

Cambodia 2007 Behavioral Surveillance Survey

HIV/AIDS
Related Sexual Behaviors
among Sentinel Groups

**Ministry of Health
National Center for HIV/AIDS,
Dermatology and STDs**

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Foreword

HIV/AIDS surveillance systems have been set up as soon as the National AIDS Program was established in 1993. HIV Sero-surveillance and Behavioral Sentinel surveys are the two main components included in the surveillance systems. Findings from these routine sentinel surveys have been used to develop national strategy plans, guide and assess all HIV/AIDS programs.

Behavioral Sentinel Survey (BSS) investigates key information related to behaviors towards HIV/AIDS prevention, Knowledge, attitude and health seeking behaviors among target sentinel groups. This information is the backbone of many interventions focusing on HIV/AIDS education, STI control, condom use promotion in non-marital status and awareness of HIV status.

This publication presents the result of the 7th round of Behavioural Sentinel Survey, which was conducted in 2007. Female (Brothel based female sex workers, Beer promoter, Karaoke worker and Beer garden workers) and male (Moto-taxi drivers) and MSM (Short & Long hair) were included in this round. It shows that the consistent condom use among female sex workers is over 90% in 2007, although condom use with their sweethearts remains low and stable over years. This suggests that the 100% condom use program does not have significant effect on promoting condom use among non-paid partners. Among male group, the reported use of commercial sex service gradually decreased suggesting a change in using commercial sex services. The use of services at medical settings for STI care increased among beer promoter and karaoke worker. However, the use of public/STI clinics did not increase.

Finally, on behalf of the National Center for HIV/AIDS, Dermatology and STDs, I would like to express my gratitude to all those contributed to this survey, and particularly to the respondents who have disclosed personal information for the benefit of their country.

NCHADS Director



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Acknowledgements

We wish to thank those who contribute to BSS 2007 survey and without whose help the survey could not have been completed. In particular, we wish to record our special thanks to:

USAID PRASIT funding to FHI for its financial and technical support

Provincial Health Departments/Provincial AIDS Office for their administrative collaboration and participation

Surveillance Unit of NCHADS, interviewers and BSS participants for all their efforts in the field

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Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
BSS	Behavioral Sentinel Survey
DFSW	Direct Female Sex Worker
FHI	Family Health International
FSW	Female Sex Worker
HIV	Human Immunodeficiency Virus
HSS	HIV Sentinel Surveillance
IDFSW	Indirect Female Sex Worker
MOH	Ministry of Health
MSM	Men who have Sex with Men
NCHADS	National Center for HIV/AIDS, Dermatology and STDs
NGO	Non-Governmental Organization
PAO	Provincial AIDS Office
PLHIV	People Living with HIV
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
USAID	United States Agency for International Development
VCCT	Voluntary Confidential Counseling and Testing

Executive Summary

- 1.1. Direct female sex workers
- 1.2. Indirect female sex workers
- 1.3. Moto-taxi drivers
- 1.4. Men who have sex with men
- 1.5. Trends

Behavioral Sentinel Surveys have been carried out by the National AIDS Program (NAP, now known as NCHADS) in five provinces (Kampong Cham, Sihanoukville, Battambang, Siem Reap and Phnom Penh) since 1997. The first year served to supply baseline data and in subsequent years, the progression of these variables has been monitored. In the last round in 2003, five new provinces were added to the survey, but the results did not add any further information so they will not be included this year.

In all years, brothel-based, direct female sex workers (DFSW), beer promoters and moto-taxi drivers have been surveyed, so trends can be seen in these groups. This year, beer garden workers are also being interviewed (as well as beer promoters and karaoke workers) as part of the indirect female sex worker (IDFSW) group. Military and police were interviewed in previous years but it was decided that they should not be included this year since there have been very few new recruits. Instead men who have sex with men (MSM) were included. As this is the first year they have been included, trends cannot be analyzed but behavioral differences between long hair MSM and short hair MSM can be interpreted, as well as using data collected as baseline data for the subsequent surveys.

In all BSS, individuals were selected through stratified cluster sampling (IDFSWs and DFSWs) or through time-location sampling (moto-taxi drivers and MSM). Strata were the provinces and clusters were brothels, beer companies, karaoke establishments or beer gardens. For moto-taxi drivers and MSM, clusters were time slots.

1.1. Direct female sex workers

In total, 592 DFSWs were interviewed. They had a mean age of 25.2 years and the mean age at first sex corresponded with mean age of marriage at 18 years, however 22% had sold their virginity. There was a mean of 6.8 DFSWs per establishment and the mean number of clients in the last working day was 4.4.

They were a highly mobile population and 21% had worked as karaoke girls before the brothel indicating that these populations could overlap. With clients, consistent condom use was high (94% in the last week, 99% last act) but with sweethearts, consistent condom use was much lower at 52.6%.

Health-seeking behavior rates were good, 84.8% had visited a sexually transmitted infection (STI) clinic in the last three months and 74.2% had an HIV test in the last year. Most of the women who were tested received their results and counseling. Knowledge of HIV and the continuum of care services were good and there was very little discrimination against people living with HIV PLHIV. The main source of information about HIV/AIDS was mass media.

1.2. Indirect female sex workers

In all five provinces, 395 beer promoters, 399 karaoke workers and 299 beer garden staff were interviewed. Beer promoters were slightly older (mean 25.5 years compared to 21.8 years for beer garden workers and 22.9 years for karaoke workers). Karaoke girls were more likely to have sold sex in the past year (46% compared to 20% and 27% for beer garden workers and beer promoters respectively) and 44% of them had sex with a sweetheart in the last year (44% of beer promoters also had but only 29% beer garden workers). Karaoke workers had many more paid sexual partners in the last year (mean number 15.1 compared to 3.3 and 2.2). Unprotected sex with a client was generally low with karaoke workers having the most unprotected sex (6%). However, when you excluded women who had not had sex with a client in the past year, beer promoters were the most likely group to have unprotected sex (19.2%).

When looking at sex with a sweetheart in the past year, rates were much higher. Karaoke workers had the most unprotected sex (24% compared to 20% and 19%) and when women who did not have sex with a sweetheart were excluded, this figure rose to 72.7%. These figures are worryingly high and the numbers of IDFSWs who visited an STI clinic or had an HIV test are very low (Beer promoters were the highest at 41.6% and 67.1% respectively and beer garden workers were the lowest at 17.2% and 41.1%). Knowledge of HIV transmission and care packages are however good, and discrimination against PLHIV is low.

1.3. Moto-taxi drivers

In total, 656 moto-taxi drivers were interviewed. They had a mean age of 33.4 years and 47% of them had multiple sexual partners in the last year. A large proportion (40%) of the moto-taxi drivers had sex with a female sex worker (FSW) in the past year and 7% with a sweetheart. The most common partner was a brothel-based sex worker (38%). Consistent condom use was again higher with FSWs (almost 90%) than with a sweetheart (almost 43%). Despite knowledge of HIV and anti-retroviral therapy (ART) being quite high, only 20% of moto-taxi drivers had an HIV test in the past year. Mass media was again the main source of information.

1.4. Men who have sex with men

Overall, 388 short hair MSM and 341 long hair MSM were interviewed. They were the same age (23.7 years and 23.8 years) and slightly more short hair MSM had high school or higher education (49% vs. 44%).

More long hair MSM reported having 'ever sold sex' (60% vs. 36%) and out of those that had, long hair MSM reported 'first selling sex' at an earlier age than short hair MSM. The first sexual partner for long hair MSM was more commonly a man (93%) and for short hair MSM more commonly a woman (56%). Two thirds of short hair MSM had sex with women in the past year, including buying and selling sex from and to multiple women. This indicates that MSM (particularly short hair) currently represent an important bridging population in the epidemiology of HIV in Cambodia. Long hair MSM tend to use condoms less consistently with all sexual partners. Long hair MSM also reported more condom breakages and using lubricant less frequently. For both short and long hair MSM, condom use is the lowest among non-paying partners.

Approximately half of the MSM interviewed had 'ever had an STI check up' and 57% short hair MSM and 66% long hair MSM had an HIV test in the last year. Knowledge about HIV and the care packages was good and there was virtually no discrimination against PLHIV. Again, mass media was the main source of information.

1.5. Trends

Consistent condom use between clients and DFSWs and IDFSWs has fallen by 1% in both groups to 94% and 83% respectively but still remains high. When having sex with sweethearts, consistent condom use has not changed much from previous years either, but it is at a much lower rate of 52% for DFSWs (a fall of 2% from 2003) and 54% for IDFSWs (a rise of 5% from 2003). Within beer promoters, there is a downward trend for selling sex (currently 27% reported selling sex in the previous 12 months). The percentage of FSWs seeking STI treatment at public/STI clinics has remained relatively unchanged since 1999, but the percentage of FSWs seeking STI-treatment at any medical outlet has continued to increase. It is currently highest in DFSWs at 85% and lowest in karaoke workers at 63%.

Within Moto-taxi drivers, consistent condom use has fallen slightly from 89% to 86%. The number who report having paid for sex in the last year seems to be decreasing and currently stands at 40% (down from 44% in 2003). Consistent condom use with sweethearts has risen to 47% from a dip in 2003 at 27%, so although this improvement is good, the level is still low.

2

Objectives of BSS 2007

- To document HIV-related risk behaviors among sentinel groups
- To document knowledge and attitudes towards HIV/AIDS
- To tracks trends in risk behaviors among most at risk groups in Cambodia
- To explore common practices toward the use of VCT, STI clinics and other health services
- To evaluate coverage and the outcomes of interventions targeting most at risk groups
- To explore the history of illicit drug use among high risk groups

Cambodia has been heralded worldwide as an HIV/AIDS “success story.” Sentinel surveillance trends show a steady decrease in HIV prevalence, from a high of 3.0% in 1997 to the 2003 figures of 1.9% among the general population aged 15 to 49 years old. Behavioral trends indicate that consistent condom use is increasing and risk-taking behaviors among most at-risk populations declining. Despite substantial declines, the incidence of new infections among sex workers and key client groups remains high. The last HIV Sentinel Surveillance (HSS 2003) shows that brothel based sex workers, or DFSWs, have the highest prevalence at 20.8%, followed by IDFSWs (beer girls, karaoke women, and massage girls) at 11.7%. The 2005 STI survey identified long hair MSM as a vulnerable group characterized by a prevalence of HIV of 8.7%. Factors exacerbating these prevalence rates include stigmatization and marginalization in society, limited economic possibilities, limited access to education, health, social and legal services, gender based-violence, mobility and exposure to risks related to lifestyle and working environment. Sex workers and their clients are at risk, not only of contracting HIV and STIs themselves, but acting as bridging groups to pass these infections on to the general population (wives, girlfriends, husbands, and boyfriends).

The first round of the Behavioral Sentinel Survey (BSS) conducted in 1997 by the National AIDS Program provided baseline data on sexual behaviors among most at risk groups in Cambodia. Since then, six rounds of behavioral surveillance were conducted. Data generated by behavioral surveillance has guided the National Center for HIV/AIDS Dermatology and STDs (NCHADS) in shaping the response to the HIV epidemic. Behavioral surveillance data served both to advocate for intervention and to monitor the effectiveness of these interventions. The data collected in 2007 will represent the seventh round of Cambodia’s BSS.

The last round of BSS was conducted in 2003 among DFSWs, beer-promoters, karaoke workers, military, police, and moto-taxi drivers. While some of the most-at-risk groups were consistently included in behavioral surveillance to ensure surveillance trends, some flexibility in design has allowed integrating new sentinel groups in order to assess the occurrence of risk behaviors in specific populations. However, changes in target groups only occurred in populations with low prevalence of sexual risky behaviors including the working women group, male vocational student group, and male government officials, were dropped from the survey in 1999. Survey methodology was kept consistent between rounds; although the self-administered approach used in 1997 for the vocational students group was changed to a face-to-face interview in 1998. Questionnaires were adapted using the experience from previous rounds to increase the pertinence of questions, while ensuring that consistency of standard indicators allowed following of trends. The sentinel groups were selected because they were believed to represent the driving force of the epidemic in Cambodia. The BSS was conducted in the capital cities of Cambodia’s five most populated provinces (Phnom Penh, Battambang, Sihanoukville, Siem Reap, and Kampong Cham), resulting in a survey of urban groups. Province, target group, and sample sizes from previous rounds of BSS are described in Table 1.

Table 1. Background information of BSS from 1997 to 2003: provinces, sentinel groups, and overall sample sizes

Year	Sites	Target Groups	Sample Size
1997	KPC, SHV, BTB, SRP, PNP	DFSWs, IDFSWs (beer promoters), Working Women, Military, Police, Moto-Taxi Drivers, Male Vocational Students	4,356
1998	KPC, SHV, BTB, SRP, PNP	DFSWs, IDFSWs (beer promoters), Working Women, Military, Police, Moto-Taxi Drivers, Male Vocational Students	4,275
1999	KPC, SHV, BTB, SRP, PNP	DFSWs, IDFSWs (beer promoters), Working Women, Military, Police, Moto-Taxi Drivers	3,900
2000	KPC, SHV, BTB, SRP, PNP	Household male survey	3,166
2001	KPC, SHV, BTB, SRP, PNP	DFSWs, IDFSWs (karaoke workers & beer promoters), Military, Police, Moto-Taxi Drivers	2,961
2002			
2003	KPC, SHV, BTB, SRP, PNP, PST, KHK, KRT, TKO, KPT	DFSWs, IDFSW (Karaoke workers & beer promoters), Military/Police, Moto-taxi Drivers	4,858

KPC: Kampong Cham; SHV: Sihanouk Ville; BTB: Battambang; SRP: Siem Reap; PNP: Phnom Penh; PST: Pursat; KHK: Koh Kong; KRT: Kratie; TKO: Takeo; KPT: Kampong Thom.

- 4.1. Survey Sites
- 4.2. Sentinel Groups
- 4.3. Sample Size
- 4.4. Sampling Procedures
- 4.5. Operational Procedures
- 4.6. Data Entry and Analysis

4.1. Survey Sites

Surveillance groups were sampled from the population of the capital city of selected provinces. Five cities representing the most populated provinces in Cambodia have been consistently surveyed for BSS, including Phnom Penh, Kampong Cham, Battambang, Siem Reap, and Sihanouk Ville. In the last round of BSS (2003), five additional provinces were included to allow for program monitoring. Because the inclusion of the five new provinces in the BSS 2003 did not provide additional

information on the target groups or allow identification of different behaviors in respective groups, it was decided to restrict the 2007 round of BSS to the original core sentinel sites of Phnom Penh, Kampong Cham, Battambang, Siem Reap, and Sihanouk Ville. These sites remain the major urban cities in Cambodia where the population is concentrated; it is where high-risk behaviors occur most and where behavior change programs were implemented.

4.2. Sentinel Groups

NCHADS has held as its priority the preservation of the BSS data's ability to analyze trends in behavior change among these sentinel groups as many serve as targets of behavior change programs. A significant change in the BSS design would result in unclear trends, producing data that may have cross-sectional value but not allow for a continuation of the analysis of the trends. To maintain the ability to determine trends the data must be comparable to the previous survey in terms of both sites and groups. Groups such as sex workers and moto taxi drivers are unlikely to become less influential to HIV epidemic. They are adequate "sentinel" groups because changes in behaviors observed among these populations represent a warning of what may be broader changes in other populations. The definition of "sentinel" surveillance system is the monitoring of groups that are supposed to serve as a warning system - the occurrence of an event of interest or change in pattern within this group serves to warn of changes in the larger population.

4.2.1 Direct female sex workers

The 'DFSW' group is the surveillance group with highest documented prevalence of HIV in Cambodia. The dynamic of HIV transmission in Cambodia is mostly driven by sex work justifying for inclusion of this group in behavioral surveillance.

Eligible direct female sex workers were:

- Women
- Aged at least 15 years old
- Current employee of selected brothel
- Present at the establishment/spot at the moment of the surveillance team visit

4.2.2 Indirect female sex workers

Since there is no single group of women that can completely represent the group of IDFSWs, three female groups – beer promoters, beer garden workers and karaoke workers - were included into this round. The previous rounds of surveys provided information on IDFSWs through the sampling of beer promoters and karaoke workers, and data analysis revealed that the two groups differed regarding certain behaviors. For example, karaoke workers sell sex more frequently and have more partners than beer promoters. Therefore, various sub-populations of IDFSW were included in the BSS 2007, including beer promoters and karaoke workers as they were surveyed in the last round of BSS. In addition, “beer garden workers” who represent a new generation of female sex workers who recently appeared on the entertainment market will be included. Members of this group often work as escort women and they are different from waitresses. Their level of risk behaviors is mostly unknown.

Eligible beer promoters were:

- Women
- Aged at least 15 years old
- Current employee of selected beer company
- Present at the selected beer company at the moment of the surveillance team visit

Eligible criteria for Karaoke workers

- Women
- Aged at least 15 years old
- Currently employed at the selected establishments
- Present at the establishment/spot at the moment of the surveillance team visit

Eligible beer garden workers were:

- Women
- Aged at least 15 years old
- Current working in selected establishment as an entertainer (not including waitresses)
- Present at the establishment/spot at the moment of the surveillance team visit

4.2.3 Moto-taxi drivers

In previous rounds of surveillance, clients of FSWs were approximated using data from military, police, and moto-taxi drivers. However military and police represent aging cohorts of men as recruitment has been frozen since 1995. In addition some over-laps between surveillance groups occurred as some men from both military and police also work as moto-taxi drivers. For these reasons it is proposed to restrict the male occupational group serving for approximating male clients to moto-taxi drivers.

Eligible moto-taxi drivers:

- Men
- Aged at least 18 years old
- Currently working as moto-taxi drivers at selected spot

4.2.4 Men who have sex with men

In Cambodia, two quite separate groups of MSM exist, 'short hair' and 'long hair'. Short hair MSM identify themselves as men where long hair MSM often identify as women.

In STI survey 2005, long hair MSM were found to have a prevalence of HIV of 8.7% making them the most vulnerable risk group in Cambodia after female-sex workers. It is proposed to include this population as a new surveillance group. Long hair MSM are defined as biological males who behave like women (e.g. speak or dress like women) and feel that they are women.

Eligible long hair MSM were:

- Biological men
- Aged at least 15 years old
- Who have been living in the present city for at least one month
- Who pass the screening stage about their long hair MSM status, by study interviewer

In 2005, short hair MSM were found to be a population with a large number of partners and with different levels of risky behaviors between provinces and the capital city. Fortunately prevalence of HIV is still low among this group but has high potential to generate a sub-epidemic. Interventions for MSM were setup following the results of the STI 2005 survey. Note that, short hair MSM in this survey are defined as men, who behave like men, with a manly appearance, and who had anal sex with a man in the past year.

Eligible MSM were:

- Biological men
- Aged at least 15 years old
- Who had anal sex with a man in the past year
- Who have been living in the present city for at least one month
- Men who have sex, penetrate or not penetrate, with other men in the past year

4.3. Sample Size

Reported consistent use of condoms among DFSWs is so high in Cambodia (around 95%) that no further increase can be detected. However, the proportion of consistent condom use with sweetheart remains relatively low among DFSWs, IDFSWs and moto-taxi drivers. Similarly, the proportion of consistent condom use with male partners in the past month was also low among MSM. Therefore, the prevalence of consistent use of condoms with sweetheart will be used to estimate sample size for direct and indirect female sex workers and moto-taxi drivers. Note that, the sample size for each group of the IDFSWs will be calculated independently and its result will be presented separately. For beer garden workers, the arbitrary baseline value of 50% was used to estimate the sample size since this group is relatively new and their risk behavior is unknown. Likewise, consistent condom use with male partner in the past month was used to estimate sample size for both MSM. Sample sizes will be expected to detect a 10% change in DFSWs and moto-taxi drivers based on the consistent condom use with sweethearts in the BSS 2003. For groups, other than FSWs and moto-taxi drivers, we use 13% change since using 10% change among these groups will require samples which are too large and not feasible for the data collection. Two proportion sample calculation with one sided test, a power of 80% and a level of significance of 5% are used. Then, the sample size for each group was multiplied by the design effect of 2. STATA 9.2 is used to compute the sample size required to detect a change within each group.

Table 2. Estimated sample sizes for BSS 2007 groups

Group	Baseline value %	Change detected %	Sample size needed
DFSWs	54	10	636
Beer promoters	49	13	390
Karaoke workers	42	13	394
Beer garden workers	50	13	388
Long hair MSM	55	13	376
Short hair MSM	55	13	376
Moto taxi drivers	42	10	654

Final sample sizes were rounded and sample size per city/province was doubled in the case of Phnom Penh which shelters most of the population of the risk groups. Inflating sample size in Phnom Penh reduced the sampling weights given to those sampled from Phnom Penh. In addition it eased the recruitment by minimizing sample size in the provinces because completing sample size may prove challenging for some of the sentinel groups in the provinces.

Table 3. Proposed sample size per province and sentinel group

Province	Sentinel groups						
	DFSWs	Beer promoters	Karaoke Workers	Beer garden workers	Moto-taxi drivers	Long hair MSM	Short hair MSM
Phnom Penh	212	130	132	130	218	126	126
Battambang	106	65	66	65	109	63	63
Kampong Cham	106	65	66	65	109	63	63
Siem Reap	106	65	66	65	109	63	63
Sihanouk Ville	106	65	66	65	109	63	63
TOTAL	636	390	396	390	654	378	376

Overall 3,220 individuals were invited to participate in BSS 2007. These large samples of each sentinel group allowed us to do some comparisons between groups. For example we can compare the behavior of beer promoters with either beer garden workers or karaoke workers, or long hair and short hair MSM with regard to some characteristics. However, it is inappropriate to compare across provinces/cities.

4.4. Sampling Procedures

Various sample strategies were used depending on the access to the target groups, the possibilities and feasibilities to establish a sampling frame. The sampling was based on methods that were repeatable even if they are not random. Sampling methodologies included:

- Cluster sampling with equal probability for female sex workers
- Time location sampling for MSM and moto-taxi-drivers.

4.4.1 Direct female sex workers

The DFSWs were selected through cluster sampling with equal probability. Clusters were represented by the brothels located in the city.

The NCHADS team with Provincial AIDS Office (PAO) was responsible for establishing a list of brothels in their city/provinces. The Surveillance Unit was responsible for randomly selecting the clusters from the list provided by the PAO. In each cluster selected, all sex workers aged at least 15 years' old present at the moment of the survey visit were included. This 'take all' approach yielded a self weighted sample at city level. Brothels were sampled until the complete sample size was reached.

Since the median number of DFSWs per brothel was seven, 32 brothels were selected in Phnom Penh and 16 in the provincial cities. However to account for establishments closed, refusal to participate, or selection of brothels of small size, four additional establishments for Phnom Penh and two establishments for each provincial town were randomly selected by simple random sampling from the list. All women

from these reserved clusters might be invited to participate in the survey sites if the sample size was not being met using the initial set of locations. In case the number of total DFSWs in the provincial town was less than the required sample size, a 'take all' approach was applied. Participation was voluntary and verbal consent was taken from all participants. The purpose of the survey was explained to all women in selected brothels. Then, the verbal consent process was administered by the interviewer in a private setting for each individual right before the start of the interview.

4.4.2 Indirect female sex workers

For the BSS 2007, this group consists of three sub-populations: beer promoters, karaoke workers and beer garden workers. The sampling methodology for these groups was cluster sampling with equal probability.

Beer companies, karaoke establishments and beer gardens were considered as clusters. In each city/province, all clusters with the number of women employed were listed. There was an independent sampling frame for each sub group of IDFSWs. Each cluster was assigned a unique number. Then, random table or scientific calculator was used to select the first cluster. In each selected cluster, all women presented at the time of the visit were invited by the management to participate in the survey. This random selection process was repeated till the required sample size was reached – that is, more than one beer company, beer garden, or karaoke establishment were selected to reach sample size. The following is the summary of the sampling process for IDFSWs:

- Listing all clusters (beer companies, karaoke establishments, restaurant/beer gardens) with numbers of women in each cluster.
- Giving each cluster on the list a number.
- Randomly selecting a cluster from the list using a random number table or a calculator to get a number. Finding the selected cluster on the list.
- Interviewing all women in the selected clusters
- Repeating random selection to select more clusters until the total sample size was reached.

In Phnom Penh where some beer companies or karaoke establishments were very large (i.e.: more than 100 women), in this case the whole company/establishment were grouped into two or three clusters of 50 to 60 women on the basis of their shift of work or outlets. All clusters (from all beer companies) were listed as the sampling frame for beer promoter in Phnom Penh.

In provinces where the total number of potential participants was less than required sample size, the 'take all' approach was used. The purpose of the survey was explained to all selected women. Participation was voluntary, and verbal consent was given to all participants. The verbal consent was administered by the interviewer in a private setting prior to the interview.

4.4.3 Moto-taxi drivers

Moto-taxi drivers were selected using time-location sampling. Together the NCHADS team and PAO established a list of the parking spots and street corners with average numbers of moto-taxi drivers who always congregated there together with the business hours at each specific spot. Clusters were represented by each spot for a two-hour period. Where possible the sampling frame was designed so that clusters include a morning, late morning, afternoon, and late afternoon shift.

As detailed in the example below, the sampling frame included at most three time frames and was included three times in the samples. Some other locations that were only active in a limited number of hours a day might be represented by unique cluster.

Team leaders randomly selected a location with time slot to start the interviews. Note that each location with the time slot was allowed to be selected twice into the survey. At the selected spots and time, all moto-taxi drivers presented were eligible for the study. The team leader assigned a number for each moto-taxi driver who parked at the selected spot and randomly selected those who were interviewed first and we also had an order for interview. Those who did not wish to participate, were recorded as a refusal. As soon as an interviewer completed an interview, they invited the next moto-taxi driver who was waiting to be interviewed, or new comers. After finishing with this cluster, the team leader randomly selected the next cluster from the list. This process was repeated until the required sample size was reached.

Sampling frame example:

1. Corner main place & street1 8AM to 10AM
2. Corner main place & street1 10AM to 12PM
3. Corner main place & street1 4PM to 6PM
4. Market South 8AM to 10AM
5. Market South 10AM to 12PM
6. River bank 4PM to 6PM

Participation was voluntary and verbal consent was given to all participants. The verbal consent was administered by the interviewer in a private setting prior to interview.

4.4.4 Men who have sex with men

Time-location sampling was used to select MSM. The NCHADS team and PAO collaborated with NGOs working with MSM to establish a list of the parks, river banks, and street corners where MSM congregate to meet partners, and noted the business hours of each spot. Clusters were represented by each spot for a three-hour period. The sampling frame was designed so that selected spots were visited at busy hours. To recruit these groups, sampling, which was similar to the one used with moto-taxi drivers were developed. In short, the sampling process consisted of

- Listing all venues with time slot, where MSM meet
- Team leader randomly selected the venues for each day
- At the end of the day, the team leader added up the numbers of interviewed participants. If the target number of participant was not yet achieved, more locations were randomly selected till the sample size was reached.
- At each selected time slot location, all eligible MSM who stayed in the selected locations were invited into the study
- The team leader recorded the number eligible participants that visited the spot during the time frame, the number of individuals invited to participate and the number of refusals.
- Participation was voluntary and verbal consent was given to all participants. The verbal consent was administered by the interviewer in a private setting prior to interview.

4.5 Operational Procedures

4.5.1 Recruitment of participants

Recruiting some of these high-risk populations required addressing the illegal status, socially marginalized nature of many of these groups or the behavior that they engage in. As such the following principles were adhered to in the recruitment.

Voluntary consent

To access groups required going through intermediaries such as brothel owners, employers, etc. While these intermediaries were used to gain access, they were not utilized for any component of recruitment and no information regarding recruitment was given to these intermediaries. Locations where intermediaries appeared to be coercive were excluded from the survey.

Maximizing access – Studies were designed that coordinate with the efforts of non-governmental organizations (NGOs) already working with these groups and/or members of the group as part of the study team to explain more clearly the purpose, risk and benefits of the study. This approach increased the study team access to the target population and generally strengthened the NGOs tied with the community.

Maximizing protection of study subjects – Given the clandestine nature of the behavior of the much of the study population efforts needed to be in place to protect individual study participants and the group as a whole from social and legal risks. Individuals were protected by not recording names anywhere – consent was voluntary with a witnessed verbal consent and all study documents were labeled with only a study number.

4.5.2 Study Teams

A multi-person study team was organized for each of the target groups. In general these teams were the same sex as the target group to maximize comfort of the participants.

Each team included representatives from the NCHADS who served as supervisor and team leader. They were responsible for all the technical work (for example; identify the sampling locations, randomly select locations). Provincial AIDS office staff played roles as local coordinators. They were responsible for negotiating with local key people to ensure access to the target population. The study supervisor ensured that sampling respected the protocol and recorded refusals and attendance at each spot. They ensured that data were collected in privacy and anonymously, and that data were safely stored to prevent any breach of confidentiality. They checked all questionnaires on the field to ensure completeness of data and solved problem in agreement with principle investigator when they occurred.

NGO representatives served as facilitators for certain groups such as MSM.

Interviewers were of same sex as participants and received training on non-judgmental completion of the questionnaire and procedures to administer informed consent. Staff from respective Provincial Health Departments and PAOs (male and female) were trained as interviewers to interview all groups, except MSM. Experienced MSM interviewers were recruited to interview MSM these participants.

4.5.3 Data collection procedures

All interviews were conducted face-to-face by gender-matched interviewers. Interviewers and interviewees found a place where the interview could be conducted in privacy. Supervisors ensured privacy by providing explanations about the survey to those stopping out of curiosity to look and requested they did not stay interviewers. The questionnaires included socio-demographic information, sexual and drug taking behaviors, exposure to prevention program, and use of STI and voluntary, confidential counseling and testing (VCCT) services. Respondents were told that they could refuse to answer any of the questions and could withdraw from the study at any time.

4.5.4 Field Monitoring

Monitoring was conducted by the team leaders on a day to day basis to ensure that the study adheres to the protocol and that informed consent procedures were executed and documented accordingly. All aspects of data collection were overseen by the principal investigator.

In addition to the team leaders' routine monitoring, external supervision was conducted by NCHADS and FHI. External supervisors reviewed the sampling frames, the sampling methodology, the records of cluster information sheets, the informed consent process and its documentation, the respect of participant's privacy and the adequate storage of survey forms. Also, supervisors ensured that data collection was conducted in respect of participant's sensibility and identity.

4.6 Data Entry and Analysis

Questionnaires and cluster data forms were kept in a safe place and were brought to the Surveillance Unit at NCHADS when the data collection in that particular city/province ended. Double data entry was performed by two independent institutions. Data entry was done using 'Epi data' which was easy to use and allowed cross checking of the two entered datasets. NCHADS cleaned the data sets, corrected discrepancies and solved inconsistencies. Data analysis was performed using STATA software packages. Data were weighted for provincial population size for DFSWs. Analysis was performed on aggregates from all provinces. Simple proportions were calculated to determine prevalence.

5.1. Sample Sizes

5.2. Female Sentinel Groups

5.3. Moto-taxi drivers

5.4. Men who have sex with men

5.1. Sample Sizes

Overall, sample sizes (shown in Table 4) met or even slightly exceeded required sample sizes (in Table 3) in all groups apart from DFSWs and the Beer garden workers. The deficits in DFSWs came from Kampong Cham and

Siem Reap where only 97 and 70 women were interviewed respectively. In Battambang, no beer garden workers were interviewed and samples sizes were also smaller in Kampong Cham and Sihanoukville. The sample sizes for Long hair MSM were also smaller than expected in Kampong Cham (25 instead of 63) and Sihanoukville (55 not 63).

Table 4. Actual sample sizes in BSS 2007

Province	Sentinel groups						
	DFSWs	Beer promoters	Karaoke Workers	Beer garden workers	Moto-taxi drivers	Long hair MSM	Short hair MSM
Phnom Penh	213	133	132	130	218	135	132
Kampong Cham	97	64	66	0	110	25	66
Battambang	106	70	68	59	109	62	65
Sihanoukville	106	63	66	46	110	55	61
Siem Reap	70	65	63	64	109	64	64
109 TOTAL	592	395	399	299	656	341	668

Table 4: The number of participants in each sentinel group.

5.2. Female Sentinel Groups

The information is summarized in Table 5.

5.2.1. Demographic Characteristic

A. Direct Female Sex Workers

The mean age of the DFSWs is 25.2 years (median 25 years) with the mean age at first marriage of 18.2 years (median 18 years) although 52% are currently divorced. Forty-three percent have no formal education and the mean monthly income is \$135 (median \$100). The median number of months in their current job was 12, but 80% said they had been in the city for less than six months.

B. Indirect Female Sex Workers

Of the IDFSWs, the beer promoters were the oldest with a mean age of 25.5 years (median 25 years), Karaoke workers and beer garden workers were similar of similar age with means of 22.9 years and 21.8 years respectively (median 22 years and 21 years). Mean age at first marriage was 19.2 years for both beer garden workers and beer garden promoters and 18.7 years for karaoke workers (medians 19, 18 and 18 years), with the lowest rates of being divorced among beer garden workers (26% compared to 30% in karaoke workers and 43% in beer promoters).

The IDFSWs had more schooling than the DFSWs with 18% beer promoters, 16% Karaoke workers and only 10% beer garden workers having no formal education. Mean monthly incomes were \$109, \$113 and \$136 for beer garden workers, beer promoters and karaoke workers respectively (medians \$90, \$89, \$100).

Most of the beer garden workers (51%) and beer promoters (65%) lived with a spouse or relative where only 42% of karaoke workers live with a spouse/relative. All IDFSWs reported being slightly less mobile than the DFSWs with beer promoters being the most stable at 69% being in the current city for less than six months and working at the same establishment for a median of 12 months but as many as 77% beer garden workers and 79% karaoke girls had been in the city for less than six months (median length of time in current establishment is five and six months).

Table 5. The demographic characteristics of both direct and indirect female sex workers in Cambodia.

	DFSWs	IDFSWs		
		Beer Garden workers	Beer promoters	Karaoke workers
Mean age year (Median)	25.2 (25)	21.8 (21)	25.5 (25)	22.9 (22)
Mean age at first marriage (Median)	18.2 (18)	19.2 (19)	19.2 (18)	18.7 (18)
With no school (%)	43	10	18	16
Divorced (%)	52	26	43	30
Mean monthly income US\$ (Median)	135 (100)	109 (90)	113 (89)	136 (100)
Living with spouse or relatives (%)		51	65	42
Have been for less than 6 months in current city (%)	80	77	69	79
Median # months in current job	12	5**	12**	6**

**The current establishment.

5.2.2. Sexual initiation and history of commercial sex

The information is summarized in Table 6, below.

A. Direct Female Sex Workers

The mean age of sexual debut for a DFSW was 17.8 years (median 18 years), so fractionally before marriage. For 22% of the DFSWs, their first sexual partner was a client. Almost a third (31.6%) had an abortion in the last 12 months and 45% had sexual intercourse with a sweetheart.

B. Indirect Female Sex Workers

The mean age of sexual debut for the IDFSWs was slightly higher than that of the DFSWs at 18.9 years for beer garden workers, 19.2 years for beer promoters and 18.8 years for karaoke workers (medians of 18, 19 and 19 years). Many IDFSWs had not had sexual intercourse in the last 12 months (44% beer garden workers, 23% beer promoters and 26% karaoke workers). Only one in five (20%) beer garden workers and one in four (27%) of beer promoters had sold sex in the past 12 months compared to 46% of karaoke workers who had. Almost half (44%) of all beer promoters and karaoke workers and 39% beer garden workers had sexual intercourse with a sweetheart. The median number of sexual partners in the last 12 months for both beer garden workers and beer promoters was one (mean 3.3 and 4.2 respectively) and was three for karaoke workers (the mean was much higher at 15.1). The percentage of women that had an abortion in the last 12 months was 17.2%, 30.3% and 24.7% for beer garden workers, beer promoters and karaoke workers.

Table 6. A summary of the different sexual behaviors of direct and indirect female sex workers.

	DFSWs	IDFSWs		
		Beer Garden workers	Beer promoters	Karaoke workers
Mean age at first sex (median)	17.8 (18)	18.9 (19)	19.2 (19)	18.8 (18)
Did not have sex past year (%)		44	23	26
Sold sex past year (%)		20	27	46
Had last abortion in the past 12 months (%)	31.6	17.2	30.3	24.7
Had sex with sweetheart in the past year (%)	45	39	44	44
Mean number of partner past year (median) among sexually active		3.3 (1)	4.2 (1)	15.1 (3)

5.2.3. Sex Work Conditions

The data is summarized in Table 7.

A. Direct Female Sex Workers

As mentioned before, 22% of the DFSWs had their virginity sold. The mean number of clients in their last working day was 4.4 (median 4) and the mean cost of intercourse is 10,400 riels (median 7,200 riels, 4000 riels is approximately US\$1). The brothels had a mean number of 6.8 sex workers (median 5).

B. Indirect Female Sex Workers

A few of the beer garden workers (4%), beer promoters (5%) and more of the karaoke workers (12%) sold their virginity. As shown in more detail in section 2.2.6 'condom use', more karaoke workers report having sexual intercourse with clients in the previous three months, than either beer promoters or beer garden workers (45% vs. 26% and 16%).

Table 7. A summary of working conditions for direct and indirect sex workers.

	DFSWs	IDFSWs		
		Beer Garden workers	Beer promoters	Karaoke workers
First partner was a client (%)	22	4	5	12
Mean number of clients last working day (median)	4.4 (4)			
Median cost per sexual intercourse in Riels (Median) – 1US\$ = 4,000 riels	10,400 (7,200)			
Mean number of FSWs in establishment (median)	6.8 (5)			

5.2.4. Work history

Previous places of work are summarized in Figure 1.

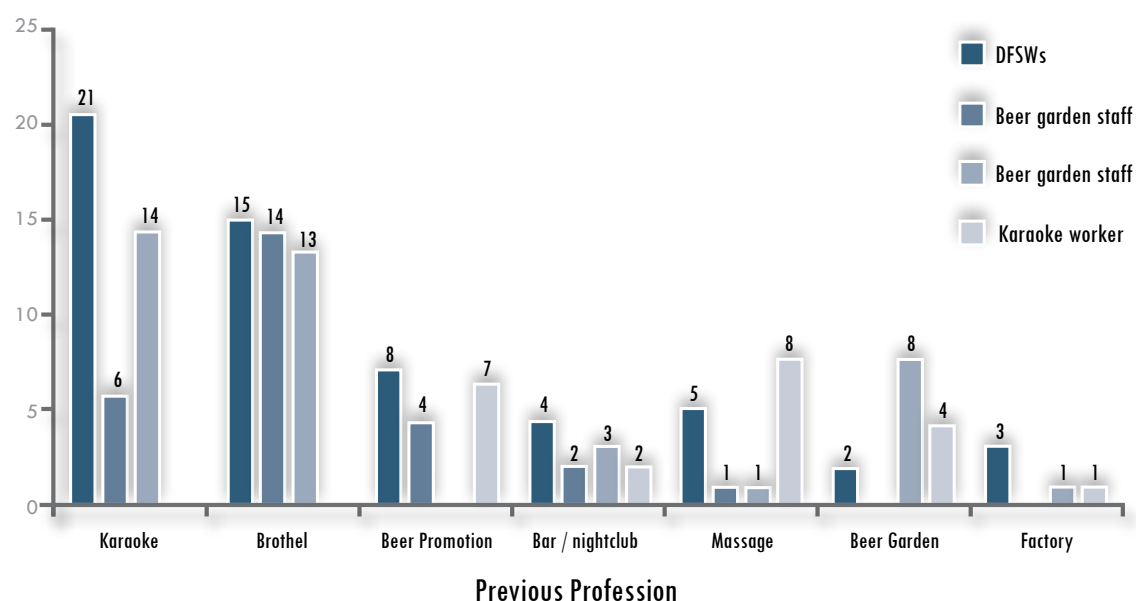
A. Direct Female Sex Workers

The largest transmission of all professions was from 'karaoke' worker to brothel based DFSW with 21% of DFSWs saying they used to work as karaoke workers. The next most common previous profession for DFSWs was beer promotion (8%) followed by the massage parlor (5%). Only 2% reported having previously worked in beer gardens. This could be due to how recently this became an option for work.

B. Indirect Female Sex Workers

Beer promoters and beer garden workers named karaoke worker as a common previous profession as well (14% and 6% respectively). High numbers of the beer garden workers, beer promoters and karaoke workers had worked in brothels previously (15%, 14% and 13% respectively). Karaoke workers also worked in beer promotion (7%). Eight percent of karaoke workers had previously worked in massage parlors and 8% of beer promoters used to work in beer gardens. Monitoring previous professions highlights how these distinct groups can overlap.

Figure 1. The percentage of each sentinel group that had various previous professions



5.2.5. Sweethearts and non-commercial partners

Reported levels of having sexual relationships with a sweetheart in the last three months were similar between DFSWs and all types IDFSW and will be discussed in more detail in the section on condom use.

A. Direct Female Sex Workers

Slightly more than two in five DFSWs (43%) reported having had sexual intercourse with a sweetheart in the last three months.

B. Indirect Female Sex Workers

The same number of beer promoters as DFSWs (43%) reported having had sexual intercourse with a sweetheart in the last three months. Slightly fewer beer garden workers and karaoke workers reported having had sexual intercourse with a sweetheart in the last three months (38% vs. 43%)

5.2.6. Condom Use

Condom use varied greatly depending on whether the partner was a paying client or was a sweetheart, demonstrated in Figures 2 and 3.

A. Direct Female Sex Workers

When having sexual intercourse with a sweetheart in the last month, just over half of DFSWs used condoms (20% had protected sex 18% had unprotected sex, 52.6% of sex was protected) as shown in Figure 2. When having sexual intercourse with a client in the last week, 93% used condoms compared to 6% that did not (94% of sex was protected), shown in Figure 3.

From Table 8, it can be seen that in Phnom Penh, 9% said that condoms were not available at their workplace, compared to 1% of DFSWs in the provinces. When asked about the last time they had intercourse with a client, 99% DFSWs said that they used a condom. Almost half of DFSWs (47%) used two condoms the last time they had commercial sex, and 37% had a condom break in the last three months.

B. Indirect Female Sex Workers

Unprotected sex with a sweetheart in the last three months was around one fifth in all IDFSWs (24% in karaoke workers, 20% in beer promoters and 19% in beer garden workers) whereas unprotected intercourse with a client (in the last three months) was much lower (6% in karaoke workers, 5% in beer workers and 2% in beer garden workers). Beer promoters had the most reported sex with a condom in the IDFSW group when having sexual intercourse with a sweetheart (23% compared to 19% of both beer garden workers and karaoke workers) where as when having sex with a client, karaoke workers had the most 'protected sex' (39% compared to 21% of beer promoters and 14% of beer garden workers).

When those that were not having sex were excluded, it is seen that the karaoke workers had the highest rate of unprotected sex with a sweetheart (72.7% of karaoke workers had unprotected sex with a sweetheart in the last three months) and that beer promoters had the highest rate of unprotected sex with a client (19.2% had unprotected sex with a client in the last three months).

Overall, karaoke workers are more likely to have sex with a client than a sweetheart and beer promoters and beer garden workers are more likely to have sex with a sweetheart than a client. As half of intercourse with sweethearts is unprotected (in all IDFSW groups) there is much more unprotected sex with sweethearts than with clients.

As with DFSWs, Table 8 highlights that there are fewer condoms available at work places in Phnom Penh than in the provinces (beer garden workers 51% vs. 32%, beer promoters 39% vs. 8% and karaoke workers 46% vs. 2%). Condom use during last commercial intercourse was 88%, 96% and 95% for beer garden workers, beer promoters and karaoke workers respectively. Between a quarter and a third of IDFSWs used two condoms the last time they had commercial sex (27%, 29% and 26% beer garden workers, beer promoters and karaoke workers respectively) and 11%, 8% and 15% (respectively) had a condom break in the last three months. Condom breakage and using two condoms at a time were lower in IDFSWs.

Figure 2. Pattern of condom use with sweethearts for direct and indirect female sex workers.

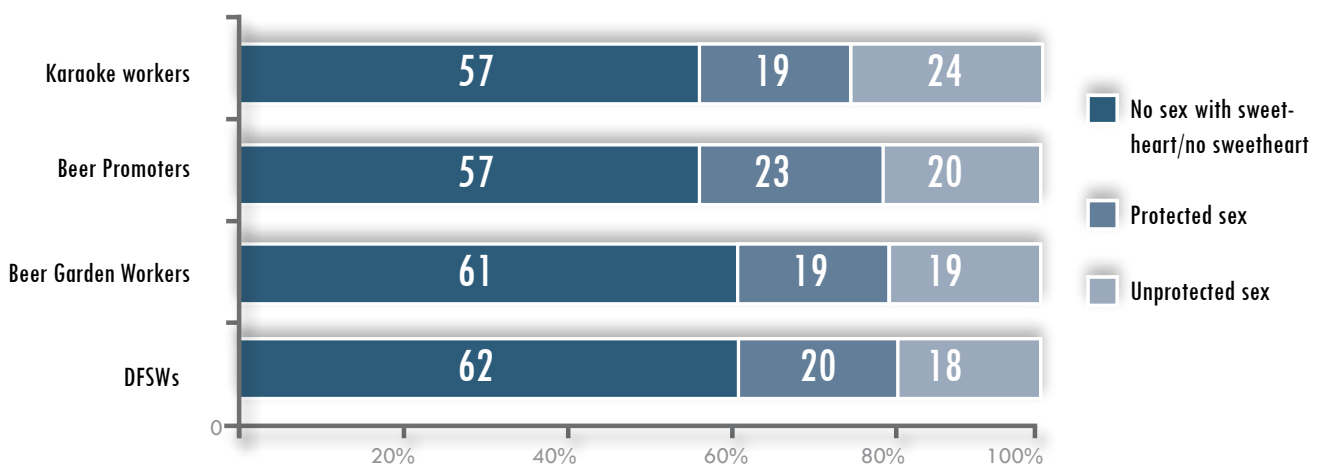


Figure 3. Pattern of condom use with clients for direct and indirect female sex workers.

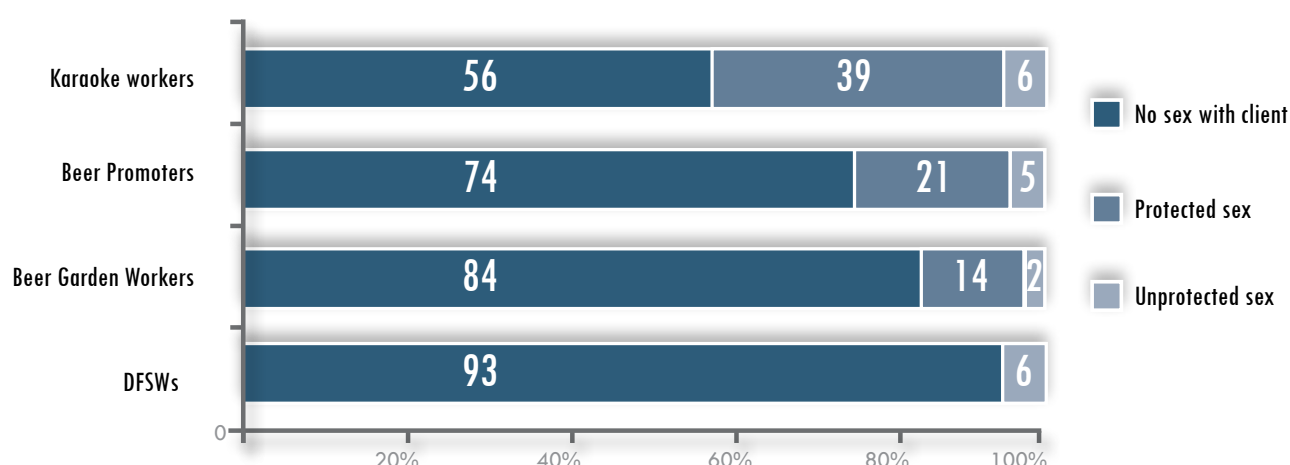


Table 8. The table summarizes practices relating to condom use in direct and indirect female sex workers

	DFSWs	IDFSWs		
		Beer Garden workers	Beer promoters	Karaoke workers
Condom NOT AVAILABLE at workplace or nearby workplace in Phnom Penh (%)	9	51	39	46
Condom NOT AVAILABLE at workplace or nearby workplace in Provinces (%)	1	32	8	2
Condom use at last commercial sex (%)	99	88	96	95
Had condom breakage in past 3 months (%)	37	11	8	15
Used two condoms at a time at last commercial sex (%)	47	27	29	26

5.2.7. Sexually Transmitted Infections and reproductive Health

The data is summarized in Table 9.

A. Direct Female Sex Workers

When asked about symptoms of STI, 53.4% reported at least one of the symptoms had occurred in the last year. When asked more specifically about health seeking behaviors, 84.8% DFSWs had been to an STI clinic in the previous three months, 25.9% of these having been encouraged to attend by a peer-educator and 89.7% encouraged by the owner of their establishment. More DFSWs sought treatment at the clinic than the pharmacy when they had their most recent STI and the second most popular was (84.5% vs. 11.3%) with 4.3% reporting no treatment.

B. Indirect Female Sex Workers

Fewer IDFSWs than DFSWs reported incidence of STI symptoms in the last year (24.2% beer garden workers, 38.5% beer promoters and 35.3% karaoke workers) including vaginal discharge (23.4%, 35.4% and 34.3% respectively). Fewer IDFSWs than DFSWs reported visiting an STI clinic in the previous three months (82.8% beer garden workers, 58.4% beer promoters and 64.7% karaoke workers). Nearly half of IDFSWs that attended the STI clinic were encouraged to do so by peer-educators, slightly fewer beer promoters (39.1% instead of 48.4% beer garden workers and 48% karaoke workers). The clinic was again the most popular choice for treatment (59.7% beer garden workers, 77.4% beer promoters and 63.3% karaoke workers), but there was less difference between it and the pharmacy in popularity within these groups than there was in the DFSWs (25.7%, 14.8% and 19.7% respectively). More IDFSWs than DFSWs reported no treatment (9.5%, 5.2% and 15.7% respectively).

Table 9. Details on the percentages of DFSWs and IDFSWs that reported symptoms of STI and about the way they sought treatment.

	DFSWs	IDFSWs		
		Beer Garden workers	Beer promoters	Karaoke workers
Any symptom of STI in the past year (%)	53.4	24.1	38.5	35.3
Vaginal discharge in the past year (%)	47.3	23.4	35.4	34.3
Did NOT visit to the STI clinic past 3 months (%)	15.2	82.8	58.4	64.7
Referred by a peer-educator at last visit to STI clinic (%)	25.9	48.4	39.1	48.0
Get support from establishment owner to visit STI clinic (%)	89.7			
Facilities used for last STI (%)				
- Clinic	84.5	59.5	77.4	63.3
- Pharmacy	11.3	25.7	14.8	19.7
- No treatment	4.3	9.5	5.2	15.7

5.2.8. Sources of Information about HIV/AIDS

The data is summarized in Figure 4, below.

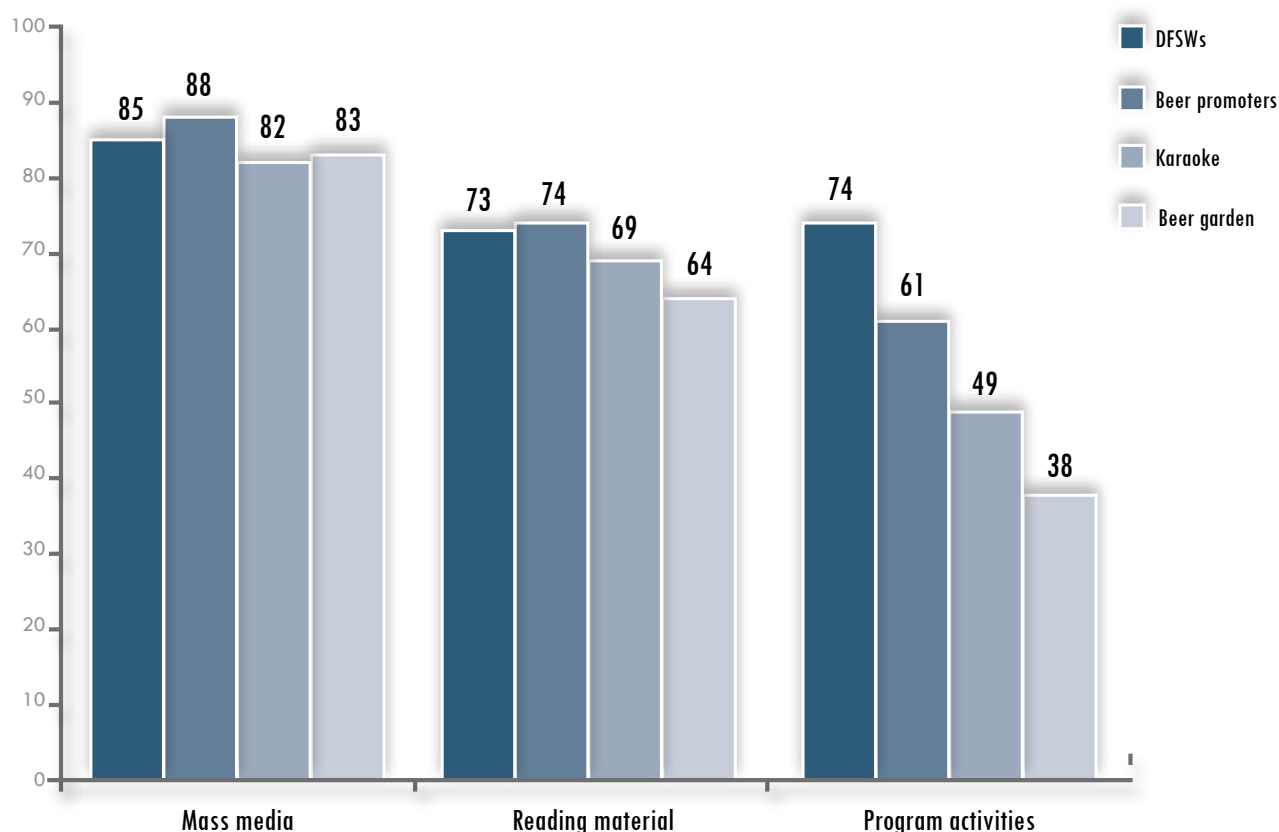
A. Direct Female Sex Workers

Most DFSWs received information about HIV/AIDS from 'Mass Media' (85%), the next most informative resource was 'program activities' (74%) and then 'reading materials' (73%). When asked about providers of information, three out of five women said they received information from STI clinic staff (61%) and outreach workers (58%), only 37% received information from VCCT staff.

B. Indirect Female Sex Workers

In all groups of IDFSW most women received information from mass media, then reading materials and then program activities. The number who reported gaining information from 'mass media' was consistently high (82%-88%), there was slightly more difference in the number of women who found reading materials useful (beer promoters the highest at 74% and beer garden workers at 64%) and quite some variation in the number of women who gained information from 'program activities' (61% beer promoters, 49% of karaoke workers and 38% of beer garden workers). When looking at providers of information, just under half (and lower for karaoke workers) were given information from outreach workers in the last three months. One third of beer promoters received information from STI clinic staff and one third from VCCT staff. Karaoke workers were more likely (after outreach workers) to receive information from STI clinic staff than VCCT staff (31% vs. 21%) and beer garden workers were more likely to receive information from VCCT staff than STI clinic staff (22% vs. 18%).

Figure 4. The percentages of DFSWs and IDFSWs that receive information on HIV/AIDS from mass media, reading material and program activities.



5.2.9. HIV testing

The data on Voluntary, confidential, counseled testing (VCCT) use is summarized in Table 10.

A. Direct Female Sex Workers

Almost three quarters (74%) of the DFSWs interviewed reported that they had received an HIV test in the previous 12 months with the majority (81.9%) having had it at a VCCT, 13.2% having it at a public hospital and only 4.9% at a private hospital. Most women (94.3%) received their test result and 95.3% were offered counseling at their last test.

B. Indirect Female Sex Workers

Two thirds (67.1%) of beer promoters had an HIV test in the past year compared to only 41.1% of beer garden workers (50.4% of karaoke workers). Most IDFSWs used the VCCT facility (77.5% beer garden workers, 85.1% beer promoters and 75.9% karaoke workers). Slightly more beer promoters and karaoke workers attended the public hospital than private clinics (8% vs. 6.9% and 12.8% vs. 11.3%) whereas more beer garden workers attended the private clinics than the public hospital (14.2 vs. 8.3%). Karaoke workers had a similar percentage of people receiving their results as DFSWs (95.4%) and the beer garden workers and beer promoters had slightly higher rates at 98.3% and 98.8% respectively. Interestingly, the beer promoters had the same reported rate of receiving counseling at testing (95.0%) but the beer garden workers and karaoke workers had lower rates of receiving counseling (86.7% and 85.4%)

Table 10. Details on where DFSWs and IDFSWs went for testing and their experience.

	DFSWs	IDFSWs		
		Beer Garden workers	Beer promoters	Karaoke workers
Had HIV test in the past year (%)	74.2	41.1	67.1	50.4
Facility used at last test (%)				
VCCT	81.9	77.5	85.1	75.9
Private laboratory	4.9	14.2	6.9	11.3
Public hospital	13.2	8.3	8.0	12.8
Received results at last test (%)	94.3	98.3	98.5	95.4
Received counseling at last test (%)	95.3	86.7	95.0	85.4

5.2.10. Attitudes regarding people living with HIV

Data is summarized in Table 11, below.

A. Direct Female Sex Workers

Attitudes have changed since the last BSS and now 93.9% DFSWs would provide care for a family member with HIV, 87.8% would buy food from a PLHIV and less than a third would keep the knowledge that a family member had the virus. When asked about their knowledge about the possible care 83.8% of women interviewed said they knew ART were available and 90.2% believed they could get ART if they need them. Nearly two thirds (63.2%) of women knew about the OI/ART clinics but fewer than a third (30.1%) knew about home based care.

B. Indirect Female Sex Workers

Attitudes towards PLHIV varied slightly between groups of IDFSW but were essentially similar to those of the DFSWs. More beer promoters were positive towards PLHIV than beer garden workers or karaoke workers when asked if they would provide care for infected family members or buy food from PLHIV (96% compared to 94.3% or 94.5% and 89.6% compared to 79.3% and 83.2%). Beer garden workers were however less likely to keep diagnosis of a family member a secret (28.6% compared to 31% beer promoters and 36.1% of karaoke workers). Knowledge about care packages

was lower among IDFSWs than DFSWs (apart from beer promoters) with 73.6% beer garden workers and 75.9% karaoke workers knowing ART are available (87.8% beer promoters) and with 78.9% beer garden workers and 87.4% karaoke workers believing they would be available if needed (88.8% of beer promoters). Around half of IDFSWs knew of OI/ART centers' again with the beer promoters having the most knowledge (60.9%). Only a quarter of IDFSWs knew about home based care.

Table 11. Details on the different attitudes of DFSWs and IDFSWs towards people living with HIV.

	DFSWs	IDFSWs		
		Beer Garden workers	Beer promoters	Karaoke workers
Would you provide care to a HIV infected family member (%)	93.9	94.3	96.0	94.5
Would you buy food from a PLHIV (%)	87.8	79.3	89.6	83.2
Would you keep it secret if a family member is infected with HIV (%)	32.3	28.6	31.0	36.1

5.2.11 Drug abuse

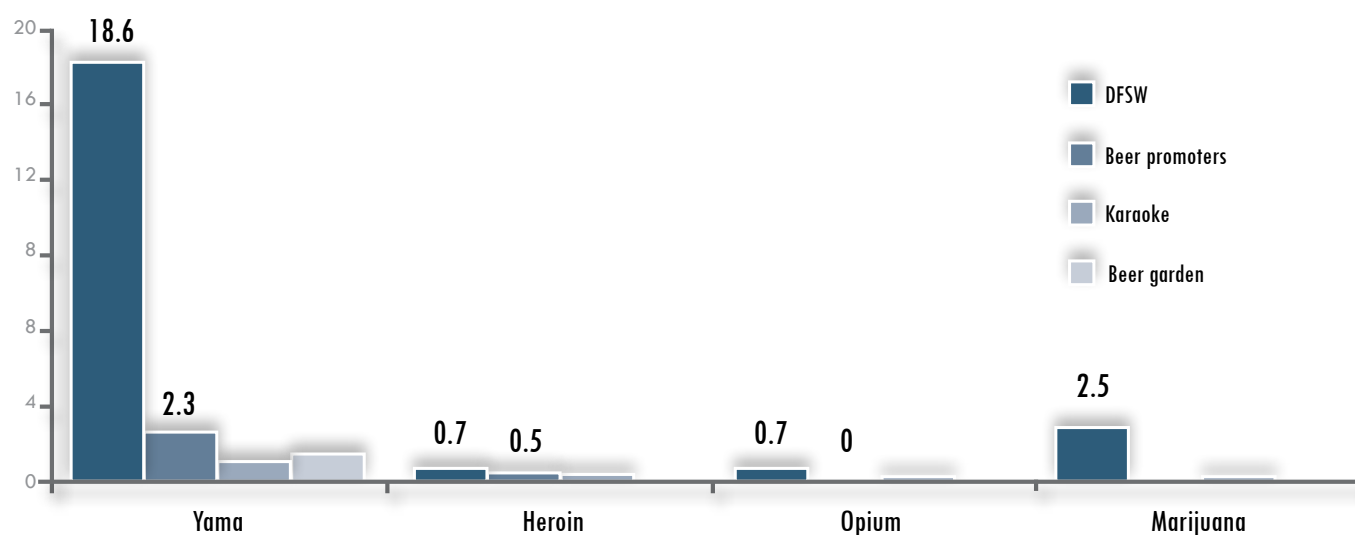
A. Direct Female Sex Workers

Figure 5, (below) shows that very few DFSWs reported having used heroin (0.7%), opium (0.7%) or marijuana (2.5%) but 18.6% had used Yama, an amphetamine.

B. Indirect Female Sex Workers

Yama was again the most popular drug but only 2.3% of karaoke workers used it and fewer beer promoters and beer garden workers. Karaoke workers and beer promoters (0.5%) had used heroine and a very few beer promoters had used either opium or marijuana.

Figure 5. The percentages of DFSWs and IDFSWs that have used various drugs within the last year.



5.3. Moto-taxi drivers

5.3.1. Demographic characteristics

Summarized in Table 12, below, the moto-taxi drivers interviewed had a mean age of 33.4 years, 33% had not attended school or had only attended primary school and 82% were married. One third of them said they had other jobs and the mean reported income last month was 340,000 riels (approx \$84, median 300,000 riels) and just over a third (37%) reported having lived in the city for less than six months.

Table 12. Demographic characteristics of Moto-taxi drivers

	Moto-taxi
Mean age	33.4
With no school or primary school (%)	33
Married (%)	82
Mean income in Riels (median)	340,000 (300,000)
With other job (%)	33
Lived for 6 month or less in this city (%)	37

5.3.2. Sexual initiation and sexual behaviors

All data are summarized in Table 13, below. The mean age reported for first sex was 21.6 years with 61% reporting to have had pre-marital sex with a woman other than their spouse. Nearly half (47%) had multiple sexual partners in the last year, 7% reporting to have intercourse with a sweetheart and 40% with a FSW. Of those that had intercourse with a FSW, 62% had consumed alcohol.

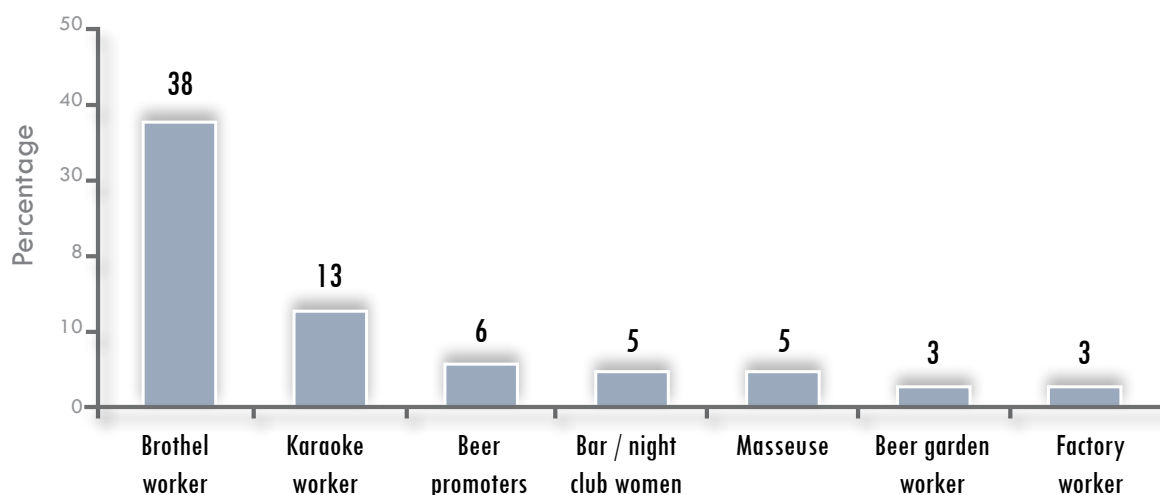
Table 13. Information about the sexual behaviors of moto-taxi drivers.

	Moto-taxi
Mean age at first sex	21.6
% Had premarital sex with another woman than the spouse	61
% Had multiple sexual partners in the past year	47
% Had sex with a sweetheart past year	7
% Had sex with a FSW past year	40
% Drunk alcohol before last sex with FSW	62

5.3.3 Paid sex

When asked about what type of FSW they had employed in the last year, brothel-based, DFSW were far more common (38%) than the others (Figure 6). Karaoke workers were the next most commonly paid sexual partner (13%), Beer promoters, bar/nightclub women and masseuses were the next (6%, 5% and 5% respectively) and only 3% reported paying beer garden workers and factory workers for sex.

Figure 6. The percentage of moto-taxi drivers that have visited each type of commercial sex workers in the past year.



5.3.4. Condom use

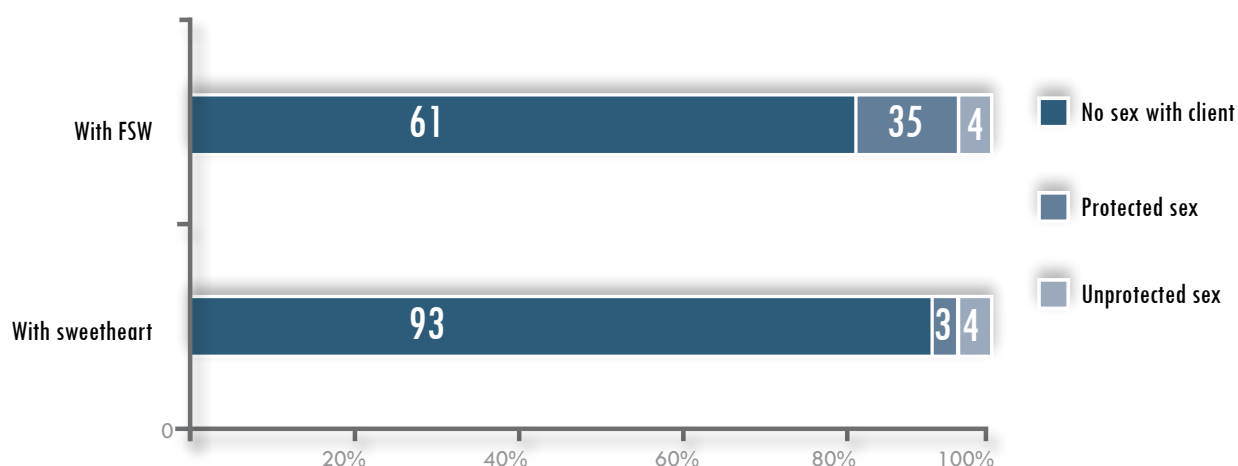
Condom use with spouse is low at 16.4% but very high with FSW's at 95.2% (at last commercial sex) Table 14, below). With sweethearts it was lower again at 71.7% (at last time of sexual intercourse). Ten percent had a condom break in the last three months and 60% had used two condoms at the same time last time they had paid sex. The last condom the men purchased was from a brothel (67%), then a pharmacy (21%), other (7%) and lastly at a hotel/guesthouse (5%).

Table 14. The patterns of condom use among moto-taxi drivers.

	Moto-taxi
Used condom at last sex with spouse (%)	16.4
Used condom at last sex with sweetheart (%)	71.7
Used condom at last sex with FSW (%)	95.2
Had condom breakage in past 3 months (%)	10
Used two condoms at a time at last commercial sex (%)	60
Where did you get your last condom? (%)	
- Brothel	67
- Pharmacy	21
- Guest house / hotel	5
- Other	7

When looking at condom use over the last year with FSWs and condom use over the last three months with sweethearts, condom use was much lower when having sex with sweethearts (shown in Figure 7). With FSWs it dropped to 89.7% and with sweethearts, to 42.9%.

Figure 7. The percentages of moto-taxi drivers that reported no sex, protected and unprotected sex with FSWs in the last year or with sweethearts in the past three months.



5.3.5. Care seeking behaviors related to sexually transmitted infections

As shown below, in Table 15, only 2.9% of men reported having any STI symptoms in the last year (1% reported urethral discharge). Most men sought treatment for their last STI at a clinic (57.9%), 36.8% used a pharmacy and 5.3% sought no treatment.

Table 15. Reported symptoms and health seeking behaviors of moto-taxi drivers

	Moto-taxi
Any symptom of STI in the past year (%)	2.9
Urethral discharge in the past year (%)	1
Facility used at last episode of STI (%)	
- Clinic	57.9
- Pharmacy	36.8
- No treatment	5.3

5.3.6. HIV testing

One fifth of the men interviewed (20%) reported to have undergone an HIV test in the past year with 42% going to a VCCT, 37.7% to a public hospital and 19% to a private laboratory (see Table 16). Many men received their results (91.8%) and 82.3% received counseling at their last test.

Table 16. The percentage of moto-taxi drivers that had an HIV test and their experience.

	Moto-taxi
Had HIV test in the past year (%)	20
Facility used at last test (%)	
VCCT	42
Private laboratory	19
Public hospital	37.7
Received results at last test (%)	91.8
Received counseling at last test (%)	82.3

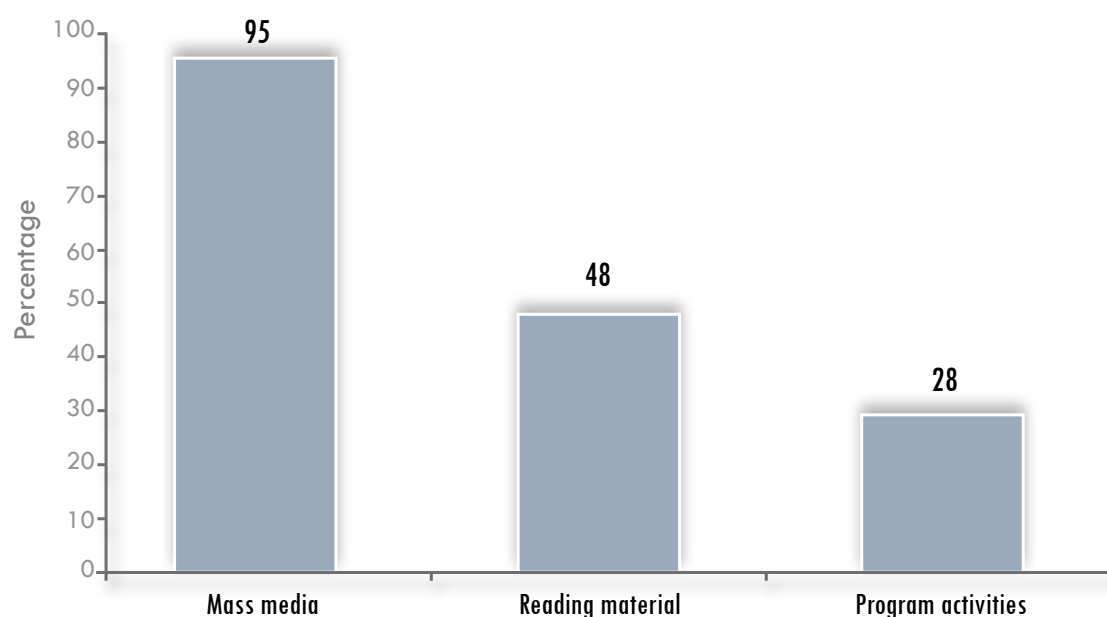
5.3.7 Sources of HIV/AIDS information

Summarized in Table 17, knowledge on current or possible availability of ART was good (86.7% and 90.5% respectively). Knowledge about the OI/ART clinics and home based care was much lower (51.5% and 28.8%). 'Mass media' was the main source of information about HIV/AIDS (95%), 48% receiving information through reading material and only 28% through program activities (see Figure 8).

Table 17. The level of knowledge about available care packages among moto-taxi drivers.

	Moto-taxi
Know that ART are available (%)	86.7
Believe can get ART if needed (%)	90.5
Know OI / ART clinics (%)	51.5
Know Home based care services (%)	28.8

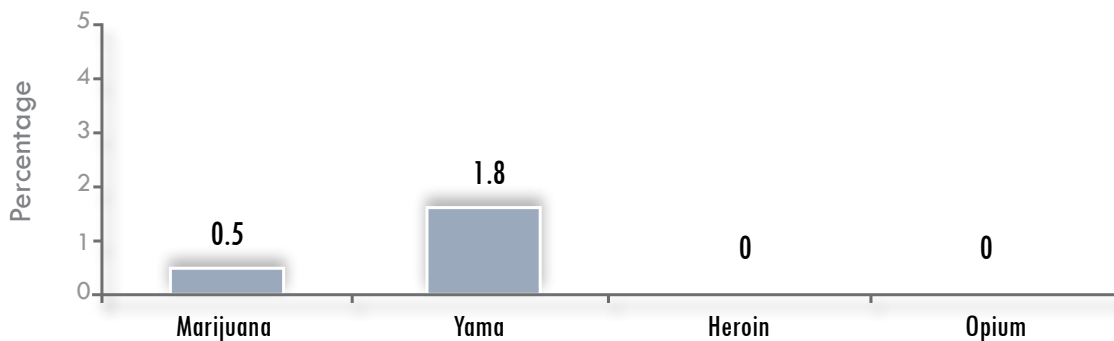
Figure 8. The percentages of moto-taxi drivers who get their information about HIV/AIDS from different sources.



5.3.8. Drug abuse

Illustrated in Figure 9, reported drug use was very low among moto-taxi drivers with none having used heroin or opium in the last year and only 0.5% having used marijuana. Again the most commonly used drug was Yama, although only 1.8% drivers reported its use.

Figure 9. The percentages of moto-taxi drivers that used various drugs in the last year.



5.4. Men who have sex with men

5.4.1. Demographic characteristics

The two groups (summarized in Table 18) were similar in age (mean age for short hair 23.7 years and long hair 23.8 years) and in both groups, 24% of the interviewees were less than 20 years old. A slightly higher proportion of short hair MSM attended high school or university (49% vs. 44%) and again a slightly higher percentage were married (8% vs. 6%). Reported professions, again shown in Table 18 were similar in both groups but there was a clear difference in the number that reported to be hairdressers (21% long hair vs. 7% short hair). Long hair MSM were also more likely to report being a sex worker (6% vs. 2%). Short hair MSM were more likely to report being a student (32% vs. 22%), a farmer/laborer (15% vs. 8%) and slightly more reported being unemployed (18% vs. 13%). Short hair MSM appear to be a more mobile population with 14% having lived in the current city for less than 12 months compared to 5% long hair MSM but in both groups, just under half (48%) have not lived away from family in the past 12 months.

Table 18. The differences in demographic factors of short and long hair MSM.

	Short hair	Long hair
Mean (years)	23.7	23.8
Age < 20 years old (%)	24	24
With high school or university level (%)	49	44
Married (%)	8	6
Profession (%)		
- Unemployed	18	13
- Student	32	22
- Farmer / laborer	15	8
- Hairdresser	7	21
- Sex workers	2	6
- Other	29	32
Lived for 12 months or less in this city (%)	14	5
Has not lived away from family in the past year (%)	48	48

5.4.2. Sexual initiation and sexual behaviors

Sexual behaviors are summarized below in Table 19. In both groups, 4% had never had penetrative sex. Long hair MSM reported slightly younger mean age of first sex (17.6 years vs. 18.8 years) and for most long hair MSM this was with a man (93%) where for short hair MSM the reported gender of the first sexual partner was more mixed (30% reported it was a man, 56% woman and 14% transgender). Many more long hair MSM reported selling sex (60% vs. 36%) and the age at first sold sex was younger for this group (13% were between 9 and 15 years compared to 5%, 65% 16-19 years vs. 57% and only 22% were aged 20 or above compared to 38% short hair MSM).

Table 19. A summary of sexual behaviors in MSM and the differences between short and long hair MSM.

	Short hair	Long hair
Never had penetrative sex (%)	4	4
Mean age at first sex (years)	18.8	17.6
First sexual partner (%)		
- Man	30	93
- Woman	56	5
- Transgender	14	2
Ever sold sex (%)	36	60
Age at first selling sex (%)		
- 9 to 15	5	13
- 16 to 19	57	65
- 20+	38	22

5.4.3. Sex with women

Many more short hair than long hair MSM reported having sexual intercourse with women (66% vs. 7%) as shown in Table 20. Half of short hair MSM had sexual intercourse with a FSW where only 6% of long hair MSM had. Nearly one third of short hair MSM (31%) had intercourse with multiple FSWs compared to 2% of long hair MSM. More short hair MSM had sold sex to women (in the past year 18% vs. 3% and in the past month 17% vs. 3%) and 10% short hair MSM had sold sex to multiple women in the last month where long hair MSM had not.

Table 20. Sexual practices with women by MSM groups

	Short hair	Long hair
Had sex with a woman past year (%)	66	7
Had sex with a FSW past year (%)	50	6
Had sex with multiple FSWs past month (%)	31	2
Sold sex to women past month (%)	17	3
Sold sex to a woman past year (%)	18	3
Sold sex to multiple women past month (%)	10	0

5.4.4. Sex with men

Long hair MSM reported having more partners than short hair MSM (5.7 vs. 2.9) and more short hair MSM reported never having had anal sex (16% vs. 7%, see Table 21). Most of the partners of the MSM were non-contractual (77% short hair, 91% long hair). Many more long hair MSM reported encounters with male sex workers (32% vs. 18%) and with male paying clients (44% vs. 27%) however many more short hair MSM reported having intercourse with transgender (54% vs. 6%).

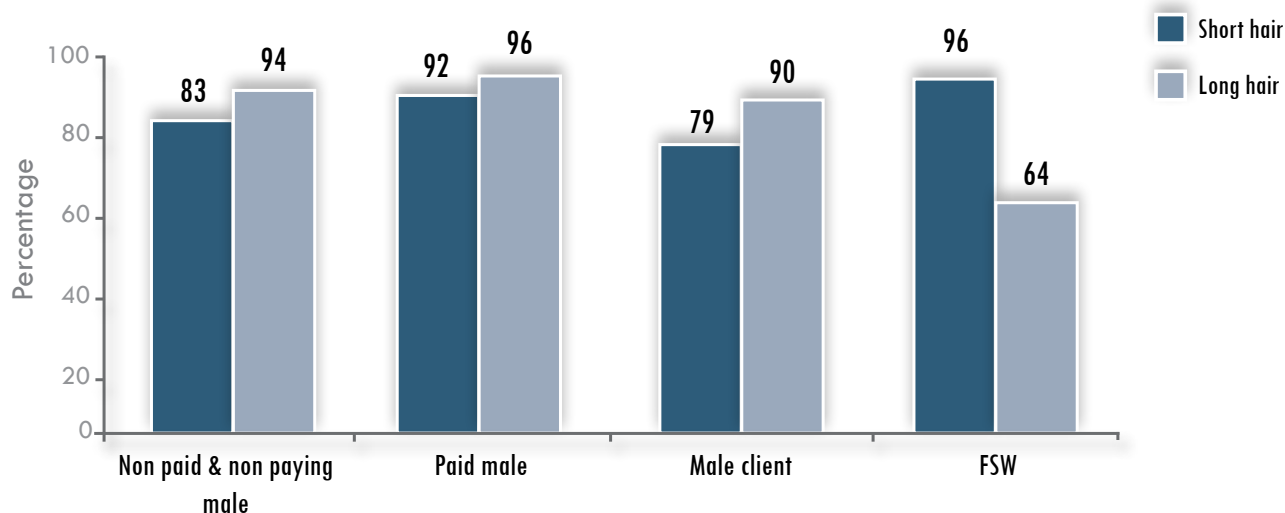
Table 21. Sexual behavior with men between short and long hair MSM.

	Short hair	Long hair
Mean number of male partners past month	2.9	5.7
Never had anal sex (%)	16	7
Male partners in the past year (%)		
- Non paying & non paid partners	77	91
- Male Sex Worker (MSW)	18	32
- Client	27	44
- Transgender	54	6

5.4.5. Condom use

Long hair MSM condom use at last sex was high for male non contractual, paid and paying partners (94%, 96% and 90% respectively, shown in Figure 10) but much lower when having intercourse with FSWs (64%). Short hair MSM had much higher rates of condom use with FSWs (96%) but much more variable condom use with male non-transactional (83%), paid (92%) and paying (79%) partners.

Figure 10. The percentages of long hair and short hair MSM that used a condom the last time they had sex with each category.



When looking at risk of transmission in the past month (see Figures 11 and 12), both groups are at most risk when having sexual intercourse with non-paying male partners, with long hair MSM at more risk than short hair MSM (46% long hair MSM had un-protected intercourse compared to 29% short hair MSM). Long hair MSM were at little risk from FSWs, female clients or transgender (4%, 4% and 5%) but at higher risk than short hair MSM' from male clients (30% compared to 16%) and male sex workers (19% vs. 10%). Despite being lower risks than long hair MSM from these groups, the risk was continued in FSWs, clients and transgender (11%, 9% and 16%).

Figure 11. Sexual risk in the past month by types of partner, among short hair MSM

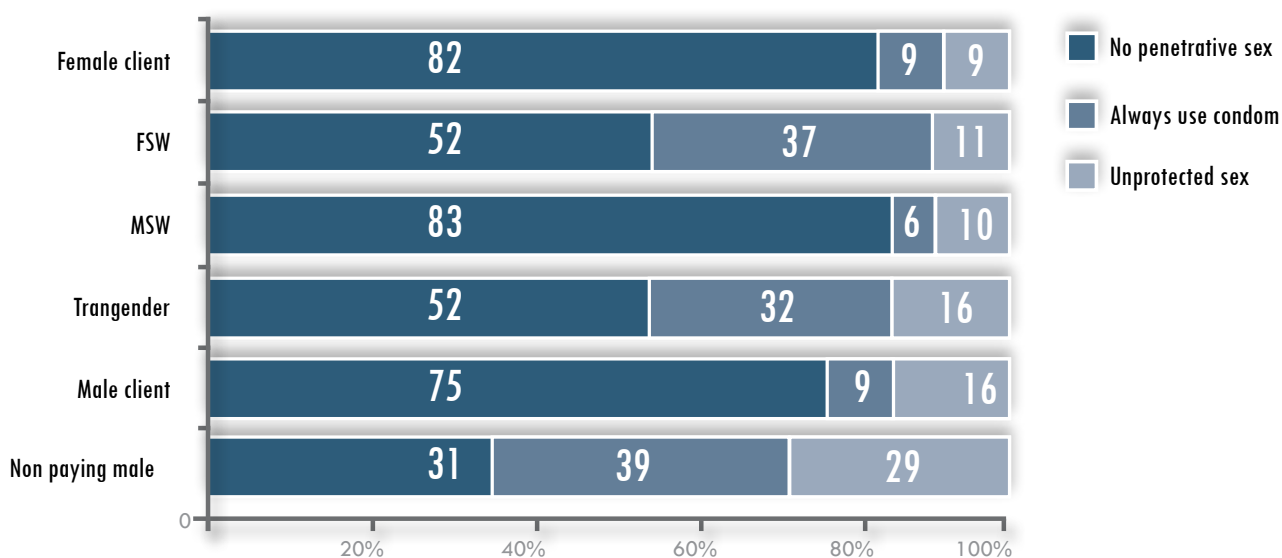
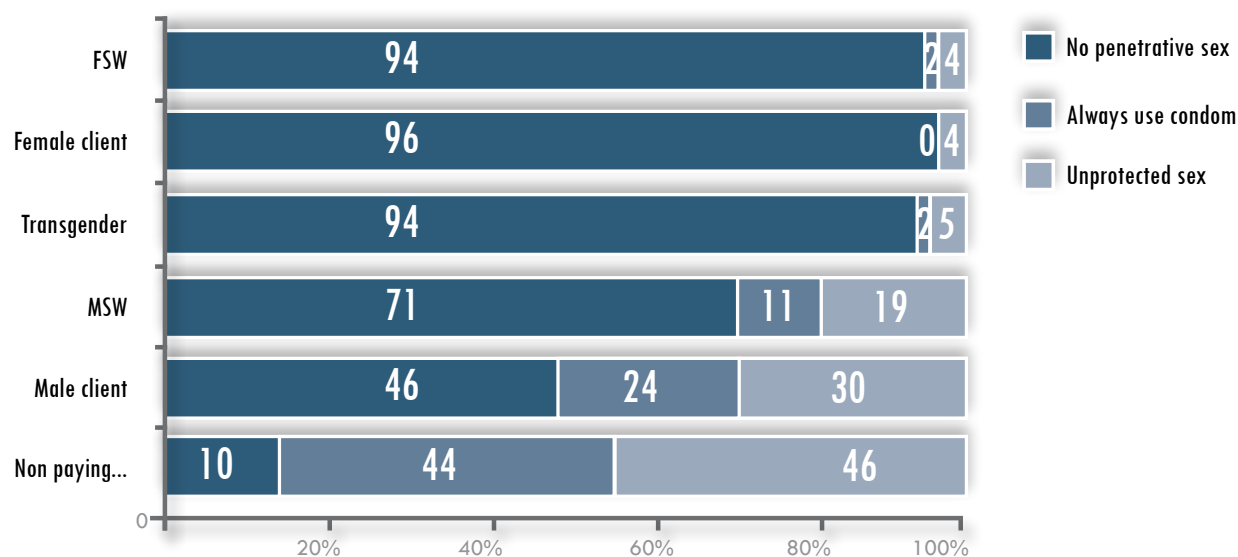


Figure 12. Sexual risk in the past month by type of partners, among long hair MSM



In Figure 13 it is seen that overall, in the past month, long hair MSM reported more unprotected sex than short hair MSM (50% vs. 38%). Figure 14 shows that long hair MSM also reported more condom breakages (20% in the last three months compared to 11%).

Figure 13. Difference in overall risk from unprotected sex between long and short hair MSM

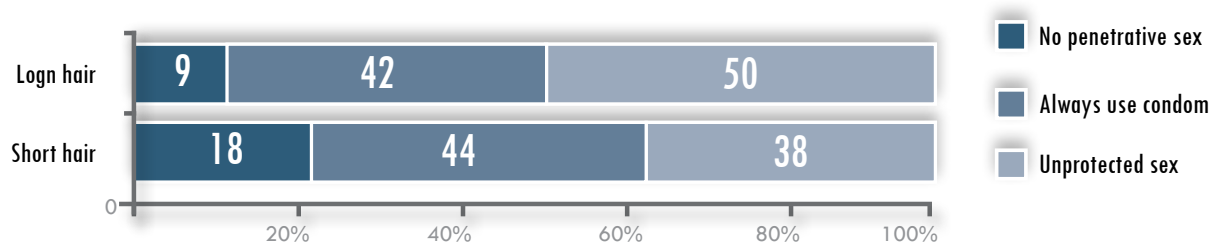
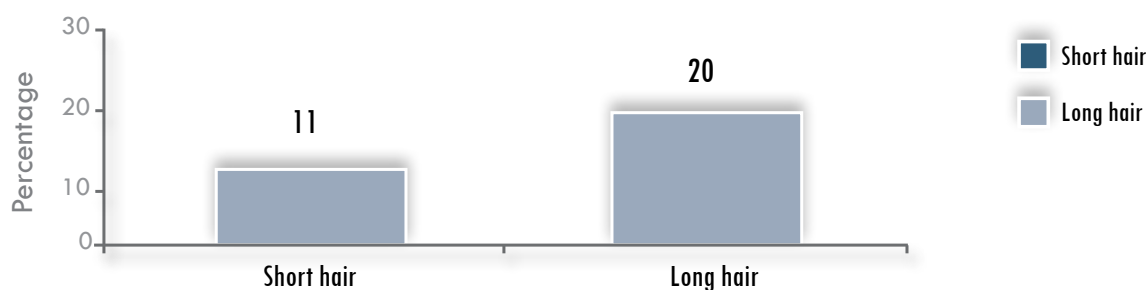
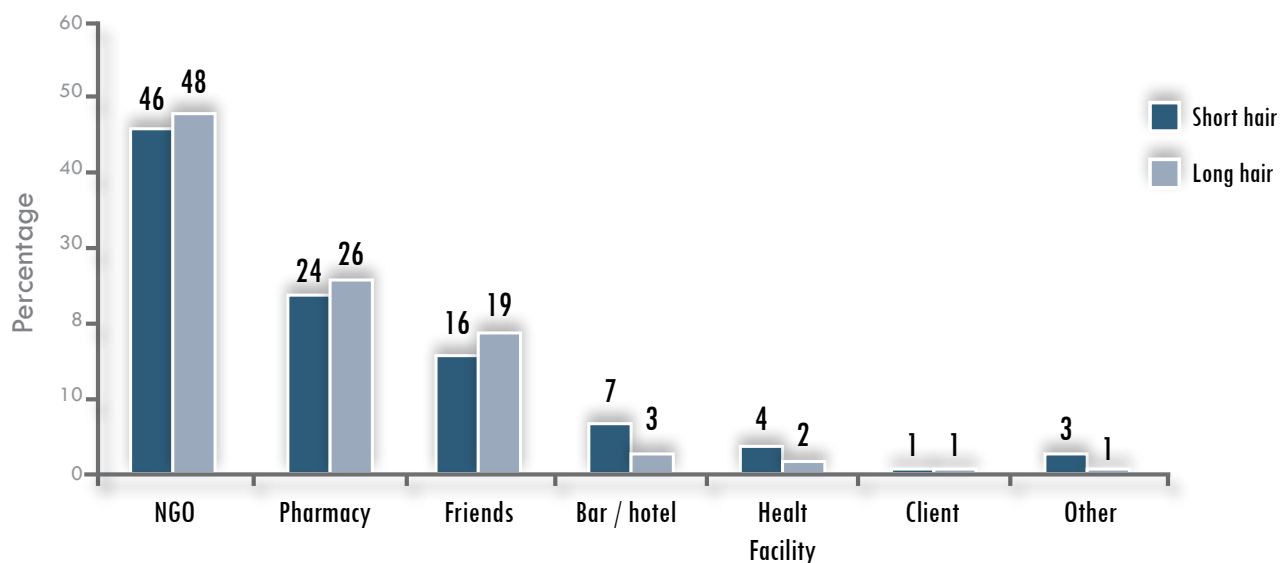


Figure 14 Condom breakage in the past three months, by types of MSM



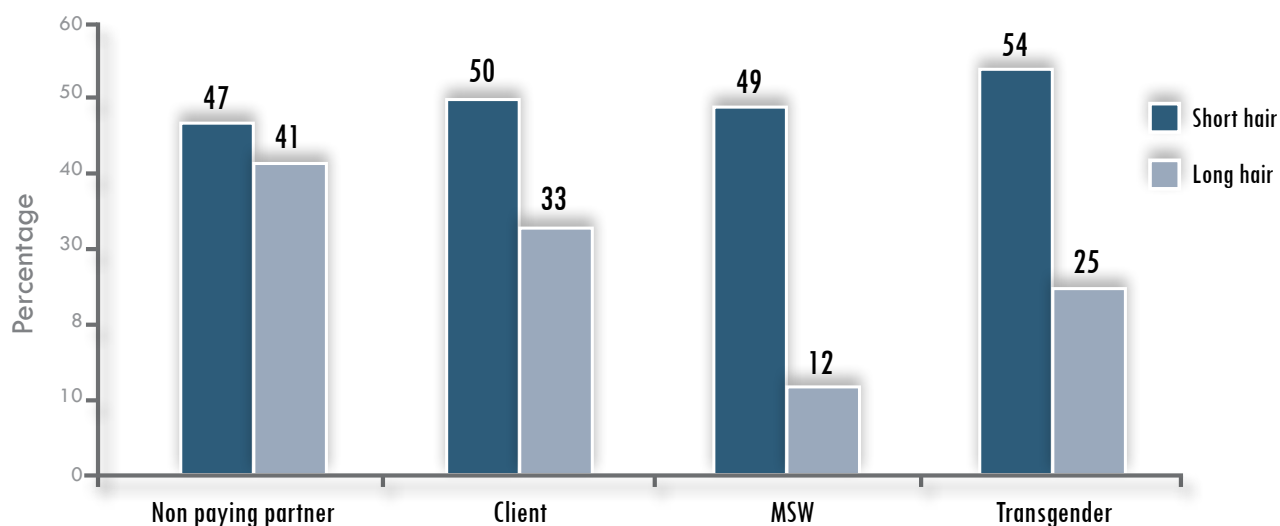
For short hair and long hair MSM, condoms were mostly obtained from NGOs (46% vs. 48%), pharmacies (24% vs. 26%) or friends (16% vs. 19%) (Figure 15). The main difference in where long and short hair MSM purchased condoms from was that bar/hotel and health facilities were more popular for short hair MSM (7% vs. 3% and 4% vs. 2%).

Figure 15. Places Where MSM obtained their last condom



Short hair males consistently used more lubricant with all partners, however the level of use changed (see Figure 16). Short hair males were most likely to use lubricant when having sexual intercourse with a transgender (54%) and least likely to with a non-paying partner (47%). This figure is similar to the number of long hair men who used lubricant with a non-paying partner (41%), but when having intercourse with a client it was 33%, a transgender, 25%, and with a male sex worker, only 12% used lubricant whilst having anal sex in the past month.

Figure 16. Always using lubricants in anal sex with different male partners in the past month, by type of MSM



5.4.6. Behaviors related to sexually transmitted infections

Shown in Table 22, long hair MSM were slightly more likely to seek health care for STI's (44% vs. 52% had never been for an STI check-up), but these figures are still high, and more long hair MSM have had at least one symptom of an STI in the past year (20% vs. 17%) including urethral discharge (13% vs. 10%). The clinic was the place most MSM sought treatment (84% long hair, 60% short hair). In both groups, 7% of interviewees went to the pharmacy. There was a big difference in the number of people that did not seek treatment for their last STI, 7% of long hair and 32% of short hair. Long hair MSM were more likely to disclose their status as MSM (69% vs. 55%) and were also more likely to have been referred to an STI clinic by a peer educator for their last visit (59% vs. 48%).

Table 22. Reported symptoms of STI & care seeking behavior at last episode of STI

	Short hair	Long hair
Never had STI check-up (%)	52	44
Any symptom of STI in the past year (%)	17	20
Urethral discharge in the past year (%)	10	13
Facility used at last STI (%)		
- Clinic	60	84
- Pharmacy	7	7
- No treatment	32	7
Disclosure MSM behavior to STI clinic staff at last visit (%)	55	69
Referred by peer-educator at last visit to STI clinic (%)	48	59

5.4.7. Sources of HIV/AIDS information

'Mass media' again was the most mentioned source of information about HIV/AIDS, by 94% of Short hair and 98% Long hair MSM (Figure 17). Next most frequently mentioned was 'reading material' (86% Short hair, 93% Long hair) and then 'program activities' (79% short hair and 83% Long hair). The most frequently reported providers of information (in Figure 18) were the outreach workers (74% short hair, 78% Long hair). More Long hair MSM reported VCCT staff (66% vs. 51%) and the least mentioned was STI clinic staff (39% Short hair, 46% Long hair).

Figure 17. Sources for HIV/AIDS information

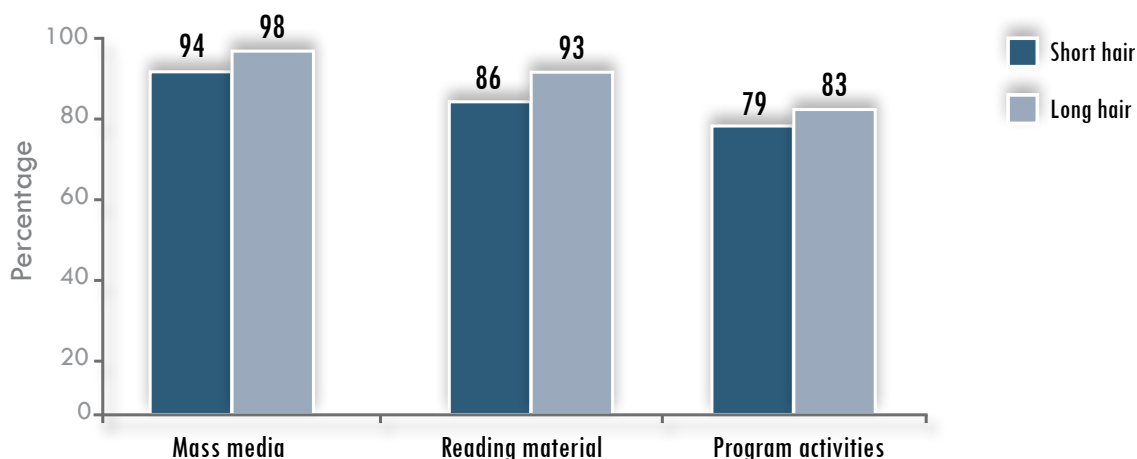
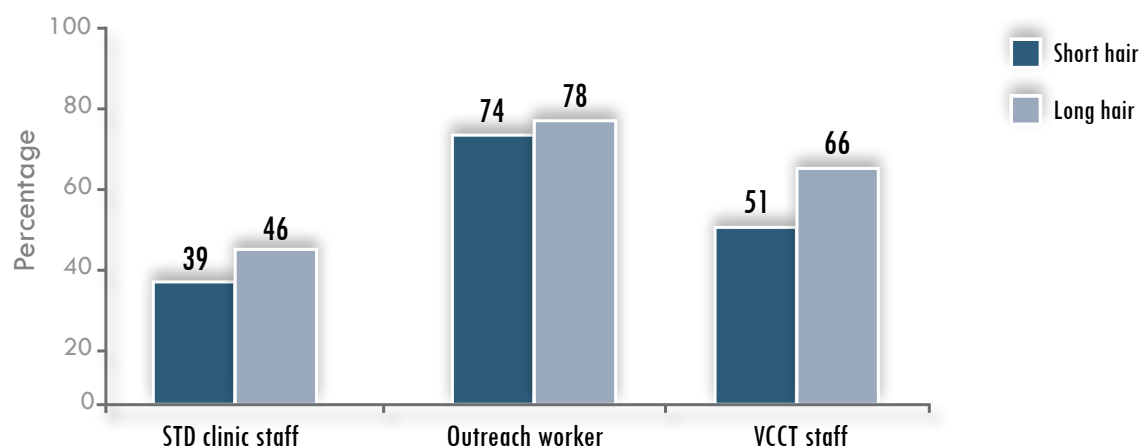


Figure 18. Providers of HIV/AIDS information to MSM in the past three months.



5.4.8. HIV testing

Table 23 shows that more long hair MSM than short hair MSM reported having had an HIV test in the last year (66% compared to 57%), most had this at a VCCT (79% long hair vs. 69% short hair) with more short hair MSM than long hair MSM favoring both the private laboratory (12% vs. 9%) and the public hospital (17% vs. 12%). Long hair MSM are slightly more likely to get their results (98% vs. 94%) and counseling (98% vs. 94%).

Table 23. Use of VCCT services among MSM

	Short hair	Long hair
Had HIV test in the past year (%)	57	66
Facility used at last test (%)		
VCCT	69	79
Private laboratory	12	9
Public hospital	17	12
Received results at last test (%)	94	98
Received counseling at last test (%)	94	98

5.4.9. Attitudes towards people living with HIV

Attitudes of both groups of MSM were quite positive (Table 24) with 89% of all MSM saying they would provide care for a family member with HIV and high numbers saying they would buy food from a PLHIV (94% Long hair, 88% short hair). Almost two thirds of all MSM (61%) would keep the sero-status of a relative secret. Roughly two fifths of both groups (39% short hair, 42% long hair) have friends or relatives that are HIV-positive.

Table 24. Attitude towards PLHIV

	Short hair	Long hair
Would you provide care to a HIV infected family member? (%)	89	89
Would you buy food from a PLHIV? (%)	88	94
Would you keep it secret if a family member is infected with HIV? (%)	61	61

It is indicated in Table 25 that high levels of MSM know that ART are available (93% short hair, 97% long hair) but fewer believe they would be able to get them (82% short hair, 87% Long hair). More short hair MSM have knowledge of OI/ART clinics (58% vs. 53%) but more long hair MSM have knowledge of home based care (62% vs. 44%).

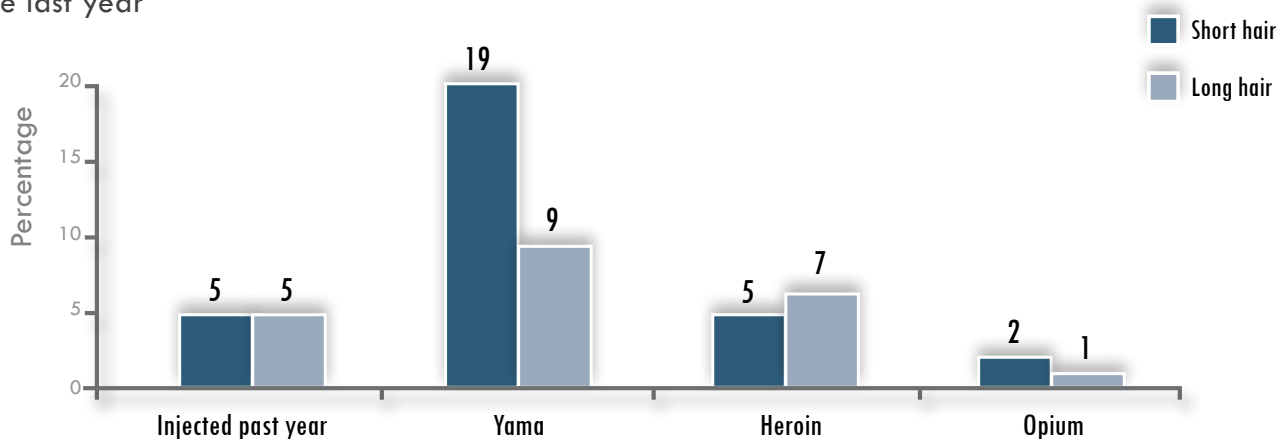
Table 25. Knowledge of available care

	Short hair	Long hair
Have friends or relatives infected with HIV (%)	39	42
Know that ART are available (%)	93	97
Believe can get ART if needed (%)	82	87
Know OI / ART clinics (%)	58	53
Know Home based care services (%)	44	62

5.4.10. Drug abuse

Again, Yama was the main drug reported to be used (19% short hair MSM and 9% long hair MSM), shown in Figure 19. In both groups 5% reported having had injected drugs, 5% of short hair MSM and 7% long hair MSM had used heroin and 2% of short hair and 1% long hair MSM had used opium.

Figure 19. The percentages of short and long hair MSM that have used various drugs in the last year



- 6.1. Sample sizes
- 6.2. Female Sentinel groups
- 6.3. Moto-taxi drivers

Construction of trends using the data from the past seven behavioral surveys allows for monitoring the changes in behaviors since 1997. There were some differences in analytical techniques of each survey eg. Weighting or not weighting data for population size. Another difference is due to some changes in how the questions were asked between survey rounds.

Over the years, the measurement for all sentinel groups has become more precise for some key measures such as condom use during sex, and this change may have an impact on the trends. Indeed, in the first two rounds of BSS (1997 and 1998), consistent condom use was measured by counting episodes of protected and unprotected sex over the three consecutive past days for DFSWs and the three consecutive past months for male sentinel groups. To construct trends, consistent condom use with clients in the past week among DFSWs was approximated by creating a variable on consistent condom use with clients in the past three days for the two first rounds of BSS. In BSS 1997 and 1998, consistent condom use among IDFSWs was only collected as a general question without specifying any time frame. This variable was used in the trends to approximate consistent condom use in the past three months. In male sentinel groups, consistent condom use in the past three months as measured in BSS 1997 and 1998 was generated by collapsing three questions on each of the three retrospective months, which confers less precision to the measure than a single question. From 1999 onward, the wording of the questionnaires was consistent and used precise time periods for questions on condom use (past week in DFSWs and past three months for men and IDFSWs).

Although trends in consistent condom use from this report are based on different methodologies, it appeared useful to include the approximated measures from the two first rounds of BSS together with data from the following surveys in order to provide a visual illustration of the behavior changes over time among the sentinel groups. To ensure comparability of data the trend analysis was restricted to the five original provinces which were consistently studied since 1997.

As this is the first year MSM have been included in the study, it is of course not possible to look at trends in this group.

6.1. Sample sizes

The sample sizes (Table 26) have been large in all years to ensure there was enough statistical power to detect changes. Various populations have been sampled but DFSWs, Beer promoters (girls) and moto-taxi drivers have been sampled in every BSS (apart from the household male survey in 2000) so trends over the last decade can be seen.

Table 26. The number of participants in each BSS from 1997 to 2007 with DFSWs, beer girls and moto-taxi drivers highlighted to show these populations were present in each year and so could be compared over time.

BSS	Sites	Target groups	Sample size
1997	KPC, SHV, BTB, SRP, PNP	DFSWs, Beer girls, Working women, Military, Police, Moto-taxi drivers, Vocational students	4,356
1998	KPC, SHV, BTB, SRP, PNP	DFSWs, Beer girls, Working women, Military, Police, Moto-taxi drivers, Vocational students	4,275
1999	KPC, SHV, BTB, SRP, PNP	DFSWs, Beer girls, Military, Police, Moto-taxi drivers	3,400
2000	KPC, SHV, BTB, SRP, PNP	Household Male Survey	3,166
2001	KPC, SHV, BTB, SRP, PNP	DFSWs, Karaoke & Beer girls, Military, Police, Moto-taxi drivers	2,961
2003	KPC, SHV, BTB, SRP, PNP, PST, KHK, KRT, TKO, KPT	DFSWs, Karaoke & Beer girls, Mil/pol, Moto-taxi drivers	4,858
2007	KPC, SHV, BTB, SRP, PNP	DFSWs, Karaoke, Beer girls, Beer garden staff, Moto-taxi drivers & MSM	3,069

6.2. Female Sentinel groups

6.2.1. Condom use with clients

Described in Figure 20, below.

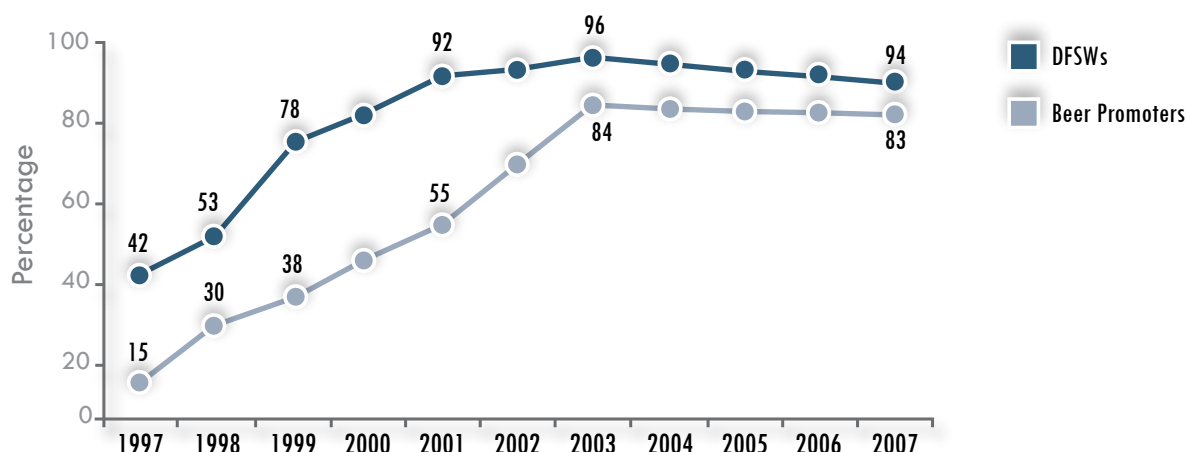
A. Direct Female Sex Workers

Condom use was initially low at 42% in 1997, but rose between 1997 and 1998 and then again very steeply in 1999 to 78%. It continued to rise more gradually until peaking in 2003 at 96%. It has reached a plateau and is currently stable at 94%.

B. Indirect Female Sex Workers

Condom use was much lower initially at only 15% but increased steadily, with a particularly quick growth from 2001-2003, and peaked at 84% in 1997. It is currently at 83% indicating a plateau has been reached.

Figure 20. Consistent condom use with clients



6.2.2. Condom use with sweethearts

Please refer to Figure 21.

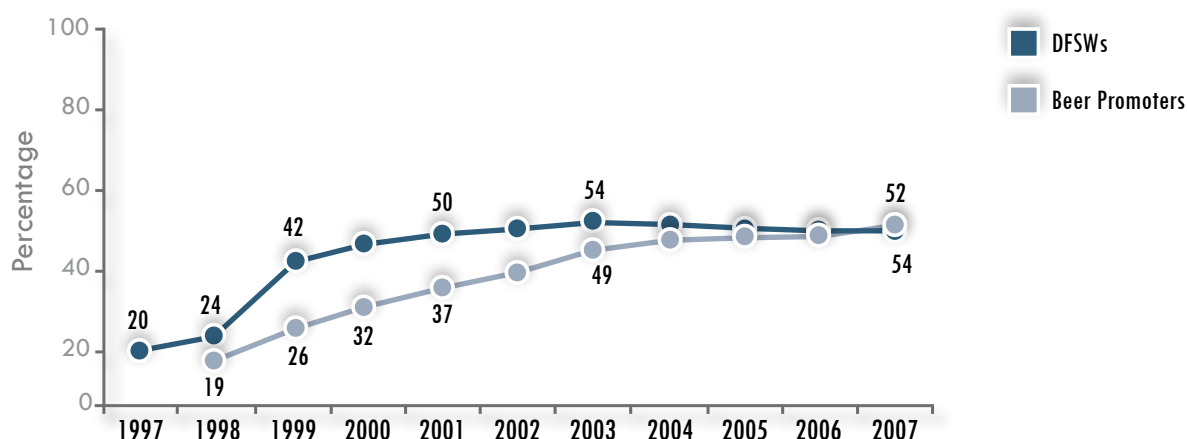
A. Direct Female Sex Workers

Condom use initially was 20% and after a slow rise between 1997 -1998, experienced a similar growth to DFSW condom use with clients but peaked at a much lower rate of 54%. It is now slightly lower at 52%.

B. Indirect Female Sex Workers

Recording condom use by beer promoters with sweethearts commenced in 1998 with 19% using condoms consistently. This rose at a steady rate until 2003 when it was 49%. It has continued to rise but much more gradually and is currently 54%, slightly higher than that of the DFSWs.

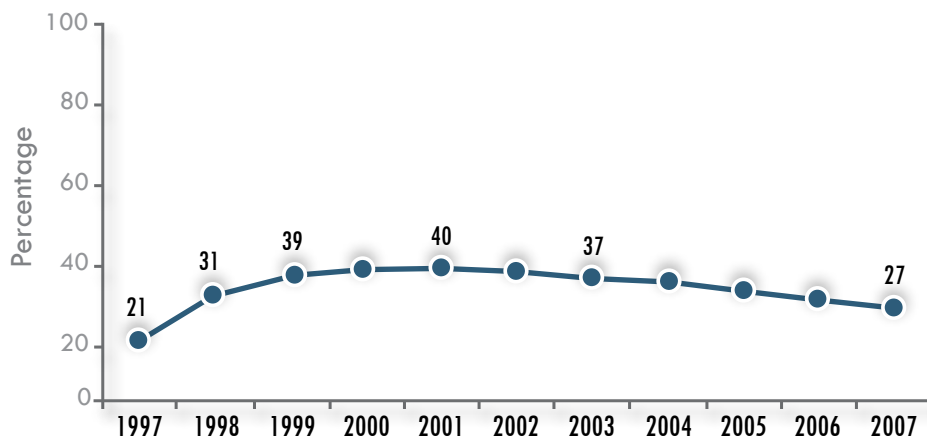
Figure 21. Consistent condom use with sweethearts



6.2.3. Selling sex among beer promoter beer promoters selling sex

Figure 22 shows that the number of beer promoters that reported selling sex increased steeply from 21% to 39% between 1997 and 1999, where it reached a plateau. It started to decline slowly 2001 and is now 27%.

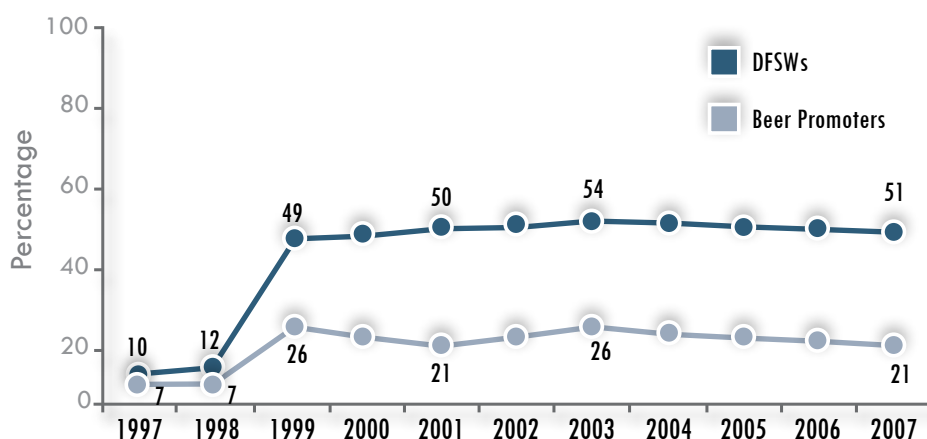
Figure 22. Percentage of beer promoters that reported selling sex in the past year



6.2.4. STI care seeking at public/STI clinics

From Figure 23, it can be seen that both DFSWs and IDFSWs had low rates in 1997 (10% and 7% respectively) and both groups experienced a sudden increase between 1998 and 1999 (to 49% for DFSWs and 26% for IDFSWs). Since then the rates have remained relatively unchanged and now stand at 51% for DFSWs and 21% for IDFSWs.

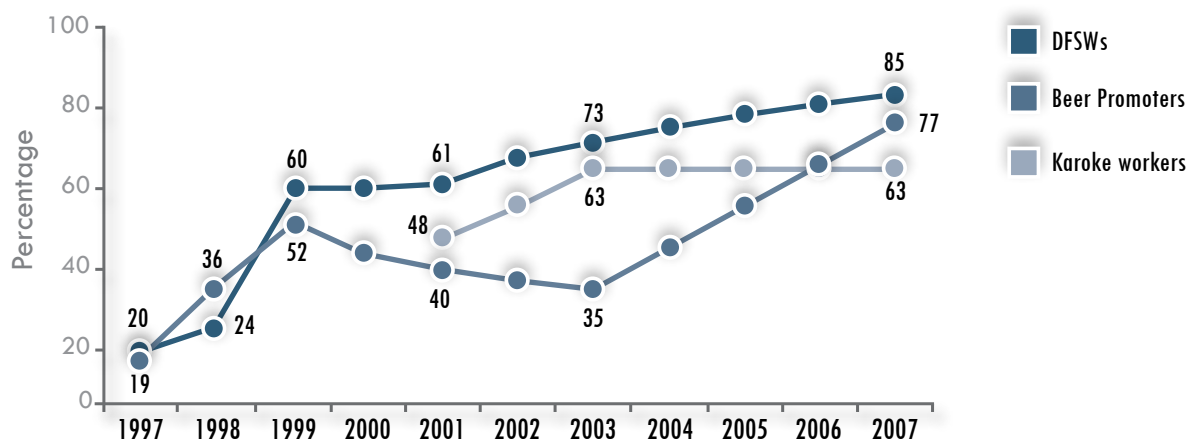
Figure 23. STI Care Seeking at the Public/STI Clinics



6.2.5. STI care seeking at Medical settings

For DFSWs, seeking care at medical settings rose steeply between 1997 and 1999 from 18% to 60% (please see Figure 24). It then rose more gradually to its current level of 85%. Beer promoters started at a similar level (19% sought care for an STI at a medical setting) and also rose steeply to 52% in 1999. It then fell until 2003 where it reached 35%, but has risen steeply again to its current level of 77%. The karaoke workers care seeking behavior was measured initially at 48% in 2001. It rose over the next two years to 63% and has remained constant.

Figure 24. STI Care seeking at all Medical Settings (including NGO, private and public)

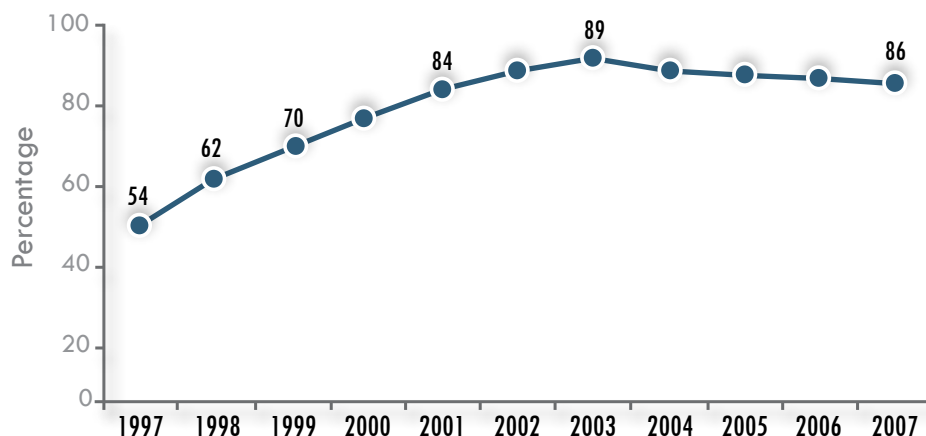


6.3. Moto-taxi drivers

6.3.1. Consistent condom use with FSWs in last three months

It can be seen from Figure 25 that in 1997, 54% of moto-taxi drivers reported that they consistently used condoms when having sexual intercourse with a FSW in the last three months. This level increased gradually until it peaked at 89% in 2003. It has since remained stable at 86%.

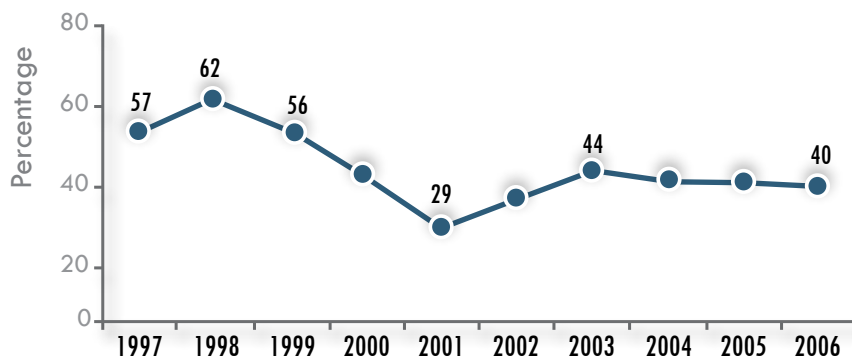
Figure 25. Consistent condom use with sex worker in past three months



6.3.2. Commercial sex in the past year

Figure 26 indicates that initially 57% of the moto-taxi drivers interviewed said they had paid for sex in the previous year. This figure was relatively stable until 2001 where there was a sudden dip to 29%. In 2003, levels were back to 44% and they are currently 40%.

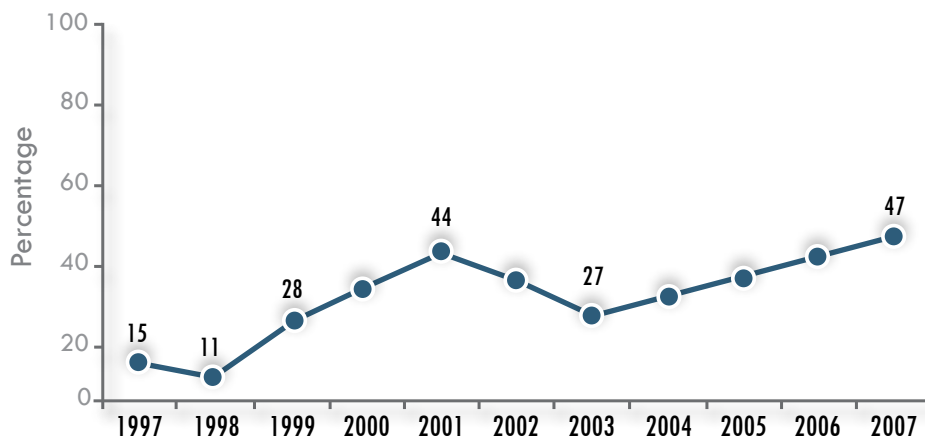
Figure 26. Commercial sex in the past year



6.3.3. Consistent condom use with sweethearts

Figure 27 shows that consistent condom use with sweethearts declined in the initial year, from 15% to 11% and then increased rapidly to 44% in 2001. In 2003, it dipped to 27% and now has risen again to 47%.

Figure 27. Consistent condom use with sweethearts



7.1. Female groups

7.2. Moto-taxi drivers

7.3. Men who have sex with men

7.4. Trends

7.1. Female groups

Female sex workers, both direct and indirect, are mobile and often overlapping populations. Over one fifth (21%) of DFSWs used to be karaoke workers suggesting that this is where prevention messages should be focused. About 18% of the beer promoters, beer garden workers and karaoke workers had previously worked in brothels.

Interestingly, female beer garden workers had fewer sexual partners than the other groups and were also less likely to sell sex. All groups reported using condoms more consistently with clients than with sweethearts. Although the rate of consistent condom use has improved over the 10 year period, this remains a challenging area where information and education must be continued to facilitate behavior change.

When discussing ways information about HIV/AIDS are received, mass media was the main source with between 82% and 88% of FSWs having gained information from it. This medium is being exploited through various projects and will hopefully have a very positive influence on attitudes towards sexual health and HIV/AIDS. This survey also highlighted that the HIV/AIDS program activities do not reach as many karaoke and beer garden workers as they do DFSWs and beer promoters. This should be addressed, particularly with the high transition from karaoke worker to brothel-based sex worker. Overall, the DFSWs have higher exposure to HIV/AIDS information and education than other female groups.

The prevalence of self-reported vaginal discharge in female groups was high, but this indicator is better for reproductive tract infections rather than STI prevalence as many STI's are predominantly asymptomatic in females and vaginal discharge can be due to many reasons. Uptake of medical services at last episode of STI remained low for both beer garden workers and karaoke workers, indicating another area for focus and improvement. The survey also showed that support from brothel owners is critical to encourage DFSWs to visit STI clinics. With high rates of health seeking behavior and HIV testing among DFSWs, this support should be encouraged. In all of the IDFSW groups the HIV test uptake was low, despite most women knowing how and where to access continuum of care services. Most of the women who did undergo HIV testing used the VCCT services. With the increased understanding about HIV transmission and the availability of care, attitudes towards PLHIV have improved. Very few of the female interviewees discriminated against PLHIV in regards to care provision and interaction with (buying food from).

Very few drugs were used by IDFSWs or DFSWs, with a small number of IDFSWs having used yama. However a more substantial proportion of the DFSWs had used yama in the previous 12 months.

7.2. Moto-taxi drivers

A high proportion of Moto-taxi drivers reported having had multiple sexual partners during the previous year. Their paid partners were predominantly DFSWs followed by karaoke workers. When they were paying for sex, consistent condom use was high, but when having intercourse with a sweetheart or a long-term partner, consistent condom use was much lower. This again, emphasizes that programs or interventions that attempt to alter attitudes towards condom use with sweethearts must be strengthened.

Many of the moto-taxi drivers did not seek treatment the last time they had an STI, and HIV testing remained very low in this group. Those that did get tested did not use the VCCT. The barriers to treatment need to be identified and targeted.

Like the female groups, mass media was the moto-taxi drivers' main source of information about HIV/AIDS. This knowledge should be incorporated into planning information, education and communication programs.

There was very little drug use in this population with yama being the most commonly used.

7.3. Men who have Sex with Men

This was the first time the survey included MSM so the results were interesting. It was apparent that MSM have many different types of sexual partner. Short hair MSM in particular, have sex with both men and women. Half of the short hair MSM reported buying sex from a FSW. This overlapping of risk-groups could pose problems for program managers and should be considered when designing communication strategies and intervention programs.

Long hair MSM were more likely to have unprotected sex with male partners than short hair MSM and the use of lubricants was low in both groups. The lack of lubricant facilitates HIV transmission so this should be included in educational messages.

Half of the MSM had never had an STI check up but of those that did have symptoms, most used medical services. It is encouraging that clients know where to get treatment if it is needed, but much more needs to be done to encourage MSM to have regular STI check-ups. This is one area that will be particularly interesting to monitor and look for changes in attitudes. About 60% of MSM said they had an HIV test in the previous year and the majority of these were done at VCCT.

Most MSM reported NGO offices as the place where they acquired condoms and outreach workers were the most commonly reported provider of sexual health information to MSM. These can be taken as positive messages and encourage staff to continue and even increase efforts. The main source of information about HIV/AIDS was mass media again. Reading materials were also commonly reported sources of information.

Both groups of MSM demonstrated a supportive attitude towards PLHIV and had good knowledge about how to access the continuum of care services and what they entailed. This again is encouraging, although knowledge about the provision of home care was more limited.

Drug use was higher among MSM than among the other groups surveyed. Yama was again the most commonly used drug. This could have implications on the design and coordination of some programs.

7.4. Trends

In the female group, overall, the level of consistent condom use with client or with sweetheart has not changed since 2003. This is quite high at 90% with clients, but is much lower (around 50%) with sweethearts. The trends in condom use with clients and sweethearts have been similar in both DFSWs and beer girls.

More beer girls and karaoke workers have been seeking STI-related health treatment at medical settings than previously, which is encouraging. However, the use of public/STI clinic has not increased, indicating a possible area for improvement.

Among moto-taxi drivers, the level of consistent condom use with commercial partners has remained unchanged since 2001. Consistent condom use with sweethearts has not significantly increased either. This indicates that the educational messages need to be revised or strengthened. Fewer moto-taxi drivers are reporting paying for sex than previously reported indicating a change in sexual behavior and patterns.

This was the first round of BSS that included MSM. This group should be included in future surveys so that trends can be established and the effectiveness of interventions monitored.

In regard to MSM, more intervention programs should be designed to specifically target lubricant use and STI check up (or existing ones modified to incorporate these aspects). Short hair MSM should be targeted in particular as they represent a bridging population that could become quite significant in driving the HIV epidemic in Cambodia.

Despite high reported levels of consistent condom use with commercial partners in all high risk groups surveyed, efforts in this area must be sustained. In many groups there is still significant room for improvement.

Innovative approaches are needed to address sexual risk with non-commercial partners (ie. sweethearts) to try and increase the levels of consistent condom use which are currently low in all groups. This is the main source of 'risk' for HIV acquisition or transmission for all groups.

More effective approaches need to be found for offering STI services to MSM and IDFSWs as their current health seeking behaviors are poor. Barriers need to be identified and ideally removed. Services providing VCCT should also be better promoted to ensure higher rates of HIV testing, particularly among male clients of FSWs, direct or indirect.

Overall, condom promotion and risk reduction have been highly successful to date in Cambodia; however program efforts must be maintained to sustain these changes. Rates of consistent condom use with non-contractual partners are still low and barriers to VCCT testing and STI treatments still exist. Without continued support from brothel owners, STI treatment and HIV testing as well as condom use could all decrease.

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