

Prevalence of HIV and Risk Behaviors among Female Entertainment Workers in Cambodia: A National Biological and Behavioral Survey

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Abstract Background: In Cambodia, behavioral risks and subsequent new HIV infections in key populations, including female entertainment workers (FEWs), continue to be of great national concerns. This National Integrated Behavioral and Biological Survey was conducted to determine the prevalence of HIV, syphilis, and related risk behaviors among FEWs in the country. **Methods:** This cross-sectional survey was conducted in 2016 among 3,151 venue-based and non-venue-based FEWs recruited from the capital city and 17 other provinces using a two-stage cluster sampling design for structured-questionnaire interviews and HIV/syphilis testing. Descriptive statistical analyses were performed. **Results:** The mean age of FEWs in this survey was 26.2 (SD= 5.7) years. The prevalence of HIV and syphilis was 3.2% (95% CI= 1.75-5.75) and 0.8% (95% CI= 0.36-1.70), respectively. Only 25.1% of the respondents reported always using condoms with non-commercial partners, and 80.6% reported always using condoms with commercial partners in the past three months. About one-fifth (20.2%) reported having had at least one STI symptom in the past three months. Regarding substance use, 7.6% reported having used some form of illicit drugs in the past three months. The most common form of the drugs was amphetamine-type stimulants (86.1%), and 0.6% reported injecting drugs in the past three months. Of the total, 74.3% reported using some form of contraceptives, with condoms being the most common method (33.5%), and 33.7% reported having at least one induced abortion during the time working as an EW. **Conclusions:** This study surmises that the prevalence of HIV among FEWs in Cambodia remains stable, and these women remain at an increased risk of HIV infection. Sexual behaviors, notably inconsistent condom use and multiple partnership, may have exacerbated their vulnerability. These findings highlight the need for tailor-made interventions that focus on sexual and reproductive health education and access to needed services for this key population.

Keywords: *infectious diseases, low- and middle-income countries, national survey, sex workers, sexual and reproductive health, sexually transmitted infections*

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1. Introduction

More than 20 years ago, Cambodia was one of the countries with the highest prevalence of human immunodeficiency virus (HIV) in Asia and the Pacific [1,2]. A decade later, the country became one of the few countries in the world that has reversed the epidemic from being generalized to concentrated, thanks to the combined efforts of the national programs, civil societies, and development partners [3]. In recognition of these successes, Cambodia received a Millennium

Development Goal (MDG) award from the United Nations in 2010 [4]. The epidemic is now confined mainly in key populations – individuals who engage in high-risk behaviors [3]. In the Cambodian context, the HIV key populations include female entertainment workers (FEWs), men who have sex with men (MSM), transgender (TG) women, people who use drugs (PWUD), and people who inject drugs (PWID).

Through continued efforts, the prevalence of HIV among the general adult population aged 15-49 years has declined to 0.3% in 2014 from an estimated peak of 1.7% in 1998 [5,6,7]. The declines in the incidence of HIV have been attributed largely to the increased rates of consistent

condom use, particularly in brothel-based commercial relationships through the initiatives such as the 100% Condom Use Program, which also provided routine screening for HIV and sexually transmitted infections (STIs) and health education to brothel-based female sex workers through outreach activities. The declines in the prevalence of HIV were also due to deaths of people living with HIV before antiretroviral treatment (ART) became widely available in the country. Thanks to the accelerating access to ART, the AIDS-related deaths have been reduced by two-thirds over the past 10 years [8,9].

Despite these successes, challenges remain in the fight against the AIDS epidemic in Cambodia. The prevalence of HIV and related risk behaviors among key populations continues to be of great national concerns. Previous studies have reported a high prevalence of HIV in FEWs working in different types of entertainment venues, such as brothel-based (17.4%) and street-based (37.3%) female sex workers as well as women working in other entertainment establishments (9.8%) [10]. Other infections and sexual and reproductive health problems are also common in FEWs – these include high rates of STIs [10,11,12], induced abortion [13,14], and substance abuse [10,11,12]. Moreover, the epidemic and the national response interventions had become more complicated after the introduction of the “Law on Suppression of Human Trafficking and Sexual Exploitation” in 2008 [15] due to the changes in the landscape of transactional sex in the country. The law enforcement has closed down the brothels, shifting transactional sex to more informal and hidden settings such as streets and parks or entertainment venues. This situation has made the lines between direct and indirect sex work less clear, and indirect transactional relationships, such as sweethearts, have increased [16].

In the Cambodian context, FEWs refer to women employed in entertainment establishments such as karaoke bars, night clubs, massage parlors, beer gardens, beer companies, etc. This umbrella population also includes women working as freelance sex workers in public places such as parks, streets, or on calls. FEWs are classified as an HIV key population regardless of their involvement in direct or indirect transactional sex [17]. Access to HIV and sexual and reproductive health services and education among FEWs is also limited. The most recent national behavioral sentinel surveillance reported the prevalence of consistent condom use with commercial and non-commercial partners among FEWs at 81% and 36%, respectively [2,18]. Moreover, more than one in three (38%) of the FEWs in the survey reported having at least one STI symptom, while 30% had never used STI care and treatment services in the past 12 months [2,18]. Although 70% reported having been tested for HIV in the past 12 months [2,18], the rate remains well below the 90% target of the Joint United Nations Programme on HIV/AIDS (UNAIDS).

The National Center for HIV/AIDS, Dermatology, and STD (NCHADS) in Cambodia started an HIV surveillance system in 1997 in order to collect information that would support monitoring, policy development, and budget allocation for combatting the AIDS epidemic. The surveillance system routinely gathers data on the prevalence of HIV, STIs, and related risk behaviors in sentinel surveillance groups including FEWs. In the past

10 years, the system has introduced the national Integrated Biological and Behavioral Surveys (IBBS) among key populations to address the current concentrated nature of the AIDS epidemic in the country and the limitations of separate biological and behavioral surveys. The first round of the IBBS among FEWs was conducted in 2011. In the second-generation HIV surveillance guideline, the World Health Organization (WHO) and UNAIDS recommended that an IBBS should be regularly conducted every three to five years [19]. This study was conducted to describe the prevalence of HIV, syphilis, and sexual risk behaviors among FEWs in Cambodia.

2. Methods

2.1. Study Sites and Participants

Data used for this study were collected as part of the national FEW-IBBS 2016, a cross-sectional survey conducted in the capital city of Phnom Penh and 17 other provinces. These selected provinces represented more than 90% of the total number of FEWs in Cambodia [8,9]. To be included in the study, a woman should: (1) be at least 18 years of age, (2) be currently working in an entertainment establishment or as a freelance sex worker, (3) be sexually active defined as having sexual intercourse with at least one man in the past 12 months; (4) be willing and able to provide a written informed consent prior to the data collection, (5) be able to communicate in Khmer, the national language of Cambodia, and (6) be able to present herself at a study site for HIV/syphilis testing and a questionnaire interview.

2.2. Sample Size Calculation

We conducted simulations with a finite population correction for calculating the sample size required to estimate the prevalence of HIV from a cross-sectional cluster survey using the Open Epi calculator version 3.02 [20]. According to the national reports, the estimated number of FEWs in Cambodia in 2014 was 40,215 working in 2,571 entertainment establishments and 896 freelance female sex workers [8,9]. With the most recent prevalence of HIV among FEWs of 3.1%, a confidence level of 95%, a design effect of 1.5, and a 10% refusal rate, approximately 3,100 FEWs were required for this survey.

2.3. Sampling Procedures

A multi-stage cluster sampling design was employed to select venue-based FEWs. The sampling procedures were implemented in five steps: (1) all entertainment establishment clusters in the selected study sites were listed (karaoke bars, massage parlors, beer gardens, restaurants, beer companies) with a total number of FEWs in each cluster; (2) a number was assigned to each cluster on the list; (3) a cluster from the list was randomly selected using a random number calculator; (4) all FEWs in the selected clusters were invited to participate in the survey; and (5) the random selection process was repeated to select more clusters until the total sample size was reached.

To recruit freelance FEWs, a time-location sampling method was used. We first created another sampling frame that contained all known hotspots (such as streets and parks) in the selected study sites where freelance FEWs were known to congregate based on a regularly updated list of hotspots obtained from community-based non-governmental organizations (NGOs) working with FEWs in the respective areas. Prior to the main data collection, we conducted a feasibility assessment with support from the NGOs, and the list was updated. Locations and specific dates and times (in four-hour time periods) were randomly selected from the non-venue-sampling frame for the survey teams to visit for participant recruitment. All hotspots were included in the survey, anticipating that the number of hotspots in each province would be small, and all FEWs who were found at the hotspots were invited to participate in the survey.

2.4. Data Collection Training

Three data collection teams were formed. Each team comprised of one counselor, two interviewers, one laboratory technician, three local coordinators, and one team leader. A comprehensive data collection training was conducted for all the survey team members in two stages. Firstly, a team of trainers from NCHADS trained staff members from the Provincial AIDS and STD Program (PASP), who in turn trained the survey team in their respective province. The training covered data collection methodologies such as sampling methods, ethical aspects, interview techniques, blood sample collection, and record keeping. The questionnaire was pretested as part of the training.

2.5. Variables and Measurements

Behavioral data were collected through face-to-face interviews using a structured questionnaire, and the interview took approximately 30 to 45 minutes to complete. The questionnaire was developed based on the existing tools that had been used in the 2014 Cambodia Demographic and Health Survey [21] and previous studies among HIV key populations in Cambodia [22,23,24]. Socio-demographic characteristics included type of community where the study site was located (urban, rural), age (in years, continuous), marital status, type of entertainment venue, previous job before the current entertainment job, formal education attained (in years, continuous), duration working in the current entertainment venue (in years, continuous), and duration living in the current city (in months, continuous). For HIV risk behaviors, we collected information on sexual behaviors with non-commercial (defined as having sex not in exchange for money or gifts) and commercial partners in the past three months. The sexual behaviors included number of sexual partners (continuous), condom use frequency measured on a Likert-type scale, experiences of STI symptoms and STI diagnosis (yes or no), and whether the participant sought care for the most recent symptoms. Substance abuse was measured using yes/no questions that collected information on the use of alcoholic drinks and different types of illicit drugs (amphetamine-type stimulants, heroin, marijuana, or any other types of drugs)

in the past three months. Information on HIV care and treatment, including ART, were collected from participants who reported living with HIV.

A trained laboratory technician collected a blood sample from each participant through finger-prick and tested using HIV-1/2 using Determine™ test, in keeping with the national protocol [25]. Specimens reactive to the Determine™ test were confirmed with HIV 1/2 STAT-PAK™ test to determine the HIV infection status. In an event where the HIV-1/2 Determine™ test was positive, but the HIV 1/2 STAT-PAK™ test was negative, the participant would receive counseling and be recommended to go for a confirmatory test at a voluntary confidential counseling and testing center attached to an ART clinic. Follow-up of newly identified HIV-positive cases was the responsibility of community health workers. The participant received a thank-you gift that did not exceed US\$4.00 after the data collection procedures had been completed for their time compensation.

2.6. Data Management and Analyses

Completed questionnaires and laboratory forms were transported in a locked mobile cabinet to the NCHADS for data entry. Two clerks entered the data from each questionnaire independently using EpiData (Odense, Denmark), which is easy to use and allows cross checking of the two entered datasets. Data were double-checked for consistency, and cleaning was done before descriptive analyses were conducted. The prevalence of HIV and syphilis was calculated by dividing the total number of positive cases with the total number of participants tested. Data were weighted in all analyses to correct for sampling design, nonresponse, and missing data. Stata command (SVYLOGIT) was used to adjust standard errors for clustering effects at the venue level [26].

2.7. Ethical Considerations

The National Ethics Committee for Health Research, Ministry of Health, Cambodia approved this study (Ref: 297NECHR). A written informed consent was obtained after the participants were informed about the voluntary nature of the study, and their right to withdraw or discontinue their participation at any time without any consequences. Access to free HIV/syphilis testing and treatment was also extended to eligible individuals who refused to participate in the survey. Confidentiality was maintained by assigning an identifying code to each participant, without any personal identifiers recorded. The interviews were conducted in a private place to prevent the participants' privacy.

3. Results

3.1. Socio-demographic Characteristics

Socio-demographic characteristics of the participants are shown [Table 1](#). This study included 3,151 FEWs, and the mean age of the participants was 26.2 years (SD= 5.7) years. Almost two-thirds (60.6%) were in the age group of 21 to 30 years. The level of education of FEWs in this

3.3. Sexual Risk Behaviors

Sexual behaviors with different types of partners among FEWs in this survey are shown in Table 2. The majority of the participants (87.2%) reported having sexual intercourse with a boyfriend or sweetheart (non-commercial partners), and 25.1% of them reported always using condoms with this type of partners in the past three months. Regarding transactional sex, 53.0% reported having sexual intercourse with men in exchange for money or gifts (commercial partners) in the past three months, with a mean number of such commercial partners in the past seven days of 3.0 (SD= 5.0). About 10.0% reported having seven or more commercial partners in the past seven working days. The rate of consistent condom use in commercial relationship was general high, with 80.6% reported always using condoms with commercial partners in the past three months. When asked about reasons for not using condoms, 63.8% reported expression of faithfulness to partners as the main reason.

Table 2. Sexual behaviors with different types of partners among female entertainment workers in the survey

Variables	Number (%) [*]
Mean number of non-commercial partners in the past three months (\pm SD)	1.7 \pm 1.5
Condom use with non-commercial partners in the past 3 months	
Always	369 (25.1)
Most of the times	67 (4.5)
Sometimes	241 (16.4)
Never	796 (54.0)
Had sex with commercial partners in the past 3 months	1398 (53.0)
Mean number of clients in the past 7 working days	3.0 \pm 5.0
Condom use with clients in the past 3 months	
Always	1139 (80.6)
Most of the time	94 (7.3)
Sometimes	112 (8.7)
Never	44 (3.4)
Had anal sex in the past 3 months	65 (2.5)
Had oral sex in the past 3 months	147 (5.6)
Reasons for not using condoms in the past 3 months	
I wanted to get pregnant	35 (14.4)
Partner was not infected with HIV/STI	112 (14.2)
Partner did not want to use	48 (6.1)
Partner forced not to use	30 (3.8)
Partner offered more money	19 (2.4)
To express faithfulness to the partner	505 (63.8)
Condom not available	21 (2.7)
Too drunk/high	13 (1.6)
Other	8 (1.0)

Abbreviations: HIV, human immunodeficiency virus; SD, standard deviation; STI, sexually transmitted infections.

^{*}Values are number (%) for categorical variables and mean \pm SD for continuous variables.

3.4. Sexual and Reproductive Health

Characteristics of sexual and reproductive health, including family planning, among FEWs in this study are shown in Table 3. Of the total, 74.3% of the participants reported currently using a contraceptive, and condom was the most common method (33.5%), followed by pills

(13.0%) and withdrawal (11.7%). Slightly lower than half (41.3%) of the women reported having experienced at least one unwanted pregnancy during the time working as an EW, with the mean number of pregnancy of 2.1 (SD= 1.6). About one-third (33.7%) reported having had at least one induced abortion during the time working as an EW, with a mean number of induced abortion of 1.8 (SD= 1.3). When asked about the facilities where they received their most recent abortion services, the followings were reported: a private facility (38.1%), getting drugs from a pharmacy (37.8%), a public facility (12.9%), and an NGO facility (8.4%).

Table 3. Sexual and reproductive health among female entertainment workers in the survey

Variables	Number (%) [*]
Contraceptive use in the past 3 months	
None	811 (25.7)
Female sterilizer	23 (0.7)
Male sterilizer	5 (0.2)
Pills	410 (13.0)
Injectables	167 (5.3)
Intrauterine devices	54 (1.7)
Intradermic devices	40 (1.3)
Condoms	1055 (33.5)
Calendar	54 (1.4)
Withdrawal	368 (11.7)
Emergency contraceptive	17 (0.5)
Had unwanted pregnancy during the time working as an EW	1184 (41.3)
Mean time having unwanted pregnancy during the time working as an EW (\pm SD)	2.1 \pm 1.6
Having at least one induced abortion during the time working as an EW	951 (33.7)
Mean number of induced abortions during the time working as an EW (\pm SD)	1.8 \pm 1.3
Facility where the most recent abortion was performed	
Private facility	356 (38.1)
Public facility	121 (12.9)
NGO facility	79 (8.4)
Drugs from pharmacy	353 (37.8)
Other	26 (2.8)

Abbreviations: EW, entertainment worker; SD, standard deviation.

^{*}Values are number (%) for categorical variables and mean \pm SD for continuous variables.

3.5. Illicit Drug and Alcohol Use

Table 4 shows the prevalence of illicit drugs and alcohol use among FEWs in this study. Of the total, 7.6% of the participants reported using illicit drugs at least once in the past three months. Amphetamine-type stimulants (86.1%) was the most common form of the drugs used in the past three months, followed by ecstasy (1.7%) and heroin (0.8%). Very few FEWs in this study (0.6%) reported injecting drugs in the past three months. Regarding alcohol use, 87.7% reported drinking alcohol at work at least on one working day over the past week, and 62.6% reported drinking alcohol every day. Of those who reported alcohol drinking, 49.9% reported drinking more than 55 units (cans or bottles for beers and other light alcoholic drinks and glasses for wines or other heavy alcoholic drinks) over the past week.

Table 4. Illicit drug and alcohol use among female entertainment workers in the survey

Variables	Number (%) [*]
Illicit drug use in past 3 months	238 (7.6)
Type of illicit drugs used in the past 3 months	
Heroin	2 (0.8)
Amphetamine-type stimulants	205 (86.1)
Ecstasy	4 (1.7)
Injected drugs in the past 3 months	19 (0.6)
Mean number of days drinking alcohol at work over the past week (\pm SD)	5.2 \pm 2.7
Drinking alcohol at work in the past week	2763 (87.7)
Frequency of alcohol use at work in the past week	
0 day	388 (12.3)
1-3 days	514 (16.3)
4-6 days	277 (8.8)
Everyday	1972 (62.6)
Mean number of alcoholic drinks consumed in the past week [†] (\pm SD)	54.5 \pm 40.7
0 – 10	797 (25.3)
11 – 55	781 (24.8)
56 – 96	1367 (43.4)
> 96	206 (6.5)

Abbreviations: ATS, amphetamine-type stimulants; SD, standard deviation.
^{*}Values are number (%) for categorical variables and mean \pm SD for continuous variables.

[†]Cans or bottles for beers and other light alcoholic drinks and glasses for wines or other heavy alcoholic drinks

3.6. STIs and Care Seeking Behaviors

Table 5. STI symptoms and care seeking behaviors among female entertainment workers in the survey

Variables	Number (%) [*]
Had at least an STI symptoms in the past 3 months	636 (20.2)
Types of STI symptoms in the past 3 months	
Genital ulcer	78 (2.5)
Genital warts	42 (1.3)
Abnormal genital discharge	1068 (33.9)
Lower abdominal pain	816 (25.9)
Facility where treatment for the most recent STI symptom was sought	
Public health facility	397 (36.0)
NGO facility	270 (24.5)
Private facility	103 (9.3)
Pharmacy	189 (17.2)
Traditional healer	13 (1.2)
Other	4 (0.4)
No treatment	126 (11.4)
Time refraining from having sex when suffering from STI	
Did not stop having sex	184 (17.9)
1 – 3 days	202 (19.6)
4 – 10 days	280 (27.2)
Until treatment completed	143 (13.9)
Until getting cured	222 (21.5)
Had STI checkup in the past 12 months	1146 (36.4)
Facility where the last STI checkup was performed	
Primary health clinic	337 (29.8)
Public hospitals	289 (25.6)
NGO clinic	393 (34.7)
Private facility	107 (9.5)
Other	4 (0.4)

Abbreviations: NGO, non-governmental organization; STI, sexually transmitted infections.

^{*}Values are number (%) for categorical variables.

Table 5 shows that 20.2% of FEWs in this study reported having had at least one STI symptom in the past three months. The most common symptoms reported were abnormal genital discharge (33.9%), lower abdominal pain (25.9%), genital ulcer (2.5%), and genital warts (1.3%). Among women who had the symptoms, 11.4% did not seek for diagnosis or treatment. The most common facilities where their most recent symptom was treated included public facilities (36.0%), followed by NGO facilities (24.5%) and pharmacies (17.2%). About one-third (36.4%) reported having an STI screening in the past 12 months. Facilities where they received the most recent STI screening was NGO clinics (34.7%), primary health clinics (29.8%), and public hospitals (25.6%).

4. Discussion

We found that the prevalence of HIV among FEWs in this study remained relative high compared to the prevalence in the general adult population in the country (3.2% vs. 0.3%) [7]. Previous studies have reported different prevalence of HIV in different sub-categories of working entertainment venues. As reported in previous national surveys conducted by NCHADS, the prevalence among both brothel-based (direct) and non-brothel-based (indirect) female sex workers remained high at 37.3% and 17.4%, respectively in 2011, although a constant decline has been observed in the last decade [1,6]. In this study, a particularly high prevalence of HIV was also found in some pockets of the FEW population such as freelance sex workers (11.1%), women working in massage parlors (4.3%), and women working for beer companies (2.0%).

The high prevalence of HIV could be possibly explained by several sexual risk behaviors in multiple and different types of sexual relationships. The rate of consistent condom use in commercial relationship remained constantly higher than 80% since 2010. However, the rate of consistent condom use in regular non-commercial relationships has declined from 39.4% in 2010 and 36.1% in 2013 to 27.1% in 2014. These findings are consistent with findings from other recent studies that have reported low rates of consistent condom use in non-commercial relationships among FEWs in Cambodia [12,13,24]. The constantly low rate of consistent condom use in this type of relationships, coupled with the high rates of multiple sexual partnerships, may explain the persistently high prevalence of HIV and induced abortion among FEWs in this and other previous studies in Cambodia [12,13,24]. FEWs in this study reported expression of faithfulness to the partners as the main reason for not using condoms, which is well supported by findings from previous studies among FEWs in Cambodia [13,24]. Findings from the 2013 national Behavioral Sentinel Survey indicated that the rates of consistent condom use among FEWs in any partnerships increased rapidly from 42.0% 1997 to 96.0% in 2003; however, the rates had since then plateaued [6,18].

The multi-sectorial national programmatic efforts have contributed substantially to the decline in the prevalence of HIV in Cambodia in the past two decades. The successes of the 100% Condom Use Program, a strategy

that ensured 100% condom use in brothel-based sexual contacts, had played a very important role in the reduction of the prevalence of HIV in the general population since the beginning of the AIDS epidemic [1,5,7]. This program involved people in a multi-sectoral engagement framework to promote consistent condom use in brothels. However, since the enforcement of the Law on Suppression of Human Trafficking and Sexual Exploitation in 2008, brothels have been closed throughout the country, and the 100% Condom Use Program may no longer work effectively on its own. Therefore, to increase consistent condom use among FEWs, new strategies are warranted to respond to the current contexts of the AIDS epidemic. These may include providing comprehensive education on sexual risk factors for HIV infection, STIs, and detrimental effects of drug injection using materials that are up-to-date. Education regarding condom use as well as the harmful effects of multiple, concurrent relationships should also be included. Compared to that in previous studies, the proportion of FEWs who reported having received HIV and reproductive health education from formally trained health providers such staff working for an STI clinic or a voluntary confidential counseling and testing (VCCT) center in this study has declined remarkably. Most of FEWs in this study received such information from peer outreach workers. Therefore, education on HIV and sexual and reproductive health can be provided to FEWs through outreach workers due to the high percentage of FEWs that they are able to reach.

The strengths of this study include the large sample of FEWs and the use of standardized measures to collect study sample and data. Furthermore, representatives of community people and key stakeholders from the grassroots to the national levels were involved in the study at all stages – from the development of the study to the dissemination of the research findings.

However, several limitations of the study should be noted. First, although the study sample was recruited from major city and provinces and data were weighted in the statistical analyses, the findings may not be generalized at a national level. Second, self-reporting measures that were used to collect data on sensitive issues such as health and sexual behaviors may have encountered over- and under-reporting biases and impacted on the results. The levels of risks are likely to be underestimated, given the cultural norms governing sexual behaviors and substance use in the Cambodian context. Finally, albeit minimal, the participants' connection to the ongoing community-based HIV programs and the monetary incentive given to them may, to certain extent, have affected their genuine motivation to partake in the study and influence their responses. Nevertheless, we believe that sufficient due measures have been taken in our data collection procedures and analyses to minimize these potential effects.

Despite these limitations, we conclude that the prevalence of HIV among FEWs in Cambodia remains high relative to the substantial decline of the prevalence in the general adult population. Their vulnerability may have been exacerbated by the high rates of sexual risk behaviors, notably multiple partnerships and inconsistent condom use. The rate of consistent condom use with commercial partners remains consistently high but has

declined constantly since 2010. The women are also exposed to great risks of other STIs, poor sexual and reproductive health, and substance abuse, particularly high alcohol consumption at work. These findings indicate the needs for particular attention given towards improving access to up-to-date knowledge on HIV, STIs, and other sexual and reproductive health issues among FEWs in Cambodia. The education programs should develop tools and materials that reflect the current context of AIDS epidemic in the country. A wide range of key stakeholders and communities should come together as one in order to continue to effectively play critical roles in decreasing the rates of HIV and improving sexual and reproductive health among FEWs in Cambodia.

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Competing Interests

The authors have no competing interests.

List of Abbreviations

AIDS	Acquired immune deficiency syndrome
ART	Antiretroviral therapy
ATS	Amphetamine-type stimulants
CI	Confidence interval
FEW	Female entertainment worker
HIV	Human immunodeficiency virus
IBBS	Integrated Biological and Behavioral Survey
MDG	Millennium development goal
MSM	Men who have sex with men
NCHADS	National Center for HIV/AIDS, Dermatology and STD
NECHR	National Ethics Committee for Health Research
NGO	Non-governmental Organization
PASP	Provincial AIDS and STD Program
PWID	People who inject drugs
PWUD	People who use drugs
SD	Standard deviation
STD	Sexually transmitted disease
STI	Sexually transmitted infection
TG	Transgender

UNAIDS Joint United Nations Programme on HIV/AIDS
 VCCT Voluntary confidential counseling and testing
 WHO World Health Organization

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