergone HIV testing in 2022 than in the preceding years.

**Table 16: Comparison of HIV services utilization among MSM in 2012-2022 surveys**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
Contacted by NGO outreach worker or healthcare worker in the past 3 months	22.2	19.6	31.1	75.6
Have accessed to free condoms from NGO/drop-in center	52.9	32.0	36.1	63.2
Had STI checkup	9.3	10.9	12.8	18.4
Ever had blood tested for HIV	47.1	40.9	66.9	87.5
Permanent partner had HIV tested	29.0	23.5	25.7	43.8

### Awareness on HIV, risk, and prevention efforts – National

There has been a marked increase of HIV knowledge score among MSM, rising from 44.5% in 2012 to 77.6% in 2022. (Table 17). This represents a significant rise in the level of knowledge compared to previous years. In addition, the year 2022 saw an increase in the proportion of correct responses in relation to HIV knowledge compared to earlier years.

**Table 17: Comparison of HIV knowledge between 2012-2022 surveys**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
A person can reduce risk of HIV by having one faithful, uninfected partner	79.2	80.2	73.6	90.4
A person can reduce HIV transmission by using condom	89.9	89.6	85.6	97.2
A healthy-looking person can have HIV	88.2	81.9	81.4	95.4
A person cannot become infected through mosquito bites	78.1	74.6	83.0	93.3
A person cannot get HIV by sharing meal with someone who is infected with HIV	74.5	80.8	88.9	92.9
Adequate knowledge (score 5)	44.5	47.9	49.6	77.6

*Calculation based on correct answer.*



## HIV prevalence – National

Overall, the HIV prevalence among MSM in the country has markedly reduced from 21.6% in 2017 to 12.9% in 2022 (Table 18), with Kuala Lumpur showing the highest percentage of decline from 43.3% in 2017 to 7.2% in 2022. Similar pattern is seen in Johor, with prevalence of HIV falling from 31.1% in 2017 to 18.1% in 2022. Contradict to Johor and Kuala Lumpur, states like Sabah and Penang showed a worrying uptick of HIV prevalence.

**Table 18: HIV prevalence by states, IBBS 2012-2022**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
<b>North Peninsular</b>				
Penang	13.7	4.0	5.9	11.4
Kedah	-	-	-	6.7
<b>West Peninsular</b>				
Kuala Lumpur	10.2	22.0	43.3	7.2
Selangor	-	-	-	20.4
<b>South Peninsular</b>				
Johor	-	15.7	31.1	18.1
Malacca	6.0	-	-	-
<b>Borneo</b>				
Sabah	1.3	3.1	5.0	9.8
Sarawak	2.0	-	-	-
National prevalence	7.1	8.9	21.6	12.9

## Discussion & Conclusion

- ❖ The result of this study indicates that consistent condom use among MSM was not at optimal level. Condom use varied depending on the type of partner, with the highest usage rate being reported with paid sex partners (53.8%). There is a significant association between inconsistent condom use and HIV infection among MSM (Kumar et al., 2020; Holtz et al., 2015). Therefore, it is imperative to promote education on PrEP as effective preventive measure. PrEP is highly effective in reducing the risk of acquiring HIV infection from sex by about 99% when taken as prescribed (Centres for Disease Control and Prevention, 2021). Additionally, for injecting drug users, PrEP can reduce HIV transmission by 74% (Choopanya et al., 2013).
- ❖ Malaysia is committed to achieving the ambitious 95-95-95 targets by 2030 as part of global initiative to end AIDS. This means that 95% of KP should receive HIV test and are informed of their results, 95% of people diagnosed with HIV should receive ART, and at least 95% of these should adhere to treatment and achieve viral load suppression. In this study, of total 135 respondent who were tested HIV positive, only 90 (66.7%) had prior knowledge of their HIV status before undergoing testing. Among those who were aware of their HIV status, 81 (90%) were on ART. However, only 46 (56.8%) of those on ART had achieved viral suppression. To achieve the 95-95-95, it is imperative for Malaysia to intensify and scale-up prevention strategies. This includes testing strategies beyond traditional clinic testing such as self-testing. Such approach is essential to enhance and broaden testing coverage among MSM, particularly targeting younger MSM who often miss out on services due to stigma. Furthermore, it is crucial to establish collaborative framework between the governments, non-governmental organizations and MSM support groups. This collaboration is vital to ensure accessibility and availability of ART and ensuring treatment adherence.
- ❖ Over the past decade, there has been a notable enhancement in the level of HIV knowledge among MSM. This is evidenced by substantial increase from approximately 45%-50% in earlier cycles to 77.6% in 2022. Concurrent with this improved understanding of HIV, there is also a significant awareness (69.7%) on the importance of attaining 'undetectable' viral load to prevent HIV transmission. This awareness is a key component of the 'treatment as prevention' strategy. The reduction of risk factors and HIV prevalence can be partly attributed to enhanced treatment literacy. Therefore, there is pressing need for ongoing and

intensified initiatives aimed at elevating awareness and comprehension of U=U concept. Such initiatives not only contribute to public health objectives but also empower MSM individuals to recognize and uphold their fundamental human rights.

- ❖ It is encouraging to note the significant decrease in HIV prevalence among MSM in the country, which has fallen from 21.6% in 2017 to 12.9% in 2022. This promising trend underscores the effectiveness of the country's preventive measures. A substantial portion of this decline is credited to the extensive network of more than 30 community-based organizations operating nationwide. These organizations provide a range of harm reduction services, including HIV testing and counselling, sexual health education, free condom distribution, needle distribution, and community empowerment programs aimed at HIV prevention. Additionally, the enhanced understanding of HIV among MSM community including knowledge on risk factors and prevention measures has likely played a critical role in reducing HIV prevalence in this country. This improved awareness is a positive indicator of the success of ongoing comprehensive HIV service package including condom marketing, educational, and awareness campaigns through various channels. However, to maintain and further this progress, it is imperative to intensify preventive measures, particularly in regions where an increase in prevalence has been observed. This approach is crucial to prevent any further escalation and to continue the positive trajectory in combating HIV among the MSM population.
- ❖ Given that syphilis testing was newly introduced in this cycle, it was not possible to establish a trend or comparative analysis with previous data. In this study, the prevalence of syphilis among MSM stood at 7.1%. This rate is notably significant, as syphilis has been linked with an increased likelihood of HIV acquisition. Given this strong association, the importance of the ongoing syphilis reduction initiative cannot be overstated and must focus on early and accurate diagnosis, followed by timely and effective treatment. This is pivotal in mitigating the risk of syphilis transmission. It also plays a crucial role in reducing the concurrent risk of HIV transmission among the MSM population. The continuation and reinforcement of this syphilis reduction strategy are imperative for controlling and ultimately decreasing the incidence of both syphilis and HIV within this demographic.

# TRANSGENDER WOMEN (TGW)

## Network characteristics

The IBBS 2022 survey recruited 523 TGW respondents (including seeds) from five states as detailed in Table 19. Each state-initiated recruitment with one seed, except for Sabah, which introduced a second seed, mid-process due to slow recruitment rates. The longest recruitment waves occurred in Kuala Lumpur and Johor, while Sabah observed the shortest wave accelerated by introduction of the second seed. This survey was first conducted in seven states, but Penang and Sarawak had to be discontinued owing to challenges in recruiting respondents, managing to recruit only 24 and 43 respondents, respectively.

**Table 19: Distribution of respondents and seeds by states**

State	No of seed	No of wave	No of respondents	Sample size	% fulfilled sample size
<b>North Peninsular</b>					
Perak	1	7	93	100	93.0
<b>West Peninsular</b>					
Kuala Lumpur	1	9	148	150	98.7
Selangor	1	6	92	100	92.0
<b>South Peninsular</b>					
Johor	1	9	100	100	100.0
<b>Borneo</b>					
Sabah	2	6	90	100	90.0
Total	6		523	550	95.1

## Socio-demographic

The socio-demographic characteristics of the TGW respondents are summarized in Table 20. The median age among these respondents was 31 years, with notable majority (58.3%) falling within the 25 to 39 age brackets. State-wise, the median ages varied, ranging from 26 to 38 years. Interestingly, a significant portion of the respondents in Perak were young, predominantly aged 29 and younger.

Malays comprised the main demographic of TGW respondents across all states, with the exception of Sabah, where Pribumi Sabah were the majority. A significant majority (78.2%) of TGW respondents identified themselves as followers of Islam. A total of 75% had attained at least secondary education. In Perak, Kuala Lumpur, and Selangor, all respondents had formal education.

Employment status showed that 93.9% of respondents were employed, while a small fraction (5%) reported unemployment, and 1.1% were students, exclusively in Selangor. The primary occupation was sex work, reported by 28.3% of respondents, followed by self-employment (25.6%), and work in salons or beauty parlours (22.4%). Nearly half of respondents (46.9%) earned a monthly income ranging from RM1,000 to RM1,999. Additionally, the median and mean ages for TGW debut were recorded at 13 and 12.6 years, respectively.

## Sexual behaviours

The sexual behaviours of the TGW respondents are shown in Table 21. A significant 99% of these respondents admitted using condom during sexual activities at least once, with 100% in Perak and Selangor confirming this practice. In the last three months, 98.5% had access to condoms, predominantly provided by outreach workers from NGO (96.1%). Overall, the median age at which respondents first engaged in sexual activity was 17 years. Additionally, a notable 91.4% used a condom during the most recent anal sex with a male partner.

Close to one third (31.2%) of respondents admitted having a regular sexual partner in which all (100%) were men. Unfortunately, 11.7% admitted they never use condoms during sexual encounter with their regular partners. While 90.1% of respondents admitted to selling anal sex; only 10.5% reported actually participating in anal sex for payment. In terms of condom use,

41.8% consistently used condoms with clients. This is in contrast to 32.9% who always use condoms with consensual partners, and 29.1% with paid sex partners.

**Table 20: Socio-demographic characteristics among TGW by states, IBBS 2022 (N=523)**

States	Perak		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%
<b>Age</b>												
≤ 24	27	29.0	2	1.4	35	38.0	6	6.0	38	42.2	108	20.7
25-29	59	63.4	5	3.4	22	23.9	16	16.0	22	24.4	124	23.7
30-39	7	7.5	82	55.4	20	21.7	50	50.0	22	24.4	181	34.6
40-49	0	0.0	53	35.8	13	14.1	22	22.0	3	3.3	91	17.4
≥ 50	0	0.0	6	4.1	2	2.2	6	6.0	5	5.6	19	3.6
Median	26 (23-32)		38 (21-65)		27 (20-53)		35 (22-72)		26(19-52)		31(19-72)	
<b>Ethnicity</b>												
Malay	46	49.5	139	93.9	48	52.2	77	77.0	13	14.4	323	61.8
Chinese	13	14.0	0	0.0	1	1.1	7	7.0	1	1.1	22	4.2
Indian	19	20.4	6	4.1	36	39.1	2	2.0	0	0.0	63	12.0
Pribumi Sabah	0	0.0	2	1.4	3	3.3	0	0.0	74	82.2	79	15.1
Pribumi Sarawak	0	0.0	0	0.0	3	3.3	12	12.0	1	1.1	16	3.1
Orang Asli	15	16.1	0	0.0	1	1.1	0	0.0	0	0.0	16	3.1
Others	0	0.0	1	0.7	0	0.0	2	2.0	1	1.1	4	0.8
<b>Religion</b>												
Islam	52	55.9	140	94.6	50	54.3	79	79.0	88	97.8	409	78.2
Buddhism	9	9.7	0	0.0	0	0.0	9	9.0	1	1.1	19	3.6
Hinduism	14	15.1	5	3.4	27	29.3	2	2.0	0	0.0	48	9.2
Christianity	14	15.1	2	1.4	10	10.9	10	10.0	1	1.1	37	7.1
Sikhism	0	0.0	1	0.7	3	3.3	0	0.0	0	0.0	4	0.8
No religion	4	4.3	0	0.0	2	2.2	0	0.0	0	0.0	6	1.1
Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>Education level</b>												
No schooling	0	0.0	0	0.0	0	0.0	1	1.0	6	6.7	7	1.3
Primary	1	1.1	6	4.1	10	10.9	3	3.0	37	41.1	57	10.9
Secondary	81	87.1	134	90.5	53	57.6	79	79.0	45	50.0	392	75.0
Tertiary	11	11.8	8	5.4	29	31.5	17	17.0	2	2.2	67	12.8
<b>Source of income</b>												
Employed	93	100.0	141	95.3	83	90.2	97	97.0	77	85.6	491	93.9
Unemployed	0	0.0	7	4.7	3	3.3	3	3.0	13	14.4	26	5.0
Student	0	0.0	0	0.0	6	6.5	0	0.0	0	0.0	6	1.1
<b>Age of TGW debut</b>												
Median	15 (7-20)		13 (8-19)		10 (7-17)		12 (7-25)		16 (10-22)		13 (7-25)	
Mean	14.9		12.8		10.5		12.3		16.1		12.6	

Table 21: Sexual behaviours among TGW by states, IBBS 2022 (N=523)

States	Perak		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%
<b>Ever used condom during sex</b>												
Yes	93	100.0	147	99.3	92	100.0	97	97.0	89	98.9	518	99.0
<b>Had access to condom in the last 3 months</b>												
Yes	93	100.0	147	100.0	92	100.0	90	92.8	88	98.9	510	98.5
<b>Places condoms were obtained (<i>multiple response</i>)</b>												
Retail outlets	55	59.1	10	6.8	49	53.3	33	36.7	6	6.8	153	30
Pharmacy	2	2.2	6	4.1	30	32.6	2	2.2	5	5.7	45	8.8
Clinic	1	1.1	12	8.2	1	1.1	1	1.1	5	5.7	20	3.9
Outreach workers from NGO	92	98.9	146	99.3	88	95.7	78	86.7	86	97.7	490	96.1
Bar/sauna/hotel/club	3	3.2	3	2.0	0	0.0	0	0.0	0	0.0	6	1.2
Online (e.g. Lazada, Shopee etc)	53	57.0	26	17.7	15	16.3	24	26.7	3	3.4	121	23.7
Others	0	0.0	0	0.0	9	9.8	0	0.0	0	0.0	9	1.8
<b>Age at first had anal sex with men</b>												
Median	19 (9-42)		15 (10-26)		16 (7-22)		17 (7-26)		18 (10-49)		17 (7-49)	
Mean	19.5		14.8		16.2		16.4		18.0		16.7	
<b>Condom use the last time had anal sex</b>												
Yes	79	84.9	144	97.3	82	89.1	88	88.0	85	94.4	478	91.4
<b>Had a regular sex partner</b>												
Yes	23	24.7	43	29.1	46	50.0	22	22.0	29	32.2	163	31.2
<b>Frequency of condom used with regular sex partner</b>												
Always	0	0.0	6	14.0	13	28.3	7	31.8	21	72.4	47	28.8
Not always	12	52.2	37	86.0	31	67.4	10	45.5	7	24.1	97	59.5
Never use	11	47.8	0	0.0	2	4.3	5	22.7	1	3.4	19	11.7
<b>Had sex with men in exchange for money or in kind (selling sex)</b>												
Yes	93	100.0	139	93.9	80	87.0	78	78.0	81	90.0	471	90.1
<b>Frequency of condom used with clients during selling sex</b>												
Always	19	20.4	23	16.5	64	80.0	15	19.2	76	93.8	197	41.8
Not always	74	79.6	116	83.5	16	20.0	63	80.8	4	4.9	273	58.0
Never use	0	0.0	0	0.0	0	0.0	0	0.0	1	1.2	1	0.2
<b>Had paid men for sex</b>												
Yes	14	15.1	18	12.2	1	1.1	8	8.0	14	15.6	55	10.5
<b>Frequency of condom used with men during paid sex</b>												
Always	0	0.0	2	11.1	1	100.0	2	25.0	11	78.6	16	29.1
Not always	9	64.3	16	88.9	0	0.0	6	75	3	21.4	34	61.8
Never use	5	35.7	0	0.0	0	0.0	0	0.0	0	0.0	5	9.1
<b>Had consensual sex</b>												
Yes	82	88.2	53	35.8	75	81.5	76	76.0	76	84.4	362	69.2
<b>Frequency of condom used with sex partner during consensual sex</b>												
Always	2	2.4	4	7.5	32	42.7	14	18.4	67	88.2	119	32.9
Not always	68	82.9	49	92.5	41	54.7	61	80.3	7	9.2	226	62.4
Never use	12	14.6	0	0.0	2	2.7	1	1.3	2	2.6	17	4.7

## Alcohol and substance use

Table 22 outlines alcohol and substances use among the TGW respondents. More than a quarter of the respondents (28.1%) consumed alcohol before and during sexual encounter in the last month. The highest prevalence was in Perak, with 53.8% had consumed alcohol before and during sex, while Sabah reported the lowest at 7.8%.

Notably, majority of respondents did not use drugs before or during sexual activities. Only a small fraction had used drugs, with ecstasy the most commonly used drug (4.6%), followed by syabu/ice (4%). No respondents in Sabah reported drug use before engaging with sexual intercourse.

Approximately 21% of respondents indicated that their partners had also used drugs prior to sex, and 1.3% admitted their partners had ever injected drugs. Only one respondent admitted to injecting drugs and denied sharing of needles.

**Table 22: Alcohol and substances use among TGW by states, IBBS 2022 (N=523)**

States	Perak		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%
<b>Ever consumed alcohol before/during sex</b>												
Yes	50	53.8	31	20.9	46	50.0	13	13.0	7	7.8	147	28.1
<b>Substances used before/during sex</b>												
Ecstasy	1	1.1	0	0.0	15	16.3	8	8.0	0	0.0	24	4.6
Syabu/ice	10	10.8	5	3.4	6	6.5	0	0.0	0	0.0	21	4.0
Cocaine	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Heroin	1	1.1	2	1.4	0	0.0	0	0.0	0	0.0	3	0.6
Others	0	0.0	1	0.7	5	5.4	0	0.0	0	0.0	6	1.1
Not taking drug	83	89.2	142	95.9	73	79.3	92	92.0	90	100.0	480	91.8
<b>Sexual partner(s) ever used drugs before/during sex</b>												
Yes	37	39.8	14	9.5	27	29.3	31	31.0	1	1.1	110	21.0
<b>Sexual partner(s) ever injected drugs</b>												
Yes	3	3.2	0	0.0	1	1.1	2	2.0	1	1.1	7	1.3

## Prevention services

Table 23 summarizes HIV information and outreach services among TGW respondents. A substantial 85.1% of respondents claimed that they had been informed about HIV/STI/safer injecting practices. The most predominant mode of contact was face-to-face, as reported by 89.6% respondents. Additionally, a significant 92.5% reported receiving condoms and



lubricants and substantial 66.2% had received counselling on condom use and safer sex. A small fraction, 2.9% stated they had not received any HIV prevention package in the past three months.

**Table 23: HIV information and outreach services among TGW by states, IBBS 2022 (N=523)**

States	Perak		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%
<b>Ever received information on HIV/STI/safer injecting use in the past 3 months</b>												
Yes	83	89.2	112	75.7	88	95.7	84	84.0	78	86.7	445	85.1
<b>HIV/STI prevention services received from outreach workers</b>												
New needle and syringe	0	0.0	1	0.7	0	0.0	1	1.0	0	0.0	2	0.4
Condoms and lubricants	92	98.9	147	99.3	87	94.6	75	75.0	83	92.2	484	92.5
Counselling on condom use and safe sex	93	100.0	17	11.5	88	95.7	62	62.0	86	95.6	346	66.2
Did not received any services	0	0.0	0	0.0	2	2.2	13	13.0	0	0.0	15	2.9

HIV/Hepatitis C/STI services utilization among TGW respondents is outlined in Table 24. Regarding HIV testing, majority (83.7%) of TGW respondents had their blood tested at some point, but in Perak this figure was much lower at only 17.2%. Of those tested, 52.5% had their test less than six months ago and 43.8% between 6 to 12 months ago. Almost all respondents (96.6%) had access to HIV testing at community-based settings and 45.4% reported that their regular partner/spouse had also been tested.

Encouragingly, all TGW who have HIV received ART and none of them defaulted. A total of 89.5% of respondents claimed that their viral load had been suppressed.

Regarding Hepatitis C, 17.6% had never been tested for Hepatitis C, primarily due to lack of knowledge on Hepatitis C testing and treatment option (40.2%).

Regarding STI, 9% visited STI clinic in the past three months. Extreme burning pain when urinating (dysuria) (3.8%), penile ulcer (2.5%), and penile discharge (1.3%) were the three most prevalent STI symptoms reported in the last 12 months. Slightly more than half (51.7%) diagnosed with STI, sought advice from a pharmacy, and 41.4% sought treatment from a government health facility.

Table 24: HIV/Hepatitis C/STI services utilization among TGW by states, IBBS 2022 (N=523)

States	Perak		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%
<b>HIV</b>												
<b>Ever had blood tested for HIV</b>												
Yes	16	17.2	147	99.3	89	96.7	98	98.0	88	97.8	438	83.7
<b>Last HIV test</b>												
< 6 months ago	6	37.5	16	10.9	88	98.9	35	35.7	85	96.6	230	52.5
6 to 12 months ago	10	62.5	128	87.1	1	1.1	51	52.0	2	2.3	192	43.8
> 12 months ago	0	0.0	3	2.0	0	0.0	12	12.2	1	1.1	16	3.7
<b>Access to HIV testing (multiple response)</b>												
Government clinic	1	6.3	6	4.1	14	15.7	30	30.6	6	6.8	57	13.0
Private clinic	1	6.3	0	0.0	8	9.0	4	4.1	1	1.1	14	3.2
Community based	16	100.0	147	100.0	89	100.0	84	85.7	87	98.9	423	96.6
Self-testing	0	0.0	0	0.0	0	0.0	1	1.0	0	0.0	1	0.2
<b>Regular sex partner(s)/spouse ever tested for HIV</b>												
Yes	1	6.3	44	29.9	42	47.2	31	31.6	81	92.0	199	45.4
No	7	43.8	69	46.9	6	6.7	0	0.0	3	3.4	85	19.4
No permanent partner(s)/spouse	8	50.0	34	23.1	41	46.1	67	68.4	4	4.5	154	35.2
<b>Knew HIV status</b>												
HIV positive	0	0.0	8	5.4	0	0.0	11	11.2	0	0.0	19	4.3
HIV negative	16	100.0	139	94.6	89	100.0	87	88.8	88	100.0	419	95.7
Indeterminate	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Do not know HIV status	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>HIV treatment status</b>												
On ART	-	-	8	100.0	-	-	11	100.0	-	-	19	100.0
Never on ART	-	-	0	0.0	-	-	0	0.0	-	-	0	0.0
<b>Viral load suppression among those on treatment</b>												
Yes	-	-	7	87.5	-	-	10	90.9	-	-	17	89.5
No	-	-	1	12.5	-	-	0	0.0	-	-	1	5.3
Not sure/not remember	-	-	0	0.0	-	-	1	9.1	-	-	1	5.3
<b>Hepatitis C</b>												
<b>Ever had blood tested for Hepatitis C</b>												
Yes	14	15.1	146	98.6	90	97.8	95	95.0	86	95.6	431	82.4
<b>Reason did not get tested (multiple response)</b>												
Did not aware about Hepatitis C test and treatment	34	43.0	0	0.0	0	0.0	2	40.0	1	25.0	37	40.2
Don't know where to get tested	1	1.3	1	50.0	1	50.0	1	20.0	2	50.0	6	6.5
Refused to get tested	29	36.7	0	0.0	0	0.0	2	40.0	1	25.0	32	34.8
Testing facilities not available or too far	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0	2	2.2
Others	15	19.0	0	0.0	0	0.0	0	0.0	0	0.0	15	16.3

Cont.

States	Perak		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%
<b>STI</b>												
<b>Ever visited STI clinic in the past 3 months</b>												
Yes	1	1.1	13	8.8	9	9.8	12	12.0	12	13.3	47	9.0
<b>Experienced symptoms in the past 12 months (multiple response)</b>												
Dysuria	0	0.0	1	0.7	17	18.5	1	1.0	1	1.1	20	3.8
Penile ulcer	0	0.0	1	0.7	11	12.0	1	1.0	0	0.0	13	2.5
Penile discharge	0	0.0	1	0.7	6	6.5	0	0.0	0	0.0	7	1.3
Rectal discharge/bleeding	0	0.0	0	0.0	6	6.5	0	0.0	0	0.0	6	1.1
No STI symptoms	93	100.0	146	98.6	67	72.8	99	99.0	89	98.9	494	94.5
<b>Action taken the last time had STI symptoms</b>												
Did not treat	-	-	0	0.0	1	4.0	0	0.0	0	0.0	1	3.4
Self-treated/sought advice from pharmacy	-	-	0	0.0	15	60.0	0	0.0	0	0.0	15	51.7
Sought treatment from government health facility	-	-	2	100.0	8	32.0	1	100.0	1	100.0	12	41.4
Sought treatment from private health facility	-	-	0	0.0	1	4.0	0	0.0	0	0.0	1	3.4
Went to traditional healer	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Others	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table 25 shows data on PrEP and PeP understanding and uptake among respondents. Among those who self-reported HIV negative or unknown HIV status, awareness about PrEP and PeP was under 50%, with 49.4% knew about PrEP and 43.1% knew about PeP. Actual usage was much lower with only 20 having used PrEP and 13 using PeP. Of the 20 respondents claimed they had used PrEP in the past 12 months, a majority (13) were from Klang Valley (Selangor and Kuala Lumpur) and the rest from Johor (3) and Sabah (4). For PeP usage in the same period, six were from Perak, three from Kuala Lumpur and two each from Johor and Sabah. This survey also revealed that most respondents obtained PrEP and PeP from pharmacies, with 75% getting PrEP and 92.3% acquiring PeP through this channel.

A substantial proportion (70.7%) of respondents were not interested in taking PrEP, with the main reasons being that they were not ready for it (42%) and were worried about its side effects (26.5%). Nevertheless, a large number of Sabah respondents indicated an interest in taking PrEP in the future. Most respondents (94%) prefer condoms over PrEP as HIV prevention.

Table 25: PrEP and PeP uptake and acceptability among TGW by states, IBBS 2022 (N=504)

States	Perak		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%
<b>PrEP</b>												
<b>Heard about PrEP</b>												
Yes	25	26.9	102	72.9	38	41.3	44	49.4	40	44.4	249	49.4
<b>Taken PrEP in the past 12 months</b>												
Yes	0	0.0	6	5.9	7	18.4	3	6.8	4	10.0	20	8.0
<b>Access to PrEP</b>												
Private clinic	-	-	0	0.0	1	14.3	1	33.3	1	25.0	3	15.0
Pharmacy	-	-	6	100.0	6	85.7	2	66.7	1	25.0	15	75.0
Online	-	-	0	0.0	0	0.0	0	0.0	1	25.0	1	5.0
Others	-	-	0	0.0	0	0.0	0	0.0	1	25.0	1	5.0
<b>Interested in taking PrEP in the future</b>												
Yes	4	16.0	8	8.3	10	32.3	16	39.0	29	80.6	67	29.3
<b>Reason for not interested in taking PrEP in the future</b>												
Lack of interest in PrEP	0	0.0	6	6.8	4	19.0	3	12.0	0	0.0	13	8.0
Financial problem	1	4.8	6	6.8	0	0.0	2	8.0	7	100.0	16	9.9
Too expensive	0	0.0	0	0.0	0	0.0	1	4.0	0	0.0	1	0.6
Not ready for PrEP	1	4.8	59	67.0	2	9.5	6	24.0	0	0.0	68	42.0
Afraid of stigma or rejection	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Afraid of the side effects of PrEP	17	81.0	17	19.3	1	4.8	8	32.0	0	0.0	43	26.5
No risk of being infected with HIV	2	9.5	0	0.0	14	66.7	1	4.0	0	0.0	17	10.5
Others	0	0.0	0	0.0	0	0.0	4	16.0	0	0.0	4	2.5
<b>Prefer as HIV prevention</b>												
PrEP	0	0.0	3	2.1	11	12.0	3	3.4	13	14.4	30	6.0
Condom	93	100.0	137	97.9	81	88.0	86	96.6	77	85.6	474	94.0
<b>PeP</b>												
<b>Heard about PeP</b>												
Yes	27	29.0	85	60.7	31	33.7	42	47.2	32	35.6	217	43.1
<b>Taken PeP in the past 12 months</b>												
Yes	6	22.2	3	3.5	0	0.0	2	4.8	2	6.3	13	6.0
<b>Access to PeP</b>												
Private clinic	0	0.0	0	0.0	-	-	0	0.0	0	0.0	0	0.0
Pharmacy	6	100.0	3	100.0	-	-	2	100.0	1	50.0	12	92.3
Online	0	0.0	0	0.0	-	-	0	0.0	1	50.0	1	7.7
Others	0	0.0	0	0.0	-	-	0	0.0	0	0.0	0	0.0

## Awareness on HIV, risk, and prevention efforts

The knowledge and opinions towards HIV/AIDS among TGW respondents are presented in Table 26. Among respondents, 63.3% perceived themselves as being at risk for HIV infection. In contrast, a higher percentage, 86.8%, believed they had sufficient knowledge on HIV. While the majority (above 90%) answered correctly to all questions, only 37.5% understood the significance of treatment in preventing transmission, specifically the concept U=U.

**Table 26: Knowledge and opinion towards HIV/AIDS among TGW by states, IBBS 2022 (N=523)**

States	Perak		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%
<b>Felt at risk of being infected with HIV</b>												
Yes	92	98.9	96	64.9	14	15.2	58	58.0	71	78.9	331	63.3
<b>HIV knowledge score</b>												
0 score	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1 score	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2 score	2	2.2	0	0.0	0	0.0	1	1.0	0	0.0	3	0.6
3 score	5	5.4	3	2.0	0	0.0	0	0.0	1	1.1	9	1.7
4 score	23	24.7	17	11.5	6	6.5	4	4.0	7	7.8	57	10.9
5 score	63	67.7	128	86.5	86	93.5	95	95.0	82	91.1	454	86.8
<b>Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?</b>												
Correct answer	88	94.6	142	95.9	92	100.0	97	97.0	85	94.4	504	96.4
<b>Can a person reduce the risk for getting HIV by using a condom every time they have sex?</b>												
Correct answer	89	95.7	146	98.6	92	100.0	98	98.0	89	98.9	514	98.3
<b>Can a healthy-looking person have HIV?</b>												
Correct answer	79	84.9	139	93.9	90	97.8	99	99.0	89	98.9	496	94.8
<b>Can a person get HIV from mosquito bites?</b>												
Correct answer	88	94.6	146	98.6	91	98.9	99	99.0	89	98.9	513	98.1
<b>Can a person get HIV from sharing food with someone who is infected?</b>												
Correct answer	82	88.2	144	97.3	89	96.7	100	100.0	89	98.9	504	96.4
<b>Aware of the concept U=U</b>												
Yes	33	35.5	31	20.9	42	45.7	49	49.0	41	45.6	196	37.5

## HIV prevalence and care cascade

HIV prevalence and care cascade among TGW respondents are summarized in Table 27. The overall HIV prevalence among TGW respondents was 5.9% with highest prevalence observed in Johor (14%), followed by Perak (6.5%) and Kuala Lumpur (6.1%). In contrast, Selangor and Sabah had the lowest prevalence (1.1%). Regarding HIV cascade analysis, out of 31 respondents who tested positive in this study, 19 (61.3%) were already aware of their HIV status before participating in this survey. All of these individuals were currently receiving ART, and among them, 17 (89.5%) have successfully achieved viral suppression (Figure 2).

Table 27: HIV prevalence and cascade among TGW by states, IBBS 2022 (N=523)

States	Perak		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%
<b>HIV prevalence</b>												
18-24 years	0	0.0	0	0.0	0	0.0	2	33.3	0	0.0	2	1.9
>24 years	6	9.1	9	6.2	1	1.8	12	12.8	1	1.9	29	7.0
Overall	6	6.5	9	6.1	1	1.1	14	14.0	1	1.1	31	5.9
Number of HIV positive	6		9		1		14		1		31	
Number of PLHIV who know their status	0		8		0		11		0		19	
Number of PLHIV who know their status receiving ART	0		8		0		11		0		19	
Number of PLHIV on ART with viral suppression	0		7		0		10		0		17	

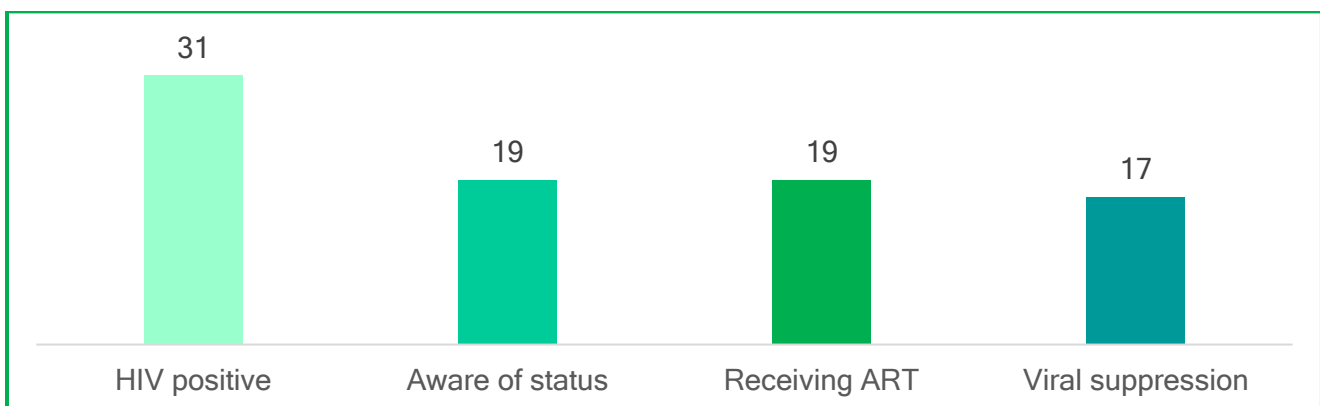


Figure 2: HIV cascade among TGW

## Syphilis prevalence

The overall syphilis prevalence among TGW respondents was 5.7% (Table 28). This rate, however, varied significantly across states, with the highest prevalence being observed in Perak, where an alarming 19.4% of the respondents tested positive for syphilis.

**Table 28: Syphilis prevalence among TGW by states, IBBS 2022 (N=523)**

States	Perak		K. Lumpur		Selangor		Johor		Sabah		National	
	n	%	n	%	n	%	n	%	n	%	n	%
<b>Syphilis prevalence</b>												
18-24 years	3	11.1	0	0.0	0	0.0	1	16.7	0	0.0	4	3.7
> 24 years	15	22.7	4	2.7	1	1.8	6	6.4	0	0.0	26	6.3
Overall	18	19.4	4	2.7	1	1.1	7	7.0	0	0.0	30	5.7

## Socio-demographic characteristics - National

In general, over the past decade in Malaysia, there has been a noticeable trend among TGW respondents towards an increase in the 30 to 49 age group. Concurrently, there's been a decline in the representation of younger TGW (29 years and younger) as well as those aged 50 and above (Table 29).

Over the last decade, the ethnic makeup of TGW respondents has remained relatively stable, predominantly comprising Malays. However, there has been a decrease in the proportion of Indian and Pribumi Sarawak respondents, while the representation of Chinese individuals has seen a slight increase.

In terms of educational attainment, the level has remained consistent over the last 10 years, with the majority having completed secondary education. Notably, the percentage of those without formal education has decreased, falling from 3.1% to 1.3% between 2017 and 2022.

The employment rate among TGW has seen a remarkable rise, jumping from an average of 25% to 35% between 2012 and 2017, and soaring to 93.9% in 2022. The proportion working in salons, beauty parlors, or as hairdressers has doubled from 11.2% to 22.4% between 2017 and 2022. Additionally, the percentage of those employed as sex workers has slightly increased from 25.4% in 2017 to 28.3% in 2022.

Table 29: Socio-demographic characteristics of TGW respondents for the 2012-2022 surveys

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
<b>Age</b>				
≤ 24	33.6	29.4	17.0	20.7
25 - 29	22.4	23.2	24.7	23.7
30 - 39	29.0	26.1	34.9	34.6
40 - 49	10.6	15.2	9.7	17.4
≥ 50	4.5	6.2	8.7	3.6
<b>Ethnic</b>				
Malay	52.9	54.1	63.0	61.8
Chinese	4.1	5.4	2.1	4.2
Indian	8.3	10.5	13.7	12.0
Pribumi Sabah	24.5	23.6	14.3	15.1
Pribumi Sarawak	5.9	5.1	5.6	3.1
Orang Asli	-	-	-	3.1
Others	4.4	1.0	0.7	0.8
<b>Education</b>				
No schooling	1.9	4.3	3.1	1.3
Primary	12.6	13.3	12.7	10.9
Secondary	77.7	72.7	69.5	75.0
Tertiary	7.8	9.8	14.6	12.8
<b>Faith</b>				
Islam	80.1	77.1	79.4	78.2
Buddhism	3.7	4.8	2.0	3.6
Hinduism	7.5	8.9	12.3	9.2
Christianity	8.3	7.9	6.0	7.1
Sikhism	-	-	-	0.8
No religion	-	-	-	1.1
Others	0.5	1.2	0.3	0.0
<b>Source of income</b>				
Employed	35.3	24.8	32.2	93.9
Work in salon/beauty parlor/hairdresser	15.1	13.3	11.2	22.4
Student	2.4	4.6	2.8	1.1
Sex worker	2.2	27.4	25.4	28.3
Others	18.1	7.0	0.6	18.2
Unemployed	1.2	7.7	6.1	5.0



## Sexual practices and substance abuse – National

As outlined in Table 30, while the age of anal sex debut remained consistent in the last three survey cycles, there has been a slight increase from 16 to 17 years in 2022 (Table 30). In terms of regular sexual partners, the recent survey shows a shift, with all respondents now choosing male partners. There was a slight decrease in condom use with all types of male sexual partners.

**Table 30: Sexual history and condom use pattern among TGW respondents in 2012-2022 surveys**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
Median age of first anal sex with a man (years)	16 (7-45)	16 (5-42)	16 (7-35)	17 (7-49)
Ever had sex with men in exchange for money or in kind	89.2	86.1	80.0	90.1
<b>Regular sex partner</b>				
Man	98.1	96.4	99.1	100
Woman	1.4	2.2	0.2	0.0
Transgender	0.5	1.5	0.7	0.0
<b>Condom used</b>				
Had always used condom with recent male client when sold sex	-	-	51.3	41.8
Had always used condom with recent male when paid sex	-	-	-	29.1
Had always used condom with recent male consensual partner	-	-	36.6	32.9

It is satisfying to note that the percentage of respondents who consumed alcohol and drugs before and during sex decreased over time (Table 31). Those who consumed alcohol had gradually reduced from 37.9% in 2012, to 28.5% in 2017 and 28.1% in 2022. Similar trend was observed in those who used ecstasy, falling from 7.6% in 2012 to 4.6% in 2022. But the most significant decline was seen among syabu/ice users before and during sex encounters, dropping from 17.9% in 2012 to only 4% in 2022. As for opiate drugs, cocaine and heroin use before and during sexual encounters seemed phasing out with times, with only 0.6% using heroin and no one using cocaine in 2022. The proportion of respondents or sex partners who inject drugs or shared injecting paraphernalia had decreased between 2012 and 2022.

**Table 31: Comparison of substance abuse among TGW in 2012-2022 surveys**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
Ever consumed alcohol before and during sex in the last 1 month	37.9	38.7	28.5	28.1
Used ecstasy before and during sex in the last 12 months	7.6	5.8	3.6	4.6
Used syabu/ice before and during sex in the last 12 months	17.9	19.3	19.2	4.0
Used cocaine before and during sex in the last 12 months	1.4	4.3	0.4	0.0
Used heroine before and during sex in the last 12 months	2.5	1.5	0.4	0.6
Sexual partners ever used drugs before and during sex	31.4	29.1	22.5	21.0
Have ever injected drugs in the last 1 month	2.5	2.8	3.8	0.2
Shared used needles and/or syringes in the last 3 months	-	0.5	0.9	0.0
Have sexual partners who injected drugs	7.2	6.9	4.1	1.3

### **Pattern of HIV services utilization – National**

Overall, the pattern of HIV prevention services uptake has increased tremendously, particularly in terms of access to condoms and HIV testing (Table 32). The accessibility of condoms has seen a remarkable increase over time, rising from 59.6% in 2017 to 92.5% in 2022. Concurrently, the proportion of TGW who have undergone blood test for HIV at least once, rose from 78% in 2017 to 83.7% in 2022. Similar trend was observed in their permanent partner. This notable increase in the utilization of preventive measures is likely attributable to the intensified outreach efforts by NGOs and contacts by healthcare workers. Their contact rates with the target population have surged from below 50% between 2012 and 2017 to an impressive 97.7% in 2022, indicating a significant enhancement in engagement and service delivery. Despite increasing uptake of HIV prevention services, there was a noticeable decrease in the number of respondents underwent STI check-ups in 2022 compared to 2017. However, it's important to note that there was a higher incidence of STI diagnoses in 2022.

**Table 32: Comparison of HIV services utilization among TGW in 2012-2022 surveys**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
Contacted by outreach worker from NGO or healthcare worker in the past 3 months	45.3	47.2	41.8	97.7
Have accessed to free condoms	74.4	66.3	59.6	92.5
Had STI checkup	43.8	8.5	11.3	9.0
Had been diagnosed with STI in the last 12 months	-	3.7	4.6	5.5
Ever had blood tested for HIV	57.8	66.8	78.0	83.7
Permanent partner had HIV tested	17.8	39.2	18.2	45.4

### Awareness on HIV, risk, and prevention efforts – National

Regarding HIV awareness, there has been a substantial improvement in the last 10 years. Percentage achieving high scores in HIV knowledge escalated from less than 50% in previous years to 86.8% in 2022 (Table 33). Furthermore, the percentage of correct responses in 2022 has seen a parallel increase compared to previous years.

**Table 33: Comparison of HIV knowledge between 2012-2022 surveys**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
A person can reduce risk of HIV by having one faithful, uninfected partner	69.3	72.6	70.5	96.4
A person can reduce HIV transmission by using condom	91.6	87.1	83.9	98.3
A healthy-looking person can have HIV	86.0	77.8	82.3	94.8
A person cannot become infected through mosquito bites	75.8	77.0	80.3	98.1
A person cannot get HIV by sharing meal with someone who is infected with HIV	77.1	83.3	85.0	96.4
Adequate knowledge (score 5)	40.6	38.9	47.1	86.8

*Calculation based on correct answer.*

## HIV prevalence – National

The national HIV prevalence among TGW has significantly reduced, dropping by nearly half from 10.7% in 2017 to 5.9% in 2022 (Table 34). On a state-by-state basis, an upward trend was noted in several states, particularly in Perak, Johor, and Sabah. Conversely, Kuala Lumpur experienced a marked decrease in HIV prevalence, declining from 23.9% in 2017 to 6.1% in 2022.

**Table 34: HIV prevalence by states, IBBS 2012-2022**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
<b>North Peninsular</b>				
Penang	7.5	8.0	4.3	-
Perak	1.8	0.7	5.0	6.5
<b>West Peninsular</b>				
Kuala Lumpur	-	19.5	23.9	6.1
Selangor	4.8	-	-	1.1
<b>South Peninsular</b>				
Johor	-	10.6	9.2	14.0
Malacca	1.4	-	-	-
Negeri Sembilan	-	-	23.3	-
<b>East Peninsular</b>				
Kelantan	-	6.0	6.7	-
Pahang	-	-	12.7	-
<b>Borneo</b>				
Sabah	3.7	0.4	0.8	1.1
Sarawak	5.3	2.6	6.6	-
National prevalence	4.8	6.3	10.7	5.9

## Discussion & Conclusion

- ❖ Sex work remained among the top three sources of income for TGW respondents, albeit a minor increase from 25.4% in 2017 to 28.3% in 2022.
- ❖ In this study, we found that consistent condom use with most recent male clients and male consensual partners among TGW was not satisfactory, aligning with findings from other studies on TGW (Bavinton et al., 2021; Chhim et al., 2017). Additionally, it is crucial to increase awareness of PrEP as a preventive measure for all TGW, alongside consistent and correct condom use. PrEP is highly effective in reducing the risk of HIV transmission acquired through sexual contact by about 99% (Centres for Disease Control and Prevention, 2021). For injecting drug users, consistent use of PrEP as prescribed can reduce HIV transmission by 74% (Choopanya et al., 2013).
- ❖ Malaysia is dedicated to achieving "Ending AIDS" goal by 2030, aiming to meet the 95-95-95 targets. This entails ensuring that 95% of KP are tested and informed of their results, 95% of those infected with HIV are receiving ART, and at least 95% of these individuals adhere to treatment and achieve a suppressed viral load. In this study, of total 31 TGW identified with HIV infection, only 19 (61.3%) had prior knowledge of their HIV status before undergoing testing. Among those who were aware, all (100%) are currently receiving ART and 17 (89.5%) had achieved viral suppression. To bridge this gap and reach the 95-95-95 targets by 2030, it's crucial to prioritize, accelerate and expand prevention initiatives. Implementing additional testing strategies, such as self-testing, could enhance testing coverage among TGW. Furthermore, collaboration between the government, non-governmental organizations and TGW support groups is essential to provide accessible supply of ART and ensure adherence to treatment.
- ❖ In 2022, 86.8% of TGW respondents demonstrated an adequate understanding of HIV, marking a significant increase from the previous years (40.6% in 2012, 38.9% in 2014 and 47.1% in 2017). However, only 37.5% were familiar with the U=U. Therefore, additional efforts are necessary to enhance awareness of U=U, as the decline in HIV prevalence and risk behaviours is partly linked to improved treatment literacy. Furthermore, this knowledge empowers TGW to understand, and assert their fundamental human rights.

- ❖ The prevalence of HIV among TGW has significantly decreased, showing a nearly two-fold reduction to 5.9% in 2022 from 10.7% in 2017. This declining trend is a promising indicator of the effectiveness of the country's existing prevention strategies. This decline is largely due to efforts of over 30 community-based organizations across the country, offering a range of harm reduction services. These include HIV testing and counselling, sexual health education, provision of free condoms and needle, and community empowerment initiatives targeting HIV prevention. Additionally, the decrease in HIV prevalence may be attributed to the improved understanding of HIV, its risk factors and preventive measures among TGW over time. However, in states where prevalence is rising, there is a need to intensify preventive activities to prevent potential rise.
- ❖ In this study, the prevalence of syphilis among TGW was identified at 5.7%. Given the significant association between syphilis and an increased risk of HIV acquisition, it is essential to maintain and possibly enhance the current syphilis control program. This program should continue to focus on rapid diagnostics and effective treatment strategies to manage and reduce the risk effectively.

# FEMALE SEX WORKERS (FSW)

## Network characteristics

In total, 483 FSW (including seeds) were enlisted from four different states across the nation (Table 35). Recruitment was initiated with four seeds leading to decently long recruitment waves in all states. This survey was initially conducted in five states, but recruitment in Sarawak was discontinued because of the challenges in recruiting respondents, with only 17 respondents successfully enrolled.

**Table 35: Distribution of respondents and seeds by states**

State	No of seed	No of wave	No of respondents	Sample size	% fulfilled sample size
<b>West Peninsular</b>					
K. Lumpur	1	15	200	200	100.0
Selangor	1	10	97	100	97.0
<b>East Peninsular</b>					
Pahang	1	8	100	100	100.0
<b>South Peninsular</b>					
Sabah	1	9	86	100	86.0
Total			483	500	96.6

## Socio-demographic

The socio-demographic characteristics of the FSW respondents are summarized in Table 36. The largest proportion of FSW (43.7%) fell within the age range of 30 and 39 years, with the median age being 31. The median age of respondents varied by state, ranging from 24 to 37 years. Pahang was the only state with respondents aged 50 or older.

A majority of FSW respondents (68.1%) identified as Malay, and a significant portion (86.7%) practiced Islam. There were no Sikh respondents. Across all states, most of the respondents were unmarried. Additionally, over half of FSW respondents (60.5%) had completed at least secondary education, with a notable number in Selangor having attained tertiary education.

Regarding their occupation, the majority (57.6%) worked as part-time sex workers. The most common methods for finding clients were through phone/SMS/social networks (36.2%), followed by brothels (17.4%), street solicitation (11.6%), and hotel/motel/stall (11.4%). In terms of income, 35.4% of respondents earned between RM500 to RM1,499 monthly. Others reported incomes below RM500 (22.6%) and between RM1,500 to RM2,999 (30.4%). A small percentage (2.3%) claimed a monthly income of more than RM5,000.



Table 36: Socio-demographic characteristics among FSW by states, IBBS 2022 (N=483)

States	K. Lumpur		Selangor		Pahang		Sabah		National	
	n	%	n	%	n	%	n	%	n	%
<b>Age</b>										
≥ 24	15	7.5	57	58.8	6	6.0	18	20.9	96	19.9
25-29	23	11.5	35	36.1	16	16.0	41	47.7	115	23.8
30-39	151	75.5	3	3.1	32	32.0	25	29.1	211	43.7
40-49	11	5.5	2	2.1	25	25.0	2	2.3	40	8.3
≤ 50	0	0.0	0	0.0	21	21.0	0	0.0	21	4.3
Median	32 (21-42)		24 (19-44)		37 (21-67)		28 (18-48)		31 (18-67)	
<b>Ethnicity</b>										
Malay	142	71.0	95	97.9	89	89.0	3	3.5	329	68.1
Chinese	13	6.5	0	0.0	2	2.0	0	0.0	15	3.1
Indian	2	1.0	1	1.0	5	5.0	0	0.0	8	1.7
Pribumi Sabah	36	18.0	1	1.0	2	2.0	83	96.5	122	25.3
Pribumi Sarawak	7	3.5	0	0.0	1	1.0	0	0.0	8	1.7
Orang Asli	0	0.0	0	0.0	1	1.0	0	0.0	1	0.2
Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>Religion</b>										
Islam	167	83.5	95	97.9	92	92.0	65	75.6	419	86.7
Buddhism	5	2.5	1	1.0	1	1.0	0	0.0	7	1.4
Hinduism	1	0.5	0	0.0	3	3.0	0	0.0	4	0.8
Christianity	21	10.5	1	1.0	2	2.0	20	23.3	44	9.1
Sikhism	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
No religion	6	3.0	0	0.0	0	0.0	1	1.2	7	1.4
Others	0	0.0	0	0.0	2	2.0	0	0.0	2	0.4
<b>Marital status</b>										
Unmarried	106	53.0	76	78.4	37	37.0	76	88.4	295	61.1
Married	41	20.5	10	10.3	23	23.0	4	4.7	78	16.1
Divorced	44	22.0	10	10.3	31	31.0	6	7.0	91	18.8
Widower	9	4.5	1	1.0	9	9.0	0	0.0	19	3.9
<b>Education level</b>										
No schooling	16	8.0	1	1.0	18	18.0	0	0.0	35	7.2
Primary	12	6.0	2	2.1	26	26.0	17	19.8	57	11.8
Secondary	139	69.5	31	32.0	55	55.0	67	77.9	292	60.5
Tertiary	33	16.5	63	64.9	1	1.0	2	2.3	99	20.5
<b>Source of income as FSW</b>										
Full-time	149	74.5	12	12.4	25	25.0	19	22.1	205	42.4
Part-time	51	25.5	85	87.6	75	75.0	67	77.9	278	57.6
<b>Places of contact clients among FSW</b>										
Brothel	79	39.5	5	5.2	0	0.0	0	0.0	84	17.4
Street	5	2.5	1	1.0	47	47.0	3	3.5	56	11.6
Home	4	2.0	15	15.5	3	3.0	0	0.0	22	4.6
Hotel/motel	10	5.0	21	21.6	2	2.0	22	25.6	55	11.4
Massage parlour	0	0.0	3	3.1	0	0.0	0	0.0	3	0.6
Karaoke bar	30	15.0	3	3.1	4	4.0	5	5.8	42	8.7
Bar/discotheque	35	17.5	5	5.2	1	1.0	4	4.7	45	9.3
Through phone/SMS/social media	37	18.5	43	44.3	43	43.0	52	60.5	175	36.2
Others	0	0.0	1	1.0	0	0.0	0	0.0	1	0.2

## Sexual behaviours

The sexual behaviours of the FSW respondents are detailed in Table 37. A significant majority of FSW respondents (96.9%) reported having ever used a condom during sexual encounters. In Kuala Lumpur and Sabah, all respondents asserted that they had ever used a condom while having sex.

A total of 89.3% of respondents indicated that they had access to condoms in the last three months. The primary source of these condoms was NGO outreach workers, accounting for 64.1% of the supply, this was followed with retail outlets such as 7-Eleven, small shops, and supermarkets, which provided 51.7% of the condoms.

Only 6.8% of the establishments provided condoms at a cost, whereas 23.2% provided them for free. Nevertheless, 19.3% of the establishments did not offer condoms to the respondents. As for their work status, 50.7% of the respondents identified themselves as freelance FSW.

Overall, the median age at which respondents first engaged in sexual activity was 19 years. The median age at which they first engaged in sex in exchange for money or in kind was 23 years. Notably, 74 respondents (15.3%) reported that they were coerced into their first sexual encounter.

Most respondents in each state cited earning money for themselves or family as the primary reason for providing sex services. However, respondents in Selangor and Sabah indicated that their main motivation was for fun. A minority, 10.1%, of respondents admitted experiencing physical abuse from their husbands, boyfriends, or clients in the past 12 months. Boyfriend (68.3%) and husband (15.7%) were the most common first sexual partners.

Overall, respondents reported serving a median of 15 clients in the past one month. The median number of regular clients served in the past three months was 5, and the median number of one-time clients served in the past three months was 10.

In terms of condom usage, the percentage of condoms used with one-time clients was notably higher compared to that with regular clients or those served in the past month. In providing sex services, the majority of respondents in Sabah consistently used condoms, in contrast to the majority in Selangor who did not consistently use them.

The two most commonly cited reasons for using condoms with recent clients were to prevent pregnancy (72.8%) and protect against sexually transmitted diseases (69.8%). The most frequently cited reasons for not using condoms included the absence of condoms (53.3%), the believe that the client was clean or disease-free (36.7%) and opposed by clients (26.7%). Notably, no respondents in Sabah reported forgoing condoms while offering sex services.

In comparison to clients' interactions, condom use was significantly lower with husbands or boyfriends. For instance, in Kuala Lumpur, 93% of respondents acknowledged not using condoms during their last sexual encounter with a boyfriend or husband.

### **Alcohol and substance use**

Alcohol and substances use among the FSW respondents are presented in Table 38. In the past month, 41.6% of respondents admitted to consuming alcohol before and during sex. Among those who acknowledged drinking in this context, Kuala Lumpur had the highest percentage (64.5%), while Pahang had the lowest (16%).

Additionally, some of the respondents reportedly used drugs before having sex, with ecstasy being the most commonly used drug (12.4%).

A total of 35% of the respondents indicated that their partners had also used drugs prior to engaging in sex. Only 6.8% of respondents reported that their sexual partners had ever injected drugs. Among the respondents, a mere 2.1% admitted to injecting drugs themselves. On a positive note, 90% of these individuals used a clean needle and/or syringe the last time they injected the drug.

Table 37: Sexual behaviours among FSW by states, IBBS 2022 (N=483)

States	K. Lumpur		Selangor		Pahang		Sabah		National	
	n	%	n	%	n	%	n	%	n	%
<b>Ever used condom during sex</b>										
Yes	200	100.0	86	88.7	96	96.0	86	100.0	468	96.9
<b>Had access to condom in the last 3 months</b>										
Yes	171	85.5	71	82.6	94	97.9	82	95.3	418	89.3
<b>Places condoms were obtained (<i>multiple response</i>)</b>										
Retail outlets	61	35.7	46	64.8	52	55.3	57	69.5	216	51.7
Pharmacy	2	1.2	19	26.8	8	8.5	5	6.1	34	8.1
Clinic	0	0.0	2	2.8	3	3.2	7	8.5	12	2.9
Outreach workers from NGO	154	90.1	17	23.9	62	66.0	35	42.7	268	64.1
Bar/sauna/hotel/club	6	3.5	0	0.0	5	5.3	0	0.0	11	2.6
Online (e.g. Lazada, Shopee etc)	3	1.8	17	23.9	2	2.1	0	0.0	22	5.3
Others	2	1.2	1	1.4	1	1.1	1	1.2	5	1.2
<b>Condom provided by management at establishment</b>										
Yes, free	61	30.5	15	15.5	30	30.0	6	7.0	112	23.2
Yes, but I have to pay	24	12.0	6	6.2	3	3.0	0	0.0	33	6.8
Not provided	35	17.5	21	21.6	21	21.0	16	18.6	93	19.3
Not relevant (working as freelance)	80	40.0	55	56.7	46	46.0	64	74.4	245	50.7
<b>Age of sex debut</b>										
Median	19 (10-25)		19 (10-30)		18 (11-40)		19 (15-26)		19 (10-40)	
Mean	19.1		18.7		18.7		19.4		18.9	
<b>Age of first sex in exchange for money or in kind</b>										
Median	24 (17-29)		20 (15-41)		22 (14-45)		22 (12-26)		23 (12-45)	
Mean	23.6		21.1		24.4		21.0		22.8	
<b>Been forced to have sex the first time</b>										
Yes	9	4.5	34	35.1	24	24.0	7	8.1	74	15.3
<b>Reason starts doing sex service</b>										
To earn money for self/family	190	95.0	31	32.0	78	78.0	24	27.9	323	66.9
From pressure/forced	1	0.5	7	7.2	5	5.0	1	1.2	14	2.9
For fun	1	0.5	38	39.2	7	7.0	52	60.5	98	20.3
Family/friend influence	0	0.0	3	3.1	2	2.0	1	1.2	6	1.2
Marriage problems	1	0.5	3	3.1	2	2.0	0	0.0	6	1.2
Prefer not to answer	5	2.5	14	14.4	6	6.0	8	9.3	33	6.8
Others	2	1.0	1	1.0	0	0.0	0	0.0	3	0.6
<b>First sex partners</b>										
Husband	31	15.5	5	5.2	37	37.0	3	3.5	76	15.7
Boyfriend	157	78.5	60	61.9	47	47.0	66	76.7	330	68.3
Sibling/family	1	0.5	2	2.1	2	2.0	0	0.0	5	1.0
Friend/acquaintance	11	5.5	19	19.6	3	3.0	14	16.3	47	9.7
Stranger	0	0.0	11	11.3	11	11.0	3	3.5	25	5.2

Cont.

States	K. Lumpur		Selangor		Pahang		Sabah		National	
	n	%	n	%	n	%	n	%	n	%
<b>Clients served in the past 1 month</b>										
Median number of clients volume	25		2		10		5		15	
<b>Frequency of condom used with clients served in the past 1 month</b>										
Always	164	82.0	40	41.2	85	85.0	82	95.3	371	76.8
Not always	36	18.0	55	56.7	13	13.0	4	4.7	108	22.4
Never use	0	0.0	2	2.1	2	2.0	0	0.0	4	0.8
<b>Regular clients</b>										
Median number of clients volume	10		3		5		6		5	
<b>Frequency of condom used with regular clients</b>										
Always	161	80.5	44	45.4	87	87.0	84	97.7	376	77.8
Not always	37	18.5	49	50.5	11	11.0	2	2.3	99	20.5
Never use	2	1.0	4	4.1	2	2.0	0	0.0	8	1.7
<b>One-time clients</b>										
Median number of clients volume	15		3		10		8		10	
<b>Frequency of condom used with one-time clients</b>										
Always	183	91.5	52	53.6	87	87.0	85	98.8	407	84.3
Not always	17	8.5	38	39.2	11	11.0	1	1.2	67	13.9
Never use	0	0.0	7	7.2	2	2.0	0	0.0	9	1.9
<b>Reason for using condom with clients (multiple response)</b>										
The client proposed/requested	2	1.0	12	16.0	12	12.9	33	38.4	59	13.0
To protect myself from sexual disease such as HIV or STI	140	70.4	58	77.3	84	90.3	34	39.5	316	69.8
To prevent pregnancies	194	97.5	43	57.3	40	43.0	53	61.6	330	72.8
The manager/pimp request used condoms	0	0.0	0	0.0	1	1.1	0	0.0	1	0.2
<b>Reason for not using condom with clients (multiple response)</b>										
There weren't any/not available	0	0.0	11	50.0	5	71.4	-	-	16	53.3
The client objected	1	100.0	5	22.7	2	28.6	-	-	8	26.7
Felt I am clean (No disease)/I took medicine	0	0.0	4	18.2	0	0.0	-	-	4	13.3
Felt the client was clean (No disease)	0	0.0	11	50.0	0	0.0	-	-	11	36.7
Under the influence of drugs	1	100.0	0	0.0	1	14.3	-	-	2	6.7
Others	0	0.0	2	9.1	1	14.3	-	-	3	10.0
<b>Condom use with boyfriend or husband</b>										
Yes	14	7.0	50	51.5	51	51.0	82	95.3	197	40.8

Table 38: Alcohol and substances use among FSW by states, IBBS 2022 (N=483)

States	K. Lumpur		Selangor		Pahang		Sabah		National	
	n	%	n	%	n	%	n	%	n	%
<b>Ever consumed alcohol before/during sex</b>										
Yes	129	64.5	35	36.1	16	16.0	21	24.4	201	41.6
<b>Substances used before/during sex</b>										
Ecstasy	54	27.0	2	2.1	1	1.0	3	3.5	60	12.4
Syabu/ice	21	10.5	6	6.2	20	20.0	0	0.0	47	9.7
Cocaine	2	1.0	0	0.0	0	0.0	2	2.3	4	0.8
Heroin	4	2.0	2	2.1	4	4.0	0	0.0	10	2.1
Others	0	0.0	7	7.2	2	2.0	0	0.0	9	1.9
Not taking drug	125	62.5	83	85.6	78	78.0	83	96.5	369	76.4
<b>Sexual partner(s) ever used drugs before/during sex</b>										
Yes	114	57.0	21	21.6	32	32.0	2	2.3	169	35.0
<b>Sexual partner(s) ever injected drugs</b>										
Yes	17	8.5	8	8.2	8	8.0	0	0.0	33	6.8

## Prevention services

Table 39 summarizes the HIV information and outreach services provided to FSW. Of all the FSW surveyed, 60.2% reported receiving information on HIV/STI/safer injecting use. Most of these interactions (59.6%) occurred face-to-face, while 25.8% were reached through social media or phone applications. Additionally, 60.7% of FSW claimed to have received condoms and lubricants, and 53.8% stated they had received advice on using condoms and safe sex practices.

Table 39: FSW respondents who received information on HIV/STI/safer injecting use (N=483)

States	K. Lumpur		Selangor		Pahang		Sabah		National	
	n	%	n	%	n	%	n	%	n	%
<b>Ever received information on HIV/STI/safer injecting use in the past 3 months</b>										
Yes	155	77.5	48	49.5	59	59.0	29	33.7	291	60.2
<b>HIV/STI prevention services received from outreach workers</b>										
STI testing	8	4.0	29	29.0	59	59.0	7	8.1	103	21.3
New needle and syringe	3	1.5	3	3.1	1	1.0	1	1.2	8	1.7
Condoms and lubricants	151	75.5	29	29.9	57	57.0	56	65.1	293	60.7
Counselling on condom use and safe sex	149	74.5	28	28.9	58	58.0	25	29.1	260	53.8
Did not received any services	32	16.0	48	49.5	32	32.0	12	14.0	124	25.7

Table 40 displays the utilization of HIV/Hepatitis C/STI services among FSW respondents. Among the respondents, 60.2% had undergone blood testing for HIV, with 65.6% of these tests conducted in the last six months. A significant majority (83.2%) had access to an HIV test at community-based testing. However, 39.2% of respondents stated that their partner or spouse had not been tested for HIV.

Among the eight FSW who tested positive for HIV, one did not receive ART because she was not offered treatment. In Selangor, only one respondent reported that her viral load was not suppressed.

As for Hepatitis C, 50.3% of FSW respondents indicated that they had never undergone a Hepatitis C test. Most respondents in Sabah had been tested for Hepatitis C. The primary reason for not taking the test, as reported by 62.6%, was a lack of knowledge of Hepatitis C testing and treatment.

In terms of STI, 11% of FSW respondents had visited an STI clinic in the past three months. The most frequent STI symptoms experienced by respondents in the past 12 months were extreme burning pain when urinating (dysuria) (6.2%), genital ulcer (2.5%), and vaginal discharge (1.2%). All respondents in Sabah reported that they had not experienced any STI symptoms in the last 12 months. Among those who disclosed having an STI, 29.7% sought treatment from a government health facility, while 21.6% visited private health facility or pharmacy.

According to Table 41, only 20.4% and 13.5% of respondents who reported their HIV status as negative or unknown were knowledgeable about PrEP and PEP as HIV prevention methods. Out of all respondents, 13 individuals disclosed that they had used PrEP in the past 12 months, with six from Selangor, five from Pahang, and two from Sabah. In contrast, eight respondents indicated they had taken PeP in the last 12 months, including four from Selangor, two from Pahang, and two from Sabah.

Only 32.1% of the respondents stated that they would consider using PrEP in the future. Notably, no respondent in Kuala Lumpur expressed interest in future PrEP usage. The primary reasons for disinterest in PrEP was a lack of readiness to take it (42.1%). Furthermore, only 5.9% of respondents preferred PrEP as their method of HIV prevention over condoms.

Table 40: HIV/Hepatitis C/STI services utilization among FSW by states, IBBS 2022 (N=483)

States	K. Lumpur		Selangor		Pahang		Sabah		National	
	n	%	n	%	n	%	n	%	n	%
<b>HIV</b>										
<b>Ever had blood tested for HIV</b>										
Yes	65	32.5	63	64.9	80	80.0	83	96.5	291	60.2
<b>Last HIV test</b>										
< 6 months ago	16	24.6	42	66.7	54	67.5	79	95.2	191	65.6
6 to 12 months ago	25	38.5	13	20.6	14	17.5	3	3.6	55	18.9
> 12 months ago	24	36.9	8	12.7	12	15.0	1	1.2	45	15.5
<b>Access to HIV testing (multiple response)</b>										
Government clinic	26	40.0	21	33.3	38	47.5	8	9.6	93	32.0
Private clinic	2	3.1	8	12.7	11	13.8	1	1.2	22	7.6
Community based	55	84.6	40	63.5	66	82.5	81	97.6	242	83.2
Self-testing	0	0.0	5	7.9	0	0.0	2	2.4	7	2.4
<b>Regular sex partner(s)/spouse ever tested for HIV</b>										
Yes	24	36.9	31	49.2	43	53.8	38	45.8	136	46.7
No	41	63.1	16	25.4	31	38.8	26	31.3	114	39.2
No permanent partner(s)/spouse	0	0.0	16	25.4	6	7.5	19	22.9	41	14.1
<b>Knew HIV status</b>										
HIV positive	0	0.0	1	1.6	6	7.5	1	1.2	8	2.7
HIV negative	65	100.0	57	90.5	73	91.3	82	98.8	277	95.2
Indeterminate	0	0.0	1	1.6	0	0.0	0	0.0	1	0.3
Do not know HIV status	0	0.0	4	6.3	1	1.3	0	0.0	5	1.7
<b>HIV treatment status</b>										
On ART	-	-	1	100.0	6	100.0	0	0.0	7	87.5
Still on ART	-	-	1	100.0	6	100.0	-	-	7	100.0
Never on ART	-	-	0	0.0	0	0.0	1	100.0	1	12.5
<b>Viral load suppression among those on treatment</b>										
Yes	-	-	0	0.0	6	100.0	-	-	6	85.7
No	-	-	1	100.0	0	0.0	-	-	1	14.3
Not sure/not remember	-	-	0	0.0	0	0.0	-	-	0	0.0
<b>Hepatitis C</b>										
<b>Ever had blood tested for Hepatitis C</b>										
Yes	56	28.0	44	45.4	61	61.0	79	91.9	240	49.7
<b>Reason did not get tested (multiple response)</b>										
Did not aware about Hepatitis C test and treatment	83	57.6	38	71.7	28	71.8	3	42.9	152	62.6
Don't know where to get tested	27	18.8	27	50.9	6	15.4	3	42.9	63	25.9
Refused to get tested	47	32.6	6	11.3	20	51.3	1	14.3	74	30.5
Testing facilities not available or too far	2	1.4	7	13.2	0	0.0	0	0.0	9	3.7
Others	3	2.1	0	0.0	0	0.0	1	14.3	4	1.6



Cont.

States	K. Lumpur		Selangor		Pahang		Sabah		National	
	n	%	n	%	n	%	n	%	n	%
<b>STI</b>										
<b>Ever visited STI clinic in the past 3 months</b>										
Yes	3	1.5	21	21.6	21	21.0	8	9.3	53	11.0
<b>Experienced symptoms in the past 12 months (<i>multiple response</i>)</b>										
Dysuria	3	1.5	14	14.4	13	13.0	0	0.0	30	6.2
Genital ulcer	1	0.5	3	3.1	8	8.0	0	0.0	12	2.5
Vaginal discharge	0	0.0	6	6.2	0	0.0	0	0.0	6	1.2
Rectal discharge/bleeding	0	0.0	0	0.0	1	1.0	0	0.0	1	0.2
No STI symptoms	196	98.0	82	84.5	82	82.0	86	100.0	446	92.3
<b>Action taken the last time had STI symptoms</b>										
Did not treat	0	0.0	5	33.3	1	5.6	-	-	6	16.2
Self-treated/sought advice from pharmacy	2	50.0	1	6.7	5	27.8	-	-	8	21.6
Sought treatment from government health facility	1	25.0	4	26.7	6	33.3	-	-	11	29.7
Sought treatment from private health facility	1	25.0	4	26.7	3	16.7	-	-	8	21.6
Went to traditional healer	0	0.0	1	6.7	3	16.7	-	-	4	10.8
Others	0	0.0	0	0.0	0	0.0	-	-	0	0.0

Table 41: PrEP and PeP uptake and acceptability among FSW by states, IBBS 2022 (N=475)

States	K. Lumpur		Selangor		Pahang		Sabah		National	
	n	%	n	%	n	%	n	%	n	%
<b>PrEP</b>										
<b>Heard about PrEP</b>										
Yes	2	1.0	31	32.3	16	17.0	48	56.5	97	20.4
<b>Taken PrEP in the past 12 months</b>										
Yes	0	0.0	6	19.4	5	31.3	2	4.2	13	13.4
<b>Access to PrEP</b>										
Private clinic	-	-	2	33.3	3	60.0	0	0.0	5	38.5
Pharmacy	-	-	2	33.3	1	20.0	1	50.0	4	30.8
Online	-	-	1	16.7	0	0.0	0	0.0	1	7.7
Others	-	-	1	16.7	1	20.0	1	50.0	3	23.1
<b>Interested in taking PrEP in the future</b>										
Yes	0	0.0	16	64.0	2	18.2	9	19.6	27	32.1
<b>Reason for not interested in taking PrEP in the future</b>										
Lack of interest in PrEP	0	0.0	2	22.2	5	55.6	4	10.8	11	19.3
Financial problem	2	100.0	0	0.0	3	33.3	3	8.1	8	14.0
Too expensive	0	0.0	2	22.2	0	0.0	7	18.9	9	15.8
Not ready for PrEP	0	0.0	0	0.0	1	11.1	23	62.2	24	42.1
Afraid of stigma or rejection	0	0.0	1	11.1	0	0.0	0	0.0	1	1.8
Afraid of the side effects of PrEP	0	0.0	4	44.4	0	0.0	0	0.0	4	7.0
No risk of being infected with HIV	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>Prefer as HIV prevention</b>										
PrEP	1	0.5	12	12.5	8	8.5	7	8.2	28	5.9
Condom	199	99.5	84	87.5	86	91.5	78	91.8	447	94.1
<b>PeP</b>										
<b>Heard about PeP</b>										
Yes	2	1.0	26	27.1	11	11.7	25	29.4	64	13.5
<b>Taken PeP in the past 12 months</b>										
Yes	0	0.0	4	15.4	2	18.2	2	8.0	8	12.5
<b>Access to PeP</b>										
Private clinic	-	-	2	50.0	1	50.0	0	0.0	3	37.5
Pharmacy	-	-	2	50.0	1	50.0	1	50.0	4	50.0
Online	-	-	0	0.0	0	0.0	1	50.0	1	12.5
Others	-	-	0	0.0	0	0.0	0	0.0	0	0.0

## Awareness on HIV, risk, and prevention efforts

The knowledge and opinions towards HIV/AIDS among FSW respondents are presented in Table 42. A total of 59.2% of respondents perceived that they were at risk of being infected with HIV. In terms of knowledge of HIV, 60.2% of the respondents reported having adequate overall understanding of the virus. In general, majority of respondents (more than 80%) correctly answered all questions related to HIV knowledge. However, only 17.4% understood that HIV can be prevented if one achieved undetectable viral load (U=U).

**Table 42: Knowledge and opinion towards HIV/AIDS among FSW by states, IBBS 2022 (N=483)**

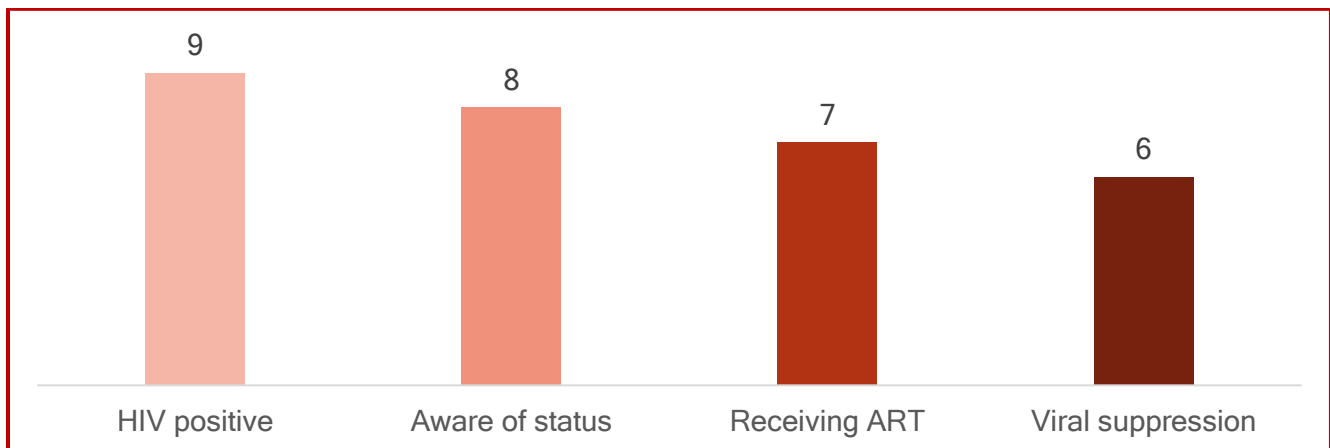
States	K. Lumpur		Selangor		Pahang		Sabah		National	
	n	%	n	%	n	%	n	%	n	%
<b>Felt at risk of being infected with HIV</b>										
Yes	172	86.0	53	54.6	55	55.0	6	7.0	286	59.2
<b>HIV knowledge score</b>										
0 score	-	-	-	-	-	-	-	-	-	-
1 score	4	2.0	0	0.0	6	6.0	0	0.0	10	2.1
2 score	14	7.0	3	3.1	9	9.0	1	1.2	27	5.6
3 score	14	7.0	12	12.4	14	14.0	2	2.3	42	8.7
4 score	43	21.5	33	34.0	25	25.0	12	14.0	113	23.4
5 score	125	62.5	49	50.5	46	46.0	71	82.6	291	60.2
<b>Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?</b>										
Correct answer	185	92.5	80	82.5	72	72.0	79	91.9	416	86.1
<b>Can a person reduce the risk for getting HIV by using a condom every time they have sex?</b>										
Correct answer	170	85.0	87	89.7	89	89.0	85	98.8	431	89.2
<b>Can a healthy-looking person have HIV?</b>										
Correct answer	161	80.5	92	94.8	80	80.0	84	97.7	417	86.3
<b>Can a person get HIV from mosquito bites?</b>										
Correct answer	195	97.5	84	86.6	80	80.0	84	97.7	443	91.7
<b>Can a person get HIV from sharing food with someone who is infected?</b>										
Correct answer	160	80.0	76	78.4	75	75.0	79	91.9	390	80.7
<b>Aware of the concept U=U</b>										
Yes	6	3.0	28	28.9	15	15.0	35	40.7	84	17.4

## HIV prevalence and care cascade

HIV prevalence and care cascade among FSW respondents are summarized in Table 43. Overall, the country's HIV prevalence among FSW respondents stands at 1.9%, with the highest prevalence recorded in Pahang (7%). Surprisingly, no HIV cases were found in Kuala Lumpur. In this study's, eight of nine (88.9%) FSW who were tested positive for HIV already knew their results prior to participation in this study. Seven (87.5%) of them were receiving ART, and of those numbers, six (85.7%) achieved viral suppression viral load (Figure 3).

**Table 43: HIV prevalence and cascade among FSW by states, IBBS 2022 (N=483)**

States	K. Lumpur		Selangor		Pahang		Sabah		National	
	n	%	n	%	n	%	n	%	n	%
<b>HIV prevalence</b>										
18-24 years	0	0.0	1	1.8	0	0.0	0	0.0	1	1.0
>24 years	0	0.0	0	0.0	7	7.4	1	1.5	8	2.1
Overall	0	0.0	1	1.0	7	7.0	1	1.2	9	1.9
Number of HIV positive	0		1		7		1		9	
Number of PLHIV who know their status	0		1		6		1		8	
Number of PLHIV who know their status receiving ART	0		1		6		0		7	
Number of PLHIV on ART with viral suppression	0		0		6		0		6	



**Figure 3: HIV cascade among FSW**

## Syphilis prevalence

The overall syphilis prevalence among FSW respondents was 1% (Table 44).

**Table 44: Syphilis prevalence among FSW by states, IBBS 2022 (N=483)**

States	K. Lumpur		Selangor		Pahang		Sabah		National	
	n	%	n	%	n	%	n	%	n	%
<b>Syphilis prevalence</b>										
18-24 years	0	0.0	2	3.5	0	0.0	0	0.0	2	2.1
> 24 years	0	0.0	1	2.5	2	2.1	0	0.0	3	0.8
Overall	0	0.0	3	3.1	2	2.0	0	0.0	5	1.0

## Socio-demographic characteristics - National

Compared to previous survey cycles, the FSW in Malaysia are trending younger, as evidenced by an increasing proportion within the age group of 39 years and below and significant decline in the older age group of 40 and above (Table 45). Consistent with past trends, most respondents in 2022 were Malay (68.1%), followed by Pribumi Sabah (25.3%). However, there was a noticeable decline in the proportion of Chinese, Indian, and Pribumi Sarawak compared to previous years.

Regarding education, there was an increase in the percentage of FSW who completed secondary education, rising from 54.6% in 2017 to 60.5% in 2022. Similarly, the proportion of FSW with tertiary education also saw an increase, from 3.5% in 2017 to 20.5% in 2022.

In terms of marital status, a greater percentage of respondents in 2022 opted to remain unmarried compared to 2017. Conversely, there was a notable decrease in the number of respondents who were married, divorced or widowed.

The data in 2022 also showed a shift in employment patterns among FSW, with a higher prevalence of part-time sex workers compared to 2017. Throughout the three survey rounds between 2012 and 2017, FSW most frequently solicited clients in hotels or motels, followed by streets-based approach. Nevertheless, by 2022, there was significant trend towards using phone/SMS/social networks for client outreach.

Table 45: Socio-demographic characteristics of FSW respondents for the 2012-2022 surveys

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
<b>Age</b>				
≤ 24	21.1	22.6	17.8	19.9
25 - 29	14.8	13.7	11.7	23.8
30 - 39	24.9	26.3	29.1	43.7
40 - 49	23.8	21.0	21.9	8.3
≥ 50	15.4	16.5	19.5	4.3
<b>Ethnic</b>				
Malay	37.6	37.2	46.0	68.1
Chinese	10.2	13.7	11.0	3.1
Indian	12.0	14.4	14.3	1.7
Pribumi Sabah	20.1	16.5	18.1	25.3
Pribumi Sarawak	13.0	15.2	7.6	1.7
Orang Asli	-	-	-	0.2
Others	7.1	2.5	3.0	0.0
<b>Education</b>				
No schooling	15.3	17.2	15.1	7.2
Primary	33.9	30.9	26.8	11.8
Secondary	50.3	47.5	54.6	60.5
Tertiary	0.5	4.5	3.5	20.5
<b>Marital status</b>				
Unmarried	46.9	37.5	29.7	61.1
Married	53.1	18.4	20.8	16.1
Divorced	0.0	33.1	40.6	18.8
Widower	-	11.0	8.9	3.9
<b>Faith</b>				
Islam	60.0	50.6	66.8	86.7
Buddhism	9.7	12.2	8.1	1.4
Hinduism	10.2	12.4	11.1	0.8
Christianity	17.1	16.8	12.7	9.1
Sikhism	-	-	-	0.0
No religion	-	-	-	1.4
Others	2.9	8.0	1.3	0.4
<b>Source of income</b>				
Full time sex worker	55.8	68.6	67.6	42.4
Part time sex worker	41.3	31.4	32.4	57.6
<b>Places of contact clients</b>				
Brothel	11.9	16.3	10.8	17.4
Street	14.3	21.1	22.5	11.6
Home	-	5.4	3.1	4.6
Hotel/motel/stall	26.5	34.0	45.8	11.4
Massage parlor	4.0	2.0	2.8	0.6
Karaoke bar	10.4	5.4	3.3	8.7
Bar/discotheque	8.4	6.0	5.2	9.3
Through phone/SMS/social media	13.8	7.8	5.6	36.2
Others	5.5	2.1	0.9	0.2

## Sexual practices and substance abuse – National

Across all survey cycles, the rate of condom uses with recent clients consistently remained above 80%, reaching its peak in 2022. In contrast, the use of condoms during recent sexual encounters with recent boyfriends or husbands has seen a decline, dropping from 47.9% in 2017 to 40.8% in 2022 (Table 46). Concerningly, there was a notable decrease in the percentage of protected sex at the insistence of managers or pimps, falling from 2.7% in 2017 to 0.2% in 2022.

**Table 46: Condom use pattern among FSW respondents in 2012-2022 surveys**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
Condom used with recent clients	83.9	84.5	83.5	93.8
Condom used with recent boyfriend/husband	53.9	29.6	47.9	40.8
Used condom as protection from sexual diseases	96.8	67.6	75.6	69.8
Used condom as pregnancy prevention	83.1	37.7	32.1	72.8
Used condom as proposed by client	54.7	13.7	8.7	13.0
Used condom as requested by manager/pimp	21.2	1.3	2.7	0.2

In regard to alcohol consumption, the trend has remained relatively stable over the past decade, consistently hovering around 40%, however, there was a slight increase in 2022 compared to 2017 (Table 47). In 2022, a higher number of respondents reported using ecstasy rather than syabu before engaging in sexual activities. While there was a decrease in the percentage of respondents who inject drugs, dropping to 2.1% in 2022 from 6% in 2017, there was an increase in the percentage of sex partners known to inject drugs, rising to 6.8% in 2022 from 3.7% in 2017.

**Table 47: Comparison of substance abuse among FSW in 2012-2022 surveys**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
Ever consumed alcohol before having sex in the last 1 month	39.9	46.2	34.0	41.6
Used ecstasy before sex in the last 12 months	6.9	8.7	7.5	12.4
Used syabu/ice before sex in the last 12 months	18.7	26.1	26.5	9.7
Used cocaine before sex in the last 12 months	1.3	2.0	0.2	0.8
Used heroine before sex in the last 12 months	7.3	6.0	6.8	2.1
Sexual partners ever used drugs before having sex	25.5	34.2	23.7	35.0
Have ever injected drugs in the last 1 month	4.1	7.2	6.0	2.1
Have sexual partners who injected drugs	7.7	15.8	3.7	6.8

## Pattern of HIV services utilization – National

In 2022, a greater number of FSW respondents, compared to previous years, reported being contacted by outreach worker from NGO or healthcare worker in the past three months, as indicated in Table 48. Additionally, the percentage of respondents who reported receiving free condoms saw an increase from 40.6% in 2017 to 60.7% in 2022.

Relative to 2017, there was a decrease of respondents who were tested for HIV and STI in 2022. However, a higher proportion of respondents in 2022 reported that their permanent partners had undergone HIV testing compared to previous years.

**Table 48: Comparison of HIV services utilization among FSW in 2012-2022 surveys**

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
Contacted by outreach worker from NGO or healthcare worker in the last 3 months	-	49.1	26.0	72.3
Have accessed to free condoms	57.8	57.4	40.6	60.7
Had STI checkup	31.7	12.8	18.5	11.0
Had been diagnosed with STI in the last 12 months	-	6.5	3.2	7.7
Had HIV test in the last 12 months and know result	32.8	79.4	81.4	60.2
Permanent partner had HIV tested	19.2	36.6	16.5	46.7

## Awareness on HIV, risk, and prevention efforts – National

In 2022, a record 60.2% of FSW respondents reported having adequate understanding of HIV, marking the highest level of awareness among all previous years (Table 49). Additionally, there was an improvement in the percentage of correct responses in 2022 compared to earlier years. However, for the question 'A person cannot get HIV by sharing a meal with someone who is infected with HIV', there was a slight decrease in the rate of correct answer, decreasing from 83.3% in 2017 to 80.7% in 2022.



Table 49: Comparison of HIV knowledge between 2012-2022 surveys

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
A person can reduce risk of HIV by having one faithful, uninfected partner	66.0	78.1	73.8	86.1
A person can reduce HIV transmission by using condom	85.0	86.3	84.4	89.2
A healthy-looking person can have HIV	73.0	69.6	73.5	86.3
A person cannot become infected through mosquito bites	73.3	74.5	75.9	91.7
A person cannot get HIV by sharing meal with someone who is infected with HIV	75.2	82.3	83.3	80.7
Adequate knowledge (score 5)	35.4	39.2	41.0	60.2

*Calculation based on correct answer.*

## HIV prevalence – National

The national prevalence of HIV among FSW has generally decreased in each survey cycle (Table 50). Compared to earlier years, each state also reported a decline in HIV prevalence in 2022. Kuala Lumpur experienced the most significant drop, from 16.9% in 2017 to 0% in 2022.

Table 50: HIV prevalence by states, IBBS 2012-2022

	2012 (%)	2014 (%)	2017 (%)	2022 (%)
<b>North Peninsular</b>				
Penang	3.6	5.3	7.4	-
Perak	1.1	0.6	0.0	-
<b>West Peninsular</b>				
Kuala Lumpur	-	15.0	16.9	0.0
Selangor	10.0	-	-	1.0
<b>East Peninsular</b>				
Pahang	18.6	14.5	8.8	7.0
Kelantan	9.8	-	-	-
<b>South Peninsular</b>				
Melaka	5.7	-	-	-
<b>Borneo</b>				
Sabah	1.1	6.7	2.5	1.2
Sarawak	0.7	6.7	-	-
National Prevalence	4.2	7.3	6.3	1.9

## Discussion & Conclusion

- ❖ The socio-demographic characteristics of FSW respondents have remained consistent across survey cycles. Predominantly, these respondents are Malay descent, practice Islam, and attained a secondary level education. However, a notable observation in 2022 was that the majority of respondents indicated sourcing clients through phone/SMS/social networks. This shift aligns with expectations, considering the survey's method via online web-based platform. As a result, this methodological change enabled the recruitment of FSW who predominantly use online advertising to attract clients, a demographic less represented in previous years.
- ❖ Consistent with findings from other studies, FSW tend to use condoms less frequently with regular clients and private partners (Kakchapati et al., 2017; Magnani et al., 2010). In this study, only 40.8% of FSW reported using condoms the last time they engaged in sexual activity with a boyfriend or husband. Their decision to use condoms is often influenced by family planning considerations, which can impede efforts to promote safe sex behavior for STI and HIV prevention. Therefore, prevention initiatives should focus on encouraging condom usage among FSW. Additionally, it is crucial to educate FSW about the benefit of taking PrEP as a preventive measure. PrEP has been shown to be highly effective in reducing the risk of acquiring HIV from sex by about 99% (Centres for Disease Control and Prevention, 2021) and decreases HIV transmission by 74% in injecting drug users (Choopanya et al., 2013) when consistently taken as prescribed.
- ❖ Malaysia is committed to achieving the ambitious 95-95-95 targets by 2030 as part of global initiative to end AIDS. This means that 95% of KP should receive HIV test and are informed of their results, 95% of people diagnosed with HIV should receive ART, and at least 95% of these should adhere to treatment and achieve viral load suppression. In this study, nine respondents identified with HIV infection, eight (88.9%) had prior knowledge of their HIV status before undergoing testing. Among those who were aware of their HIV status, seven (87.5%) were on ART, and six (85.7%) of those on ART had achieved viral suppression. In order to close this gap and reach the 95-95-95 target by 2030, prevention initiatives should be prioritized, accelerated, and scaled up. Additional testing strategies, including self-testing methods, should be incorporated to improve testing coverage among FSW. In addition, collaboration between the government, non-governmental organizations and FSW

support groups is necessary to provide an accessible supply of ART and ensure treatment adherence.

- ❖ In 2022, 60.2% of FSW respondents reported adequate knowledge about HIV, showing a significant improvement from the previous year (35.4% in 2012, 39.2% in 2014 and 41.0% in 2017). However, only a small proportion (17.4%) were aware of the concept of U=U. Raising awareness about this concept is vital to enhance treatment literacy and mitigate the risk factors associated with HIV. Moreover, it is imperative to empower FSW to recognize and assert their fundamental human rights.
- ❖ Throughout each survey cycle, the national prevalence of HIV among FSW has consistently decreased (4.2% in 2012, 7.3% in 2014, 6.3% in 2017 and 1.9% in 2022). This decline is indicative of the effectiveness of the country's prevention measures, which have been successful in reducing the transmission of HIV among FSW. The country is home to over 30 community-based organizations a range of harm reduction services. These include HIV testing and counseling, sexual health education, free condom distribution, needle distribution, and community empowerment programs. Such services have been instrumental in preventing HIV among FSW. Additionally, the increased knowledge of FSW regarding HIV, its risk factors, and prevention strategies may also be a contributing factor to the reduced HIV prevalence.
- ❖ In this study, prevalence of syphilis among FSW was found to be 1%. Given the strong link between syphilis and an elevated risk of contracting HIV, it is imperative to enhance the existing syphilis control program. This enhancement should focus on rapid diagnosis and prompt treatment to better manage and reduce the risk of syphilis and its associated complications.

# PEOPLE WHO INJECT DRUGS (PWID)

## Network characteristics

A total of 824 PWID (including seeds) were recruited from eight states. Eight seeds were used in the recruitment process, and the recruitment waves in Kelantan and Terengganu were relatively long (Table 51). Although the survey was originally planned for nine states, recruitment issues led to discontinuation of the IBBS in Penang. Only 23 respondents were successfully recruited in Penang.

Table 51: Distribution of respondents and seeds by states

State	No of seed	No of wave	No of respondents	Sample size	% fulfilled sample size
<b>North Peninsular</b>					
Kedah	1	5	64	100	64.0
<b>West Peninsular</b>					
Selangor	1	7	100	100	100.0
<b>East Peninsular</b>					
Kelantan	1	10	115	150	76.7
Pahang	1	9	150	150	100.0
Terengganu	1	10	98	100	98.0
<b>South Peninsular</b>					
Johor	1	6	99	100	99.0
N. Sembilan	1	9	100	100	100.0
Melaka	1	8	98	100	98.0
Total	8		824	900	91.6

## Socio-demographic

The socio-demographic characteristics of the PWID respondents are summarized in Table 52. The majority of PWID respondents (40.7%) were between the ages of 40 to 49, with a median age of 42. The median age of respondents by state ranged from 40 to 47. Respondents under the age of 25 were only present in Kelantan and Melaka.

The majority of PWID respondents (93.9%) identified as Malay. The respondents were all Malays in three states: Kelantan, Terengganu, and Negeri Sembilan. PWID respondents (96.4%) were primarily Islam. No respondents were Christians or Sikhs. Most PWID respondents (49.4%) have never been married. However, the proportion of married respondents was higher in Kedah and Selangor. Across all states, most respondents had completed at least secondary education, while only a small proportion claimed to have no formal education.

The majority of PWID respondents across all states reported having a job except for Negeri Sembilan. Among the respondents, there were no students. 38.1% of respondents had an income of less than RM500 per month. The overall median duration of living in the city was 37. The median duration of living in a city was more than 20 years across all states.

## Drug use and injecting practices

The drug use and injecting practices among the PWID respondents are displayed in Table 53. The majority of PWID respondents (94.8%) reported injecting and using drugs for more than or equal to 5 years. The median duration of drug use by states ranged from 19 to 26, while the median duration of injecting ranged from 13 to 22. Overall, the most frequently injected drug was reportedly heroin (92.1%). All respondents in Johor and Negeri Sembilan admitted to injecting heroin. The majority of PWID respondents (94.5%) stated that they injected drugs no more than four times per day.

In total, 79 PWID respondents (9.6%) reported sharing a needle and/or syringe with friends while injecting drugs within the previous three months. Needle and/or syringe sharing was a reasonably expected behaviour among PWID in Kedah. By contrast, no PWID shared needle and/or syringe in Terengganu.

Table 52: Socio-demographic characteristics among PWID by states, IBBS 2022 (N=824)

States	Kedah		Selangor		Kelantan		Pahang		Terengganu		Johor		N. Sembilan		Melaka		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Age</b>																		
≤ 24	0	0.0	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	0	0.0	9	9.2	10	1.2
25-29	0	0.0	5	5.0	3	2.6	4	2.7	2	2.0	1	1.0	3	3.0	9	9.2	27	3.3
30-39	29	45.3	32	32.0	35	30.4	67	44.7	20	20.4	19	19.2	23	23.0	25	25.5	250	30.3
40-49	29	45.3	30	30.0	58	50.4	64	42.7	50	51.0	35	35.4	42	42.0	27	27.6	335	40.7
≥ 50	6	9.4	33	33.0	18	15.7	15	10.0	26	26.5	44	44.4	32	32.0	28	28.6	202	24.5
Median	40 (32-58)		43 (25-64)		42 (24-65)		40 (25-66)		44 (28-66)		47 (28-69)		45 (28-64)		42 (21-68)		42 (21-69)	
<b>Ethnicity</b>																		
Malay	62	96.9	86	86.0	115	100.0	139	92.7	98	100.0	77	77.8	100	100.0	97	99.0	774	93.9
Chinese	0	0.0	5	5.0	0	0.0	0	0.0	0	0.0	9	9.1	0	0.0	1	1.0	15	1.8
Indian	1	1.6	5	5.0	0	0.0	1	0.7	0	0.0	12	12.1	0	0.0	0	0.0	19	2.3
Pribumi Sabah	0	0.0	2	2.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2
Pribumi Sarawak	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Orang Asli	0	0.0	0	0.0	0	0.0	10	6.7	0	0.0	0	0.0	0	0.0	0	0.0	10	1.2
Others	1	1.6	2	2.0	0	0.0	0	0.0	0	0.0	1	1.0	0	0.0	0	0.0	4	0.5
<b>Religion</b>																		
Islam	64	100.0	93	93.0	115	100.0	143	95.3	98	100.0	84	84.8	100	100.0	97	99.0	794	96.4
Buddhism	0	0.0	3	3.0	0	0.0	1	0.7	0	0.0	6	6.1	0	0.0	1	1.0	11	1.3
Hinduism	0	0.0	4	4.0	0	0.0	1	0.7	0	0.0	9	9.1	0	0.0	0	0.0	14	1.7
Christianity	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sikhism	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
No religion	0	0.0	0	0.0	0	0.0	5	3.3	0	0.0	0	0.0	0	0.0	0	0.0	5	0.6
Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>Marital status</b>																		
Unmarried	16	25.0	32	32.0	51	44.3	81	54.0	50	51.0	59	59.6	60	60.0	58	59.2	407	49.4
Married	24	37.5	44	44.0	39	33.9	25	16.7	24	24.5	15	15.2	21	21.0	13	13.3	205	24.9
Divorced	23	35.9	23	23.0	24	20.9	43	28.7	22	22.4	24	24.2	18	18.0	27	27.6	204	24.8
Widower	1	1.6	1	1.0	1	0.9	1	0.7	2	2.0	1	1.0	1	1.0	0	0.0	8	1.0
<b>Education level</b>																		
No schooling	8	12.5	0	0.0	0	0.0	1	0.7	0	0.0	1	1.0	0	0.0	0	0.0	10	1.2
Primary	10	15.6	13	13.0	11	9.6	30	20.0	9	9.2	13	13.1	11	11.0	8	8.2	105	12.7
Secondary	46	71.9	84	84.0	101	87.8	119	79.3	86	87.8	81	81.8	88	88.0	86	87.8	691	83.9
Tertiary	0	0.0	3	3.0	3	2.6	0	0.0	3	3.1	4	4.0	1	1.0	4	4.1	18	2.2
<b>Source of income</b>																		
Employed	55	85.9	56	56.0	75	65.2	132	88.0	76	77.6	54	54.5	24	24.0	75	76.5	547	66.4
Unemployed	8	12.5	40	40.0	38	33.0	18	12.0	22	22.4	39	39.4	32	32.0	21	21.4	218	26.5
Student	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Others	1	1.6	4	4.0	2	1.7	0	0.0	0	0.0	6	6.1	44	44.0	2	2.0	59	7.2
<b>Duration of living in the city</b>																		
Median	35		25		40		35		44		40		40		22		37	

Table 53: Drug use and injecting practices among PWID by states, IBBS 2022 (N=824)

States	Kedah		Selangor		Kelantan		Pahang		Terengganu		Johor		N. Sembilan		Melaka		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Duration of drug use (years)</b>																		
Median	22		24		23		19		23		26		24		20		22	
Mean	21.5		24.8		23.4		19.3		22.3		27.1		24.5		21.5		22.9	
<b>Duration of injecting drug (years)</b>																		
Median	17		18		17		13		22		21		19		13		18	
Mean	16.6		18.2		17.0		14.1		21.4		21.2		19.6		15.8		18.7	
≤ 1 years	0	0.0	4	4.0	1	0.9	1	0.7	2	2.0	2	2.0	0	0.0	3	3.1	13	1.6
2-4 years	0	0.0	2	2.0	6	5.2	5	3.3	3	3.1	4	4.0	1	1.0	9	9.2	30	3.6
≥ 5 years	64	100.0	94	94.0	108	93.9	144	96.0	93	94.9	93	93.9	99	99.0	86	87.8	781	94.8
<b>Type of drugs injected (multiple response)</b>																		
Heroin	47	73.4	98	98.0	84	73.0	149	99.3	97	99.0	99	100.0	100	100.0	85	86.7	759	92.1
Diazepam	8	12.5	4	4.0	0	0.0	0	0.0	0	0.0	1	1.0	0	0.0	19	19.4	32	3.9
Amphetamines	23	35.9	29	29.0	35	30.4	43	28.7	16	16.3	44	44.4	66	66.0	48	49.0	304	36.9
Suboxone/Methadone	39	60.9	1	1.0	25	21.7	2	1.3	20	20.4	10	10.1	4	4.0	1	1.0	102	12.4
Codeine	0	0.0	1	1.0	13	11.3	0	0.0	0	0.0	0	0.0	0	0.0	2	2.0	16	1.9
Opium	3	4.7	2	2.0	0	0.0	0	0.0	0	0.0	13	13.1	0	0.0	0	0.0	18	2.2
Ketamine	27	42.2	0	0.0	7	6.1	1	0.7	3	3.1	3	3.0	1	1.0	2	2.0	44	5.3
Ecstasy/Methamphetamine	6	9.4	7	7.0	44	38.3	21	14.0	56	57.1	8	8.1	3	3.0	8	8.2	153	18.6
Ketum	9	14.1	0	0.0	22	19.1	10	6.7	0	0.0	5	5.1	40	40.0	1	1.0	87	10.6
Others	0	0.0	2	2.0	36	31.3	0	0.0	0	0.0	1	1.0	0	0.0	8	8.2	47	5.7
<b>Average weekly injection frequency</b>																		
≤ 4 times a day	46	74.2	38	88.4	92	95.8	97	95.1	88	96.7	80	98.8	98	100.0	85	97.8	624	94.5
5 - 9 times a day	13	21.0	5	11.6	4	4.2	5	4.9	3	3.3	1	1.2	0	0.0	2	2.3	33	5.0
≥ 10 times a day	3	4.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.5
<b>Injecting practices in the past 3 months</b>																		
Shared needle and syringe with friends	15	23.4	10	10.0	11	9.6	11	7.3	0	0.0	17	17.2	3	3.0	12	12.2	79	9.6
<b>Injecting practices at last injection</b>																		
Not using a clean needle	7	11.1	1	2.2	2	2.0	2	1.9	2	2.2	5	5.6	1	1.0	1	1.1	21	3.1

## Sexual behaviours

The sexual behaviours among the PWID respondents are shown in Table 54. Overall, 25.5% of PWID respondents reported having sex in the past one month, and the majority of them (90%) reported not using a condom during the last sex.

**Table 54: Sexual behaviours among PWID by states, IBBS 2022 (N=824)**

States	Kedah		Selangor		Kelantan		Pahang		Terengganu		Johor		N. Sembilan		Melaka		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Had sexual intercourse in the past 1 month</b>																		
Yes	34	53.1	41	41.0	39	33.9	12	8.0	21	21.4	18	18.2	23	23.0	22	22.4	210	25.5
<b>Used condom during last sex</b>																		
Yes	1	2.9	5	12.2	5	12.8	2	16.7	1	4.8	3	16.7	2	8.7	2	9.1	21	10.0

## Prevention services

HIV information and outreach services among PWID respondents are summarized in Table 55. A total of 82.5% of PWID respondents reported receiving information on HIV/STI/safer injecting use in the past three months. The majority of respondents (75.5%) claimed that an NGO outreach worker contacted them face to face (92.2%). The majority of PWID respondents (90.4%) reported having received a new, clean needle or syringe. Only 9% of respondents claimed they had not received any HIV prevention package in the past three months. Most PWID respondents (96.7%) reported no problem accessing to sterile needles and syringes.

**Table 55: PWID respondents who received information on HIV/STI/safer injecting use (N=824)**

States	Kedah		Selangor		Kelantan		Pahang		Terengganu		Johor		N. Sembilan		Melaka		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Ever received information on HIV/STI/safer injecting use in the past 3 months</b>																		
Yes	46	71.9	80	80.0	97	84.3	144	96.0	80	81.6	76	76.8	94	94.0	63	64.3	680	82.5
<b>HIV/STI prevention services received from outreach workers</b>																		
New needle and syringe	62	96.9	88	88.0	109	94.8	149	99.3	84	85.7	75	75.8	99	99.0	79	80.6	745	90.4
Condoms and lubricants	3	4.7	15	15.0	27	23.5	5	3.3	10	10.2	0	0.0	30	30.0	14	14.3	104	12.6
Counselling on condom use and safe sex	3	4.7	26	26.0	55	47.8	6	4.0	20	20.4	9	9.1	31	31.0	10	10.2	160	19.4
Did not received any services	2	3.1	12	12.0	5	4.3	1	0.7	11	11.2	23	23.2	1	1.0	19	9.4	74	9.0



HIV/Hepatitis C/STI services utilization among PWID respondents is shown in Table 56. Regarding HIV testing, 93.3% of PWID respondents had their blood tested for HIV. Of those, 49% and 33.3% had their test less than six months ago and 6 to 12 months ago, respectively. Almost three-quarters of the respondents (77.8%) had access to an HIV test at community-based testing. A total of 45% of respondents claimed that their partner/spouse had also undergone HIV testing.

Among the PWID respondents, 45 of them disclosed that they were HIV positive. Of those, 82.2% were already receiving ART. On a positive note, all HIV positive respondents in Selangor, Negeri Sembilan and Melaka have received ART. However, five respondents (13.5%), three in Kelantan, one in Terengganu and one in Johor, had defaulted treatment for a variety of reasons, including financial problems (20%), loss of interest in the program (20%), cannot tolerate the side effects of ART (20%), got arrested at prison or drug rehabilitation centre (20%), and others (20%). However, 37.5% of respondents claimed their viral load had not been suppressed.

18.6% of PWID respondents never had a Hepatitis C blood test. Surprisingly, all respondents in Negeri Sembilan had ever been tested for Hepatitis C. The two main reasons respondents gave for not having a Hepatitis C test: did not know about Hepatitis C test and treatment (53.6%) and refused to get tested (35.9%).

As for STI, a low proportion of PWID respondents (4.5%) reported visiting an STI clinic in the past three months. Extreme burning pain when urinating (dysuria) (2.1%), rectal discharge/bleeding (0.4%), and penile ulcer (0.2%) were the most frequent STI symptoms reported by the respondents. None of them experienced penile discharge symptoms. A total of 40% of respondents admitted using government-run facilities for treatment.

Approximately half of the PWID respondents (54.6%) have enrolled in the MMT Program.

**Table 56: HIV/Hepatitis C/STI/MMT services utilization among PWID by states, IBBS 2022 (N=824)**

States	Kedah		Selangor		Kelantan		Pahang		Terengganu		Johor		N. Sembilan		Melaka		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>HIV</b>																		
<b>Ever had blood tested for HIV</b>																		
Yes	51	79.7	96	96.0	114	99.1	149	99.3	93	94.9	87	87.9	97	97.0	82	83.7	769	93.3
<b>Last HIV test</b>																		
< 6 months ago	11	21.6	29	30.2	43	37.7	135	90.6	54	58.1	29	33.3	48	49.5	28	34.1	377	49.0
6 to 12 months ago	28	54.9	31	32.3	39	34.2	14	9.4	30	32.3	46	52.9	49	50.5	19	23.2	256	33.3
> 12 months ago	12	23.5	36	37.5	32	28.1	0	0.0	9	9.7	12	13.8	0	0.0	35	42.7	136	17.7
<b>Access to HIV testing (multiple response)</b>																		
Government clinic	7	13.7	75	78.1	40	35.1	5	3.4	66	71.0	62	71.3	17	17.5	57	69.5	329	42.8
Private clinic	1	2.0	2	2.1	2	1.8	0	0.0	2	2.2	2	2.3	0	0.0	3	3.7	12	1.6
Community based	49	96.1	76	79.2	92	80.7	146	98.0	56	60.2	54	62.1	97	100.0	28	34.1	598	77.8
Self-testing	0	0.0	0	0.0	0	0.0	0	0.0	1	1.1	1	1.1	0	0.0	1	1.2	3	0.4
<b>Regular sex partner(s)/spouse ever tested for HIV</b>																		
Yes	23	45.1	53	55.2	59	51.8	43	28.9	63	67.7	13	14.9	43	44.3	49	59.8	346	45.0
No	9	17.6	17	17.7	15	13.2	96	64.4	27	29.0	47	54.0	7	7.2	32	39.0	250	32.5
No permanent partner(s)/spouse	19	37.3	26	27.1	40	35.1	10	6.7	3	3.2	27	31.0	47	48.5	1	1.2	173	22.5
<b>Knew HIV status</b>																		
HIV positive	0	0.0	1	1.0	13	11.4	5	3.4	10	10.8	8	9.2	7	7.2	1	1.2	45	5.9
HIV negative	50	98.0	94	97.9	98	86.0	144	96.6	83	89.2	78	89.7	90	92.8	79	96.3	716	93.1
Indeterminate	1	2.0	0	0.0	1	0.9	0	0.0	0	0.0	1	1.1	0	0.0	0	0.0	3	0.4
Do not know HIV status	0	0.0	1	1.0	2	1.8	0	0.0	0	0.0	0	0.0	0	0.0	2	2.4	5	0.7
<b>HIV treatment status</b>																		
On ART	-	-	1	100.0	11	84.6	2	40.0	8	80.0	7	87.5	7	100.0	1	100.0	37	82.2
Still on ART	-	-	1	100.0	8	72.7	2	100.0	7	87.5	6	85.7	7	100.0	1	100.0	32	86.5
Defaulted ART	-	-	0	0.0	3	27.3	0	0.0	1	12.5	1	14.3	0	0.0	0	0.0	5	13.5
Never on ART	-	-	0	0.0	2	15.4	3	60.0	2	20.0	1	12.5	0	0.0	0	0.0	8	17.8
<b>Viral load suppression among those on treatment</b>																		
Yes	-	-	1	100.0	1	12.5	1	50.0	3	42.9	5	83.3	3	42.9	0	0.0	14	43.8
No	-	-	0	0.0	4	50.0	0	0.0	2	28.6	0	0.0	5	71.4	1	100.0	12	37.5
Not sure/not remember	-	-	0	0.0	3	37.5	1	50.0	1	14.3	1	16.7	0	0.0	0	0.0	6	18.8
<b>Hepatitis C</b>																		
<b>Ever had blood tested for Hepatitis C</b>																		
Yes	41	64.1	77	77.0	84	73.0	147	98.0	92	93.9	69	69.7	100	100.0	61	62.2	671	81.4
<b>Reason did not get tested (multiple response)</b>																		
Did not aware about Hepatitis C test and treatment	14	60.9	20	87.0	10	32.3	1	33.3	2	33.3	19	63.3	-	-	16	43.2	82	53.6
Don't know where to get tested	0	0.0	5	21.7	2	6.5	1	33.3	1	16.7	1	3.3	-	-	4	10.8	14	9.2
Refused to get tested	9	39.1	0	0.0	17	54.8	2	66.7	4	66.7	7	23.3	-	-	16	43.2	55	35.9
Testing facilities not available or too far	0	0.0	1	4.3	2	6.5	0	0.0	0	0.0	0	0.0	-	-	1	2.7	4	2.6
Others	0	0.0	1	4.3	3	9.7	0	0.0	0	0.0	4	13.3	-	-	0	0.0	8	5.2
<b>STI</b>																		
<b>Ever visited STI clinic in the past 3 months</b>																		
Yes	2	3.1	5	5.0	9	7.8	5	3.3	11	11.2	3	3.0	1	1.0	1	1.0	37	4.5

Cont.

States	Kedah		Selangor		Kelantan		Pahang		Terengganu		Johor		N. Sembilan		Melaka		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Experienced symptoms in the past 12 months (multiple response)</b>																		
Dysuria	0	0.0	4	4.0	2	1.7	0	0.0	4	4.1	1	1.0	1	1.0	5	5.1	17	2.1
Penile ulcer	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	0	0.0	0	0.0	1	1.0	2	0.2
Penile discharge	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Rectal discharge/bleeding	0	0.0	1	1.0	0	0.0	0	0.0	2	2.0	0	0.0	0	0.0	0	0.0	3	0.4
No STI symptoms	64	100.0	95	95.0	113	98.3	150	100.0	92	93.9	98	99.0	99	99.0	93	94.9	804	97.6
<b>Action taken the last time had STI symptoms</b>																		
Did not treat	-	-	3	60.0	0	0.0	-	-	0	0.0	0	0.0	1	100.0	1	20.0	5	25.0
Self-treated/sought advice from pharmacy	-	-	0	0.0	0	0.0	-	-	1	16.7	0	0.0	0	0.0	2	40.0	3	15.0
Sought treatment from government health facility	-	-	1	20.0	0	0.0	-	-	4	66.7	1	100.0	0	0.0	2	40.0	8	40.0
Sought treatment from private health facility	-	-	0	0.0	0	0.0	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Went to traditional healer	-	-	1	20.0	2	100.0	-	-	1	16.7	0	0.0	0	0.0	0	0.0	4	20.0
Others	-	-	0	0.0	0	0.0	-	-	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
<b>MMT</b>																		
<b>Enrolled in MMT</b>																		
Yes	25	39.1	68	68.0	79	68.7	51	34.0	68	69.4	50	50.5	59	59.0	50	51.0	450	54.6
<b>Still receiving MMT</b>																		
Yes	9	36.0	46	67.6	51	64.6	29	56.9	44	64.7	31	62.0	21	35.6	21	42.0	252	56.0

When it comes to preventing HIV, a mere 8.3% and 5.6% of respondents who self-reported as either HIV-negative or having an unknown HIV status had any knowledge of PrEP or PeP, respectively (Table 57). Only two respondents, one from Terengganu and one from Kelantan, reported having taken PrEP in the past 12 months, and both got it from a private clinic. As for PeP, only one respondent from Terengganu claimed to have used it, and he got it from a pharmacy.

Only 36.5% of respondents stated that they would consider using PrEP in the future. In Johor, no respondents expressed interest in taking PrEP in the future. Too expensive (35%), not interested taking PrEP (30%), and not ready yet for PrEP (15%) are the top three reasons given by respondents who are not interested in taking PrEP. Most respondents (88.1%) prefer condoms over PrEP for HIV prevention.



## Awareness on HIV, risk, and prevention efforts

The knowledge and opinion towards HIV/AIDS among PWID respondents are presented in Table 58. A total of 46.5% of PWID respondents believed they were at risk of contracting HIV. Almost all respondents in Negeri Sembilan felt that they were at risk of being infected with HIV. Regarding HIV knowledge, 73.7% of the respondents indicated to have adequate overall knowledge on HIV. The majority of respondents (> 80%) also correctly responded to each of the five questions about their understanding of HIV, except for respondents in Kedah. However, only 16.4% were aware of the concept of U=U.

**Table 58: Knowledge and opinion towards HIV/AIDS among PWID by states, IBBS 2022 (N=824)**

States	Kedah		Selangor		Kelantan		Pahang		Terengganu		Johor		N. Sembilan		Melaka		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Felt at risk of being infected with HIV</b>																		
Yes	52	81.3	20	20.0	29	25.2	67	44.7	63	64.3	35	35.4	99	99.0	18	18.4	383	46.5
<b>HIV knowledge score</b>																		
0 score	3	4.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.4
1 score	5	7.8	1	1.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	0.7
2 score	15	23.4	2	2.0	1	0.9	0	0.0	1	1.0	1	1.0	0	0.0	0	0.0	20	2.4
3 score	10	15.6	7	7.0	2	1.7	1	0.7	0	0.0	4	4.0	0	0.0	6	6.1	30	3.6
4 score	14	21.9	27	27.0	17	14.8	32	21.3	15	15.3	9	9.1	5	5.0	39	39.8	158	19.2
5 score	17	26.6	63	63.0	95	82.6	117	78.0	82	83.7	85	85.9	95	95.0	53	54.1	607	73.7
<b>Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?</b>																		
Correct answer	37	57.8	82	82.0	99	86.1	133	88.7	88	89.8	95	96.0	96	96.0	80	81.6	710	86.2
<b>Can a person reduce the risk for getting HIV by using a condom every time they have sex?</b>																		
Correct answer	51	79.7	94	94.0	111	96.5	146	97.3	97	99.0	99	100.0	99	99.0	94	95.9	791	96.0
<b>Can a healthy-looking person have HIV?</b>																		
Correct answer	43	67.2	89	89.0	114	99.1	146	97.3	92	93.9	91	91.9	100	100.0	86	87.8	761	92.4
<b>Can a person get HIV from mosquito bites?</b>																		
Correct answer	35	54.7	88	88.0	113	98.3	149	99.3	97	99.0	97	98.0	100	100.0	90	91.8	769	93.3
<b>Can a person get HIV from sharing food with someone who is infected?</b>																		
Correct answer	40	62.5	96	96.0	114	99.1	142	94.7	98	100.0	93	93.9	100	100.0	89	90.8	772	93.7
<b>Aware of the concept U=U</b>																		
Yes	4	6.3	7	7.0	40	34.8	4	2.7	27	27.6	7	7.1	1	1.0	45	45.9	135	16.4

## HIV prevalence and care cascade

HIV prevalence and care cascade among PWID respondents are summarized in Table 59. The total HIV prevalence among PWID respondents was 7.5% with the highest prevalence recorded in Kelantan (13.9%), followed by Terengganu (12.2%) and Johor (12.1%). However, Kedah, Selangor, Pahang, Negeri Sembilan, and Melaka had HIV prevalence rates that were less than 10%. For HIV cascade analysis, out of 62 respondents who tested positive in this study, 45 (72.6%) were already aware of their HIV status before participating in this survey, 32 (71.1%) were receiving ART, and among them, only 14 (43.8%) have successfully achieved viral suppression (Figure 4).

Table 59: HIV prevalence and cascade among PWID by states, IBBS 2022 (N=824)

States	Kedah		Selangor		Kelantan		Pahang		Terengganu		Johor		N. Sembilan		Melaka		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>HIV prevalence</b>																		
18-24 years	-	-	-	-	0	0.0	-	-	-	-	-	-	-	-	0	0.0	0	0.0
>24 years	2	3.1	3	3.0	16	14.0	7	4.7	12	12.2	12	12.1	9	9.0	1	1.1	62	7.6
Overall	2	3.1	3	3.0	16	13.9	7	4.7	12	12.2	12	12.1	9	9.0	1	1.0	62	7.5
<b>Number of HIV positive</b>	2		3		16		7		12		12		9		1		62	
<b>Number of PLHIV who know their status</b>	0		1		13		5		10		8		7		1		45	
<b>Number of PLHIV who know their status receiving ART</b>	0		1		11		2		8		7		7		1		32	
<b>Number of PLHIV on ART with viral suppression</b>	0		1		1		1		3		5		3		0		14	

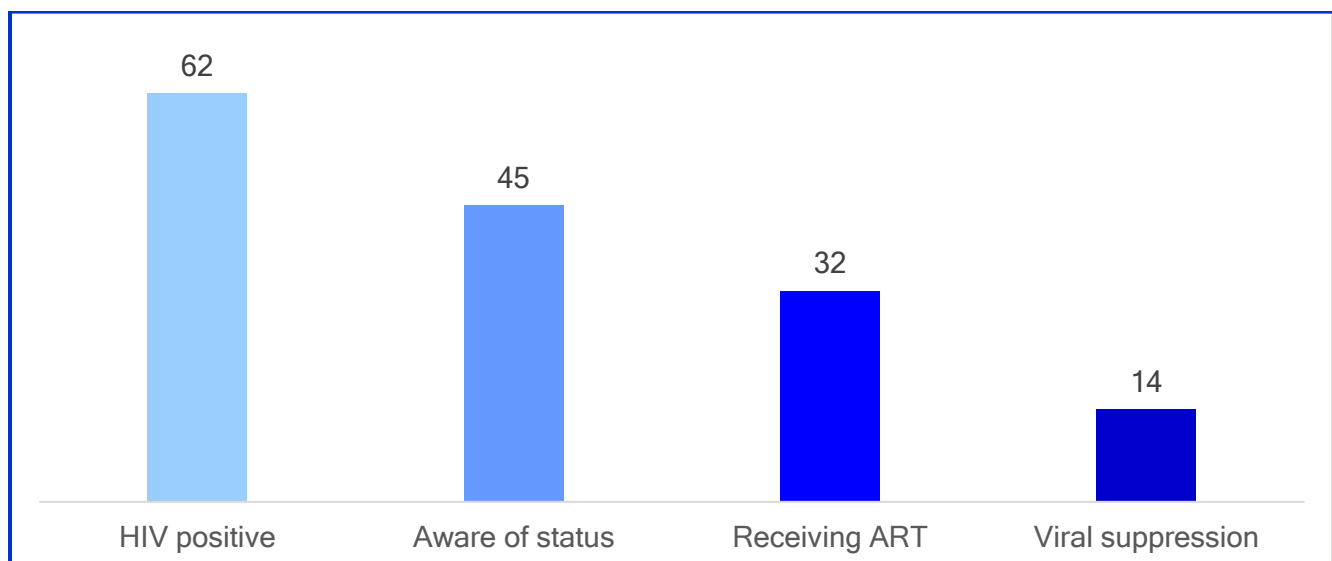


Figure 4: HIV cascade among PWID

## Hepatitis C and syphilis prevalence

The overall Hepatitis C prevalence among PWID respondents was 55.2%, with Negeri Sembilan having the highest prevalence (75%), and the lowest prevalence (12.5%) was found in Kedah. The overall prevalence of syphilis among PWID respondents was 0.7%, with reactive cases only in Melaka (Table 60).

**Table 60: Hep C and syphilis prevalence among PWID by states, IBBS 2022 (N=824)**

States	Kedah		Selangor		Kelantan		Pahang		Terengganu		Johor		N. Sembilan		Melaka		National	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Hep C prevalence</b>																		
18-24 years	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	10.0
> 24 years	8	12.5	62	62.0	53	46.5	100	66.7	68	69.4	42	42.4	75	75.0	46	46.9	454	55.8
Overall	8	12.5	62	62.0	54	47.0	100	66.7	68	69.4	42	42.4	75	75.0	46	46.9	455	55.2
<b>Syphilis prevalence</b>																		
18-24 years	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	33.3	3	30.0
> 24 years	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	3.4	3	0.4
Overall	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	6.1	6	0.7

## Socio-demographic characteristics - National

In Malaysia, PWID are getting older, as evidenced by the fact that the proportion of respondents in the 24 to 39 age group is declining compared to recent years, while the proportion of respondents in the 40 to 49 and greater than or equal to 50 age groups are increasing (Table 61).

Similar to prior years, most PWID respondents in 2022 identified as Malay, were Muslim, had completed at least secondary school and were not married. As compared to the percentages reported in 2014 (18.6%) and 2017 (22.9%), there was also a minor increase in the percentage of divorced PWID (24.8%). Additionally, there was an increase in the percentage of unemployed PWID from 2014 to 2022 (9.3% in 2014, 10.3% in 2017 and 26.5% in 2022).

Table 61: Socio-demographic characteristics of PWID respondents for the 2009 - 2022 surveys

	2009 (%)	2012 (%)	2014 (%)	2017 (%)	2022 (%)
<b>Gender</b>					
Male	97.8	98.1	100.0	100.0	100.0
Female	1.7	1.9	0.0	-	-
<b>Age</b>					
≤ 24	7.0	3.3	3.0	3.5	1.2
25 - 29	15.7	11.3	7.8	5.6	3.3
30 - 39	40.4	44.7	39.4	37.2	30.3
40 - 49	37.0	27.2	31.0	34.6	40.7
≥ 50	0.0	13.5	18.8	19.1	24.5
<b>Ethnic</b>					
Malay	90.2	85.9	86.2	88.6	93.9
Chinese	4.9	6.0	6.4	6.3	1.8
Indian	4.0	7.4	5.5	3.8	2.3
Others	0.9	0.2	0.4	1.3	1.9
<b>Education</b>					
No schooling	1.1	1.1	1.5	1.4	1.2
Primary	12.2	18.6	17.2	17.0	12.7
Secondary	83.4	78.0	77.6	79.5	83.9
Tertiary	3.3	2.3	3.7	2.1	2.2
<b>Marital status</b>					
Unmarried	57.5	58.1	53.3	51.2	49.4
Married	19.6	41.9	27.1	25.9	24.9
Divorced	-	-	18.6	22.9	24.8
Widower	-	-	1.0	-	1.0
<b>Source of income</b>					
Employed	83.8	75.1	68.8	89.5	66.4
Unemployed	15.1	11.3	9.3	10.3	26.5
Student	-	-	0.2	0.2	0.0
Others	1.1	13.6	21.7	-	7.2
<b>Faith</b>					
Islam	91.9	86.8	89.0	90.9	96.4
Buddhism	3.0	4.6	5.3	4.3	1.3
Hinduism	2.4	6.3	4.2	3.0	1.7
Christianity	2.1	2.2	1.4	1.4	0.0
Sikhism	-	-	0.1	0.1	0.0
No religion	-	-	0.1	0.1	0.6
Others	0.6	0.2	-	-	0.0
<b>Duration of living in the city</b>					
Median duration (years)	-	28	31	31	37



## Drug use and injecting practices – National

PWID respondents in 2022 stayed injecting for fewer years (18 years) than those in 2017 (25 years), while the median number of injections per day remained low at about 2 in 2012, 2014, 2017 and 2022 (Table 62).

Similar to earlier years, heroin was the most frequently used injectable drug among PWID respondents. Nevertheless, the use of other injectable drugs by respondents has increased in 2022 compared to 2017.

Regarding injecting habits, there has been a significant drop in the percentage of PWID who used needles that had previously been used by others, from 20.5% in 2017 to 9.6% in 2022.

**Table 62: Comparison of injecting practices among PWID in 2009 - 2022 surveys**

	2009 (%)	2012 (%)	2014 (%)	2017 (%)	2022 (%)
<b>Duration of injecting drug</b>					
Median duration of injecting drug (years)	8	11.7	15	25	18
<b>Type of drug injected*</b>					
Heroin	87.1	96.4	97.2	97.3	92.1
Diazepam	42.9	12.3	3.0	1.0	3.9
Amphetamines	10.6	21.7	14.7	19.0	36.9
Suboxone/Methadone	15.2	14.0	4.6	1.2	12.4
Codeine	1.0	2.4	0.5	0.1	1.9
Opium	4.1	2.4	0.6	0.6	2.2
Ketamine	3.2	10.4	6.7	1.4	5.3
Ecstasy/Methamphetamine	9.7	29.0	12.5	14.1	18.6
Ketum (*multiple response)	-	-	-	-	10.6
<b>Average daily injection frequency</b>					
Median no. of injection per day	2.6	2.0	2.0	2.0	2.0
<b>Injecting practices at last injection</b>					
Used clean needle and syringe	83.5	97.5	92.8	79.5	96.9
Used needle that had previously been used by others	14.6	2.5	7.2	20.5	9.6

## Pattern of HIV services utilization – National

Overall, there is an increase in the usage of all HIV services among PWID respondents in 2022 compared to 2017 (Table 63). The most significant increase is that most respondents (91.5%) reported having been contacted by outreach worker from NGO or healthcare worker in the past three months. Additionally, the proportion of PWID respondents who reported receiving sterile needles/syringes and condoms increased from 70.8% in 2017 to 90.4% in 2022 and 10.9% in 2017 to 12.6% in 2022, respectively.

The percentage of PWID respondents who have ever received an HIV test increases every year, of which the highest percentage was 93.3% in 2022.

**Table 63: Comparison of HIV services utilization among PWID in 2009 - 2022 surveys**

	2009 (%)	2012 (%)	2014 (%)	2017 (%)	2022 (%)
Contacted by outreach worker from NGO or healthcare worker in the past 3 months	-	28.0	25.6	36.6	91.5
Received sterile needles/syringes in the past 12 months	27.0	86.5	75.3	70.8	90.4
Received condom in the past 12 months	10.3	33.8	13.6	10.9	12.6
Ever had blood tested for HIV	71.1	85.0	86.2	86.8	93.3
Had HIV test in the past 12 months and know result	37.5	64.5	37.7	90.0	82.3
Visited STI clinic	-	5.8	1.9	1.6	4.5

## Awareness on HIV, risk, and prevention efforts – National

In general, 73.7% of PWID respondents indicated having adequate overall knowledge of HIV in 2022, which is an improvement over the previous year (Table 64). Additionally, all five questions about respondents' knowledge of HIV were correctly answered by most of respondents (>85%) in 2022.

Table 64: Comparison of HIV knowledge between 2009 - 2022 surveys

	2009 (%)	2012 (%)	2014 (%)	2017 (%)	2022 (%)
A person can reduce risk of HIV by having one faithful, uninfected partner	73.2	82.7	80.8	78.1	86.2
A person can reduce HIV transmission by using condom	88.9	91.2	89.6	83.6	96.0
A healthy-looking person can have HIV	87.0	84.6	86.3	84.4	92.4
A person cannot become infected through mosquito bites	83.2	85.4	87.4	86.0	93.3
A person cannot get HIV by sharing meal with someone who is infected with HIV	88.9	87.7	90.2	92.7	93.7
Adequate knowledge (score 5)	49.7	53.8	58.3	54.4	73.7

*Calculation based on correct answer.*

## HIV prevalence – National

HIV prevalence among PWID rapidly decreased from 18.9% in 2012 to 7.5% in 2022 (Table 65). Despite the fact that Kelantan, Terengganu, and Johor had higher prevalence rates in 2017, these states are experiencing a progressive decline in their prevalence rates in 2022. In contrast, the prevalence rate in Kedah and Selangor was slightly higher in 2022 than in 2017.

Table 65: HIV prevalence by states, IBBS 2009-2022

	2009 (%)	2012 (%)	2014 (%)	2017 (%)	2022 (%)
<b>North Peninsular</b>					
Kedah	-	8.8	4.2	2.9	3.1
Penang	-	5.6	1.6	2.4	-
<b>West Peninsular</b>					
Selangor	22.1	5.3	5.7	2.0	3.0
Kuala Lumpur	-	-	21.7	24.6	-
<b>East Peninsular</b>					
Kelantan	-	46.5	44.7	31.0	13.9
Terengganu	-	32.5	30.0	24.7	12.2
Pahang	-	16.5	12.4	12.1	4.7
<b>South Peninsular</b>					
Johor	-	20.6	27.1	15.3	12.1
Melaka	-	-	1.7	4.0	1.0
Negeri Sembilan	-	-	-	13.3	9.0
National Prevalence	-	18.9	16.3	13.4	7.5

## Discussion & Conclusion

- ❖ The proportion of respondents in the 24 to 39 age group is decreasing in Malaysia, indicating that PWID are getting older. In 2009, 63.1% of respondents belonged to this age group, while in 2022, it has dropped to 34.8%. However, respondents in the age group of 40 to 50 years and above are increasing in number. In 2009, 37% of respondents belonged to this age group, which increased to 65.2% in 2022. This shift could be because the same respondents participated in each IBBS survey cycle. Additionally, more young people nowadays prefer to use drugs orally, inhaled or smoked instead of injecting them.
- ❖ In this study, the majority of respondents (90.4%) stated that they have received new, clean needles, and syringes. Additionally, 96.9% of the respondents reported using clean needles and syringes during their last injection. Only 9.6% of the respondents shared needles and syringes with friends within the past three months. These findings are evidence of the effectiveness of the Harm Reduction Program, which was launched in 2005/2006. The program comprises the Needle/Syringe Exchange Programme (NSEP) and Methadone Maintenance Therapy (MMT). The NSEP is responsible for providing access to clean needles and syringes to PWID.
- ❖ In addition, the median number of injections per day remained low at about 2 in 2012, 2014, 2017, and 2022. This has led to a greater likelihood of reducing the risk of HIV transmission and, consequently, the prevalence of HIV among PWID who have a low injection frequency and consistently use clean needles and syringes.
- ❖ As in previous rounds of the IBBS survey, heroin remained the most frequently injected drug among PWID in 2022. However, almost all respondents (99.9%) also used other drugs that could be injected, including codeine, opium, suboxone/methadone, amphetamines, and ecstasy/methamphetamine, which have seen an increase in usage compared to 2017. This is in line with a recent report from the National Anti-Drugs Agency (NADA), which revealed a rise in methamphetamine usage and a decline in opiate usage since 2016. Since MMT has been used to treat opioid addiction, different intervention strategies are needed to address other forms of drug addiction.

- ❖ In this study, the majority of PWID (90%) reported not using a condom during last sex. Surprisingly, 78.3% of them who do not use condoms stated that they would rather use condoms than PrEP to prevent HIV. The reason for this might be that they forgot to use a condom because they were still feeling euphoric at the time of the sexual encounter. Similar to the findings of this study, numerous studies found that a large proportion of drug users use condoms inconsistently (Mishra et al., 2014; Boltaev et al., 2013; Mahanta et al., 2008). Unfortunately, in this study, only 12.6% and 19.4% of respondents claimed to have received condoms and lubricants and counselling on safe sex and condom use, respectively. Thus, prevention initiatives should focus on increasing protective sexual behaviours among PWID. Programs to increase knowledge and focus on consistent and correct condom use, including the use of lubrication, should be strengthened. Additionally, PWID must be educated about taking PrEP as a preventive measure. PrEP is highly effective in reducing the risk of getting HIV from sex by about 99% (Centres for Disease Control and Prevention, 2021). It reduces HIV transmission by 74% in injecting drug users (Choopanya et al., 2013) when taken consistently as prescribed.
- ❖ Malaysia is committed to achieving the goal of "Ending AIDS" by 2030 by reaching the 95-95-95 target. This means that 95% of KP should be tested for HIV and informed of their results, 95% of people infected with HIV should be placed on ART, and at least 95% of these should adhere to treatment and achieve a suppressed viral load. In this study, 62 respondents identified with HIV infection, 45 (72.6%) had prior knowledge of their HIV status before undergoing testing. Among those who were aware of their HIV status, 32 (71.1%) were on ART, and 14 (43.8%) of those on ART had achieved viral suppression. In order to close this gap and reach the 95-95-95 target by 2030, prevention initiatives should be prioritized, accelerated and scaled up. Additional testing strategies, including self-testing methods should be incorporated to improve testing coverage among PWID. In addition, collaboration between the government, non-governmental organizations and PWID support groups is necessary to provide an accessible supply of ART and ensure treatment adherence.
- ❖ In general, 73.7% of PWID respondents indicated adequate overall knowledge of HIV in 2022, which improved over previous year (49.7% in 2009, 53.8% in 2012, 58.3% in 2014 and 54.4% in 2017). However, only 16.4% of respondents knew the concept of U=U. Therefore, more initiatives are required to increase awareness of this concept because the

reduction in HIV-associated prevalence and risk behaviours can also be attributed to the improvement in treatment literacy. In addition, it empowers PWID to understand and assert their fundamental human rights.

- ❖ The prevalence of HIV among PWID in Malaysia has steadily decreased from 18.9% in 2012 (MOH, 2019) to 7.5% in 2022. This is due to consistently low injection frequency and a high percentage of safe injecting practices at the last injection. However, it is important to continue preventive efforts and surveillance to maintain this downward trend and eventually end the HIV epidemic among PWID in Malaysia.

## Population size estimates (PSE)

### Introduction

Malaysia has a concentrated HIV epidemic, in which the prevalence rates remain above 5% among KP, which include PWID, FSW, TGW, and MSM. Since the first case of HIV infection in the country was reported in 1986, many efforts to bring down the HIV infection have been implemented, mainly focusing on the KP. However, these population members are difficult to identify and hard to reach. Hence, the actual size of these populations is unknown, which may lead to inaccurate estimates of targeted prevention, treatment and care.

Establishing the size estimate of KP at risk of HIV infection is essential for understanding the trajectory of changing or emerging epidemic patterns by location and population. Besides, it also aids in appropriate resource allocation and prioritization for effective responses and tracking the HIV epidemic using the model that projects or estimates the number of new HIV infections and PLHIV.

In the previous years, the estimation of the population size of PWID in Malaysia relied heavily on expert consensus. The first population estimates of PWID were attempted by Mohamed (2003) using a service multiplier. This survey used service data from the NADA as the multiplier and the estimated PWID's population for 2002 at around 118,000 (104,486 to 135,506). This estimate was subsequently discussed at several consensus meetings involving multi-stakeholders. Using literature and secondary data, a PSE of PWID was finally agreed at 170,000, i.e., about 1.8% of the adult male population. However, there has been no proper documentation on this final PSE for PWID.

The growing popularity of methamphetamine over opiates has changed the addiction landscape in the country from injecting to oral addiction. Statistics from the NADA reported that about 66.4% of drug addicts in 2022 were using methamphetamine, a whopping four times increase from 2013 (14%), while opiate users have reduced by more than half during the same period. With the changing pattern of drug use and in getting the new PSE for PWID, MOH has included questions in the IBBS 2022 to estimate the population of PWID in Malaysia using the multiplier method and triangulating the findings to provide the most plausible estimates. Based on the data, and as agreed by national consensus, the PSE of PWID in 2022 were 75,000, which showed a marked reduction compared to the 2002 estimate (170,000). The decline is

consistent with the local changing pattern of drug use from opiate to more methamphetamine and amphetamine type stimulant use, as reported by the NADA.

Nevertheless, there is a dire need to re-estimate the population size for PWID as the current data from NADA shows that opiate users have reduced further in the past five years. Therefore, we decided to conduct a new PSE in conjunction with IBBS 2022 using the same methods as PSE 2017 using multiplier methods from the IBBS 2022 findings. This will assist the country to understand better the potential of HIV growth in general and effectively allocate resources for appropriate responses.

### **Methodology**

The service multiplier approach was used to estimate the population size of PWID. The findings were triangulated to provide the most plausible estimates before presenting the data for agreement by expert consensus.

Few methods can be conducted to estimate the population size of the hidden population (WHO, 2010). However, the multiplier method was chosen to estimate the population size of PWID in Malaysia because it is more reliable and preferable to census or enumeration methods when the sampling frame for PWID is questionable and the PWID population is difficult to reach. In addition, the programmatic data as the primary source is readily available and the second data source (probability sampling) is readily available from the recent IBBS survey 2022.

### **Method 1: Multiplier method**

#### Part 1 - Estimating the number of PWID using the service multiplier method.

The multiplier method relies on two overlapping but independent sources of existing data: 1) asking if clients still receiving MMT services in the past 12 months in the IBBS 2022 questionnaire; and 2) obtaining the unique clients currently still on MMT from the National MMT program database.

To calculate the PSE using these two (2) data sources, the number of PWID who are currently still on MMT in the National MMT program database (N) were divided by the proportion of PWID reporting still receiving MMT service in the IBBS 2022 (P). This can be expressed as:

$$\text{PSE, } S = \frac{\text{Number of PWID still on National MMT program (N)}}{\text{Proportion of PWID still receiving MMT in the IBBS 2022 (P)}}$$



## Part 2 - Estimating the number of PWID using the extrapolation method for states without IBBS 2022 data.

Once the size estimates are finalized and agreed on using the multiplier method, the data was used to develop national estimates through an extrapolation process. This extrapolation process is essential since, in IBBS 2022, only nine (9) states conducted IBBS for PWID. To do this, the states were divided according to the HIV among PWID case burden groups, i.e., high-burden, medium-burden and low-burden, based on the National HIV/AIDS database as below:

High-burden states: Johor, Pahang, Terengganu, Kelantan

Medium-burden states: Melaka, KL, Selangor, Kedah, Perak, Negeri Sembilan

Low-burden states: Perlis, Penang, Sabah, Sarawak

For states without survey data to match with their service data, the average proportion of PWID reporting they still received the MMT service in the IBBS 2022 in the male population aged 15 to 49 from all the states in the same burden states groups that have the IBBS data were used and then multiply by the size of the male population age 15-49 years in the state. For example, KL was using the proportion of PWID data from medium-burden states and multiply by the male population aged 15 to 49 in KL.

### ***Method 2: Triangulation method***

To calculate the national estimates for PWID using the triangulation method, the data was triangulated using the data from the Malaysian PWID online survey conducted in 2022 to get the proportion of PWID on opiates only and PWID on opiates and amphetamine type stimulant, and also the data from The Drug and Substance Abusers and Addicts 2022 Statistics as reported by NADA.

The Malaysian PWID Survey 2022 was a blitz online survey conducted via Survey Monkey in September 2022. This method used an online snowball sampling, using PWID peer groups and social networks.

### ***Method 3: Expert consensus***

A consensus meeting was held at the national level to review the calculated estimates derived from the multiplier method and gather all other relevant data. Representatives included expert

consultants from HIV/STI/Hep C Sector MOH, Country Coordinating Mechanism (CCM) Malaysia, East-West Centre and UNAIDS were in attendance.

This meeting entails the presentation of preliminary estimates for the PWID multiplier approach. Data from NADA on drug and substance abusers and addicts 2022 statistics and online survey data on the pattern of drug use among PWID clients were used to triangulate the estimates.

## **Results**

### ***Method 1: Multiplier method***

Part 1: Estimating the number of PWIDs using the Service multiplier method.

Table 66 shows the estimates of PWID using the multiplier method for states with IBBS 2022 data and the estimates of PWID for states without IBBS 2022 using the extrapolation method. The national estimates for PWID in the male population aged 15 to 49 years in Malaysia for states with IBBS 2022 data is 34,356.

Part 2: Estimating the number of PWIDs using the extrapolation method for states without IBBS 2022 data.

The data triangulation to estimate PWID in states without IBBS data using the extrapolation method is shown in Table 66.

### ***Method 2: Triangulation method***

From the Malaysian PWID online survey 2022, it appears that more respondents in this survey are using opiates only, accounting for 58% of the total respondents, followed by ATS only and mixed of opiates and ATS (42%) and ATS only comprised of less than 1%.<sup>1</sup>

Based on the Drug and Substance Abusers and Addicts 2022 Statistics as reported by NADA, the number of opiate users in 2022 is 38,387. Using these data, the data was triangulated to calculate the PSE of PWID as 66,305.

### ***Method 3: Expert consensus***

The national PSE of PWID is the summation of the subnational estimates for both Part 1 and Part 2 combined. The size estimates of PWID in Malaysia are taken from the average of both

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<sup>1</sup> This number is officially reported by CCM Malaysia

methods, which is 62,823, rounded to 60,000. This estimate of PWID represents 0.61% of the total adult male population (15-19) in Malaysia. The breakdown of PWID estimates by state was proportioned based on program coverage of MMT in 2022. The final PSE for PWID is listed in Table 67.

**Table 66: PSE of PWID using multiplier method (by state)**

State	Service data Total active MMT client (N)	IBBS 2022 Probability Still on MMT (P)	Size estimation (S) = (N) / (P)	Proportion of PWID in male pop 15 to 49	Extrapolated PWID for states without IBBS data using average proportion	Size estimate PWID (multiplier method + extrapolated)
<b>Low burden</b>						
Perlis	162	-	-	-	444	444
Penang	1296	0.5	2592	0.0051	-	2592
Sabah	8	-	-	-	5372	5372
Sarawak	4	-	-	-	2208	2208
Labuan	2	-	-	-	141	141
Average proportion				0.0051		
<b>Medium burden</b>						
Kedah	1404	0.77	1834	0.0031	-	1834
Perak	2078	-	-	-	2969	2969
N. Sembilan	1131	0.58	1950	0.0056	-	1950
Selangor	1972	0.66	2988	0.0014	-	2988
KL	2663	-	-	-	2840	2840
Melaka	1022	0.5	2044	0.0065	-	2044
Average proportion				0.0041		
<b>High burden</b>						
Johor	1316	0.53	2505	0.0020		2505
Pahang	1309	0.35	3705	0.0076		3705
Terengganu	1362	0.62	2188	0.0066		2188
Kelantan	754	0.57	1314	0.0028		1314
Average proportion				0.0057		
<b>TOTAL</b>						<b>34,356</b>

Table 67: PSE of PWID in Malaysia, 2023

State	PSE
Perlis	558
Kedah	4,441
Penang	4,853
Perak	9,314
KL	4,152
Selangor	14,513
Melaka	1,569
N. Sembilan	2,716
Johor	5,463
Pahang	6,928
Kelantan	2,127
Terengganu	3,354
Sabah	7
Sarawak	4
WP Labuan	2
<b>MALAYSIA</b>	<b>60,000</b>

### Conclusion

The current PSE for PWID is based on multiplier methods using service data, IBBS 2022 results, and based on The Drug and Substance Abusers and Addicts 2022 Statistics. The final size estimates of PWID in Malaysia for year 2022, is 60,000. This estimate of PWID represents 0.61% of the total adult male population (15-19) in Malaysia. This finding can be used to advocate for and mobilize resources to prevent further transmission of HIV among PWID. In 2022, almost 4% of national total AIDS expenditure was spent on preventing HIV transmission programs, including MMT and NSEP. PWID drove the HIV epidemic in Malaysia in the early phase; thus, a substantial budget was allocated to respond appropriately, leading to harm reduction programs' implementation. The new estimates will guide the country in responding effectively to the current HIV landscape. Combined with prevalence data from IBBS 2022 and programmatic data, the new estimates show that the existing harm reduction program for PWID (MMT and NSEP) is effective in reducing the prevalence of HIV among PWID.

# RECOMMENDATIONS

- ◆ More psychosocial resources, such as peer support groups, network development, and counselling for KP and their partners or spouses.
- ◆ Incorporate additional testing strategies, including self-testing methods, to improve testing coverage among KP.
- ◆ Establish programs to increase knowledge and focus on consistent and correct condom use, including the use of lubrication and improve health seeking behavior.
- ◆ Establish HIV prevention programs via all mass media, in consultation with KP to ensure that their sensitivities are considered.
- ◆ Empowering KP to understand and assert their fundamental human rights. E.g., Awareness of PeP and the important of seeking medical treatment in case of rape or sexual violence among KP are necessary.
- ◆ Collaboration between the government, non-governmental organizations and KP support groups is necessary to ensure access to ART services and treatment adherence.
- ◆ All parties, including the government, non-governmental organizations, and private organizations, must continue to provide social services by disseminating knowledge about HIV/AIDS in order to assist KP in overcoming the challenges to a more positive life.

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