



National Center for HIV/AIDS, Dermatology and STD (NCHADS)

INTEGRATED HIV BIO-BEHAVIORAL SURVEILLANCE SURVEY (IBBS) AMONG FEMALE ENTERTAINMENT WORKERS IN CAMBODIA, 2022

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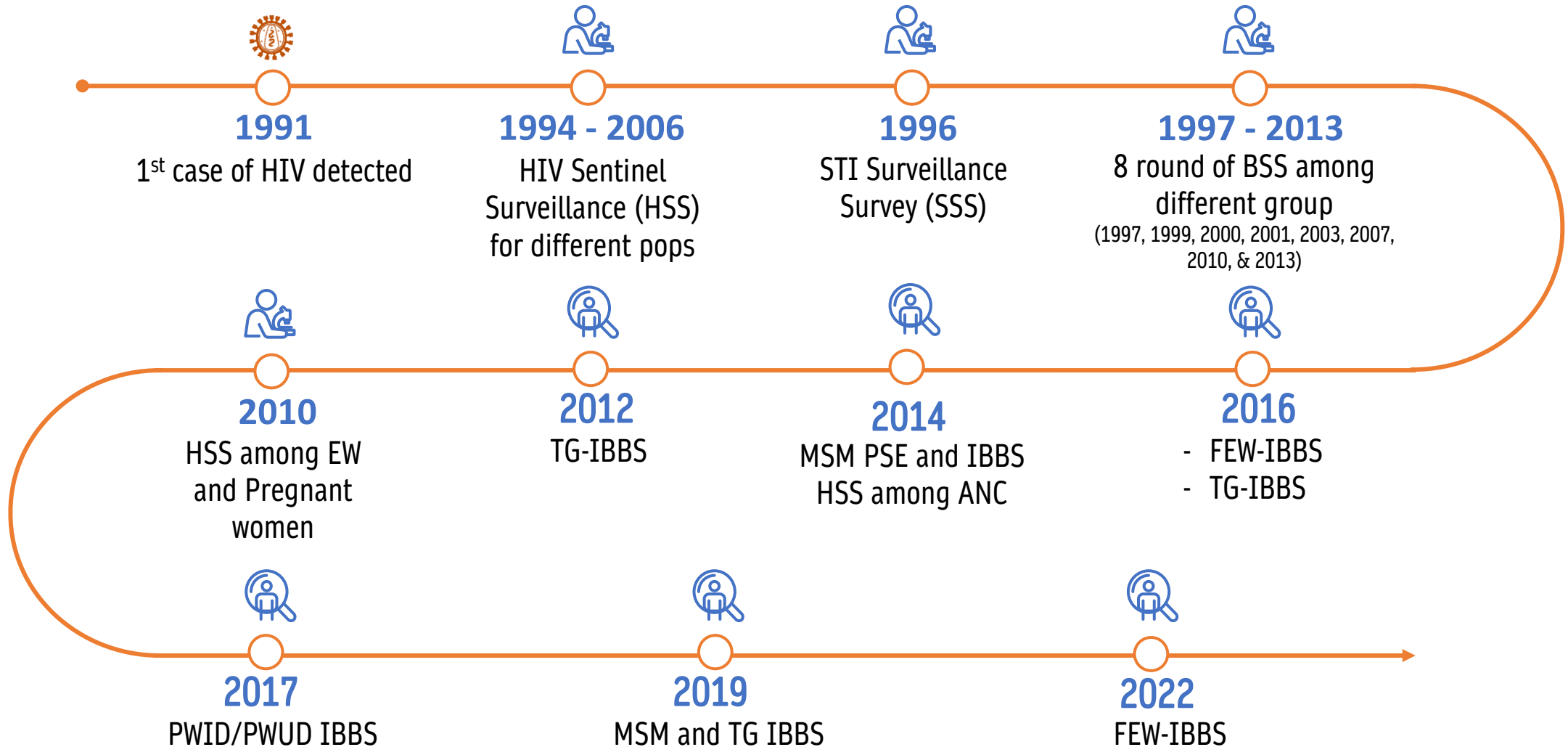


FEW IBBS Study

Dr. Mun Phalkun



1. Study Background: The journey of HIV surveillance activities

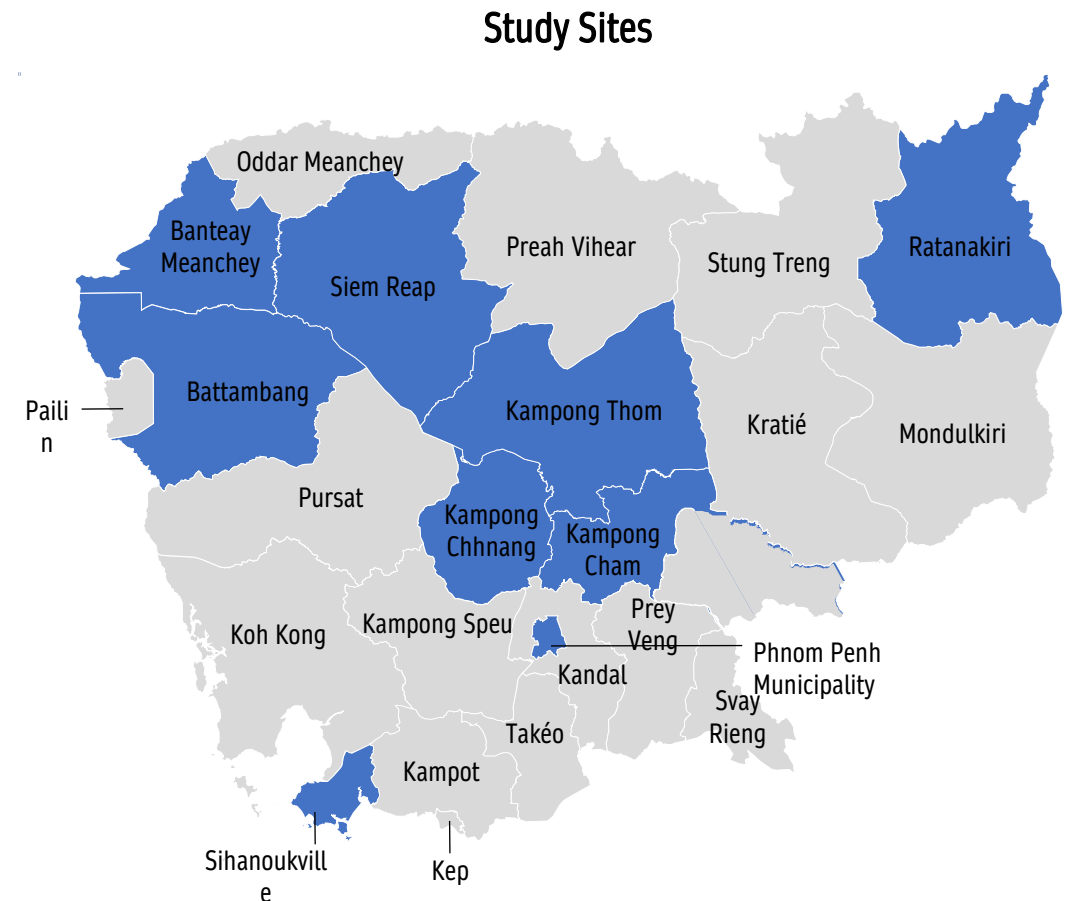




2. Objectives

The main goal of the study was to estimate the prevalence of HIV, syphilis, CT, and NG among FEW. In addition, the IBBS measured:

1. Use of and access to health and social welfare programs and identify means to increase prevention and health coverage and uptake in Cambodia.
2. HIV testing and self-reported known HIV status.
3. Sexual risk behaviors with different partner types.
4. Stigma and discrimination in health care settings.
5. FEW population size.





3. Study Population

Female Entertainment Workers who are

- Biological females.
- Exchanged vaginal or anal sex for money, goods, or gifts in the past 12 months.
- 15 years and older.
- Able to speak and understand Khmer



4. Survey timeline

- Prepared the protocol and questionnaires in November 2019 and originally planned to commence in March of 2020
- Due to the onset of the COVID-19 pandemic and the subsequent health restrictions in Cambodia, the survey was delayed until 2022.
- Once some restrictions were lifted in Cambodia, a formative assessment was carried out in from October to December 2020 in 12 provinces to ensure that respondent driven sampling (RDS) would be the most appropriate sampling methodology even in the context of COVID-19 pandemic
- Data collection period – February to June 2022
- Data analysis and report writing – June 2022 to September 2022



5. Methodology



5. Methodology: Sample Size and Power Estimates

The sample size was calculated for each province separately resulting in a total countrywide sample size of 1830. The sample size calculation formula for all survey locations was:

$$n_a = \frac{Z_{1-\alpha/2}^2 * p * (1-p)}{d^2} = xxx$$

DEFF – design effect(2)

$Z_{1-\alpha/2}^2$ – Accuracy of probability (1.96)

P – the prevalence of HIV in each province based on program data

d – Sampling error (3%)

NR – non respondent rate (5%)

Given that sample size calculations do not consider the size of the population being sampled, a finite population correction factor was used to adjust the sample size using the following formula:

$$n = \frac{n_0 N}{n_0 + (N - 1)}$$

Where:

n_0 = sample size, considering design effect

n = sample size after finite population correction using FEW population size estimations in the provinces comprising 800 or more FEW based on mapping estimates.



5. Methodology: Sample Size and Power Estimates (2)

The sample size was calculated for each province separately resulting in a total countrywide sample

Province	HIV Prevalence	Pop size Females	FEW population size*	Sample size	Percentage of FEW population
PREAH SIHANOUK (Khmer)	2.1	140,000	1,000	150	0.15
RATANAK KIRI	1.0	180,000	500	125	0.25
KAMPONG CHHNANG	1.9	210,000	500	130	0.26
BANTEAY MEANCHEY	3.1	433,441	1800	250	0.14
SIEM REAP	1.6	510,000	900	200	0.22
BATTAMBANG	3.7	528,490	2200	300	0.14
PHNOM PENH	4.0	1,000,000	14,400	350	0.02
KAMPONG THOM	2.9	350,000	800	200	0.25
KAMPONG CHAM	0.5	460,000	600	125	0.21
Total				1,830	0.08

**Based on NGO size estimations; anything under 1000, rounded up to 1000 for calculation.*

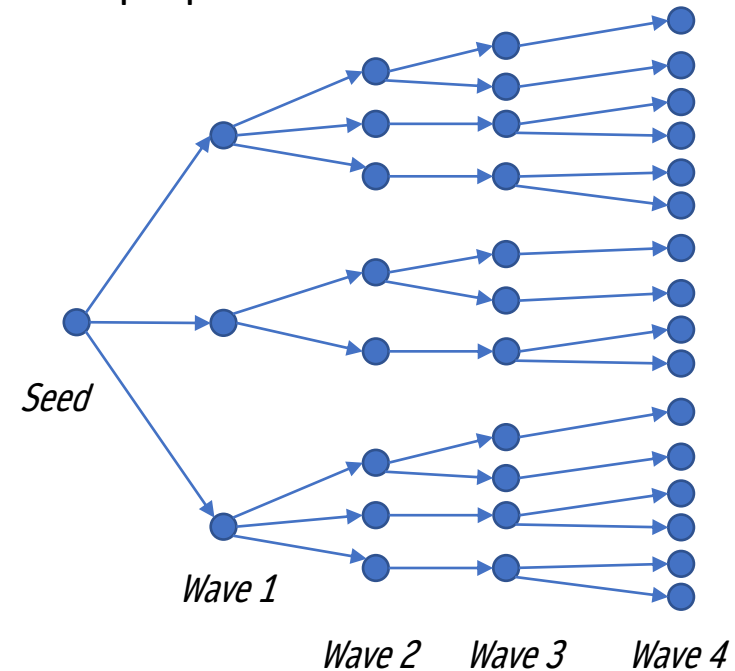
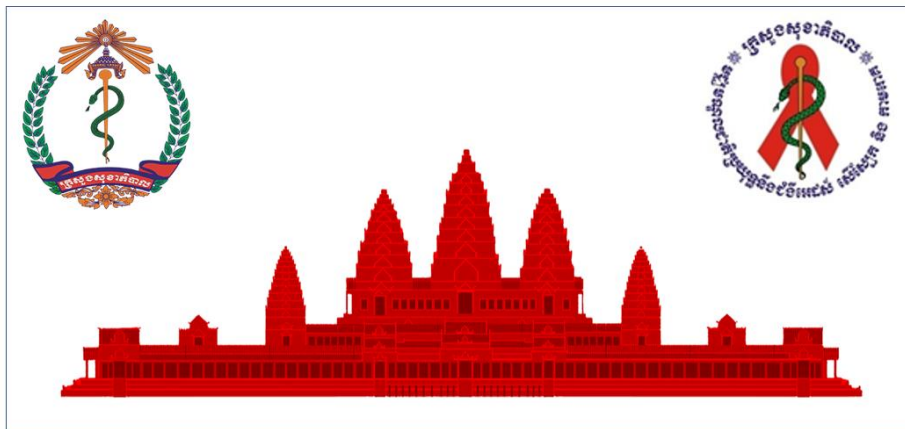


5. Methodology: Recruitment (1)

Respondent Driven Sampling (RDS) approach was applied to recruit FEW to participate in this study.

SEEDS: Recruitment was initiated with one seed for each 100 persons in the sample size. For a sample size of between 125 and 200, two seeds were used. Seeds were added if recruitment stopped or if the speed of sampling needed to increase. Seeds were selected based on their ability to recruit diverse people.

Sample of Token used





5. Methodology: Recruitment (2)

COUPONS: The coupons comprised two parts: one part for recruiting peers and one part as a receipt for having recruited a peer. The coupon had an expiration date to indicate the timeframe the recruiter must pass out their coupon and the recruit redeem it. The coupon had a unique number which was used to link the questionnaire to the test results and to monitor who recruited whom.

Sample of coupon for IBBS-FEW2020

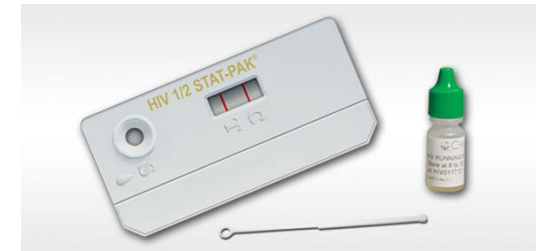
Coupon for IBBS-FEW 2020 C0	Coupon for IBBS-FEW 2020 C1	Coupon for IBBS-FEW 2020 C2	Coupon for IBBS-FEW 2020 C3
Recruiter ID Number <div style="background-color: yellow; height: 20px; width: 100%;"></div>	Recruiter ID Number <div style="background-color: yellow; height: 20px; width: 100%;"></div>	Recruiter ID Number <div style="background-color: yellow; height: 20px; width: 100%;"></div>	Recruiter ID Number <div style="background-color: yellow; height: 20px; width: 100%;"></div>
Working hours: 7:30 AM to 5:00 PM (Mon-Sun) Expiration date: Contact number: Study location: - Please refer this coupon to your 3 friend or who you known to participate in this study. - You will be received 5\$ for whom success in the study referred by you.	Working hours: 7:30 AM to 5:00 PM (Mon-Sun) Expiration date: Contact number: Study location:	Working hours: 7:30 AM to 5:00 PM (Mon-Sun) Expiration date: Contact number: Study location:	Working hours: 7:30 AM to 5:00 PM (Mon-Sun) Expiration date: Contact number: Study location:
Stag: SR <input type="radio"/> IC <input type="radio"/> Pr <input type="radio"/> C <input type="radio"/> HTC <input type="radio"/> HCV <input type="radio"/> INT <input type="radio"/> Po <input type="radio"/> C <input type="radio"/> PAID <input type="radio"/> CHECKED <input type="radio"/>	Stag: SR <input type="radio"/> IC <input type="radio"/> Pr <input type="radio"/> C <input type="radio"/> HTC <input type="radio"/> HCV <input type="radio"/> INT <input type="radio"/> Po <input type="radio"/> C <input type="radio"/> PAID <input type="radio"/> CHECKED <input type="radio"/>	Stag: SR <input type="radio"/> IC <input type="radio"/> Pr <input type="radio"/> C <input type="radio"/> HTC <input type="radio"/> HCV <input type="radio"/> INT <input type="radio"/> Po <input type="radio"/> C <input type="radio"/> PAID <input type="radio"/> CHECKED <input type="radio"/>	Stag: SR <input type="radio"/> IC <input type="radio"/> Pr <input type="radio"/> C <input type="radio"/> HTC <input type="radio"/> HCV <input type="radio"/> INT <input type="radio"/> Po <input type="radio"/> C <input type="radio"/> PAID <input type="radio"/> CHECKED <input type="radio"/>
Tag returned coupon: C1 <input type="radio"/> C2 <input type="radio"/> C3 <input type="radio"/>			



5. Methodology: Biological component (HIV and STI testing)

HIV & SYPHILIS TEST:

- SD Bioline HIV/Syphilis Duo test was used in this study.
- HIV reactive result was followed up by confirmatory test on site using HIV 1/2 STAT-PAK® Assay.

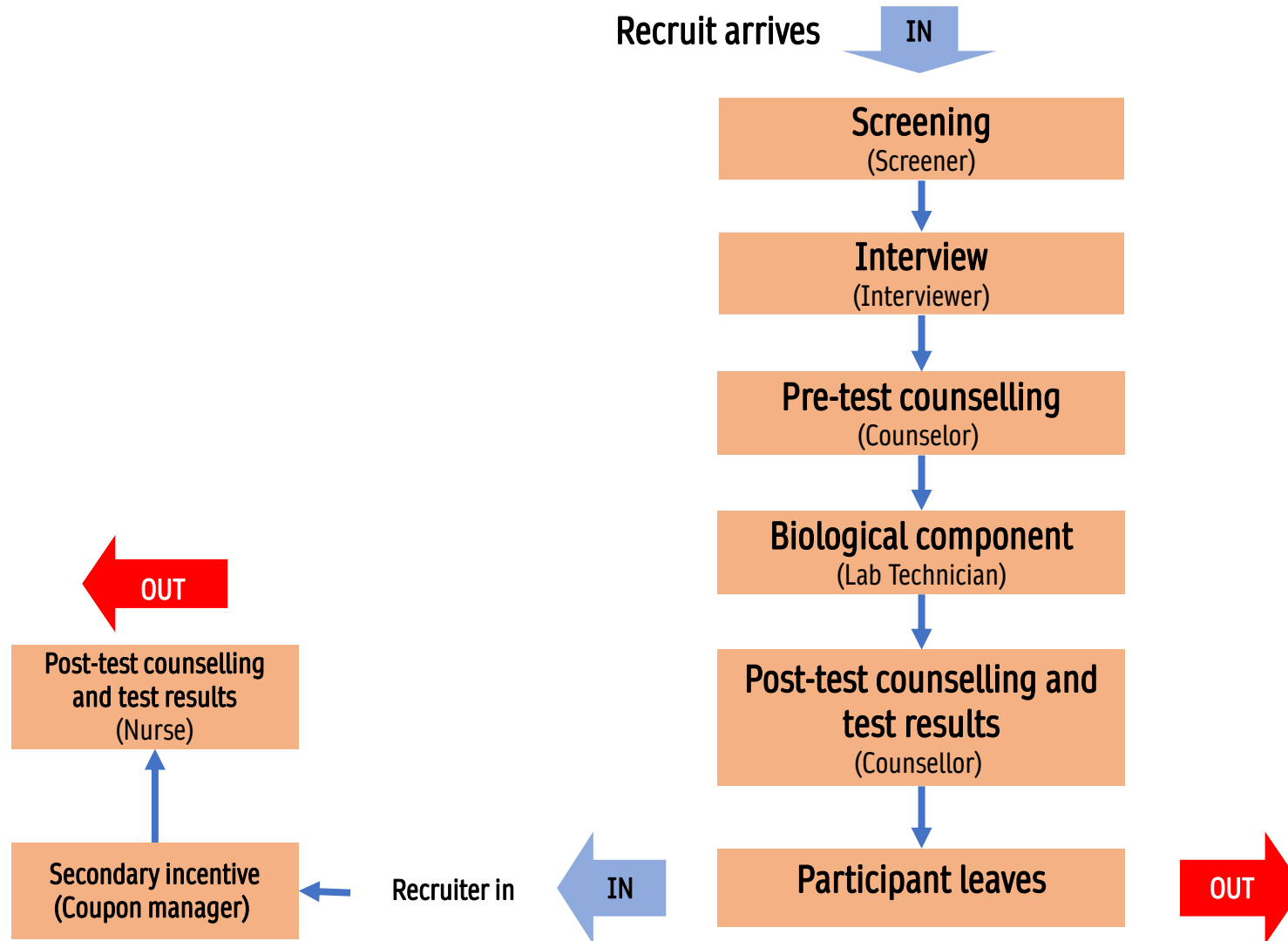


NEISSERIA GONORRHOEAE (NG) AND CHLAMYDIA TRACHOMATIS (CT) TESTING:

Vaginal specimens for CT and NG were collected by study participants themselves, according to standard procedures explained in the instructions provided with the test kits. Nucleic acid amplification tests for the detection of CT/NG used Abbott m2000 system Real-Time polymerase chain reaction (PCR). Abbott RealTime CT/NG assay® is an in vitro PCR assay for the direct, qualitative detection of the plasmid DNA for CT and the genomic DNA of NG in female endocervical or vaginal swab specimens. Participants received presumptive treatment for CT and NG during the provision of HIV and syphilis test results.



5. Methodology: FEW-IBBS2022: Respondent recruitment procedure





5. Methodology: Data management and data analysis

Data Management:

- Three separate databases were used to support data collection: 1) behavioral data; 2) biological data; and 3) coupon management and recruitment progress. These databases were linked with a unique random code and a unique coupon number. The QR code was print on each forms to prevent human errors during recording unique code.



Data Analysis:

- All data in tables are presented in the appendices and include category sizes (n), adjusted percentages and 95% confidence intervals.
- Data were weighted using the successive sampling estimator generated from RDS Analyst (www.hpmpg.org).
- Aggregated data were analyzed in STATA using a composite weight based on network weights from the successive sampling estimator and population (differences in population sizes) weights.





6. Findings

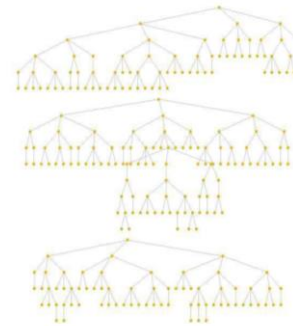


6. Findings: Respondent Driven Sampling (RDS) recruitment chain

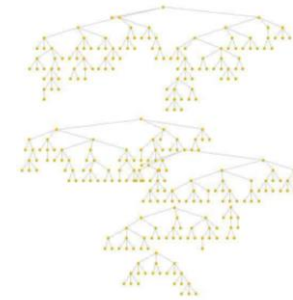
Final sample size per site

Provinces	Number of seeds	Maximum number of waves	Provincial total	Grand Total
Banteay Meanchey	3	8	248	1,798
Battambang	5	10	296	
Kampong Cham	2	8	126	
Kampong Chhnang	2	8	127	
Kampong Thom	2	8	193	
Phnom Penh	4	9	350	
Preah Sihanouk	2	10	148	
Ratanak kiri	2	7	110	
Siem Reap	2	7	200	

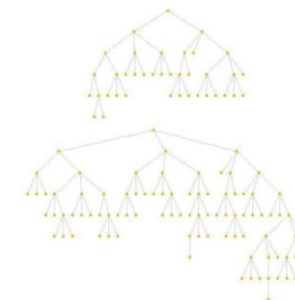
Banteay Meanchey



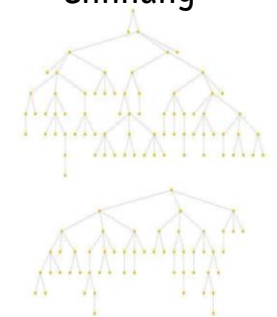
Battambang



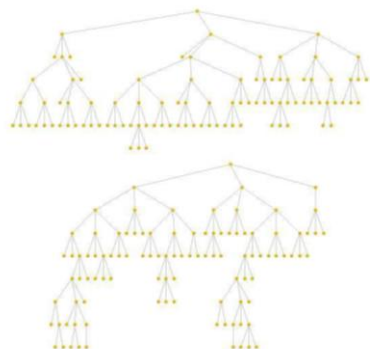
Kampong Cham



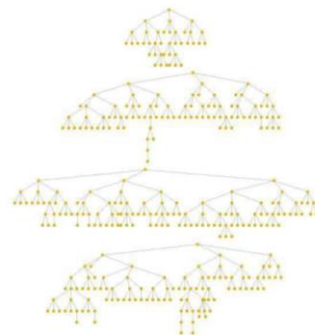
Kampong Chhnang



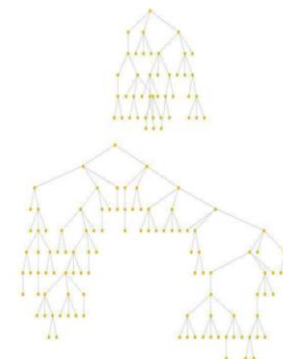
Kampong Thom



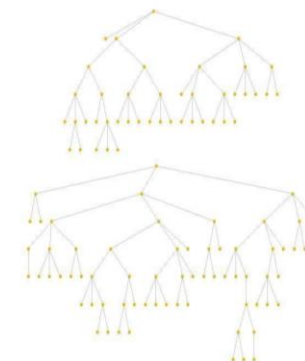
Phnom Penh



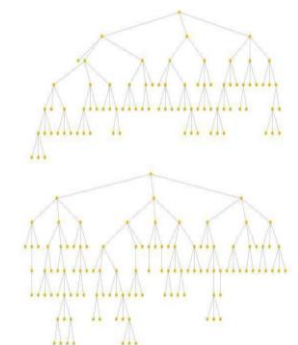
Preah Sihanouk



Ratanak kiri



Siem Reap

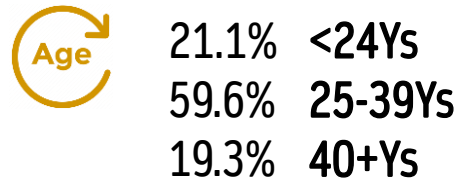




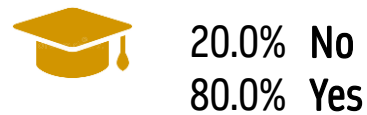
6. Findings: Summary Result of FEW IBBS 2022

Demographic

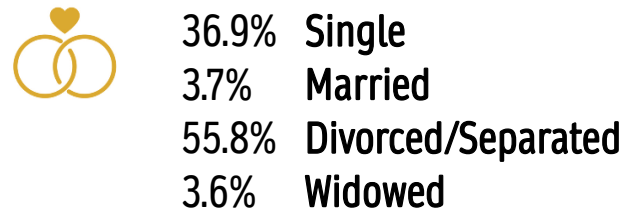
Age group



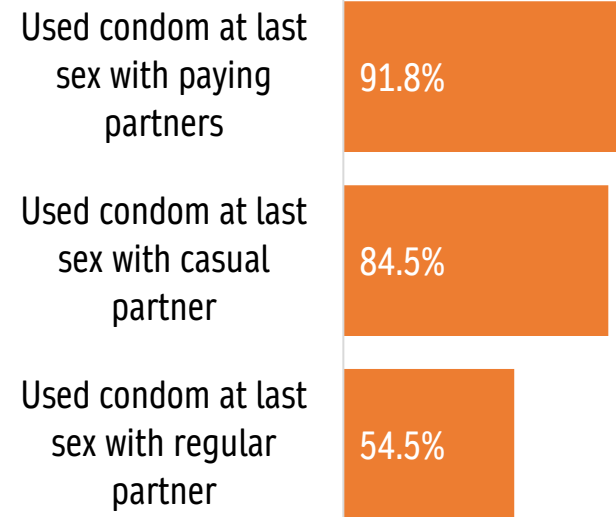
Ever study



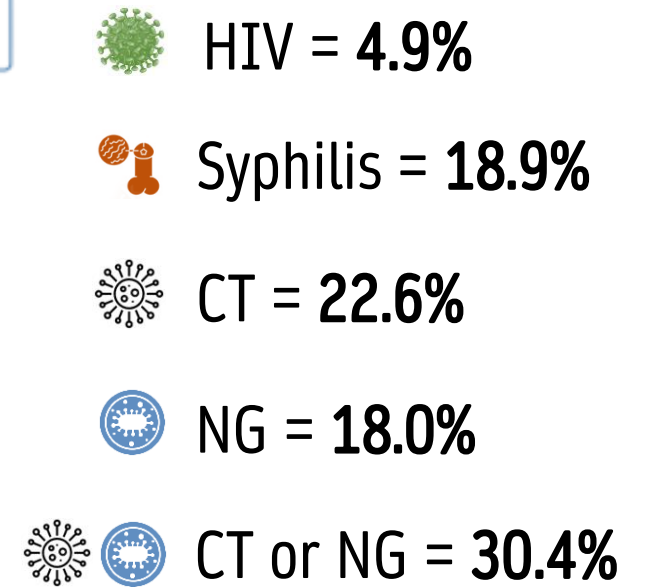
Marital status



Risk behavior



Prevalence

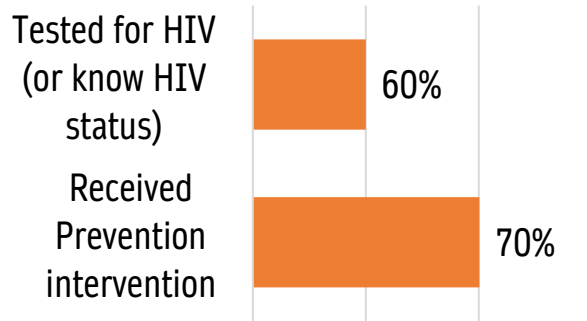


Sample size = 1,798

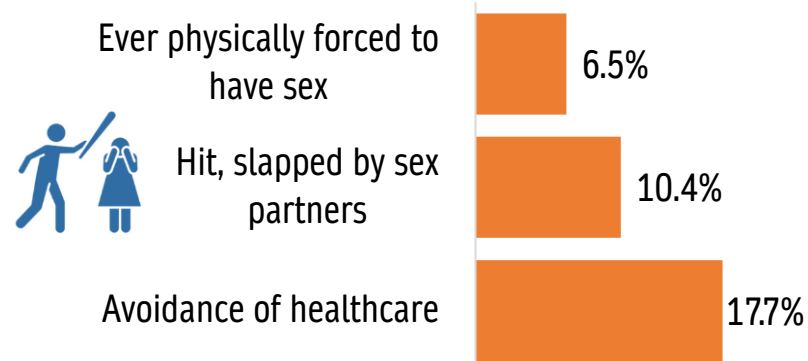


6. Findings: Summary Result of FEW IBBS 2022 (2)

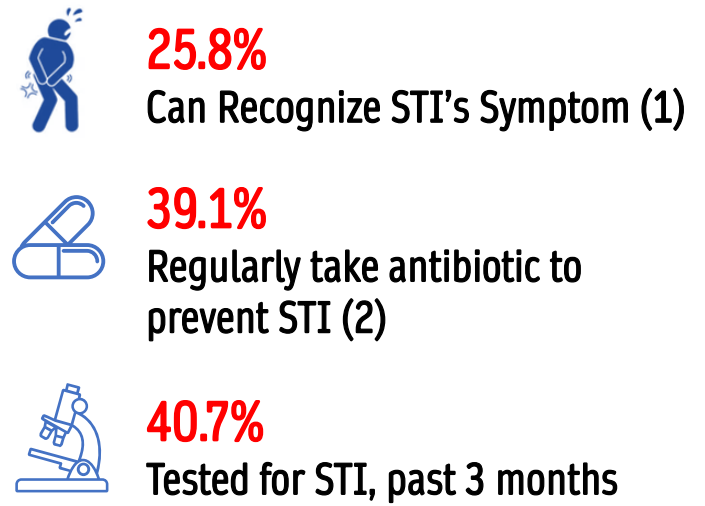
GAM Indicators



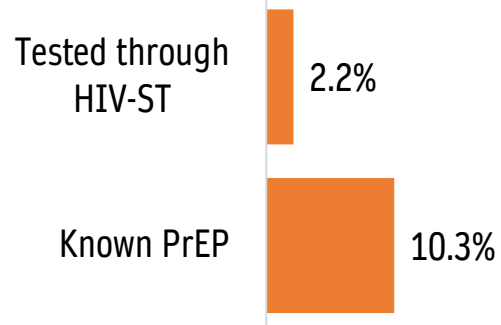
S&D, Violence



STI & Antibiotics



Knowledge of HIV-ST & PrEP



Pregnancy & Abortion

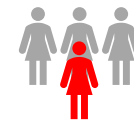


Sign & Symptom of STI, past 12 months

- 58.2%** (Had genital, anal ulcer, sore)
- 54.4%** (Had lower abdominal pain)



6. Findings: Demographic Information

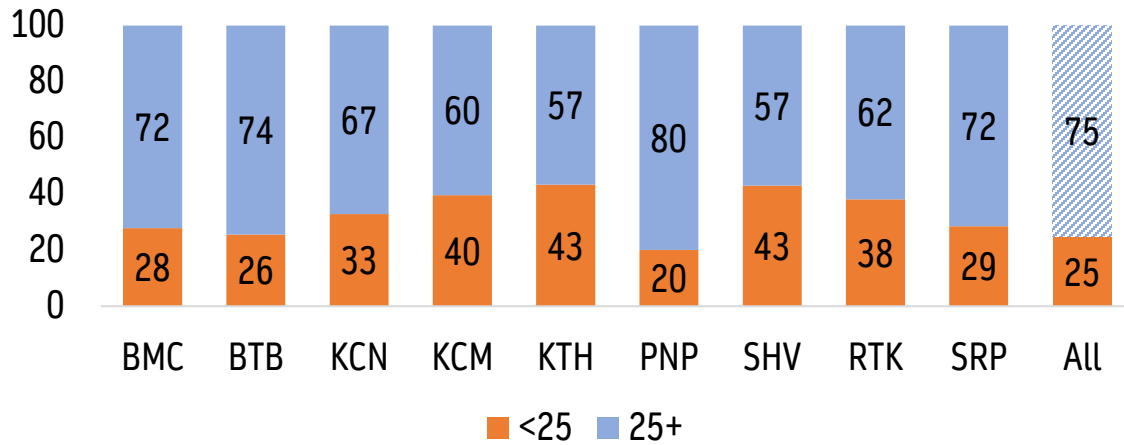


1 in 4 FEW
respondents are young
(under 25 years)

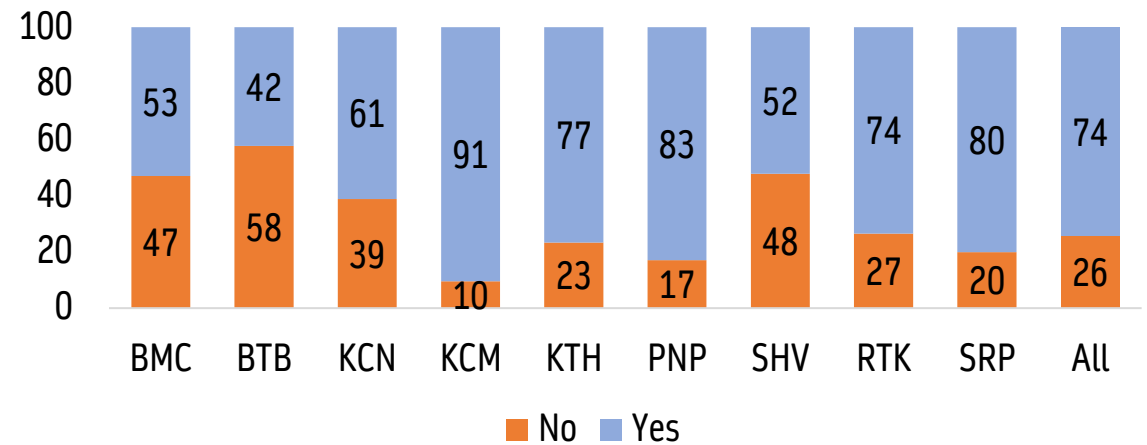


1 in 5 FEW
has no education

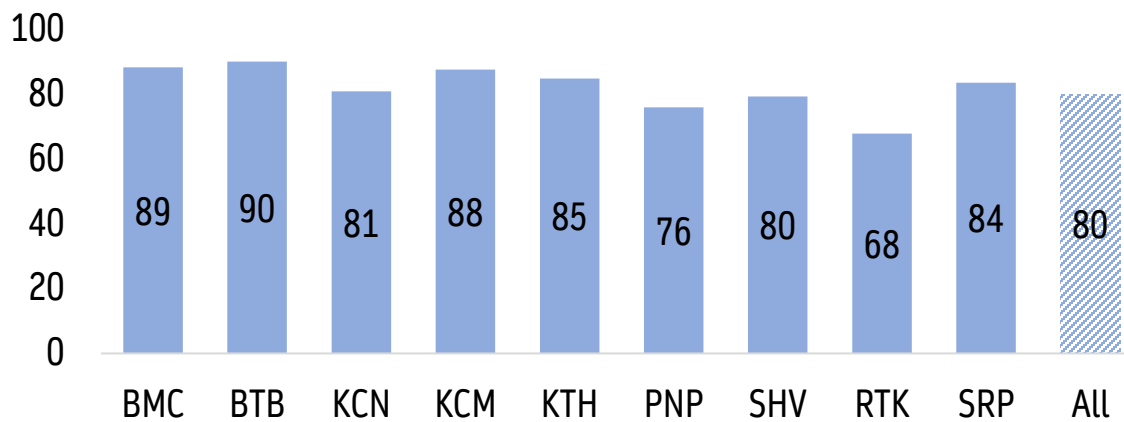
Age group



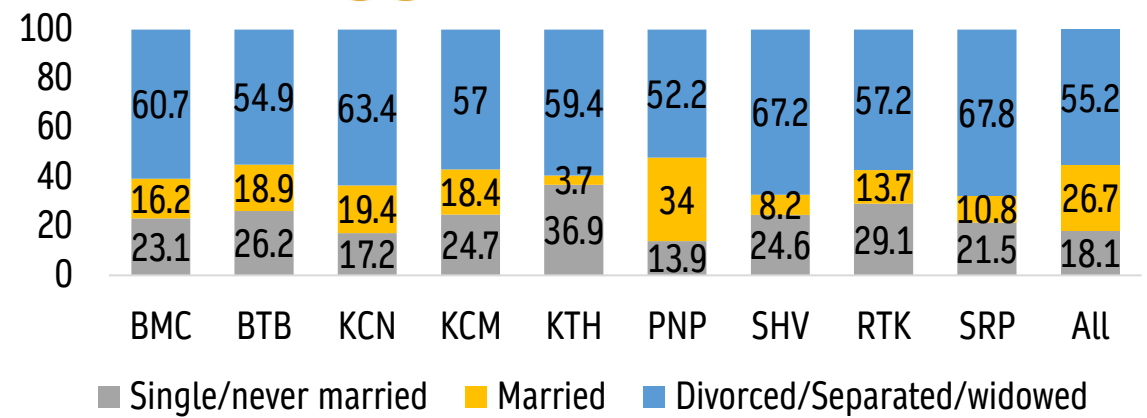
Living with partner



Education



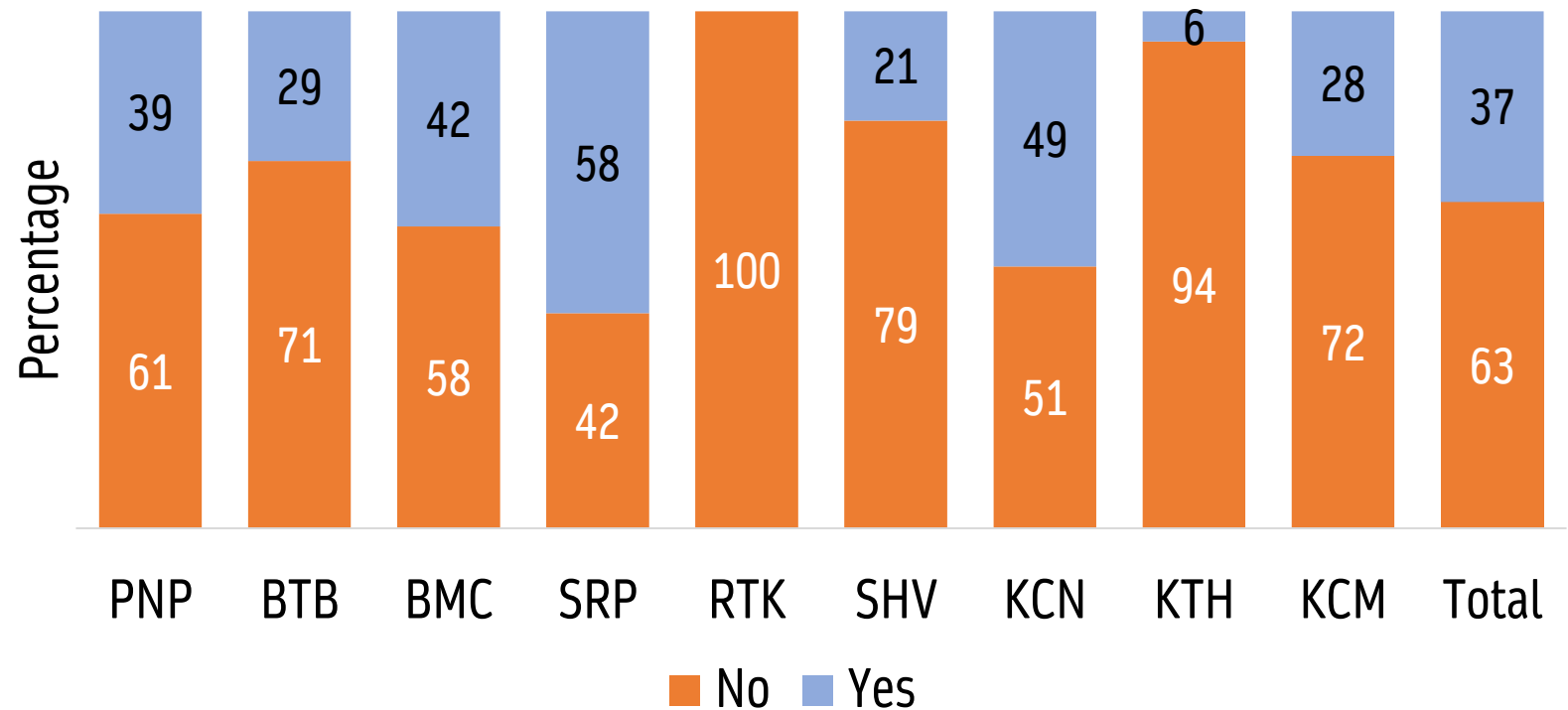
Marital status





6. Findings: Use of applications to solicit paying sex partners

FEW used applications to solicit paying sex partners in the past 3 months



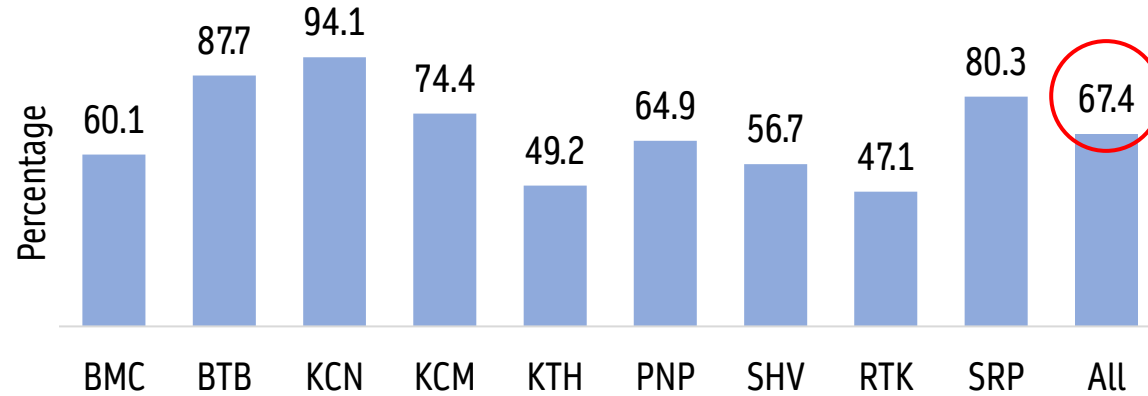
More than **one-third** of FEW used applications to solicit paying sex partners in the past 3 months



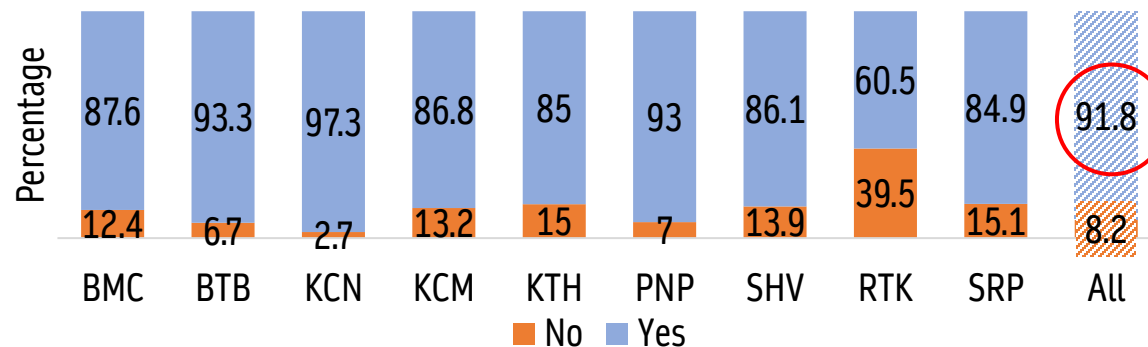
6. Findings: Risk behavior with paying partners



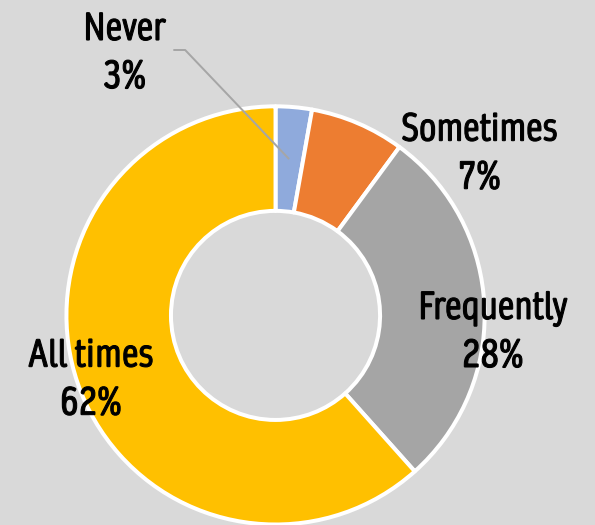
Had paying sex partners in past 3 months



Used condom at last sex with paying partner



Frequency of condom use



91.8% of FEW used condom at last sex but consistent condom use is only 62%



6. Findings: Risk behaviors with different partner types



>50%

of FEW had regular and casual partners and condom use at last sex is the lowest with regular partners



Had **Casual** Partner (1)

49.0% Past 3 months

50.7% Past 12 months



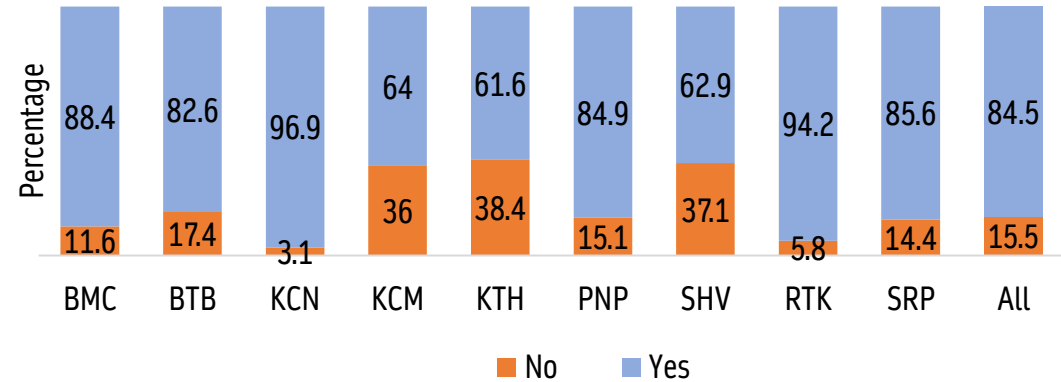
Had **Regular** Partner (2)

65.2% Past 3 months

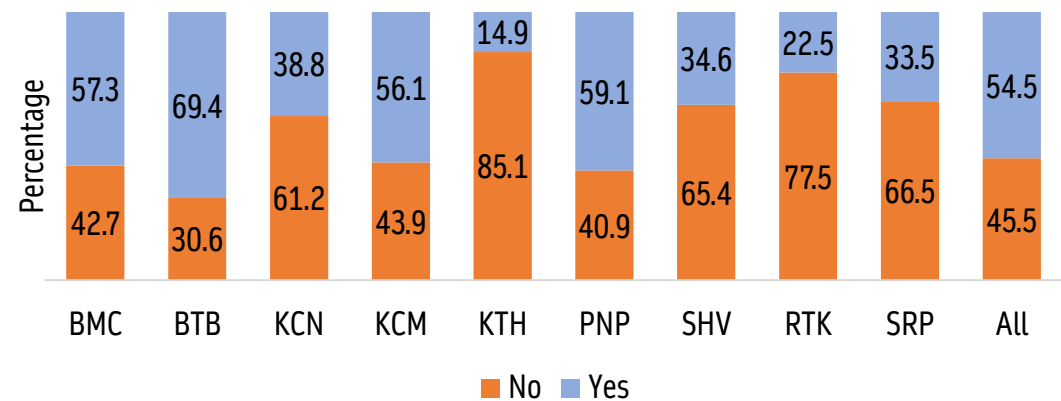
66.8% Past 12 months



Used condom at last sex with casual partner



Used condom at last sex with regular partner





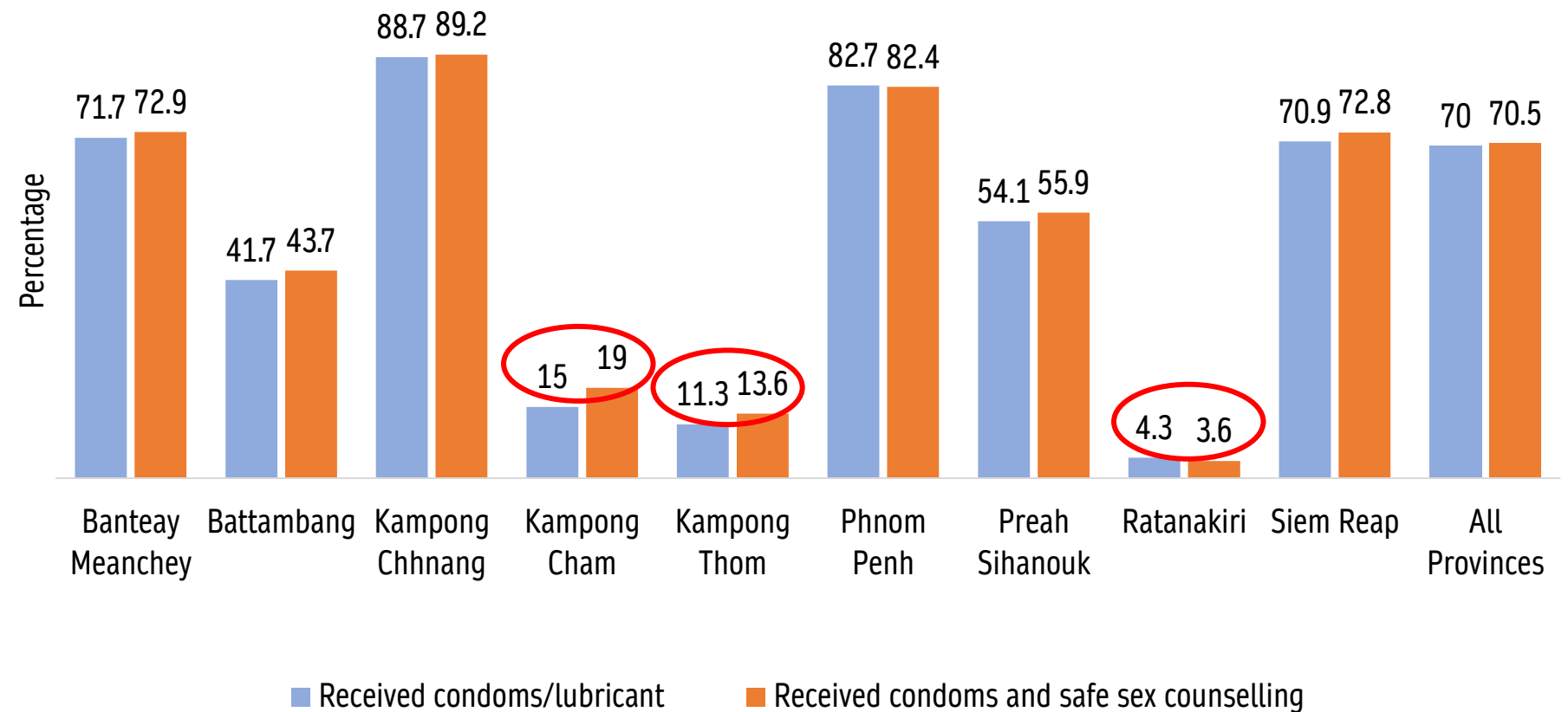
6. Findings: Access to prevention services in past three months



>2/3

of FEW received condoms/lubes and safe sex counseling

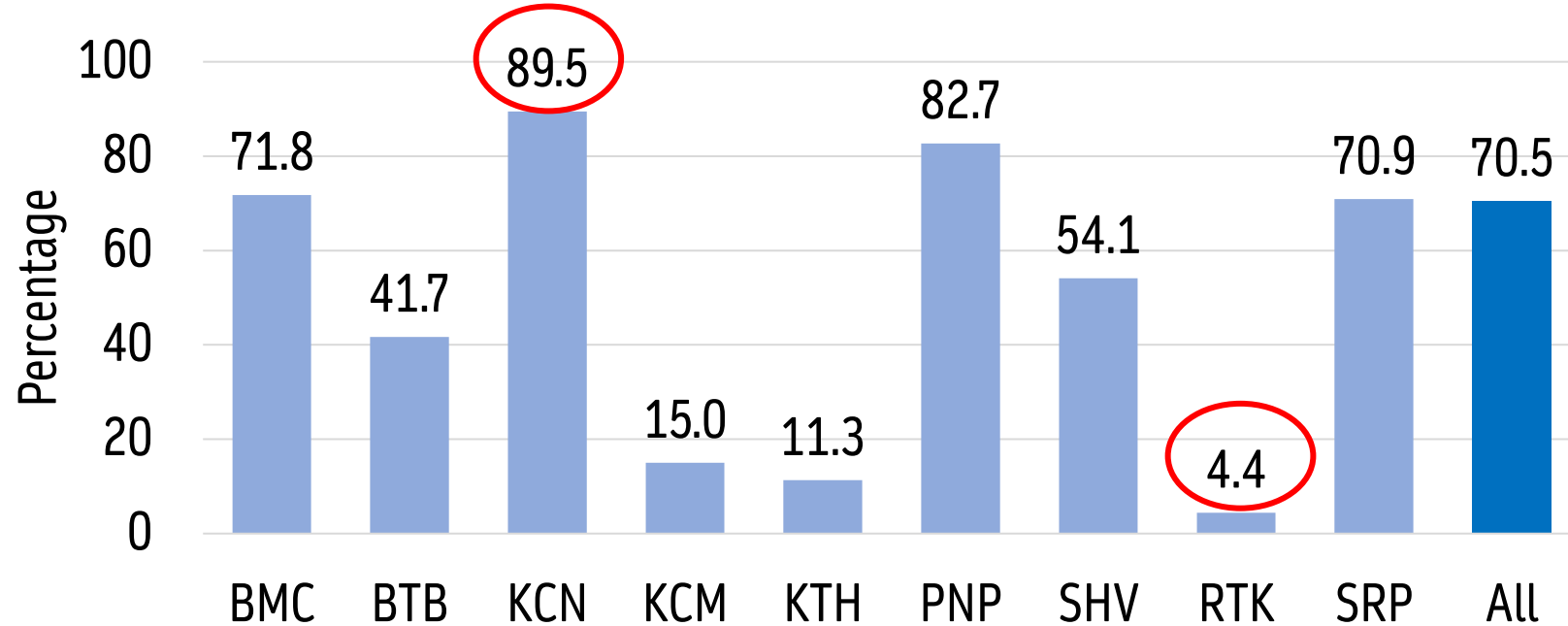
Condom and counseling services received in past three months





6. Findings: Prevention coverage (GAM indicator)

Percentage of FEW receive combination of prevention services



70%

of FEW received combination prevention services, highest coverage in Kampong Chhnang and lowest in Rattanakiri

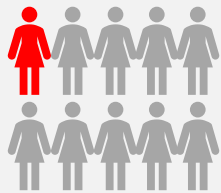


6. Findings: Stigma, Discrimination & Violence



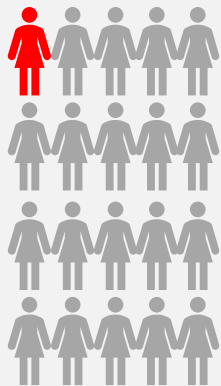
1 in 5 FEW

avoided health care due to stigma/discrimination around sex work



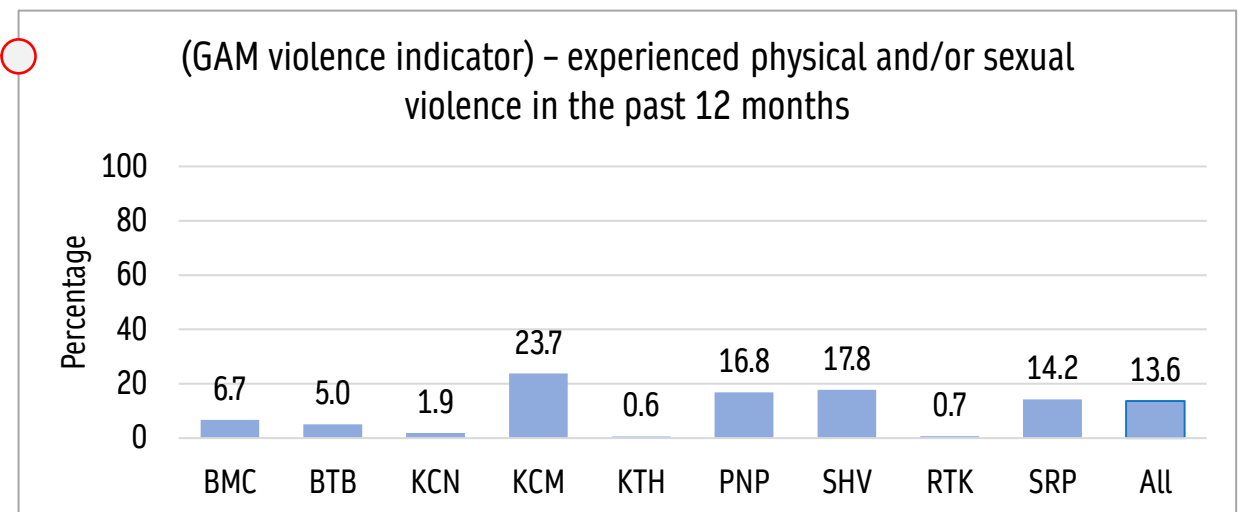
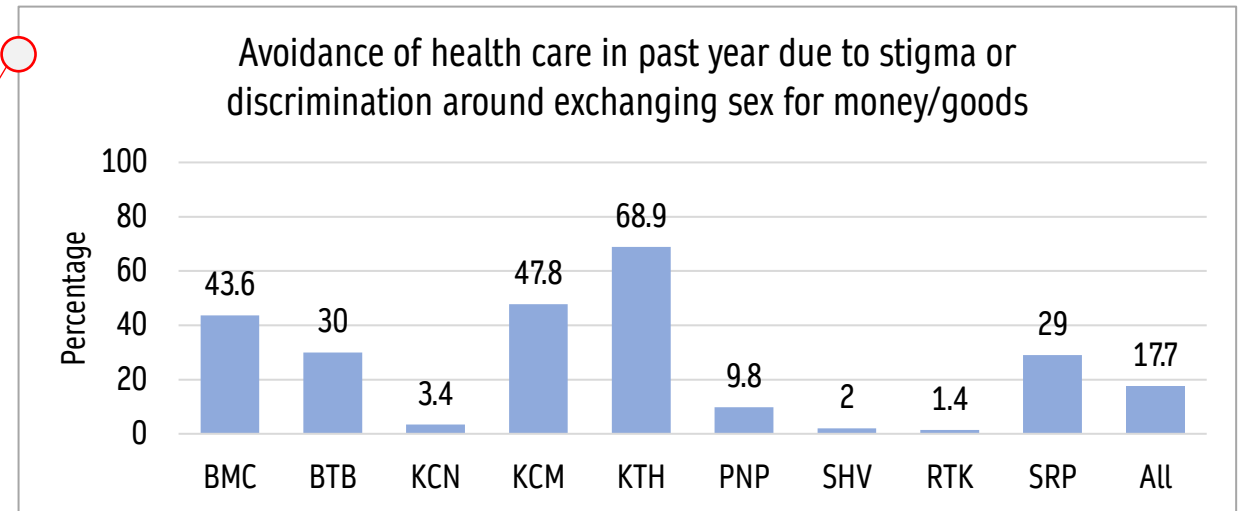
1 in 10 FEW

experienced physical and/or sexual violence in the past 12 months



1 in 20 FEW

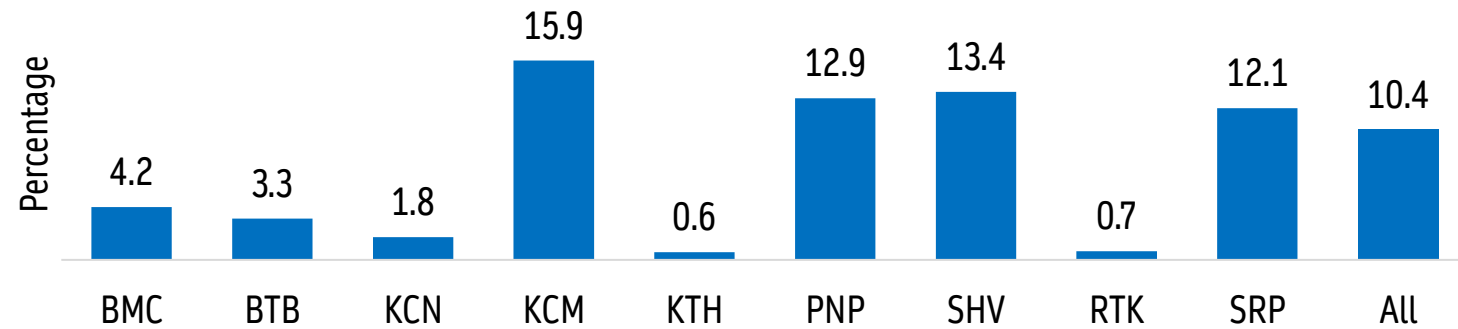
ever physically forced to have sex





6. Findings: Violence from sexual partners

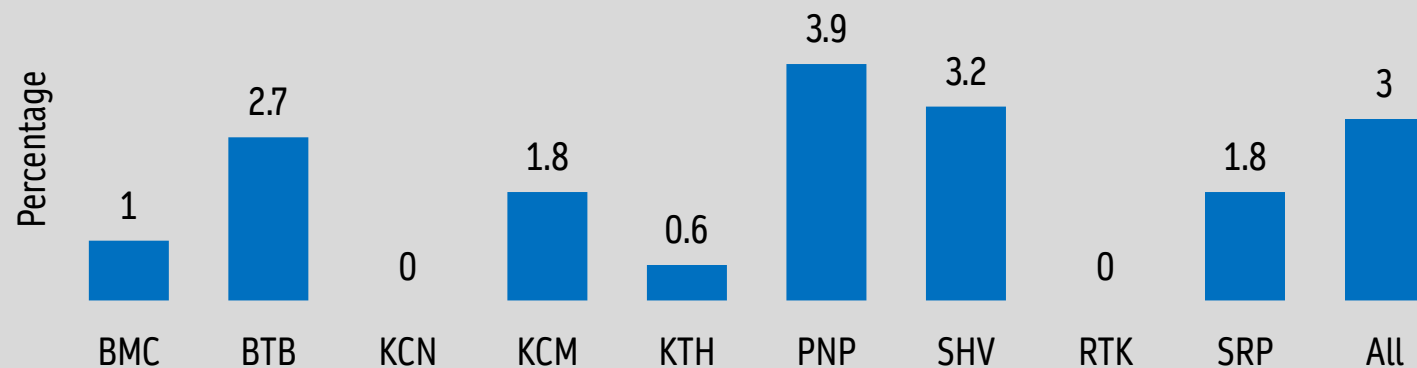
Ever hit, slapped, kicked, or physically hurt by sexual partner in past 12 months



1 in 10 FEW

experienced physical violence by sexual partner in the past 12 months

Ever hit, slapped, kicked, or physically hurt by non-sexual partner





6. Findings: Knowledge and intention to seek assistance for physical and sexual violence



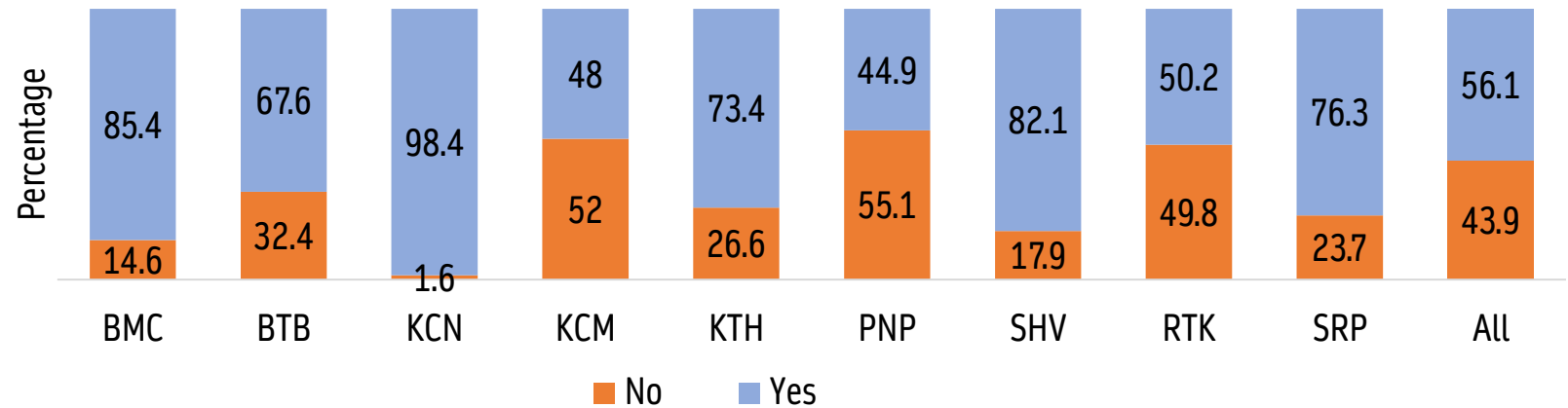
56%

of FEW would be comfortable to seek assistance if they experience violence

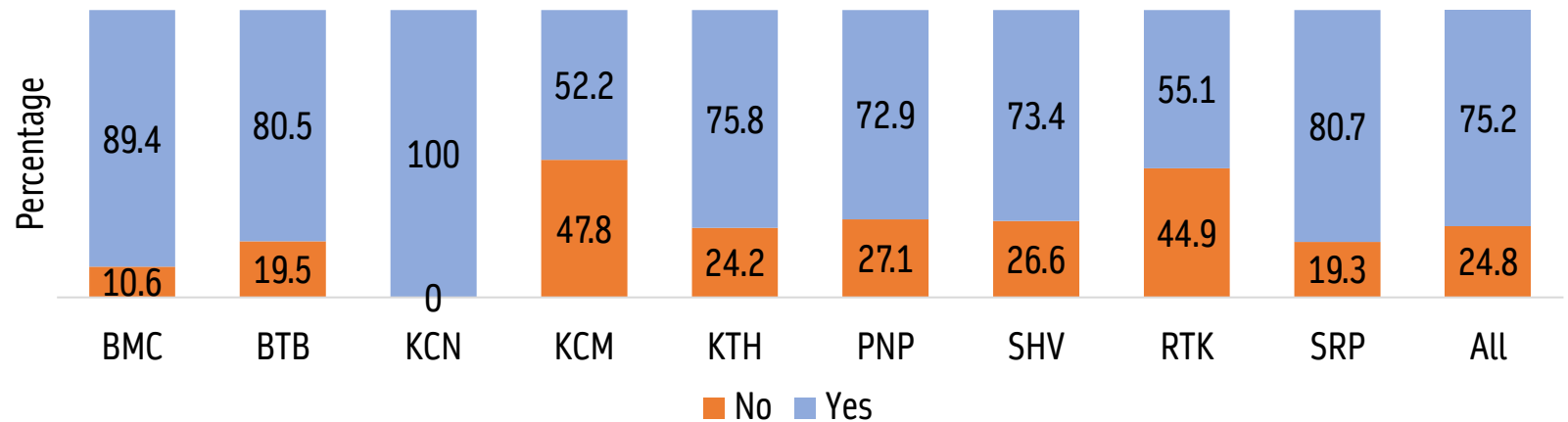
Two-thirds

of FEW knew where to seek assistance if they experience violence

Would be comfortable seeking assistance if physically or sexually harmed



Knows where to seek assistance if physically or sexually harmed



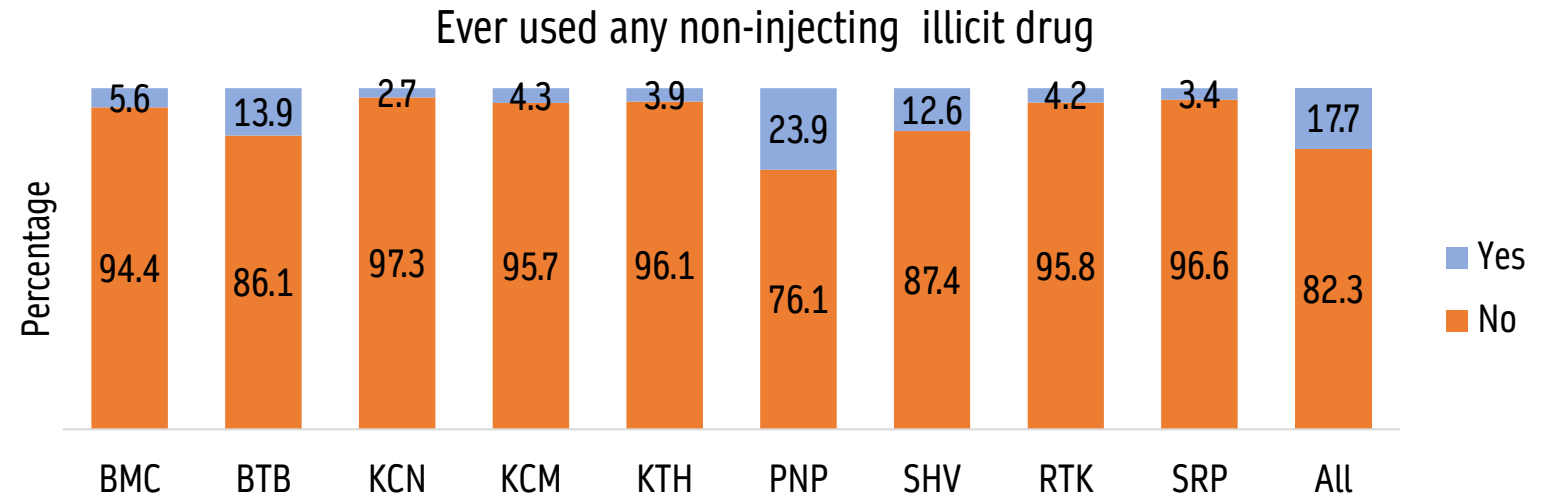


6. Findings: Drug use



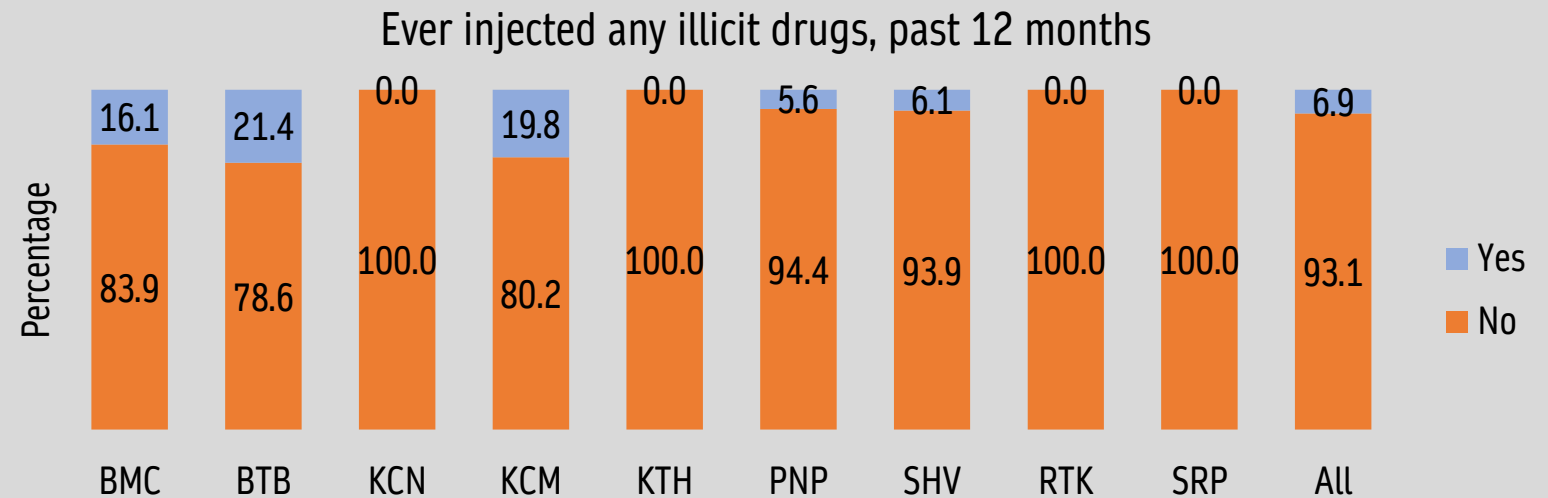
18%

of FEW used non-injecting illicit drugs in the past 12 months and **93%** used amphetamine



7%

of FEW injecting drugs in the past 12 months and **99%** did not use sterile injecting equipment

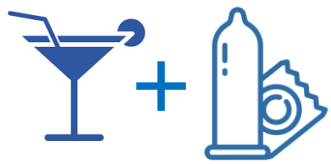
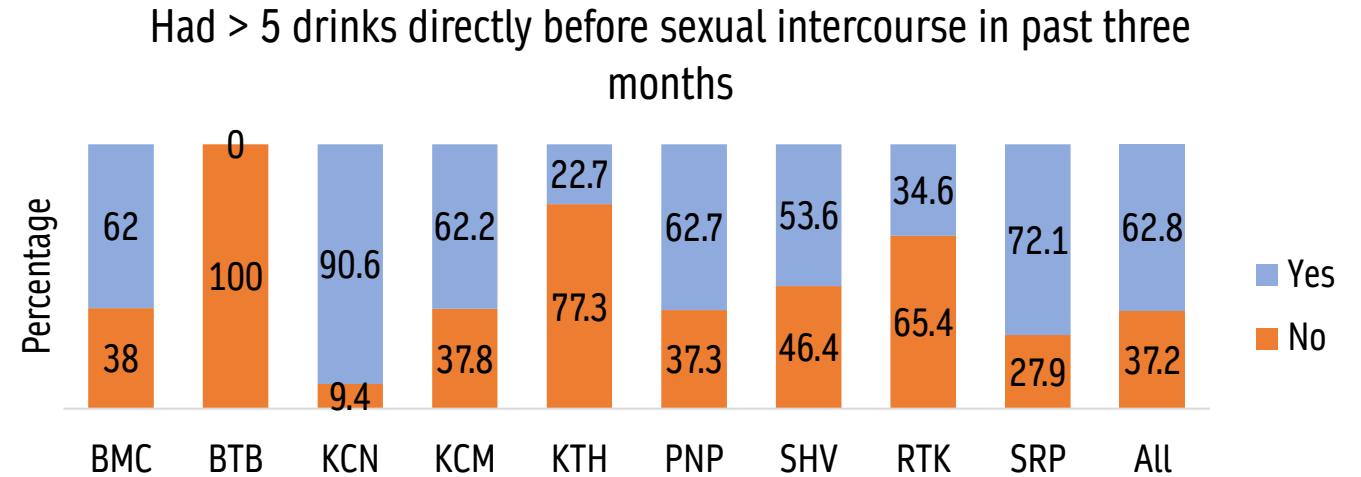




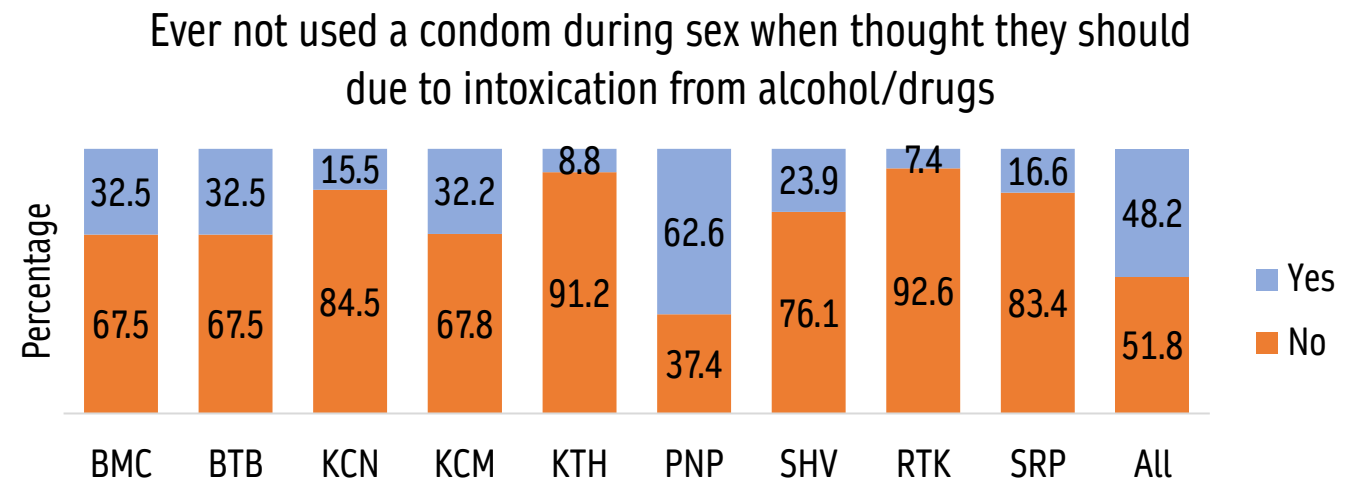
6. Findings: Binge drinking and risk behavior



3 in 5 of FEW had more than 5 drinks before sexual intercourse in the past 3 months



Almost half of FEW did not use condom when they are under the influence of alcohol/drugs





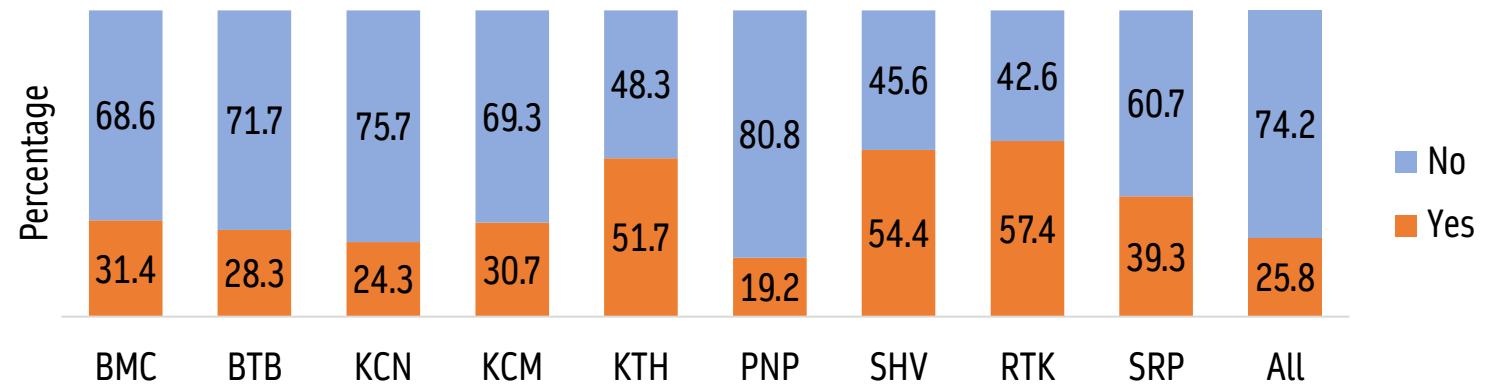
6. Findings: knowledge of STI



25.8%

Can correctly recognize STI's Symptom (1)

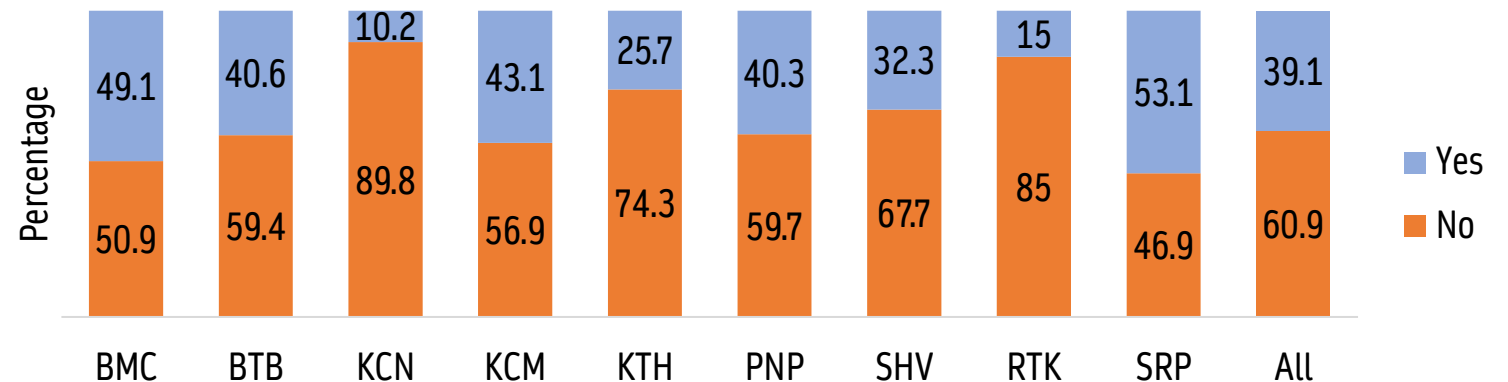
Recognize symptom of STI



39.1%

Regularly take antibiotics to prevent STI (2)

Regularly takes antibiotics to prevent STI





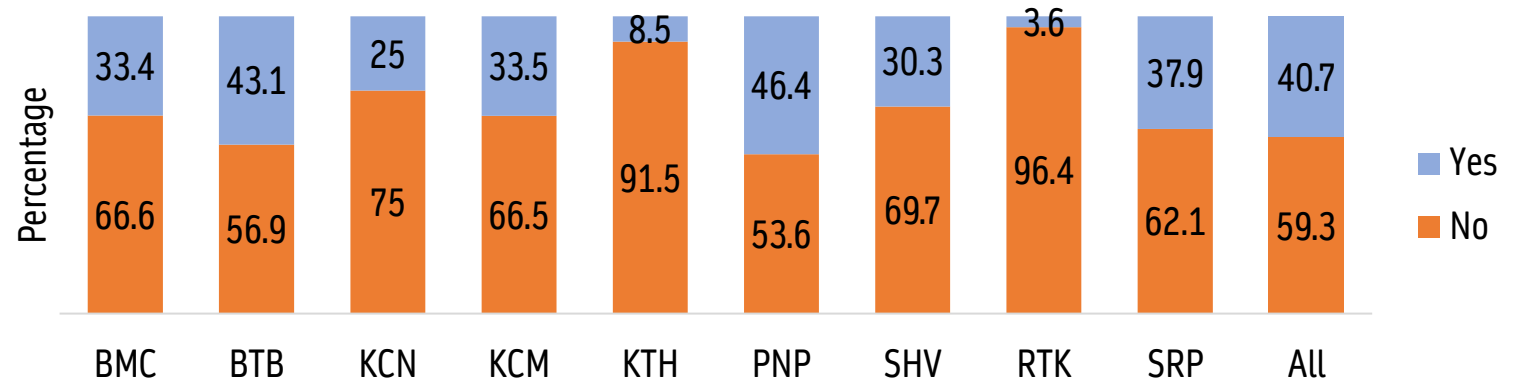
6. Findings: STI testing and history



40.7%

Tested for STI, past 3 months

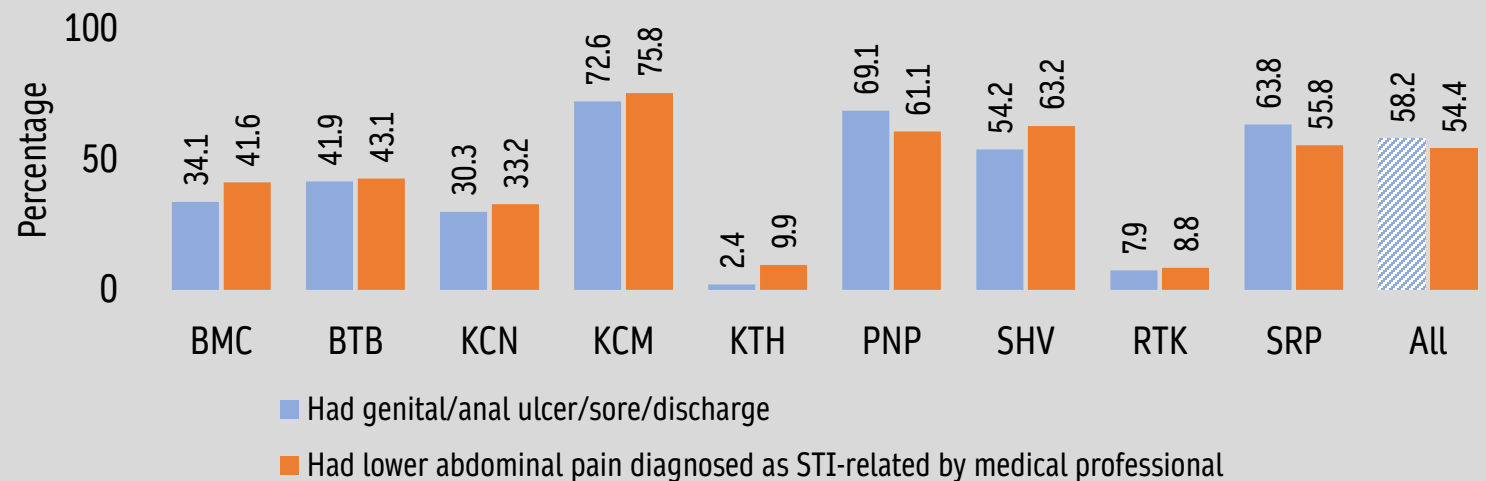
Tested For STIs In the Past 3 Months



Experience sign & symptom of STI, past 12 months

- **58.2%** (Had genital, anal ulcer, sore)
- **54.4%** (Had lower abdominal pain)

Signs & symptoms of STI in past 12 months





6. Findings: Pregnancy, abortion & contraception



80.7%

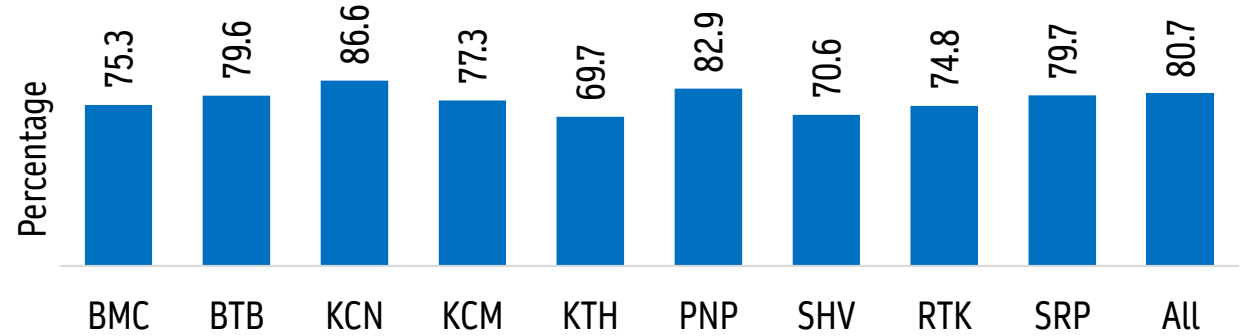
Ever Pregnant



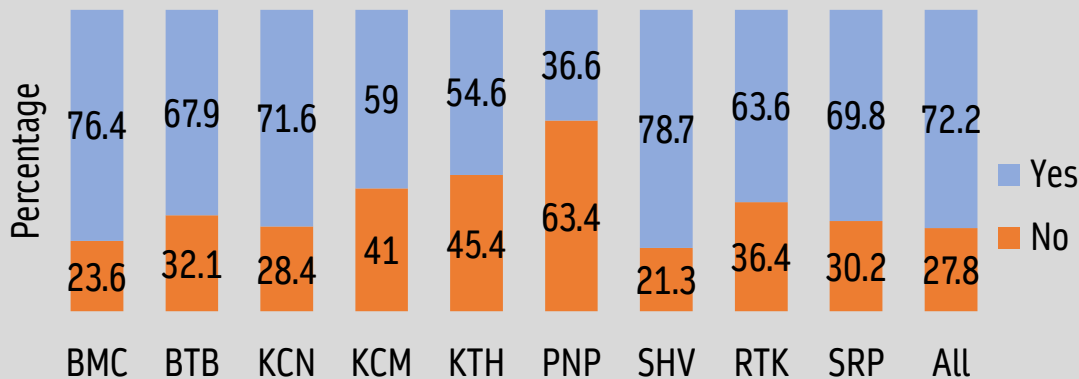
3 in 5

(who ever pregnant)
FEW ever had an induced abortion

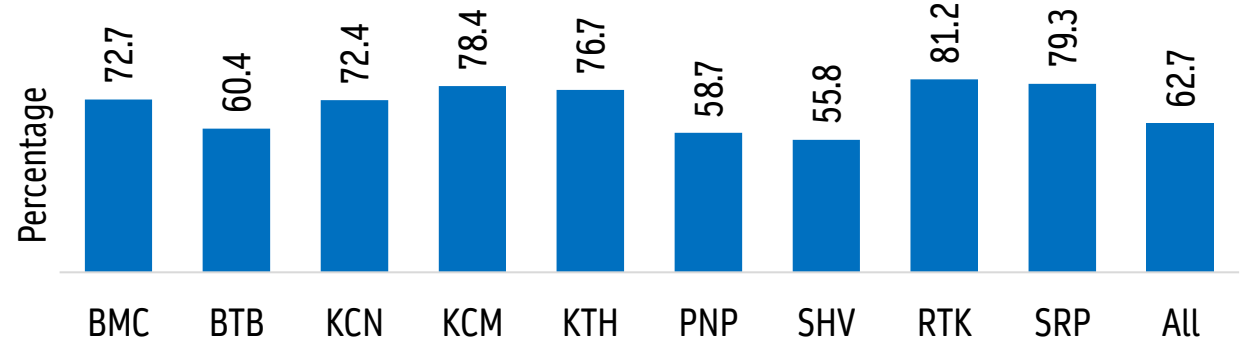
Ever been pregnant



Use any contraception



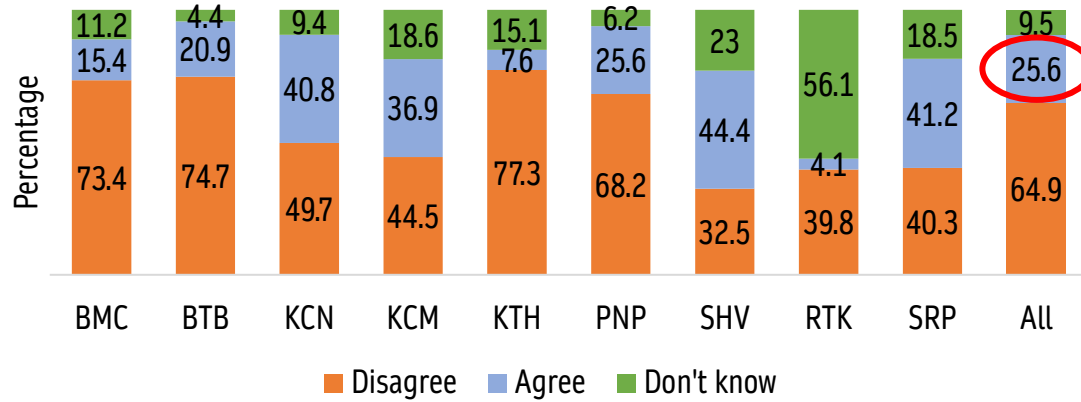
induced abortion among pregnant women



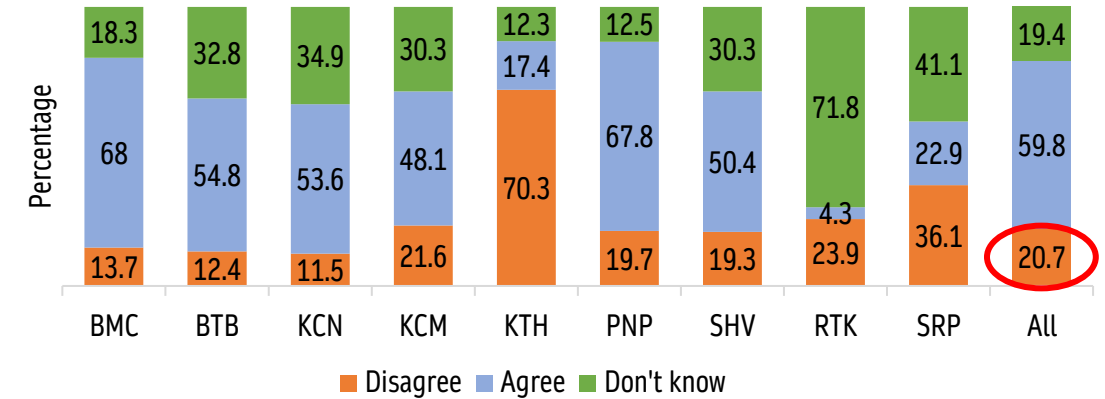


6. Findings: Knowledge about HIV

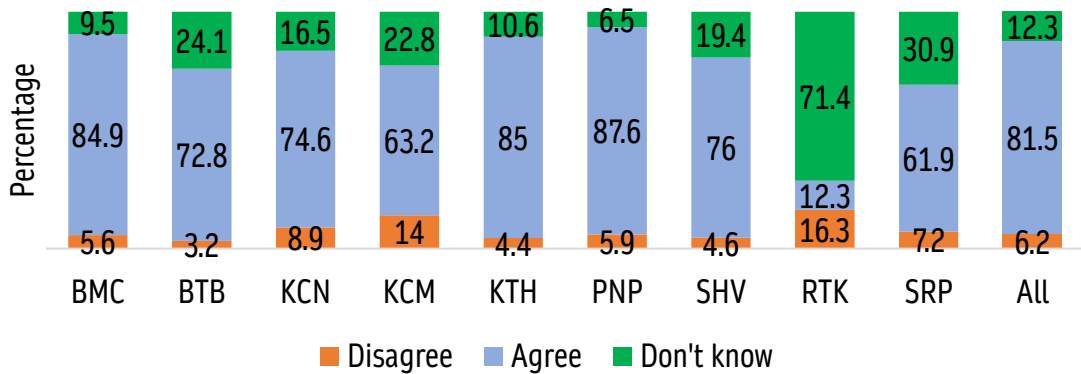
HIV Can Be cured



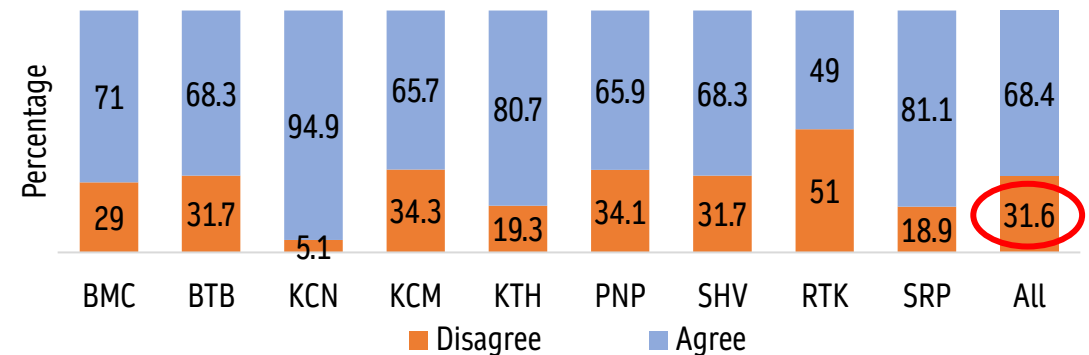
Regular ARV treatment can prevent HIV transmission to partner(s)



HIV can be treated by regular medication for life



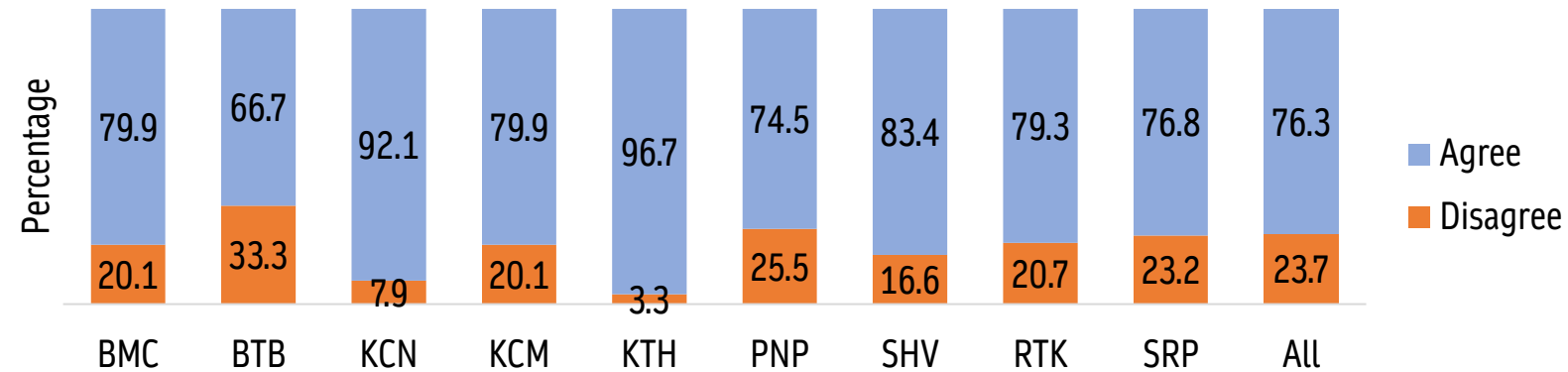
Correct and systematic use of condoms during sexual intercourse can prevent HIV/AIDS transmission



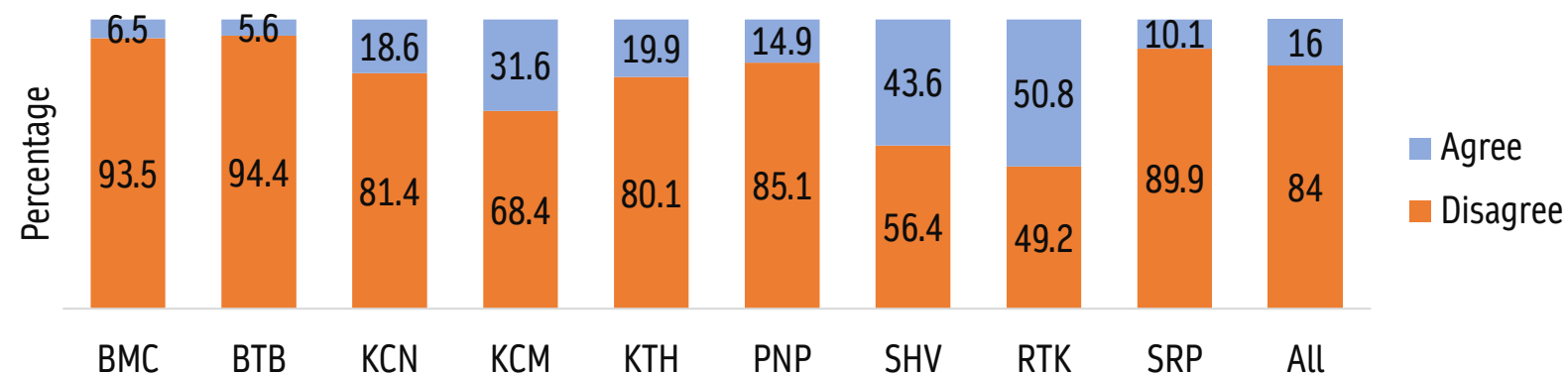


6. Findings: Knowledge about HIV (2)

A person who appears healthy can be living with HIV



Eating with someone living with HIV is one way HIV can be transmitted



Although overall HIV knowledge among FEW seems to be high, variations by province should be noted particularly around HIV treatment



6. Findings: HIV Testing and knowledge of HIV status

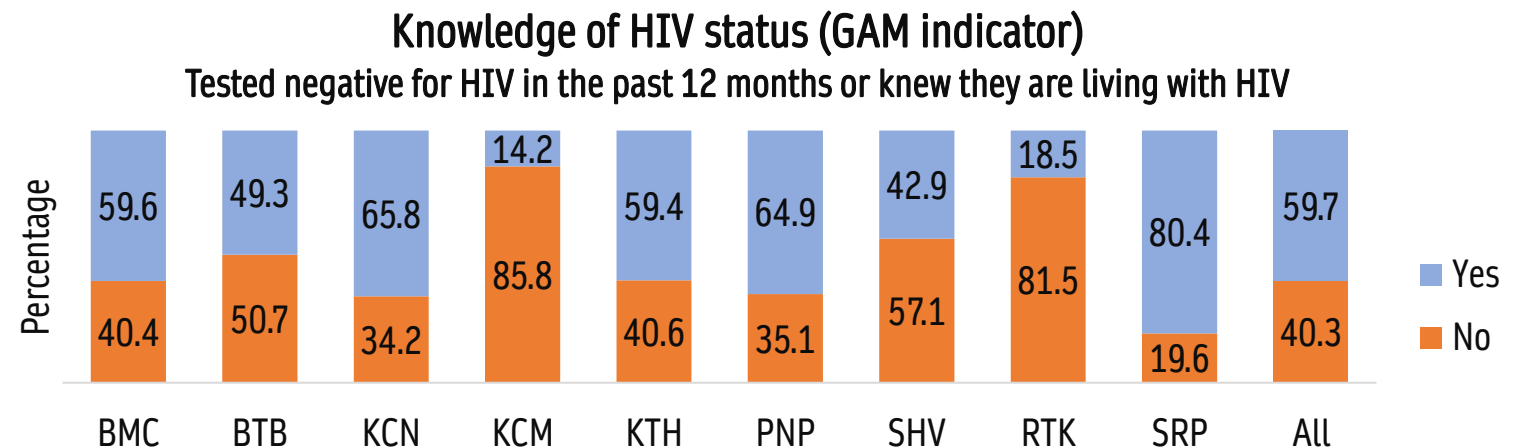
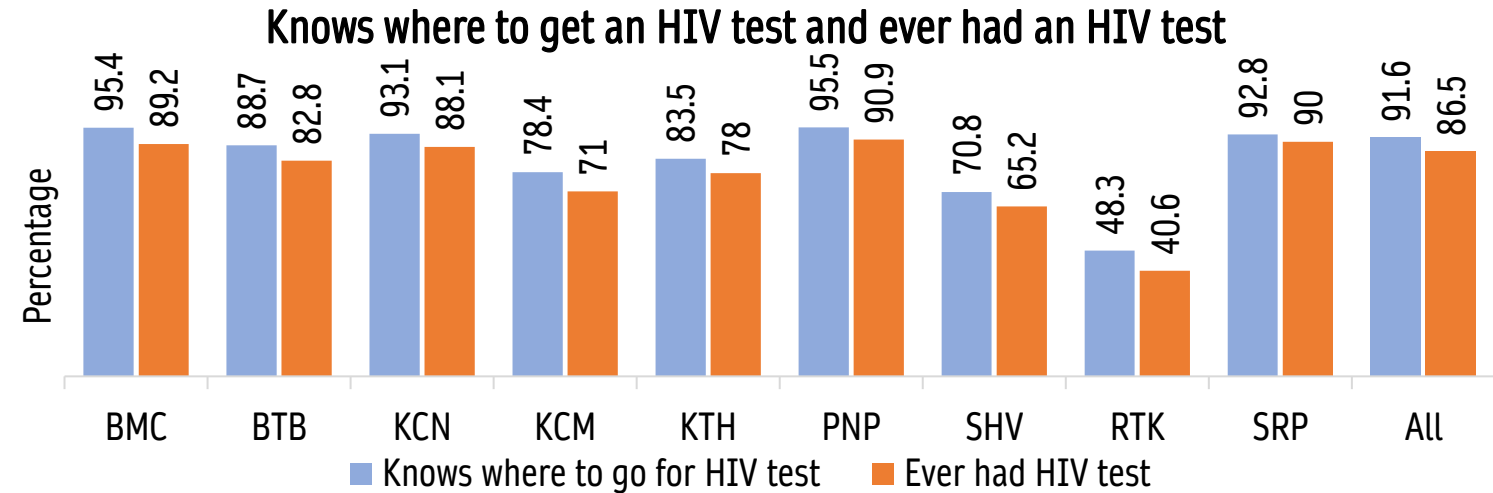


Over 90%

of FEW knew where to get tested for HIV

60%

of FEW tested for HIV in the past 12 months and know their HIV status



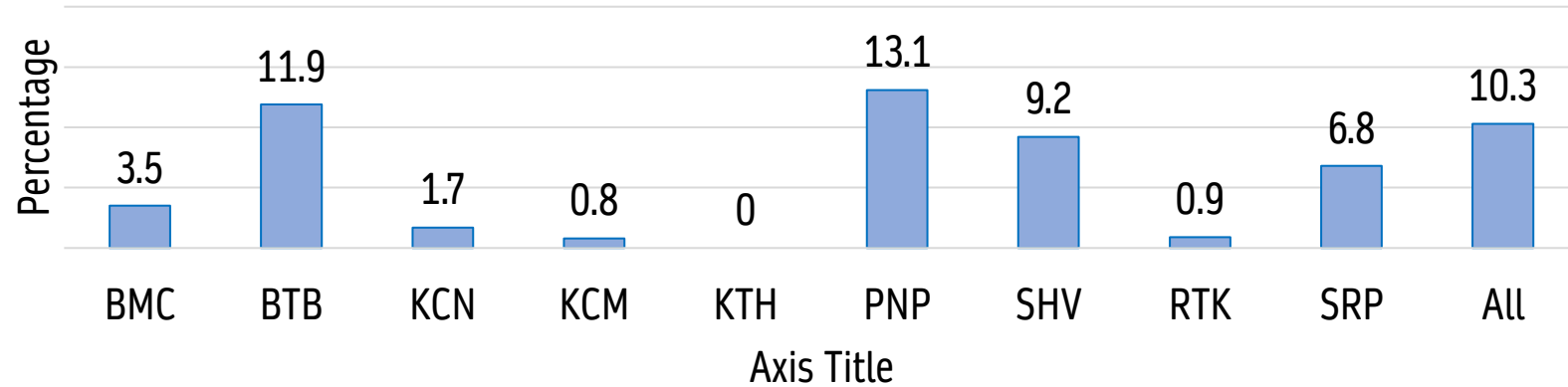


6. Findings: Pre-exposure prophylaxis (PrEP) & HIV-ST

PrEP



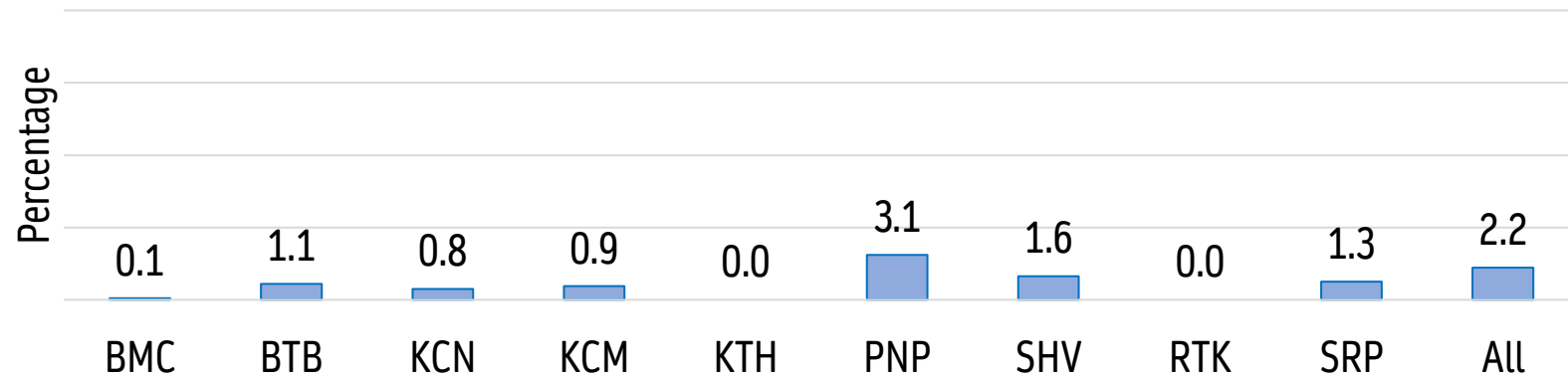
Knows about PrEP



HIV-ST



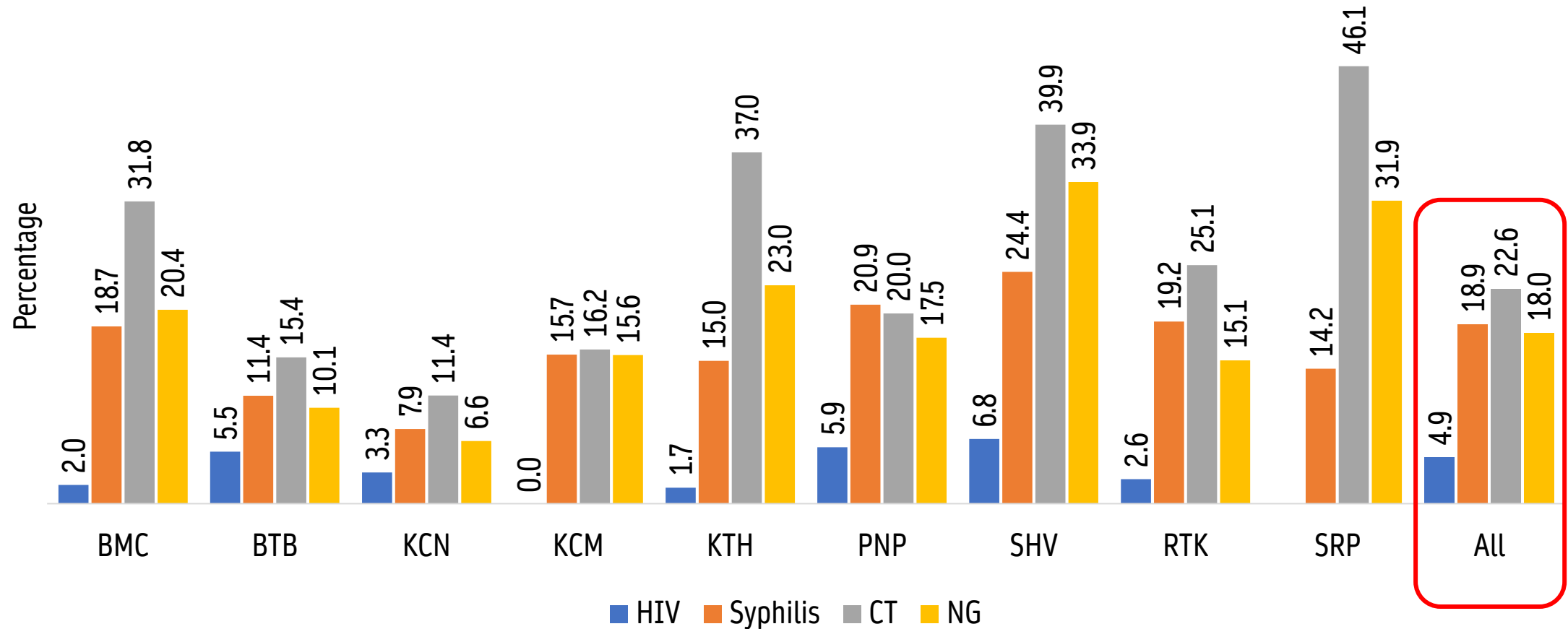
Tested for HIV through HIV-ST





6. Findings: Biological test result

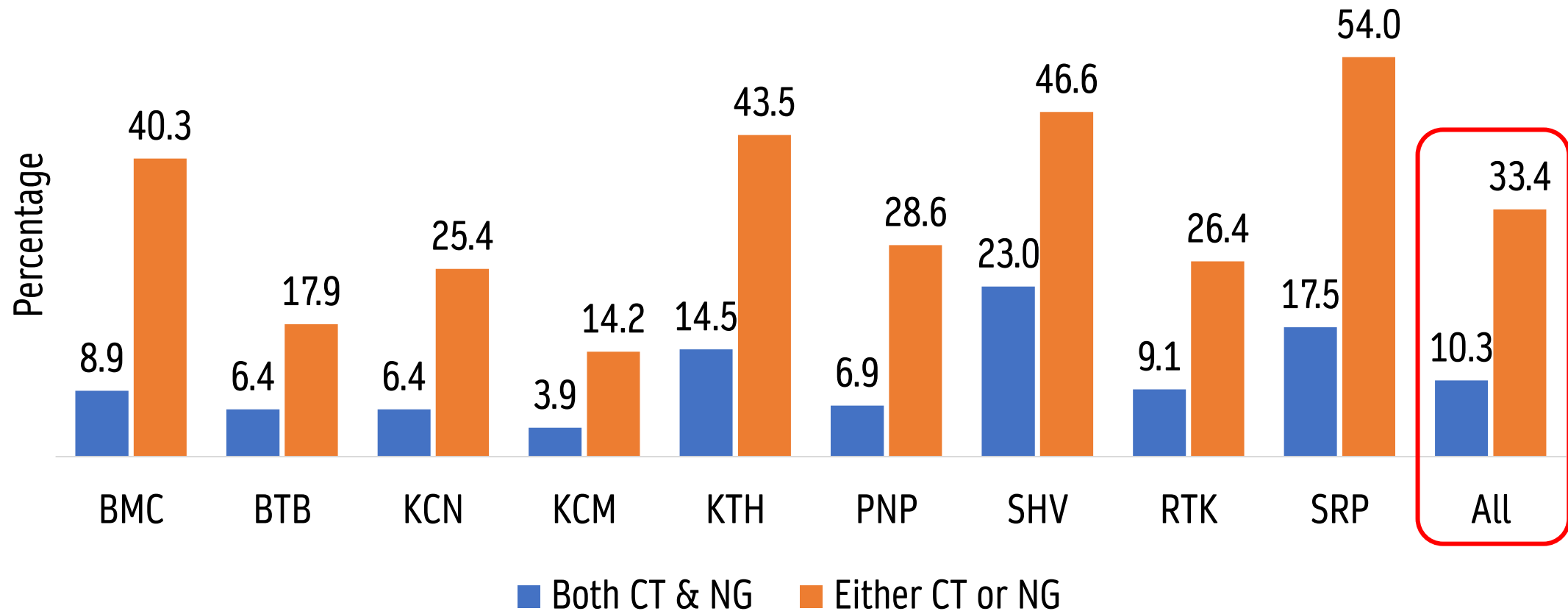
HIV, Syphilis, Chlamydia and Gonorrhoea prevalence rate





6. Findings: Biological test result

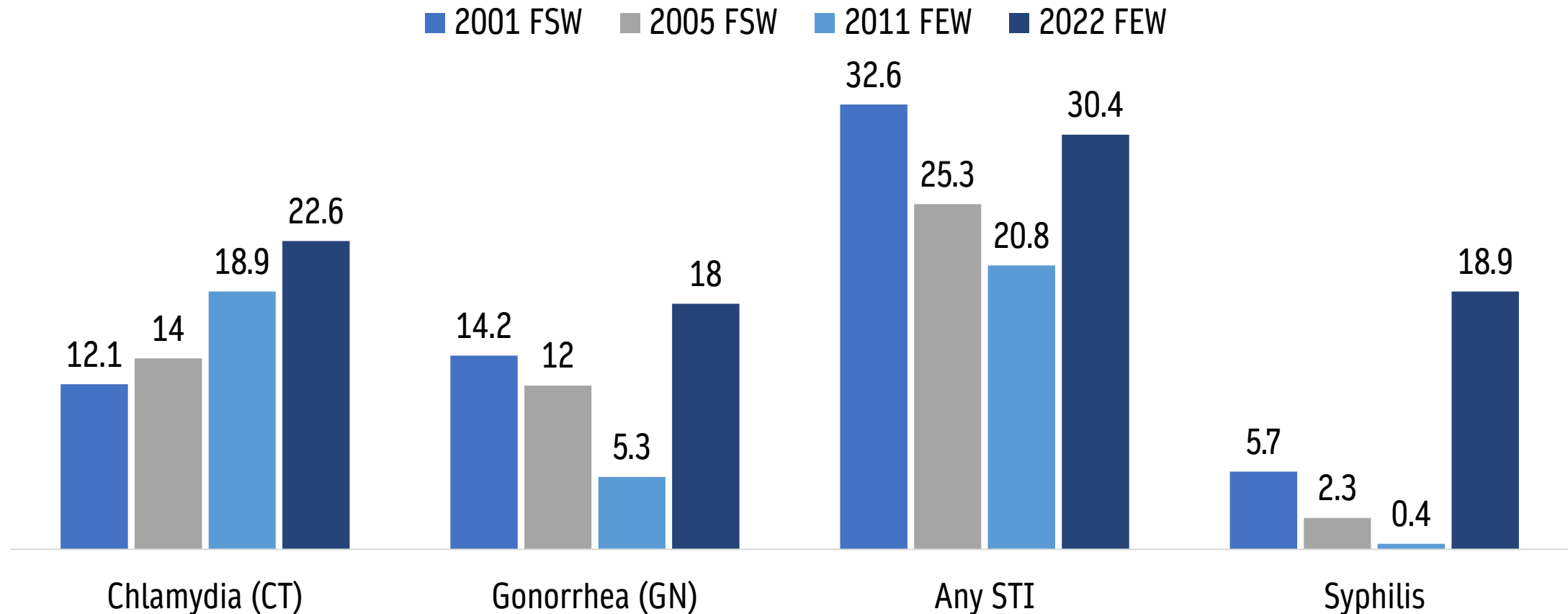
Chlamydia and Gonorrhoea (CT & GN) test result





6. Findings: STI and Syphilis by year

Comparison STI prevalence by year of Survey



Survey methodologies/site selections are not strictly comparable, and it cannot be deduced as a statistically significant change/trend

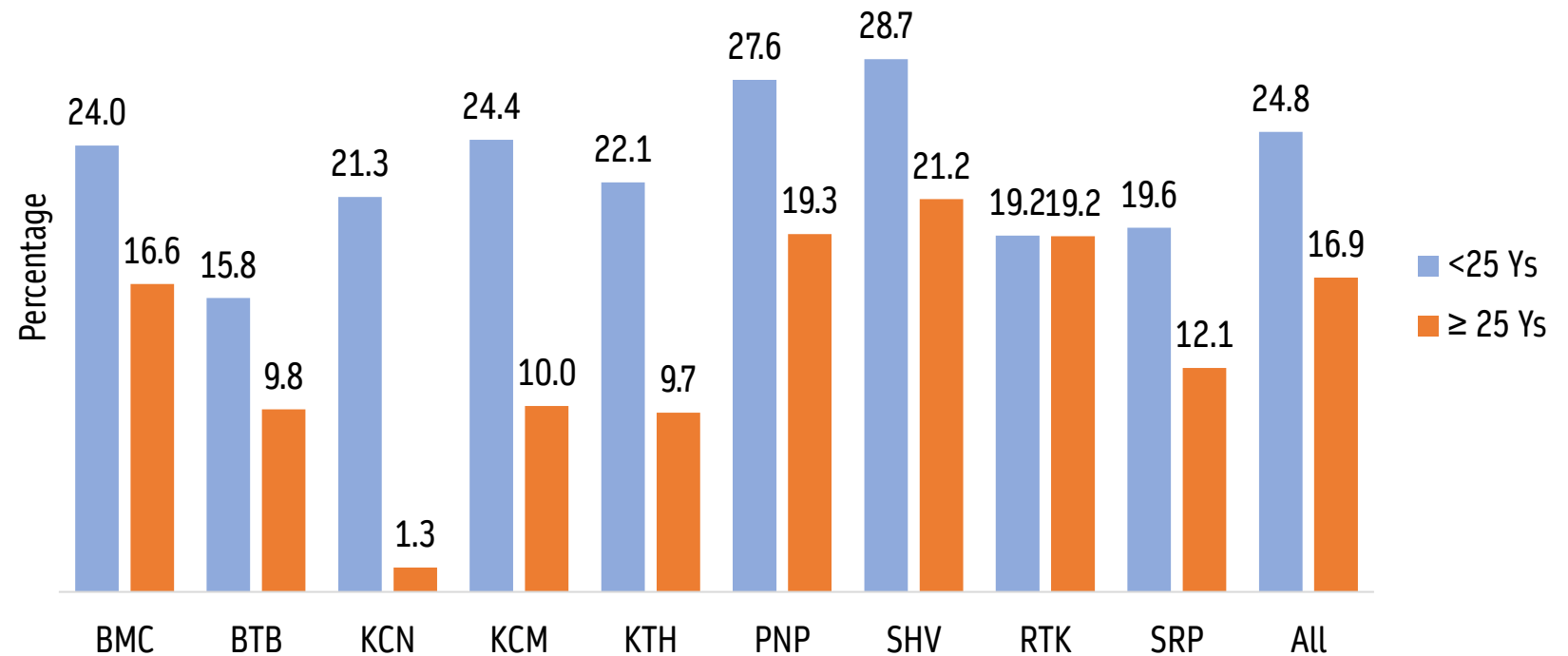


6. Findings: Syphilis prevalence by age group and province



Across all provinces, syphilis prevalence among young FEW is higher than their older counterparts – indicating that condom use is not high enough to prevent STI

Syphilis prevalence by age groups

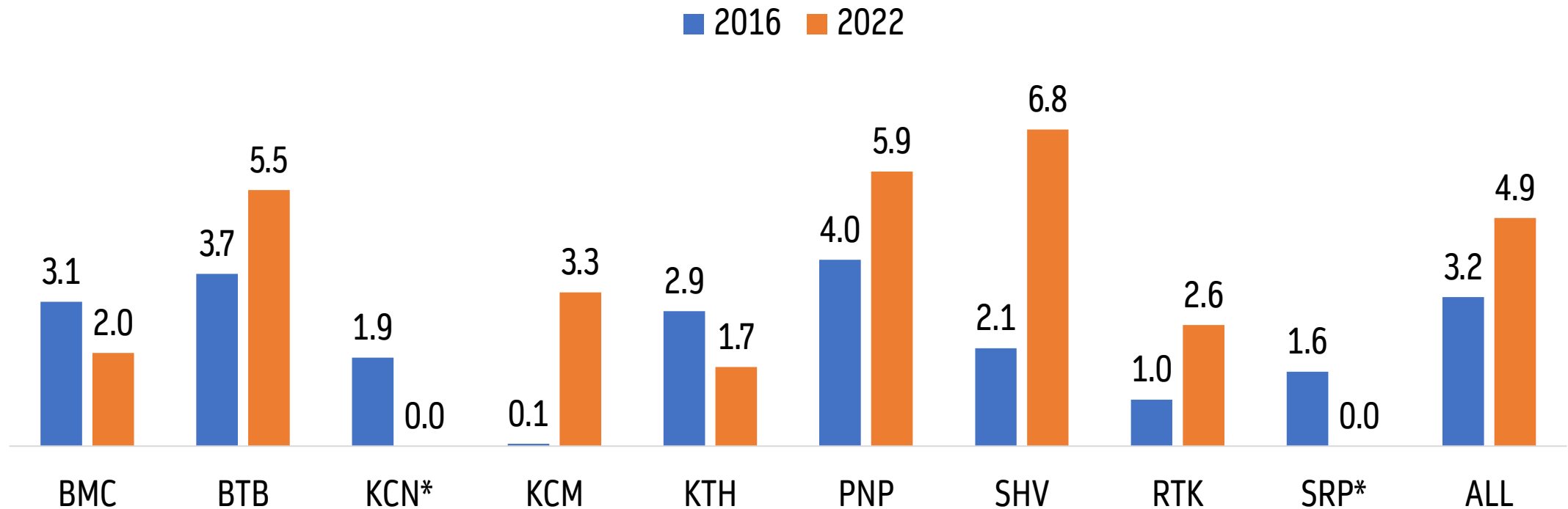


Did not conduct RPR or linked with RPR result and cannot differentiate between active, latent chronic syphilis



6. Findings: HIV Prevalence

HIV Prevalence by province.

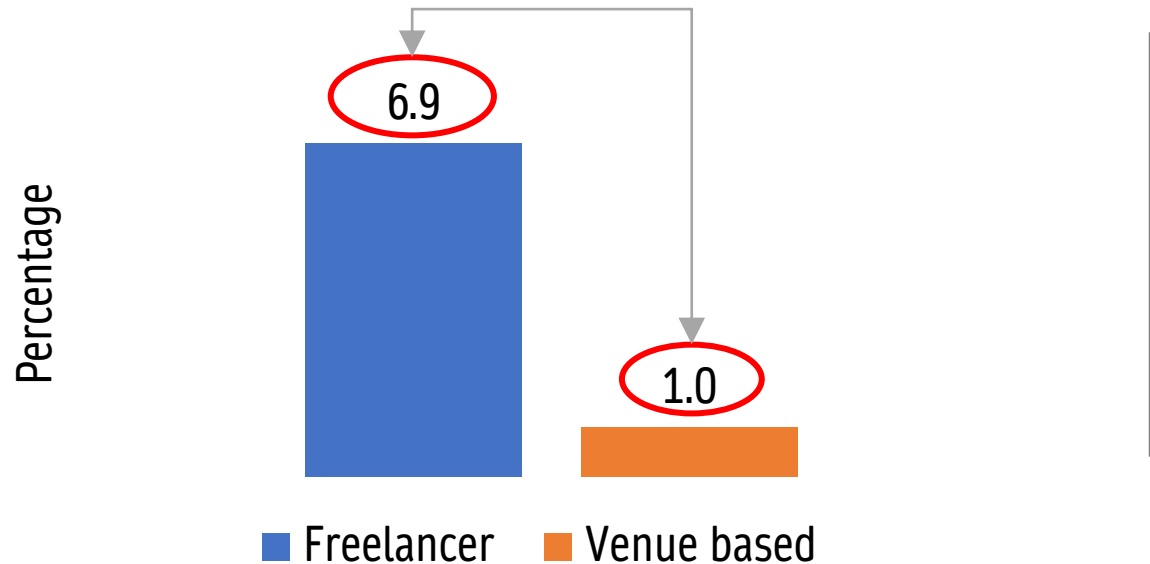


* HIV test results may not be reliable for Siem Reap*. A finding of zero cases of HIV does not mean that there is no HIV among FEW in Siem Reap (or Kampong Chhnang), it means that HIV may be low or it may mean that there was a methodological error which may include that the original seeds were all HIV negative and that waves did not progress enough to reach into the HIV positive networks, that those who are HIV positive are more hidden and were less likely to enroll in the survey. We note that this is a bias in the sampling and that HIV is not zero among FEW

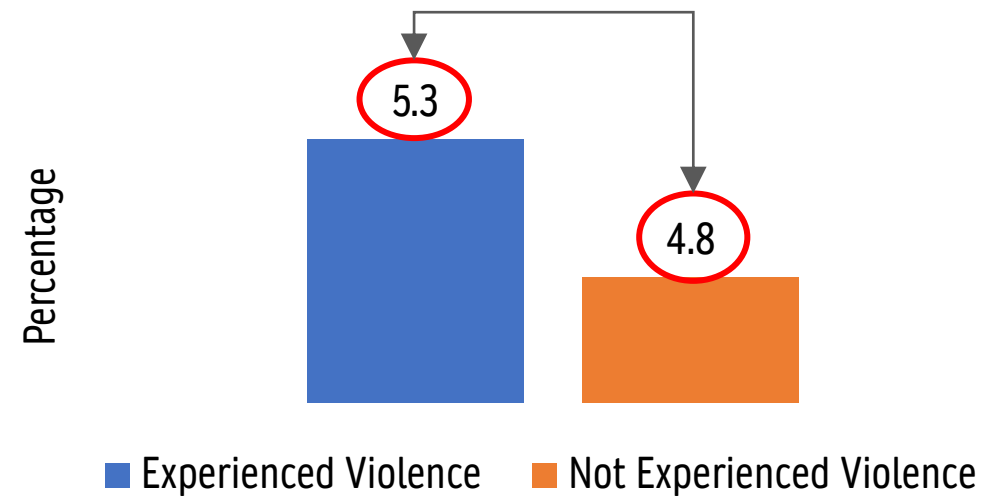


6. Findings: HIV Prevalence association with another factor

HIV Prevalence by type of FEW



HIV Prevalence among those who experienced violence Vs. not experience violence





7. Limitation | 8. Summary findings | 9. Recommendation



7. Limitation

- Behavioral data were self-reported in a face-to-face interview, social desirability bias may have resulted in the underreporting of some risk behaviors
- Confidence intervals are too wide for meaningful interpretation in some cases
- Some of the samples with small sample sizes may not have reached a sufficient number of waves (i.e., Ratanakiri and Siem Reap) to ensure that a wide and diverse spectrum of the FEW was reached.
- RDS is a network-based methodology which provides representative findings of the network of the population sampled, it should only be compared to FEW surveys using other sampling methods with caution. Findings from the RDS survey indicated that non-venue based FEW had double the HIV prevalence than venue based FEW giving evidence that venue-based sampling may have underestimated HIV in the past.
- Syphilis test results are not differentiated between active versus latent or chronic syphilis
- HIV prevalence results may not be reliable for Siem Reap and Kampong Cham. A finding of zero cases of HIV does not mean that there is no HIV among FEW in Siem Reap (or Kampong Cham), it means that HIV may be low or it may mean that there was a methodological error which may include that the original seeds were all HIV negative and that waves did not progress enough to reach into the HIV positive networks, that those who are HIV positive are more hidden and were less likely to enroll in the survey



8. Summary of key findings (1)

- 1. STI knowledge, testing, prevalence** – Only 1 in 4 FEW recognized the symptom of STI and 41% tested for STI in the past 3 months. High level of STI prevalence across all sites (syphilis, Chlamydia Trachomatis, Neisseria Gonorrhoeae)
- 2. Condom use** – Reported condom use at last sex with clients is high (91.8%) but consistent condom use is relatively low across all partner types (54.5% with regular partners to 84.5% with casual partners)
- 3. Access to services** – Overall 70% of FEW received combination prevention services in past 3 months; 60% of FEW tested for HIV in the past 12 months and know their HIV status
- 4. Knowledge of PrEP and access to HIVST** – Only 10% aware about PrEP and only 2% tested for HIV using HIV self-test kit
- 5. Pregnancy and abortion** – 81% ever pregnant and of which 63% ever had an induced abortion



8. Summary of key findings (2)

6. **Stigma, discrimination, violence** - Almost one in five FEW have avoided health care in past year due to stigma or discrimination. One in ten FEW experienced violence and the majority of these violent events were perpetrated by paying sex partners. FEW who experienced violence had higher HIV prevalence (5.3%) compared with those who did not (4.8%).
7. **Young FEW** – About a quarter of respondents are under 25 yrs; syphilis prevalence is higher than older FEW (range – 15.8% to 28.7%) indicating the low level of condom use among young FEW
8. **FEW in Preah Sihanouk** – Province with the highest prevalence of HIV, syphilis and Neisseria gonorrhoea; second highest for Chlamydia Trachomatis; 43% of surveyed FEW are young FEW; 53% moved to the province in the last year
9. **Freelance FEW** – FEW working in streets, parks and using social media or communication application to solicit paying partners have high HIV infection compared to venue based FEW (7% versus 1%, respectively).



9. Recommendation (1)

1. Continue and strengthen combination prevention services and educate service providers and outreach workers to improve prevention services for HIV and STI including PrEP.
2. Improve syphilis screening in all HIV testing venues with rapid testing, linkage to additional lab tests, and treatment. Provide refresher training on syphilis diagnosis and management and ensuring the availability of reagents (TPHA, RPR/VDRL) and benzathine penicillin and provision of treatment cards and last RPR/VDRL titers to reduce unnecessary retreatment
3. Given that one in five FEW have avoided health care due to fear of stigma and discrimination, all health care professionals should receive training to respond effectively and compassionately serve FEW, including young FEW and other marginalized communities



9. Recommendation (2)

4. Educate FEW regarding gender-based violence, the importance of post exposure prophylaxis (PEP), emergency contraception (EC) and STI prophylaxis in the case of sexual violence and where they can access. Advocate and sensitize efforts to promote a safe and enabling environment for FEW including reducing stigma and violence related to sex work and addressing sexual health needs of FEW and their partners through ensure the PEP, EC, and STI services available at the point of care, services are friendly and responsive.
5. As many FEW have children/abortion, strengthen family planning services and integrate family planning in the education topic in the outreach session in all modality of the prevention, and improve prenatal consultation and prevent mother to child transmission of HIV.
6. Encourage FEW to access sexual and reproductive health services; ensure that young FEW below the age of 18 are able to access services.
7. The HIV prevalence in Preah Sihanuk is high compared to other provinces, so more efforts and investment should be considered to provide better prevention service for FEW in Preah Sihanuk.

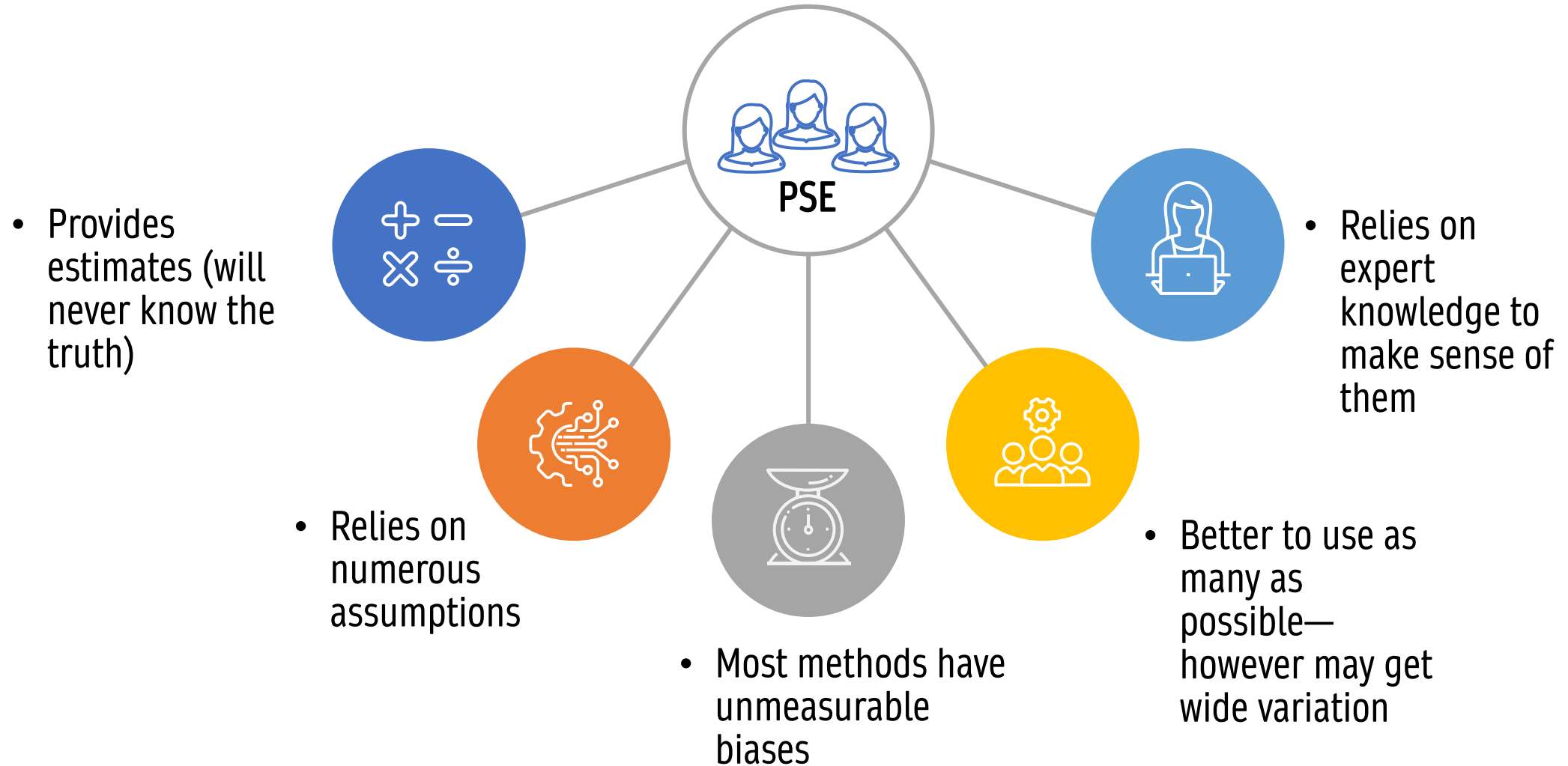


FEW SIZE ESTIMATION

Mr. Nhim Dalen



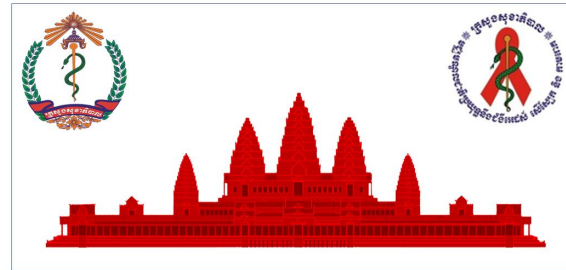
1. Expectation from PSE





2. Methodologies and processes (1)

Unique object Multiplier Method

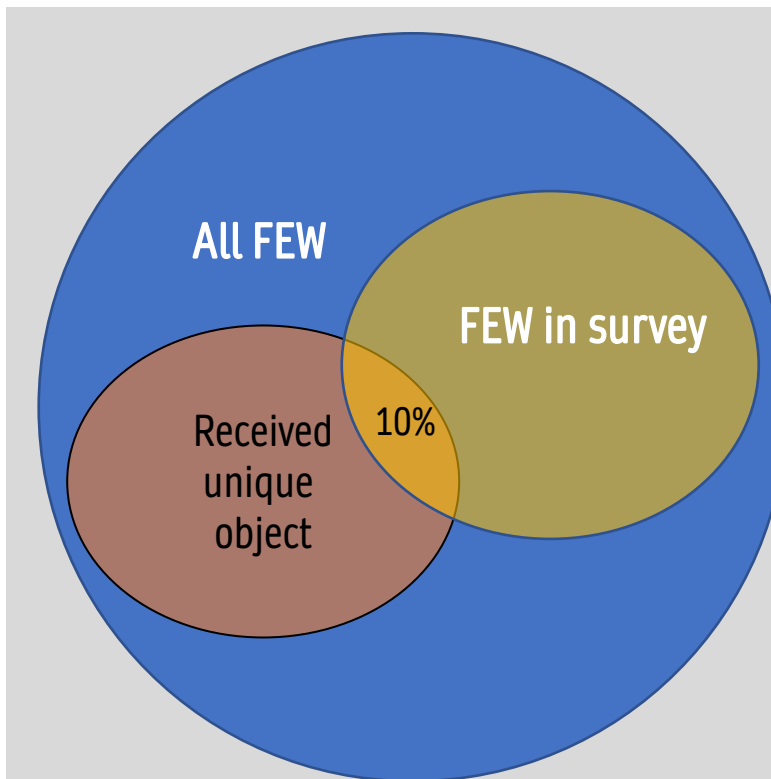


Two overlapping data sources specific to the population being estimated

- a count of people who received a unique object

AND

- a probability-based survey (RDS).



Survey team distributes 400 special key chains to FEW one week before the survey starts.

In the questionnaire, respondents asked if they received a key chain and are shown an example of the object. 10% of the survey respondents reported receiving the key chain.

$$400/0.1 = 4,000 \text{ FEW}$$

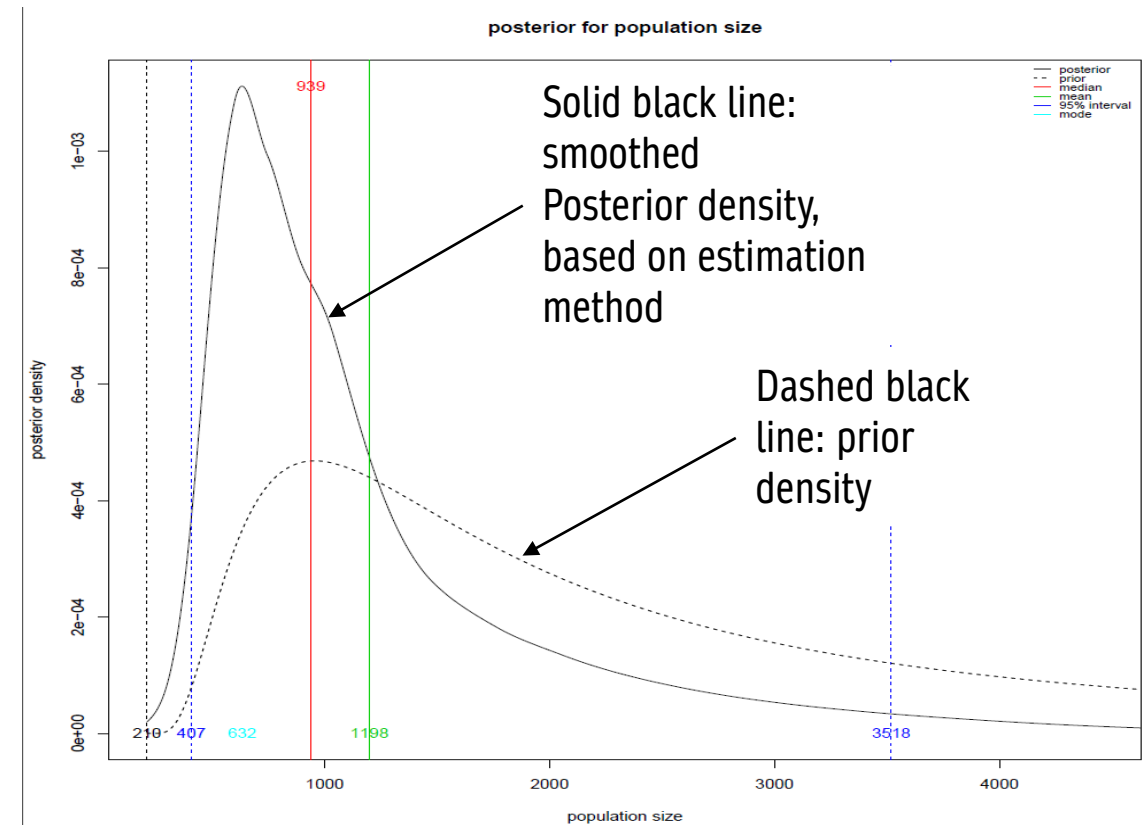


2. Methodologies and processes (2)

- Data needs
 - Prior estimations of population sizes
 - Social network size data (information about the network structure)
 - Date of enrollment (order in which people were sampled)
 - Visibility imputation
 - **Successive sampling** estimator assumptions⁴ (sampling proceeds according to a successive sampling procedure-each subsequent sample is selected from among the remaining units with probability proportional to size)

	Mean	Median	Mode	90%	2.5%	97.5%
Prior	2001	1706	956	3804	1078	2722
Posterior	1198	939	632	2301	407	3518

SS-PSE: Posterior





2. Methodologies and processes (3)

Survey Site and Methods	Data	Data2	PSE	Female Population (15+)	% adult female population (15+)	Increasing rate based on Cencus 2019	Female Population (15+)	% Adjust adult female population (15+)
Preah Sihanouk								
NGO Reach			815	29,829	2.73%	716	30545	2.67%
SS-PSE (mean)			805	29,829	2.70%	716	30545	2.64%
Objects	300	0.33	909	29,829	3.05%	716	30545	2.98%
Mean								
Ratanak Kiri								
NGO Reach			-	10,368	0.00%	187	10555	0.00%
SS-PSE (mean)			584	10,368	5.63%	187	10555	5.53%
Objects	130	0.38	342	10,368	3.30%	187	10555	3.24%
Mean								
Siem Reap								
NGO Reach			3,031	126,979	2.39%	6,095	133074	2.28%
SS-PSE (mean)			2,790	126,979	2.20%	6,095	133074	2.10%
Objects	330	0.62	532	126,979	0.42%	6,095	133074	0.40%
Mean								High
								Moderate
								Low
								2.56%
								2.03%
								0.60%



2. Methodologies and processes (4)

FEW Population Site Estimation 2022					High	Medium	Low
					2.5%	2.0%	0.6%
		Aged 15+			Aged 15-49		
Province	District	Female_15+	Proportion-1	PSE-FEW-15+	Female_15-49	Proportion-2	PSE-FEW_15-49
Banteay Meanchey	Malai	18,209	2.0%	364	14,946	2.0%	299
Banteay Meanchey	Mongkol Borei	61,107	0.6%	367	48,052	0.6%	288
Banteay Meanchey	Ou Chrov	20,458	0.6%	123	16,227	0.6%	97
Banteay Meanchey	Paoy Paet	33,123	2.5%	828	26,960	2.5%	674
Banteay Meanchey	Phnum Srok	22,116	0.6%	133	17,973	0.6%	108
Banteay Meanchey	Preah Netr Preah	39,749	0.6%	238	32,085	0.6%	193
Banteay Meanchey	Serei Saophoan	31,847	2.5%	796	26,099	2.5%	652
Banteay Meanchey	Svay Chek	24,972	0.6%	150	20,290	0.6%	122
Banteay Meanchey	Thma Puok	26,988	2.0%	540	21,824	2.0%	436
Battambang	Aek Phnum	32,074	0.6%	192	24,351	0.6%	146
Battambang	Banan	40,307	0.6%	242	30,768	0.6%	185
Battambang	Battambang	59,014	2.5%	1,475	45,829	2.5%	1,146
Battambang	Bavel	43,328	0.6%	260	34,807	0.6%	209
Battambang	Kamrieng	20,379	2.0%	408	16,896	2.0%	338
Battambang	Koas Krala	13,646	0.6%	82	10,950	0.6%	66
Battambang	Moung Ruessei	45,842	0.6%	275	36,245	0.6%	217
Battambang	Phnum Proek	22,539	2.0%	451	18,871	2.0%	377
Battambang	Rotonak Mondol	15,743	0.6%	94	12,472	0.6%	75
Battambang	Rukh Kiri	18,444	0.6%	111	15,149	0.6%	91



3. Findings: FEW Population size estimation



15+ Years
66,288

15-49 Years
52,388

Province	PSE-FEW-15+	PSE-FEW_15-49
Banteay Meanchey	3,539	2,870
Battambang	5,237	4,134
Kampong Cham	3,549	2,735
Kampong Chhnang	1,794	1,393
Kampong Speu	2,192	1,694
Kampong Thom	2,110	1,641
Kampot	1,781	1,381
Kandal	9,248	7,224
Kep	194	158
Koh Kong	475	395
Kratie	1,020	820
Mondul Kiri	250	211
Oddar Meanchey	885	741
Pailin	368	304
Phnom Penh	13,710	10,859
Preah Sihanouk	1,702	1,378
Preah Vihear	576	471
Prey Veng	2,924	2,271
Pursat	1,459	1,153
Ratanak Kiri	521	437
Siem Reap	4,422	3,556
Stung Treng	445	361
Svay Rieng	1,965	1,547
Takeo	2,777	2,147
Tbong Khmum	3,145	2,458
Grand Total	66,288	52,338



4. Acknowledgement

- Ministry of Health
- Great leadership and support from Dr. Ouk Vichea, NCHADS Director and NCHADS Management Team,
- Strong and active collaboration of the Surveillance, BCC and Lab Unit of NCHADS
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- Excellent technical assistance from FHI 360 (EpiC and EQHA)
- Strong collaboration from NGO Partners (KHANA, RHAC, CWPD, Women, AHF)
- Strong collaboration from PHD, PASPs, ODs, local authority and other stakeholders
- Special thanks to all FEW who participated in this survey



ಸ್ತುತಿಯಿರಲಿಕ್ಕಿದೆ 😊

THANK YOU 😊