



**MONITORING OF BEHAVIOR AND HIV PREVALENCE  
AMONG SEX WORKERS  
ANALYTICAL REPORT**

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The report was prepared on the basis of 2015 study "Monitoring of behavior and HIV prevalence among sex workers as component of second generation HIV surveillance", The report presents the survey results regarding the social and demographic structure of the sex workers group, key indicators of risky behavior, , access to prevention and treatment programs, HIV, HBV, HCV and syphilis prevalence etc.

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## GLOSSARY

**Integrated biobehavioural study (IBBS)** – sociological behavioral and biological study linked in time and place, with the same respondent.

**Sample** – a part of the total population, the representatives of which are the objects of the study. This part of the general population is selected in such a way that its properties represent the characteristics of the entire general population.

**VCT** (voluntary counseling and testing) – medical and psychological counseling of a certain person with regard to HIV/AIDS and the related medical testing for antibodies to HIV on the basis of the voluntary consent of the tested person.

**Key informants (KI)** – representatives of organizations or individual who have expert knowledge on the surveyed group.

**Recruiting chain** – the totality of recruiting waves in their chronological sequence.

**PLWH** – people living with HIV.

**NGO** – non-governmental organization (the report also uses a term “civil society organization”, CSO).

**PWID** – people who inject drugs.

**Primary respondent** (in RDS) – survey participants recruited by the CSO working with a target group rather than the respondents themselves.

**Field stage of the survey** – period of data collection by interviewing the respondents.

**Recruit** (in RDS) – a person who is already recruited by the survey team or a recruiter in a certain city but did not participate in the study (become participant) yet.

**Recruiter** (in RDS) – a person who, having completed the interview, received coupons allowing to recruit other participants.

**SWs** – sex workers.

**AoR** – adjusted odds ratio

**Wave** (in RDS) – the totality of respondents engaged by the recruiters of the same level. For example, a person recruited specifically by the primary respondent goes to the first wave. Persons recruited by the participants of the first wave comprise the second wave. The recruiting chain is the sequence of recruiting waves.

**Equilibrium**, or balance – the condition that takes place starting from a certain wave number, the essence of which is that the sample characteristics would not change anymore, regardless of how many more people will be included in it. Equilibrium is also called convergence or stabilization.

**RDS (respondent-driven sample)** – sample defined by respondents.

**TLS (time-location sample)** – sample by time and place.

**Location** ("hotspot") – places of concentration of sex workers, where they search for client or provide commercial sex services.

### Context.

Given the increase in the proportion of sexual transmission as the driver of epidemic, sex workers (CSW) become one of the key populations vulnerable to HIV/AIDS, which causes the need for regular monitoring and evaluation of the epidemiological situation, given the existence of risky behavior practices and size of the group.

This publication highlights the results of integrated bio-behavioral survey among sex workers conducted in 2015-2016 among the persons who provided commercial sex services 5 months prior to the study.

**Methods.** The study has a cross-sectional design, which involves obtaining data for a specific period of time. Recruiting respondents was carried out using three methodologies: RDS (respondent-driven sample); TLS (time-location sample) - sampling at the certain place and time; KI (key informants) - recruitment by representatives of organizations or individuals who have expert knowledge of the surveyed group. The total sample consisted of 4,300 people of 27 cities in Ukraine. To obtain results that are representative of the whole population, the data were weighted based on coefficient calculated on the recommendations of processing and data analysis techniques according to RDS and TLS. Descriptive statistics, namely mono- and bivariate distribution data was used for data analysis. In order to test the factors that characterize the different likelihood to have a positive test result for HIV and Hepatitis C, two-level logistic regression models were built taking into account the design of the survey: grouping of sex workers in cities.

**Key results.** 93.5% of SWs used a condom during their last sexual contact with clients, 86.8% - every time during the last working week, 89.2% - always in the last month during vaginal sex, 82.5% - during anal sex and 76.7% - during oral. 7.7% of all SWs are active PWID: they reported using injection drugs in the last 30 days. According to the survey, HIV prevalence among sex workers is 7%, Hepatitis C - 11.2%, Hepatitis B - 4%, syphilis - 3.1%. Key factors for HIV infection is injecting drug use (adjusted OR = 5.45; 95% CI: 3.82-7.75) and experience of sex work (adjusted OR = 1.09; 95% CI: 1.06-2.11).

Providing sex services in hotels (adjusted OR = 0.11; 95% CI: 0.01-0.81), entertainment facilities (adjusted OR = 0.41; 95% CI: 0.25-0.68) and saunas (adjusted OR = 0.40; 95% CI: 0.16- 0.97) are associated with lower risk compared with street locations. The main factors for Hepatitis B infection were the use of injected drugs in the last 30 days (adjusted OR = 2.10; 95% CI: 1.32-3.32) and duration of experience of sex work (adjusted OR = 1.08; 95% CI: 1.02-1.08 ), for Hepatitis C - the experience of injecting drug use (adjusted OR = 8.66; 95% CI: 6.40-11.72), inconsistent condom use with clients, permanent or casual partners in the last 30 days (adjusted OR = 1.35; 95% CI: 1.08- 1.67), younger age (adjusted OR = 0.42; 95% CI: 0.30-0.58), duration of experience of sex work (adjusted OR = 1.04; 95% CI: 1.02-1.06), and the type of location. SWs working in entertainment facilities (adjusted OR = 0.56; 95% CI: 0.38-0.82), saunas or massage parlors (adjusted OR = 0.41; 95% CI: 0.20-0.83), or via Internet or intermediaries (adjusted OR = 0.64; 95% CI: 0.46-0.90) seem to have lower risk of Hepatitis C when compared with street locations.

Only two statistically significant factors for the presence of syphilis were discovered, namely injecting drug use in the past 30 days (adjusted OR = 1.69; 95% CI: 1.02-2.81) and duration of experience in the sex work (adjusted OR = 1.06; 95% CI: 1.04-1.09).

## Introduction

As of January 1, 2016 the total number of citizens of Ukraine registered for the supervision in relation to HIV infection was 126,604, including children with temporarily unspecified diagnosis born to HIV-infected women. During 2015 there were registered 8,468 cases of AIDS and 3,032 deaths due to AIDS.<sup>1</sup> According to official statistics, sexual transmission mode continued to dominate in the structure of HIV transmission in 2015 - 72.5%.<sup>2</sup> Thus, according to the UNAIDS classification, Ukraine is a country the a concentrated epidemic of HIV/AIDS.<sup>3</sup>

One of the key populations vulnerable to HIV/AIDS are persons that provide commercial sex services, which necessitates regular monitoring and evaluation of the epidemiological situation, given the existence of risky behaviors and size of the group. The estimated number of sex workers in Ukraine is 75,000<sup>4</sup>.

SWs who inject drugs or have sexual partners among PWID are especially vulnerable. According to the results of previous studies, heterosexual HIV infection transmission among women is still occurring largely through their PWID partners.<sup>5</sup> While HIV prevalence is decreasing among the SW group, the disease prevalence among SW clients still does not tend to decrease.<sup>6</sup> SWs vulnerability is exacerbated by high levels of violence in this group. Studies show that women do not always consider abusive treatment towards them as violence and rarely seek help from professionals.<sup>7</sup> Meanwhile, HIV status increases stigma and self-stigmatization.<sup>8</sup>

According to the laws of Ukraine, administrative liability is envisaged for prostitution, enabling the abuse of power by police and interfering with prevention services provision.<sup>9</sup> However, the SWs are identified as a key group in strategic legal documents on HIV/AIDS.

Routine epidemiological monitoring during HIV cases registration does not include detailed route of transmission by indicator of sex work. Because of this biological and behavioral surveillance among a representative sample of the relevant group is virtually the only reliable tool to obtain data on the prevalence of HIV infection.

Behavioral research among sex workers in Ukraine was held since 1999, and since 2008 a biological component, such as testing study participants for HIV and other infections, has become an integral part of these surveys. This publication presents detailed data of integrated bio-behavioral survey among SWs in 2015-2016 relating to socio-demographic characteristics of the group, existing sexual behavior risks in connection with sex work, casual and permanent partners, the level prevention services coverage, including HIV testing, prevalence of HIV, Hepatitis B and C, syphilis and other important data.

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<sup>1</sup> ВІЛ-інфекція в Україні. Інформаційний бюлетень № 45, 2015.

<sup>2</sup> Там само.

<sup>3</sup> *K. Dumchev, O. Varetska, I. Kuzin.* Evolution of Monitoring and Evaluation of AIDS Response in Ukraine: Laying the Groundwork for Evidence-Based Health Care/AIDS behavior.

<sup>4</sup> Оцінка чисельності груп високого ризику інфікування ВІЛ в Україні (звіт за результатами дослідження): станом на 2013 рік/Берлева Г., Сазонова Я. – К.: МБФ «Альянс громадського здоров'я», 2015. – 38 с..

<sup>5</sup> Проект зі збору та узагальнення даних щодо ВІЛ-інфекції в Україні. Підсумковий звіт. – Київ, 2013.

<sup>6</sup> Моніторинг поведінки та поширення ВІЛ-інфекції серед клієнтів жінок, які надають сексуальні послуги за винагороду, як компонент епідагляду за ВІЛ другого покоління: аналітичний звіт за результатами біоповедінкового дослідження 2014 року/Волосевич І., Коноплицька Т., Костюченко Т. та ін. – К.: МБФ «Міжнародний Альянс з ВІЛ/СНІД в Україні», 2015. – 80 с.

<sup>7</sup> *Артюх О.В., Білоносова Н., Варбан М., Демченко І., Костючок М., Матіяш О., Пивоварова Н., Плющ А.* Дослідження причин, що впливають на прояви насильства щодо РКС, як фактор підвищеного ризику інфікування ВІЛ. Оперативний огляд: короткі підсумки. – Київ, Україна: МБФ «Міжнародний Альянс з ВІЛ/СНІД в Україні», 2012 рік.

<sup>8</sup> *Демченко І.Л. та ін.* Показник рівня стигми ЛЖВ – Індекс стигми. Аналітичний звіт за результатами дослідження. – К., 2011.

<sup>9</sup> National Report on Monitoring Progress Towards the UNGASS Declaration of Commitment on HIV/AIDS Reporting period: January 2008–December 2009.

## 1. Methods and materials

### 1.1. Survey goal

The key goal is to determine the prevalence of HIV, Hepatitis B and C, syphilis and monitor SW behaviors which can lead to the spread of these infections.

In the 2015-2016 study target group are people who provided commercial sex services for six months prior to the study.

### 1.2. Survey tasks

- Assess the spread of behaviors related to HIV, drug use, use of HIV prevention and treatment services among sex workers.
- Assess HIV, Hepatitis B and C and syphilis prevalence among sex workers.
- Evaluate HIV incidence among sex workers.
- Identify determinants of HIV and other STIs presence.

### 1.3. Data collection methods

The study had cross-sectional design, which included obtaining data for a specific period of time. Three methodologies were used for recruiting the respondents: RDS (respondent-driven sample) - sampling directed by respondents; TLS (time-location sample) - sampling by place and time; KI (key informants) - recruitment by representatives of organizations or individuals who have expert knowledge of the study group.

Methodology and sample size for each city were selected based on previously conducted formative research, which aimed to determine the appropriateness of a particular methodology. Selection methodology was based on the following criteria:

#### TLS

- Lack of a wide network of SWs acquaintances;
- Refusal to recruit their friends to participate in the study;
- Refusal to visit an NGO or an AIDS Center for the study;
- Most sex workers do not migrate to different locations and are always working at the same point.

#### RDS

- Size of the network of SWs acquaintances;
- Respondents' consent to recruit their friends to participate in the study;
- Consent or visit a NGO or an AIDS center for the study;
- Most sex workers are constantly migrating to different locations.

#### KI

- unfeasible use of any RDS technique, or TLS methods;
- hazardous location for researchers - impossibility to conduct research there.

Nineteen cities have implemented TLS sampling methodology. TLS methods (time location sampling) envisage compiling the geographical list of places where the target SW group is looking for clients. Places/points of the survey included in the sample were determined individually in each city - by random numbers, but taking into account the type (e.g., street, highway, café/bar, nightclub, apartment, etc.), the number of sex workers who work in this place/point, the availability or absence of prevention programs in these places/points. The sample included all points identified, validated and confirmed during the formative research. For each city a schedule of visits was made, according to which the team was visiting points where SWs work. While preparing the schedule, regional team determined one main point of the sample and one alternate for each trip. The main point was visited first. If SWs did not show up there in an hour, the team traveled to an alternate point, and if SWs appeared, the team worked at the initial point for not less than three hours. Productive visits with research were made to 388 points in total. The trips involved mobile clinic, in which interviews and tests were conducted. If necessary, some cities also used another vehicle specially equipped and meeting the technical requirements of the study.



Six cities have implemented RDS sampling methodology. RDS methods (Respondent Driven Sampling) provided initial selection of respondents under certain characteristics and recruiting secondary respondents to the study by the SWs who has participated in all of its components. Primary respondent eligibility criteria: aged older than 14 old but younger than 24; having more than seven close friends (acquaintances) among SWs, which could be recruited for the study; worked at several points in different parts of the city (migration trends); did not participate in the study over the past six months; represented a different type of points, clients and non-clients of NGOs that provide prevention services to sex workers; do not inject drugs; are HIV-negative. Respondents were selected to act as recruiters. If a primary respondent refused to act as a "recruiter", they were not considered "productive" and were replaced by another recruiter with the same characteristics. All respondents, except primary, were considered secondary.

Two cities have implemented KI sampling methodology. Recruiting through key informants (KI) - representatives of public organizations and individuals who had reliable information about and access to sex workers concentration places, including representatives of the target group. In such cities SWs are not a structured and interlinked group suitable for RDS techniques. Also they do not spend time on certain points, rather they migrate or work individually, which excludes the possibility of using TLS methods.

Each respondent who participated in the study was tested for HIV, Hepatitis B, Hepatitis C and syphilis with rapid tests and had pre-test and post-test counseling. Counseling and testing with rapid tests for HIV, Hepatitis B and C and syphilis were made by qualified medical personnel from among the employees of AIDS centers after interviews with sex workers. Pre-test and post-test counseling was provided by AIDS center health workers or NGO representatives certified in VCT.

Dried blood sampling (DBS) was carried out in order to detect early HIV infection cases in all participants with positive rapid HIV test result. In addition, DBS sampling was done in every tenth HIV-negative respondent to validate rapid test results. The results of DBS samples laboratory analysis will be presented in a separate publication.

#### 1.4. Study sample and geography

The target group of the study included not only women but also men who provide commercial sex services to women or men. The sample study consisted mostly of women – 4,262 respondents, while the number of male sex workers was only 38 (Table 1). The total sample size was 4,300 persons. The study was conducted in 27 cities of Ukraine.

**TLS methodology – 3100** persons: Bila Tserkva, Dnipro, Zhytomyr, Zaporizhzhya, Ivano-Frankivsk, Kyiv, Lutsk, Lviv, Mykolayiv, Odesa, Poltava, Rivne, Sevastopol, Simferopol, Ternopil, Uzhgorod, Kharkiv, Kherson, Chernivtsi.

**RDS methodology – 850** persons: Vinnytsya, Kirovohrad, Sumy, Khmelnytsky, Cherkasy, Chernihiv.

**KI methodology – 350** persons: Donetsk, Luhansk

**Table 1. Planned and implemented sample**

№	City	Methodology	Sex		Implemented sample
			women	men	actual
1	Bila Tserkva	TLS	150	0	150
2	Vinnytsya	RDS	148	2	150
3	Dnipro	TLS	200	0	200
4	Donetsk	KI	200	0	200
5	Zhytomyr	TLS	150	0	150
6	Zaporizhzhya	TLS	150	0	150
7	Ivano-Frankivsk	TLS	150	0	150
8	Kyiv	TLS	199	1	200
9	Kirovohrad	RDS	131	19	150
10	Lutsk	TLS	150	0	150
11	Luhansk	KI	150	0	150



№	City	Methodology	Sex		Implemented sample
			women	men	actual
12	Lviv	TLS	150	0	150
13	Mykolayiv	TLS	200	0	200
14	Odesa	TLS	150	0	150
15	Poltava	TLS	197	3	200
16	Rivne	TLS	149	1	150
17	Sevastopol	TLS	150	0	150
18	Simferopol	TLS	150	0	150
19	Sumy	RDS	149	1	150
20	Ternopil	TLS	149	1	150
21	Uzhgorod	TLS	144	6	150
22	Kharkiv	TLS	199	1	200
23	Kherson	TLS	150	0	150
24	Khmelnysky	RDS	150	0	150
25	Cherkasy	RDS	150	0	150
26	Chernivtsi	TLS	149	1	150
27	Chernihiv	RDS	98	2	100
		<b>Total:</b>	<b>4262</b>	<b>38</b>	<b>4300</b>

### 1.5. Data collection duration

Field stage lasted from October 26, 2015 to January 25, 2016

### 1.6. Ethical issues

The study protocol passed the expert review and was approved by the Institutional Review Board (IRB) of the Ukrainian Institute on Public Health Policy (Kyiv, Ukraine) and the Centers for Disease Control and Prevention (Atlanta, USA).

All study participants completed the informed consent procedure, during which they were explained the participation procedure and the compliance with the principles of voluntary and confidentiality.

Participants were given a compensation for participating in the study. In cities where the RDS method was implemented the participation and recruiting of other participants was compensated.

### 1.7. Major limitations during the preparatory phase of the study, data collection, receipt and processing of results

**Field stage limitations.** In some cities data collection did not happen according to the planned schedule. For example, in Chernihiv the field stage started late due to the difficulties of finding the primary respondents to implement the RDS method sampling. In Donetsk, Luhansk, Simferopol and Sevastopol (the territories not controlled by Ukraine) it also started with a delay due to resolving logistics issues. In Kharkiv the study coincided with the scheduled police raids, that's why some sex workers refused to participate out of security considerations or did not work on those days at all.

Due to the fact that the formative research was conducted in late 2014 and implementation of the bio-behavioral one took place in October-December 2015, some information concerning locations was irrelevant. According to TLS methodology 162 locations from the sample were obsolete. Instead, 67 new locations were identified while collecting data.

**Limitations of result processing.** The cross-sectional study design allows to record key behavioral indicators and the prevalence of HIV and other STIs among sex workers in a particular period, but limits the researchers in identifying incidence rate and casual relations. All data concerning risky or save HIV-related behavior are obtained by self-declaration of sex workers during the survey, which can certainly cause the socially expected answers of the respondents. Carrying out preventive work among sex workers, their participation in various prevention programs, the status of a NGO client, previous participation in similar

studies may also increase awareness concerning the answers to the questionnaire questions on the safe behavior practices.

The RDS Method provides for data analysis only at the regional level, so their analysis in the SPSS software package using extrapolated weights from RDSAT is the best way to obtain national indicators, but it has some limitations due to inconsistency concerning the RDS method. The study has used multiple methods of data collection (RDS, TLS and KI), which provides certain limitations when analyzing their entire dataset at the national level and can influence the results of the study. However, using identical methods in all regions is problematic because of significant differences in sex business (according to the results of the formative research) in different cities.

### 1.8. Data analysis

**Descriptive analysis.** For data analysis descriptive statistics mono- and bivariate distributions are used. The significance of differences in percentage between the different groups is tested according to the statistical significance chi-squared test or Fisher test for distributions where the expected frequencies are less than 5. For quantitative variables the assessment of significance of differences in medium values was carried out according to Student's t-test (variable normal distribution) or in medians according to the Kruskal–Wallis test (variable distribution differs from normal). To demonstrate the significance of connection between the variables, the tables contain the p-value level of significance calculated using the above tests; p-value <0.05 means that the differences are statistically significant.

The report specifies the percentages calculated from the number of respondents who gave thoughtful answers to questions. If not all respondents were asked a question according to a criterion established by the research toolkit (filter question), the analysis was carried out among persons who had to answer to it.

**Weighting data.** To obtain the results that are representative of the entire group population, the data has been weighted on the basis of the coefficients calculated according to the recommendations for data processing and analysis according to RDS and TLS methods.

For the cities where the RDS method has been implemented, the data has been analyzed in the RDS-Analyst<sup>10</sup>, software, which provides its weighting for each variable based on the network of people whom a SWs knows: coefficients are higher for those with few friends among other SWs and lower for those who has many of them. For conducting the analysis at the national level weighting coefficients have been extrapolated to the SPSS dataset. For cities where the TLS method has been implemented, weighing on the value of the locations and their representation in the sample has been conducted. For this percentage of the total number of sex workers for each sampling location has been calculated, and the percentage of respondents for each sampling location. Then the percentage among the total number of sex workers has been divided by the percentage of respondents and thus the required weight coefficients for SWs at a certain location has been obtained. If there were several visits, weight coefficients were calculated individually for each case. So for the same location it was done as many times as many visits were made to it. For the cities where the method CI was implemented, no weighing was used.

**Dynamics analysis.** In order to analyze the socio-demographic changes in the population of SWs, behavior, HIV infection level etc. the data from the biobehavioural studies of 2008/2009 and 2011 and 2013 was used in the report. The tools used over different times had some differences in the number and content of questions so the data comparison was performed only when the questions had the same wording.

**Modeling of factors of HIV and other STIs.** To check the factors which characterize the different likelihood to have a positive test result for HIV and Hepatitis C, two-level logistic regression models were built. Such regression takes into account the design of the study: allocation of groups of sex workers in cities. The results of testing for HIV, Hepatitis B and C and syphilis that have been obtained as part of a

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<sup>10</sup>RDS Analyst (RDS-A) – це пакет для статистичного аналізу даних, зібраних за методикою Respondent-driven sampling (RDS). Доступний для вільного користування за посиланням: [http://wiki.stat.ucla.edu/hpmrg/index.php/RDS\\_Analyst\\_Install](http://wiki.stat.ucla.edu/hpmrg/index.php/RDS_Analyst_Install)

connected study are the dependent variables for this analysis. The variables that explain variations in the prevalence of HIV and other infectious diseases, are socio-demographic characteristics and unsafe injecting and sexual practices. Read more about modeling of actors in section 2.14.

## 2. RESULTS: NATIONAL LEVEL

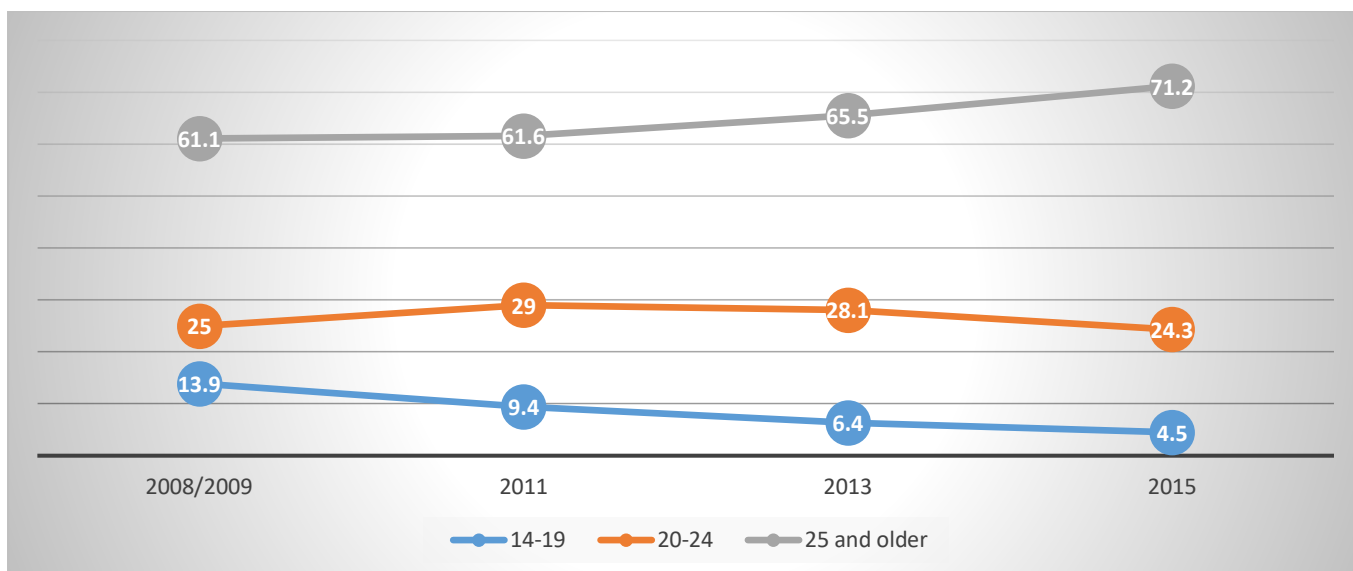
### 2.1. Social and demographic profile

The average age of sex workers is 29 (standard deviation - 7 years) (Table. 2). The proportion of adolescent sex workers under and inclusive of 19 years is 4.5%. In comparison with studies conducted in previous years, the proportion of sex workers aged over 25 continues to increase years and the proportion of adolescent sex workers keeps decreasing among the target group (Fig. 1).

**Table 2. Social and demographic characteristics of SWs**

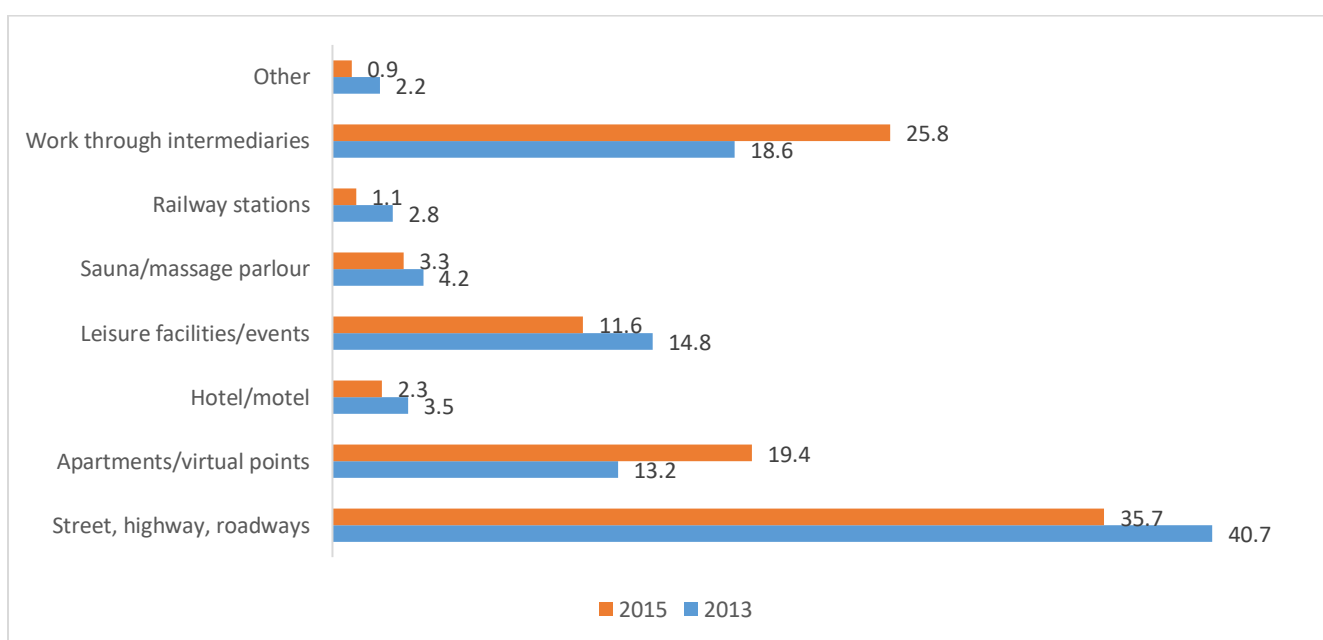
Characteristics		Average (standard deviation, or %)
Average age (standard deviation)		28.9 (6.81)
Age intervals	15–19 years	4.5
	20–24 years	24.3
	25–34 years	49.7
	35+ years (max. 61)	21.6
Sex	Male	0.8
	Female	99.2
Location type	Street, highway, driveways	35.7
	Apartments	19.4
	Hotel/motel	2.3
	Leisure facilities/events	11.6
	Sauna/massage parlor	3.3
	Railway/bus stations	1.1
	Through intermediaries	25.8
	Other	0.9
Duration of residence in the survey city	Up to 2 years	15.4
	3-5 years	9.8
	6-10 years	8.5
	11 years and over (maximum - 63)	5.6
	Reside since birth	60.6
Education	Primary education (incomplete 9 classes)	2.1
	Basic (incomplete) secondary education (complete 9 classes)	7.3
	Complete general secondary education (11 classes)	31.2
	Vocational and technical education	32.4
	Basic and incomplete higher education (universities and institutes of I-II and III-IV accreditation levels)	16.1
	University degree (Specialist and Master) (University of III-IV accreditation levels)	10.7
	Other	0.2
Employment	There is no other employment other than sex work	58.0
	Having a permanent job	10.4
	Having odd jobs	18.5
	Unemployed	5.5
	Housekeeping	6.0
	Disabled (incapable to work)	0.3
	School students	0.1
	Vocational school students	0.5
	College students	1.1

<b>Characteristics</b>		<b>Average (standard deviation, or %)</b>
	University or institute students	3.6
	Other	0.2
Total personal income in the last 30 days	Under UAH 1000	0.8
	UAH 1001–3000	10.5
	UAH 3001–5000	25.0
	UAH 5001–10 000	34.7
	UAH 10 001–15 000	13.3
	UAH 15 001–20 000	7.6
	Over UAH 20 000	5.2
	Difficult to answer	1.5
	Refusal to answer	1.5
Accommodation type	In their own apartment	30.2
	In the apartment of relatives/friends (not paying for rent)	18.7
	In a rented apartment (alone or jointly with someone)	45.1
	At the hostel	3.2
	In the center of social and psychological rehabilitation for children, a shelter for children, orphanage, social facility for children and adolescents	0.1
	No permanent residence (often change their place of residence)	2.0
	Other	0.1
Persons who traveled from the survey city for more than a month in the last 12 months to provide commercial sex services		7.1
Among those who traveled from town to survey more than a month to provide commercial sex services (N=330)...	traveled to other cities in Ukraine	72.4
	traveled to another country	26.6
Family status	Married or live with a permanent sexual partner	7.3
	Married, but have one more permanent sexual partner	1.5
	Officially not married but have a permanent sexual partner	24.3
	Married but not living together with wife/husband or permanent sexual partner	9.4
	Not married and do not have a permanent sexual partner	57.5
Does your husband or partner know that you provide commercial sex services?	Yes	46.5
	No	49.9
	Do not know	3.6
Persons supporting somebody dependent on them at the expense of sex business		57.4
Among persons supporting somebody dependent on them at the expense of sex business	support children	77.2
	support spouse/cohabitant	13.7
	support parents, grandmother or grandfather	37.8
	support others	9.1



**Fig. 1. Age structure of SWs in 2008–2015, %**

Most sex workers are women, the proportion of men among the respondents is less than one percent (0.8%). The main location of sex work are on the street, through intermediaries, apartments and virtual points. More than a third of SWs (35.7%) work mainly outdoors, on highways or roads, a quarter (25.8%) provide commercial sex services through intermediaries. Approximately one in five sex workers (19.4%) works in apartments or through Internet. Compared with the previous study wave the proportion of sex workers who work through intermediaries and in apartments is increased (Fig. 2).



**Fig. 2. Typology of locations where SWs typically worked during the last month: comparison of 2013 and 2015 studies**

As for the education level, the prevailing category are SWs with complete secondary (31.2%) or vocational education (32.4%). 10.7% of respondents have completed university education. When comparing data with the previous wave of the survey, the increasing proportion of those with higher education is observed: in 2013 study the relevant figure was 7.4%.

More than half of respondents (58%) had no other employment other than sex work. Other odd jobs except for commercial sex services are widespread (18.5% of SWs). About a third of sex workers (34.7%) earn between 5001 to 10 000 UAH per month; 26% have higher income. Most sex workers (57.4%) support other

people at the expense of their sex work earnings, usually children or close relatives (parents, grandmother or grandfather).

Most sex workers (60.6%) live in the survey city from birth, mostly in a rented apartment, which they rent independently or jointly with someone else (45.1%); less than a third (30.2%) have their own housing. During the 2013-2015 the proportion of SWs living in a rented apartment increased (from 34.1% to 45.1%). Temporary migration to provide sex services is not widespread. Only 7.1% of SWs had experience of traveling outside of their city more than a month during the last 12 months, among them over a quarter (26.6%) traveled abroad - mainly in Turkey, Russia and Poland (Table. 3). Kyiv and Odessa regions are prevailing areas of temporary migration for sex workers in Ukraine.

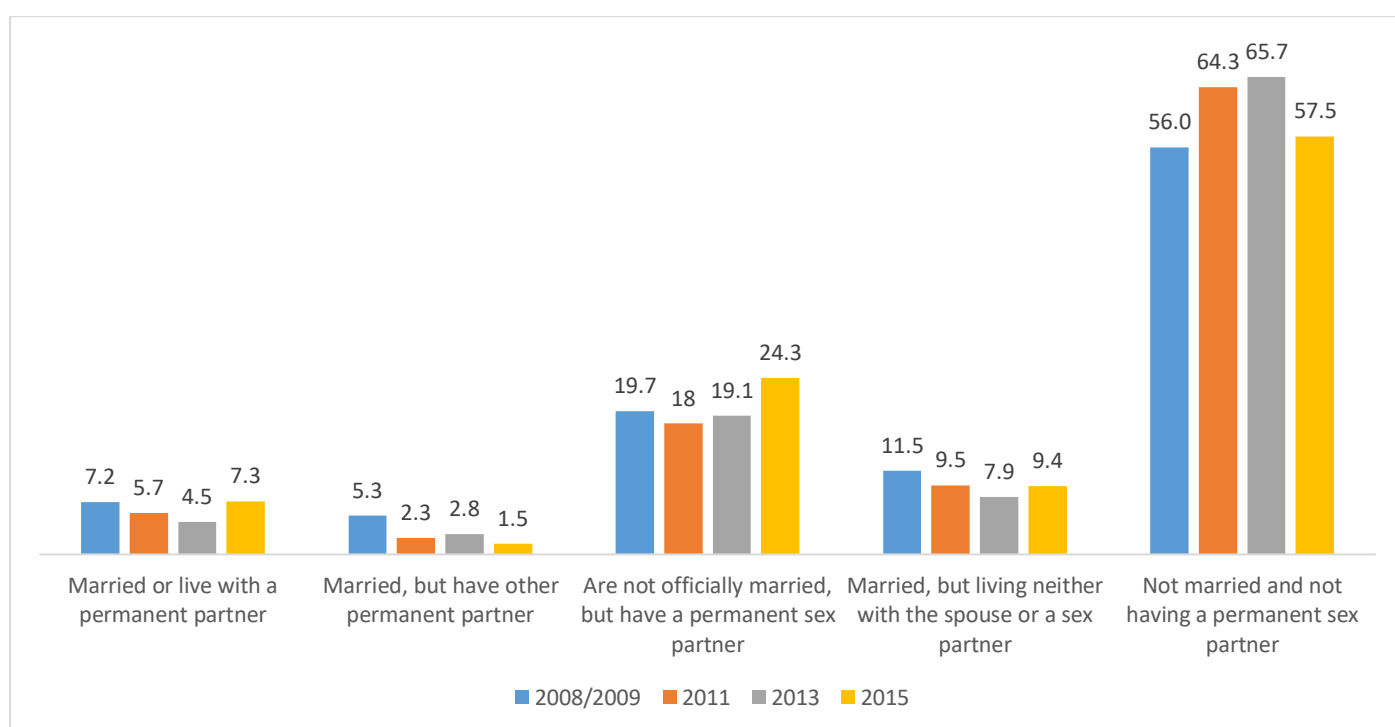
**Table 3. Directions of temporary migration of SWs to provide commercial sex services during the last month, by the survey city**

<b>Where traveled</b>	<b>From where they traveled to the indicated oblast (survey city)</b>
Volyn oblast (10 persons)	Lutsk (7 persons), Uzhgorod (1 person), Lviv (1 person), Rivne (1 person)
Dnipropetrovsk oblast (8 persons)	Zaporizhzhya (5 persons), Kyiv (1 person), Kirovohrad (1 person), Mykolayiv (1 person)
Donetsk oblast (7 persons)	Donetsk (2 persons), Kyiv (1 person), Poltava (1 person), Kharkiv (1 person), Kherson (2 persons)
Zhytomyr oblast (3 persons)	Kyiv (1 person), Lviv (1 person), Ternopil (1 person)
Zakarpattia oblast (10 persons)	Uzhgorod (9 persons) Chernihiv (1 person)
Zaporizhzhya oblast (2 persons)	Zaporizhzhya (2 persons)
Ivano-Frankivsk oblast (1 person)	Ternopil (1 person)
Kyiv oblast (5 persons)	Zhytomyr (1 person), Kyiv (2 persons), Lviv (1 person), Cherkasy (1 person)
City of Kyiv (69 persons)	Vinnitsa (2 persons), Lutsk (1 person), Rivne (3 persons), Zhytomyr (5 persons), Uzhgorod (10 persons), Zaporizhzhya (7 persons), Ivano-Frankivsk (1 person), Bila Tserkva (2 persons), Kirovograd (2 persons), Lviv (2 persons), Mykolayiv (2 persons), Odesa (1 person), Poltava (5 person), Sumy (12 persons), Ternopil (5 persons), Cherkasy (4 persons) Chernihiv (4 persons), Sevastopol (1 person)
Kirovohrad oblast (2 persons)	Zaporizhzhya (1 person), Cherkasy (1 person)
Luhansk oblast (8 persons)	Kyiv (1 person), Luhansk (5 persons), Kherson (1 person), Sevastopol (1 person)
Lviv oblast (22 persons)	Lutsk (3 persons), Zhytomyr (3 persons), Uzhgorod (10 persons), Lviv (2 persons), Rivne (1 person), Ternopil (3 persons)
Mykolaiv oblast (6 persons)	Ivano-Frankivsk (1 person), Kirovohrad (1 person), Mykolayiv (2 persons), Kherson (1 person), Sevastopol (1 person)
Odessa oblast (34 persons)	Vinnitsya (2 persons), Rivne (3 persons), Zhytomyr (1 person), Uzhgorod (2 persons), Bila Tserkva (2 persons), Kirovohrad (1 person), Lviv (5 persons), Mykolayiv (7 persons), Poltava (1 person), Sumy (1 person), Kharkiv (5 persons), Kherson (2 persons), Khmelnytskyi (1 person), Sevastopol (1 person)
Poltava oblast (2 persons)	Poltava (1 person), Sumy (1 person)
Rivne oblast (7 persons)	Lutsk (2 persons), Kyiv (1 person), Lviv (1 person), Rivne (1 person), Ternopil (1 person), Chernivtsi (1 person)
Sumy oblast (2 persons)	Kyiv (1 person), Kharkiv (1 person)
Ternopil oblast (2 persons)	Uzhgorod (1 person), Zaporizhzhya (1 person)
Kharkiv oblast (19 persons)	Donetsk (1 person), Zhytomyr (1 person), Zaporizhzhya (1 person), Kyiv (1 person), Odesa (3 persons), Poltava (1 person), Sumy (9 persons), Kharkiv (1 person), Chernihiv (1 person)
Kherson oblast (18 persons)	Uzhgorod (1 person), Luhansk (2 persons), Mykolayiv (1 person), Kharkiv (2 persons), Kherson (10 persons), Sevastopol (2 persons)



Where traveled	From where they traveled to the indicated oblast (survey city)
Khmelnyskiy oblast (3 persons)	Vinnitsya (1 person), Ternopil (2 persons)
Chernivtsi oblast (4 persons)	Vinnitsya (2 persons), Lviv (1 person), Chernivtsi (1 person)
Chernihiv oblast (1 person)	Bila Tserkva (1 person)
Crimea (6 persons)	Dnipro (1 person), Poltava (4 persons), Kharkiv (1 person)
Other country (86 persons)	Turkey (21 persons), Russian Federation (21 persons), Poland (14 persons), UAE (6 persons), Italy (4 persons), Israel (4 persons), Lebanon (3 persons), Cyprus (3 persons), Germany (2 persons), Czech Republic (2 persons), Hungary (2 persons), Lithuania (1 person), Greece (1 person), Spain (1 person), USA (1 person)

More than half of sex workers (57.5%) are not married and do not have permanent sexual partner. Compared with previous years, study results show a certain reduction of this group due to increasing the proportion of persons living with permanent partner without official registration of marriage (Fig. 3). Among those who have a husband (wife) or permanent partner, 49.9% reported that the partner does not know about their sex work.



**Fig. 3. SW family status during 2008–2015, %**

*Relation between different socio-demographic characteristics.* Young people aged 24 years more seldom worked on street points compared with the older sex workers, but more often - in entertainment facilities and through the Internet (p-value <0.001). Among 15-24-year-old SWs the proportion of people who have to support dependents at the expense of their sex work earnings is lower compared with the older group (38.2% vs. 65.1%, p-value <0.001), and the proportion of those who do not lives with the spouse or regular sexual partner is also lower among the younger age group (74.6% vs. 63.9%, p-value <0.001). Older sex workers mostly live in their own housing (35.6%) among the totality of those aged 25 and older, compared with 16.6% among 15-24-year-old SWs; p-value <0.001); meanwhile, young people under 25 often lived in rented housing (42.4% of the totality of SWs aged 25 and older compared with 51.8% among 15-24-year-old group; p-value <0.001).

Respondents who combined sex business with full-time work in another area mainly belong to higher-income groups: 43.2% earned more than UAH 10 000. In the group of respondents who combined sex business with odd jobs only 24% had a monthly income of more than UAH 10 000, and for a group engaged exclusively in the sex business this figure was 28.5% (p-value <0.001).

Education correlates with income, among sex workers with basic or incomplete basic education only 18.5% had revenue of more than UAH 10 000. Among the group with higher education the figure was 39.6% (p-value <0.001).

Marital status is connected with the experience of supporting the dependents at the expense of sex work. Among sex workers living with husband/wife or regular sexual partner, 73.1% supported others, and among those who did not have a permanent partner this figure was 49.6% (p-value <0.001).

## 2.2. Experience of violence

About half of sex workers (46.6%) were affected by violence in the course of sex work (table 4). This result is similar to the previous wave of estimates: in 2013, 48.6% reported having been affected by violence.

SWs aged 35 and older, with low levels of education (basic secondary or lower), respondents with high income and those who have to support dependents at the expense of their sex work more frequently reported having the experience of violence. Violence is more common among PWID SWs and "street" SWs: 76.4% among the first group experienced violence, and among the second group this value is 63.5%. Among respondents who had experience of temporary migration, more than half (55.3%) experienced violence in the course of sex work. A larger percentage of sex workers experiencing violence among NGO clients can be explained by the fact that these men and women may seek help in these organizations.

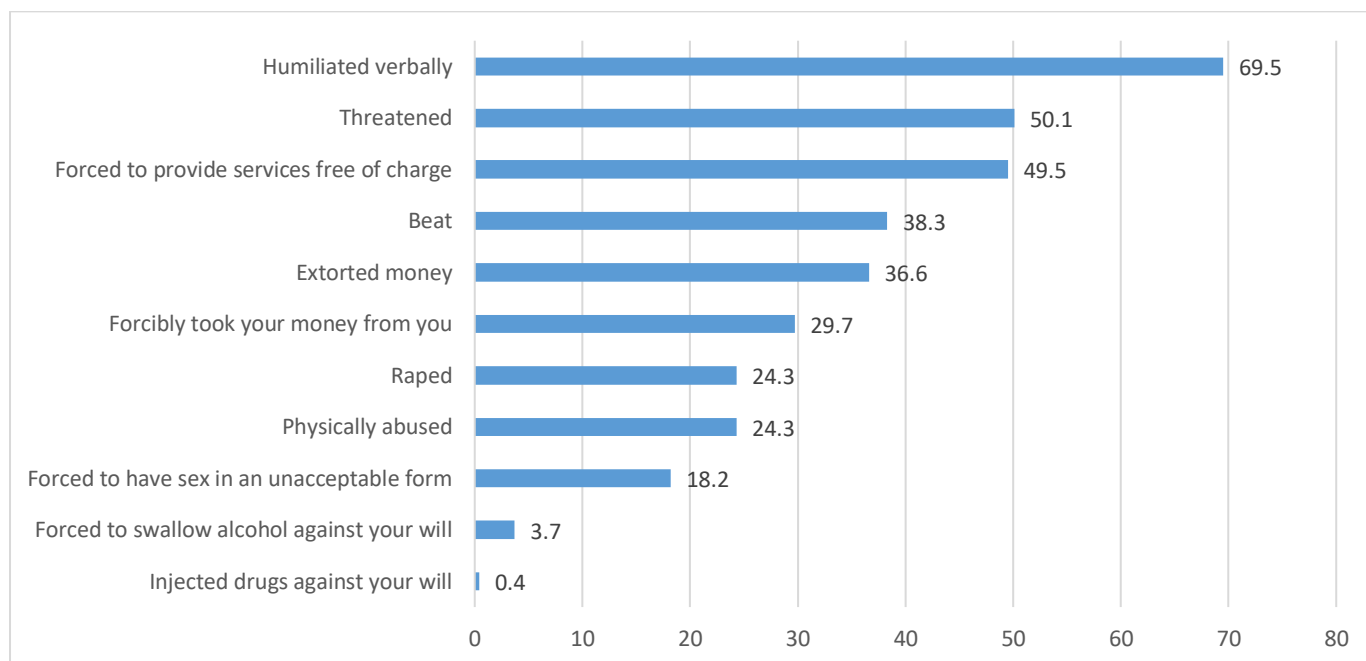
Most of the sex workers who were affected by violence during the sex work experienced verbal humiliation (69.5%), threats (50.1%) and were forced to provide services without payment (49.5%) (Fig. 4); more than a third were subjected to beatings (38.3%); a quarter (24.3%) were raped.

The majority of sex workers (82.1%) experienced violence from customers (Fig. 5); more than one in ten respondents (12.4%) reported cases of violence by law enforcement officers.

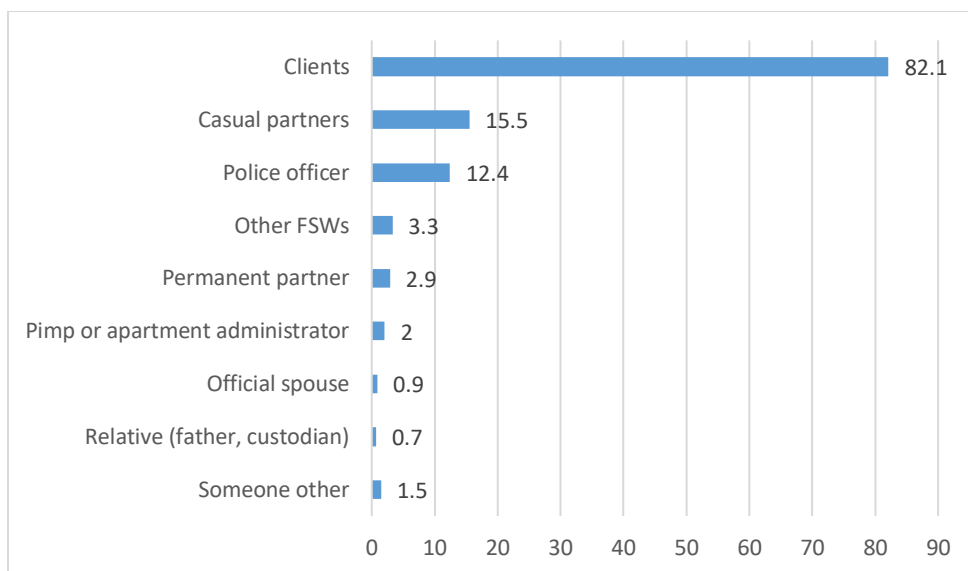
**Table 4. Percentage of SWs who experienced violence (beatings, rape, verbal humiliation, extortion) during sex services**

<b>Among all</b>		<b>46.6</b>
Age (p-value<0.001)	15–19 years	32.4
	20–24 years	39.7
	25–34 years	48.1
	35+ years	53.9
Education (p-value=0.002)	Basic secondary education or less	52.6
	Complete general secondary education	46.8
	Vocational training	48.6
	Basic higher education	40.7
	Complete higher education	43.1
Employment (p-value<0.001)	No other employment except sex business	49.5
	Permanent employment	45.5
	Odd jobs	44.3
	Pupils/students, persons incapable to work, housekeepers	38.6
Housing type (p-value=0.026)	Own home	47.2
	Housing of relatives/friends (without paying for tenancy)	42.9
	Rented housing (paying for tenancy alone or together with someone)	47.4
	Other option	50.3
Monthly personal income (p-value<0.001)	Up to 5000 UAH.	41.3
	5001–10 000 UAH.	46.1
	More than 10 000 UAH.	53.2

<b>Among all</b>		<b>46.6</b>
Family status (p-value=0.898)	Live together with their husband/permanent sexual partner	47.8
	Don't live together with a permanent partner	46.1
Dependants whom the SWs support at the expense of their sex work earnings (p-value<0.001)	No such persons	41.0
	There are such persons	50.8
Location type (p-value<0.001)	Street, route, highway	63.5
	Apartments	30.8
	Hotel/motel	31.4
	Entertainment venues/events	39.4
	Sauna/massage parlor	26.7
	Internet, through intermediaries	41.7
	Other option	54.1
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-value=0.041)	Yes	55.3
	No	45.9
Clients of HIV-servicing organizations (p-value<0.001)	Yes	51.7
	No	34.8
Use of injecting drugs in the last 30 days (p-value<0.001)	Yes	76.4
	No	44.1



**Fig. 4. Distribution of answers to the question: "What kind of violence was inflicted?" (among SWs who experienced violence,  $N=1921$ )**



**Fig. 5. Distribution of answers to the question: "Who inflicted the violence?", % (among SWs who experienced violence,  $N=1921$ )**

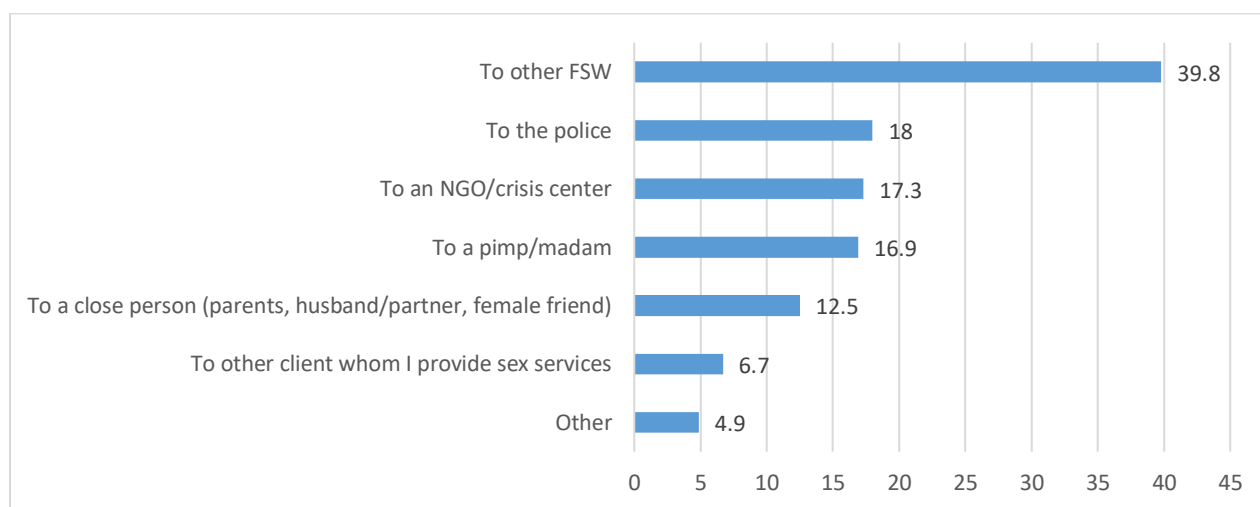
From the totality of SWs who experienced violence during commercial sex, only half (49.5%) sought help (tab. 5). This is mainly those who had full-time jobs, in addition to employment in the sex industry. SWs based in entertainment facilities, hotels and apartments, less frequently sought help compared with those who worked on other points.

A large proportion of sex workers do not apply to professionals after being affected by violence, while seeking help from other girls or women involved in sex work - 39.8% opted for this strategy (Fig. 6). Less than a fifth of the totality of those who experienced violence (17.3%) sought help from an NGO or crisis center.

**Table 5. Percentage of SWs who sought help after an incident of violence (among persons who experienced violence,  $N=1921$ )**

Among all those who experienced violence		49.5
Age (p-value=0.478)	15–19 years	38.4
	20–24 years	36.1
	25–34 years	42.8
	35+ years	38.7
Education (p-value=0.318)	Basic secondary education or less	36.2
	Complete general secondary education	40.1
	Vocational training	35.9
	Basic higher education	38.6
	Complete higher education	44.0
Employment (p-value=0.015)	No other employment except sex business	39.2
	Permanent employment	48.7
	Odd jobs	36.3
	Pupils/students, persons incapable to work, housekeepers	31.6
Housing type (p-value=0.473)	Own home	42.0
	Housing of relatives/friends (without paying for tenancy)	34.7
	Rented housing (paying for tenancy alone or together with someone)	38.6
	Other option	33.9

<b>Among all those who experienced violence</b>		<b>49.5</b>
Monthly personal income (p-value=0.171)	Up to 5000 UAH.	34.1
	5001–10 000 UAH.	42.0
	More than 10 000 UAH.	40.6
Family status (p-value=0.107)	Live together with their husband/permanent sexual partner	39.6
	Don't live together with a permanent partner	38.2
Dependents whom the SWs support at the expense of their sex work earnings (p-value=0.096)	No such persons	34.5
	There are such persons	41.1
Location type (p-value=0.018)	Street, route, highway	37.6
	Apartments	40.1
	Hotel/motel	36.0
	Entertainment venues/events	32.1
	Sauna/massage parlor	43.1
	Internet, through intermediaries	42.7
	Other option	38.5
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-value=0.307)	Yes	43.4
	No	38.3
Clients of HIV-servicing NGOs (p-value=0.047)	Yes	40.0
	No	34.1
Injecting drug use over the past 30 days (p-value<0.001)	Yes	23.6
	No	17.6



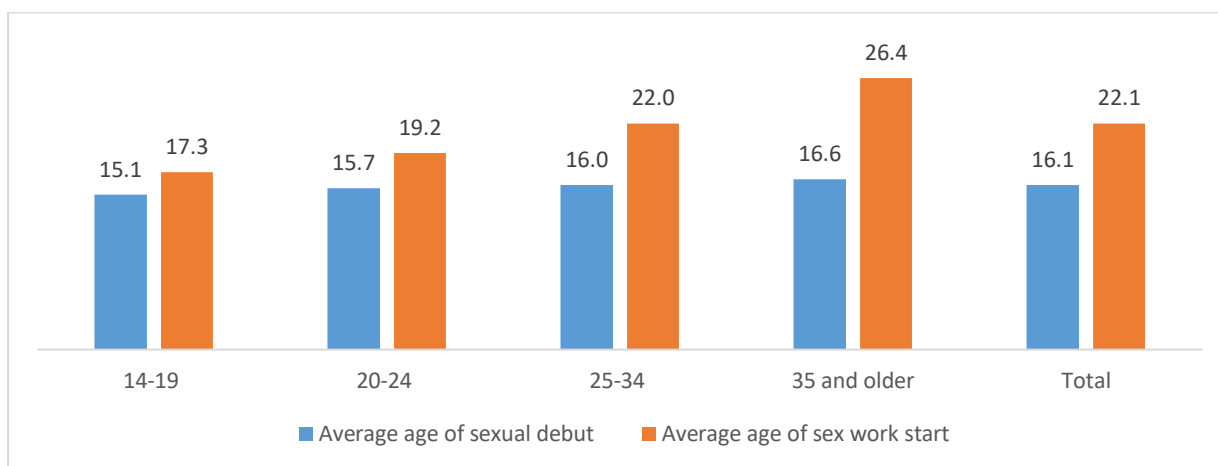
**Fig. 6. Distribution of answers to the question: "Where did you seek help after an incident of violence?", % (among persons who sought help, N=734)**

### 2.3. Sexual debut and entry into sex work

Early sexual debut is characteristic for female sex workers. According to the study, the average age of sexual debut is 16 (Fig. 7). This figure has not changed compared to previous waves of study. Thus, the 2008/2009, 2011 and 2013 surveys show that the average age of sexual debut among SWs was also at the age of 16.

The transition from sexual debut to providing commercial sex services takes on average six years. Respondents indicated that on average they started to provide commercial sex services at 22. A similar result was obtained in a 2013 study. By 2013 this figure gradually increased, in 2011 it was 21, and in the

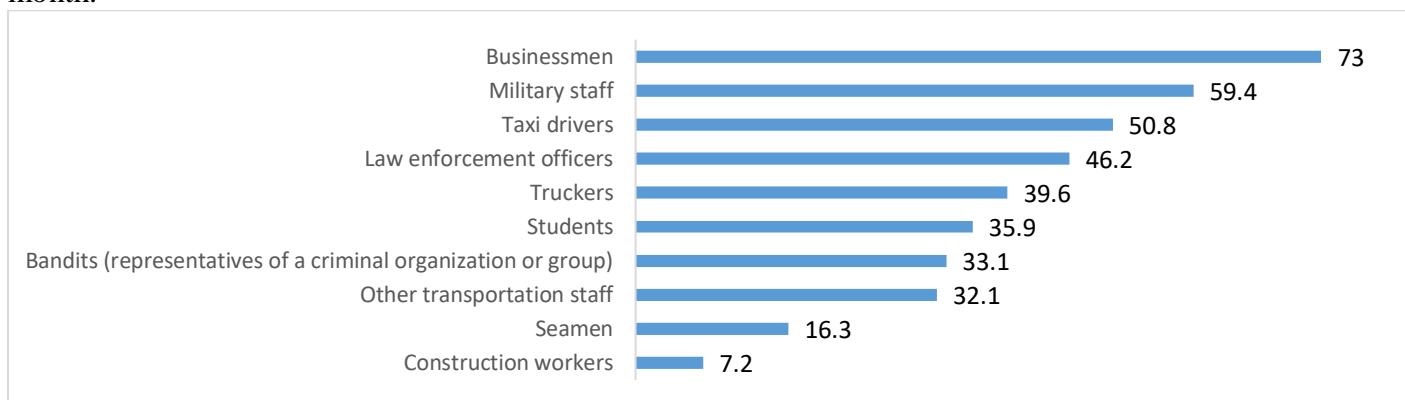
2008/2009 - 20.5. Adolescent sex workers aged under 19 get involved in the sex business very early - their average age of sexual debut is 15 and the age of entry into sex business - 17.



**Fig. 7. Average age of sexual debut and entry into sex business among SWs, average values**

#### 2.4. SW clients profile, ways to search for clients

The following groups prevail among the clients of sex workers: businessmen (73% provided services to such group of clients), military personnel (59.4%), taxi drivers (50.8%), law enforcement staff (46.2%) and long-haul truckers (39.6%) (Fig. 8). More than a third of SWs (35.9%) provided sex services to students last month.

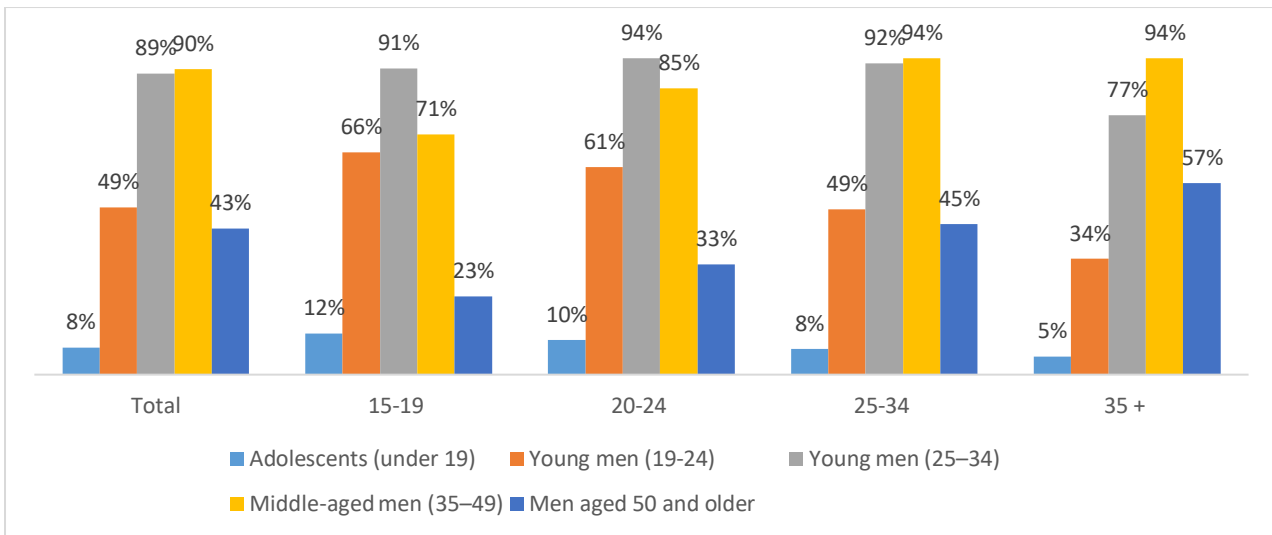


**Fig. 8. TOP-10 social and professional groups to which the SW clients belonged: % of SWs providing commercial sex services to these types of clients during the last month.**

Prevailing groups of clients among the "street" SWs were truckers and businessmen: 30.1% and 24.1% of respondents often provided sex services to these socio-professional groups respectively. Almost two-thirds of sex workers who work in apartments (61.8%) and hotels (60.2%) provide services to businessmen as their main customer group. SWs working in saunas and massage parlors indicated that military personnel is one of the core groups of clients (23.6%).

Age groups of customers vary depending on the age group of sex workers. Among respondents over 35 years, only 5% had teenage clients, while 12% among the group aged 15-19 provided such services (Fig. 9). However, among all age groups of sex workers, men aged 25-34 and 35-49 years were mentioned as the prevailing group of clients.





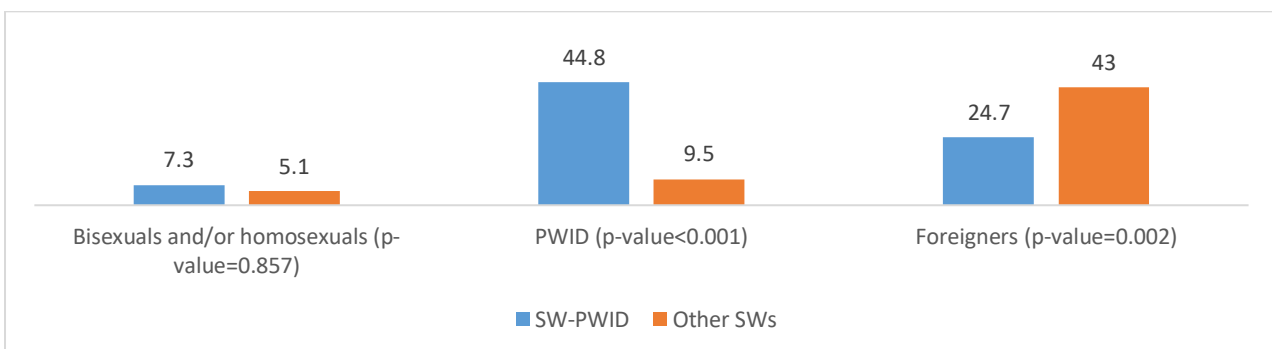
**Fig. 9. Distribution of age group by SWs age\*, %**

\* In each age group of clients the age differences of SWs are statistically meaningful ( $p$ -value $<0.001$ )

It is common among sex workers to provide sex services to most-at-risk populations and clients that may pertain to bridge groups with regard to HIV spread. Compared with the previous wave of the study the proportion of SWs who have clients from among people who inject drugs (PWID) decreased - from 21.4% in 2013 to 12.4% in 2016 (table 6). About 9% of sex workers did not know whether their clients were PWID. PWID is the main group of clients of sex workers who also inject drugs: among this double exposure group 44.8% had such clients over the past 30 days (Fig. 10). Serving PWID clients was mainly reported by SWs with lower level of education; persons who had no other employment, other than sex work; respondents with low (up to 5000 UAH) or, conversely, high (more than 10 000 UAH) income; those who have had experience of temporary migration to provide sex services, and those who support others at the expense of their sex business earnings. Among sex workers who work on the streets and highways 23.9% provided sex services to PWID last month.

Only 5.4% of respondents provided services to bisexuals and/or homosexuals in the last 30 days. These types of clients are reported mostly by SWs that have the experience of migration to provide sex services (11.4%) and teenage sex workers (9.9%).

Almost half of sex workers (41.8%) provided commercial sex services to foreigners last month. This type of customers is mostly characteristic to SWs under 35 years old, highly educated, those living in rented housing and having a high level of income. There are differences depending on the venue type: more than half of sex workers who work in hotels (57.7%), saunas or massage parlors (51.2%) and virtually (53.8%) had foreign clients last month. Meanwhile, less than a third (31.3%), "street" SWs had such clients during this period. A quarter of PWID SWs (24.7%) provided sex services to foreigners over the past 30 days; among sex workers who do not use injecting drugs, almost twice as many persons have such customers (43%).



**Fig. 10. Distribution of answers to the question: "Did you provide commercial sex services to these types of clients?" among PWID SWs and other SWs, %**

**Table 6. Distribution of answers to the question: "Did you provide commercial sex services to these types of clients?", %**

		Bisexuals and/or homosexuals*			Injecting drug users**			Foreigners***		
		yes	no	do not know	yes	no	do not know	yes	no	do not know
<b>Among all</b>		5.4	87.7	7.0	12.4	78.9	8.8	41.8	56.9	1.3
Age (p-values: *0.029; **<0.001; ***<0.001)	15–19 years	9.9	85.9	4.2	5.2	86.5	8.3	50.0	48.7	1.4
	20–24 years	4.8	87.2	8.0	9.0	82.1	8.9	50.4	48.0	1.6
	25–34 years	5.7	86.8	7.5	13.4	77.6	8.9	42.2	56.7	1.2
	35+ years	4.3	90.7	5.1	15.2	76.5	8.4	29.6	69.3	1.1
Education (p-values: *0.040; **<0.001; ***<0.001)	Basic secondary education or less	4.9	89.8	5.3	20.8	72.4	6.8	33.1	64.8	2.1
	Complete general secondary education	6.3	85.7	7.9	15.1	75.9	9.0	40.4	58.5	1.1
	Vocational training	4.2	88.9	6.9	10.7	79.1	10.1	38.9	59.5	1.6
	Basic higher education	5.4	86.0	8.6	9.4	80.2	10.4	46.4	52.6	1.0
	Complete higher education	6.6	89.9	3.5	5.7	91.0	3.4	55.8	43.6	0.6
Employment (p-values: *<0.001; **<0.001; ***<0.001)	No other employment except sex business	6.1	86.0	7.9	14.5	75.5	10.0	43.8	55.1	1.1
	Permanent employment	5.4	91.6	2.9	6.7	87.8	5.5	48.7	50.7	0.5
	Odd jobs	3.6	87.8	8.6	10.9	79.7	9.4	37.3	60.8	1.9
	Pupils/students, unemployed persons, housewives	4.5	91.8	3.8	9.5	85.6	5.0	34.7	63.7	1.6
Housing (p-values: *0.032; **0.196; ***<0.001)	Own home	4.1	90.2	5.7	14.0	77.5	8.6	34.4	64.6	1.0
	Housing of relatives/friends (without paying for tenancy)	2.8	89.7	7.5	10.6	81.3	8.1	37.3	61.9	0.8
	Rented housing (paying for tenancy alone or together with another person)	7.2	85.5	7.3	12.5	78.5	9.0	50.1	48.6	1.3
	Other option	5.8	84.9	9.3	8.3	81.3	10.4	31.0	65.3	3.6
Monthly personal income (p-values: *<0.001; **<0.001; ***<0.001)	Up to 5000 UAH.	4.7	91.3	4.0	13.8	79.6	6.6	24.9	73.8	1.2
	5001–10 000 UAH.	6.0	85.2	8.8	9.8	79.8	10.4	48.4	50.6	1.0
	More than 10 000 UAH.	5.8	86.4	7.8	13.6	76.7	9.7	55.9	42.3	1.8
Family status (p-	Live together	6.9	88.6	4.5	14.4	78.1	7.6	41.5	56.7	1.8

		Bisexuals and/or homosexuals*			Injecting drug users**			Foreigners***		
		yes	no	do not know	yes	no	do not know	yes	no	do not know
values: *0.003; **0.046; ***0.200)	with their husband/regular sexual partner									
	Don't live together with a regular partner	4.6	87.2	8.2	11.4	79.3	9.4	42.0	57.0	1.0
There are persons whom the SWs support at the expense of their earnings in sex business (p-values: *0.013; **<0.001; ***0.013)	There are no such persons	3.6	87.8	8.6	10.1	80.2	9.7	36.6	61.7	1.7
	There are such persons	6.7	87.6	5.8	14.0	77.8	8.1	45.7	53.4	1.0
Location type (p-values: *<0.001; **<0.001; ***<0.001)	Street, route, highway	6.5	86.1	7.4	23.9	64.5	11.6	31.3	66.2	2.5
	Apartments	7.1	86.3	6.6	6.5	88.1	5.3	47.1	52.6	0.3
	Hotel/motel	3.5	92.5	3.9	2.6	93.7	3.7	57.7	42.3	0.0
	Entertainment venues/events	2.8	91.3	5.9	7.8	83.6	8.5	35.1	64.2	0.6
	Sauna/massage parlor	1.9	94.7	3.4	3.1	89.4	7.5	51.2	47.2	1.6
	Virtual, through intermediaries	4.6	87.3	8.2	5.3	86.0	8.6	53.8	45.4	0.8
	Other option	1.5	95.8	2.7	5.9	91.0	3.1	25.8	73.8	0.3
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *<0.001; **0.137; ***<0.001)	Yes	11.4	83.3	5.3	15.1	77.7	7.2	54.9	43.0	2.1
	No	4.9	87.9	7.1	12.0	79.0	8.9	40.9	57.8	1.2
Clients of HIV-servicing organizations (p-values: *<0.051; **<0.001; ***<0.001)	Yes	5.8	86.8	7.4	14.7	75.8	9.5	45.1	53.4	1.5
	No	4.3	89.8	5.9	6.7	86.2	7.1	34.1	65.1	0.8

The main ways of finding customers is a highway, driveway or road and intermediaries (pander, "madam," etc.): 20.8% and 19.8% respectively searched for customers this way (tab 7). Teenage SWs tend to find customers via the Internet; among other age groups it is more common to look for customers on the road or through intermediaries.

**Table 7. Distribution of responses to the questions: "Among the indicated ways to look for the clients, which one do you consider the prevailing one for you?", by age and monthly income of SWs, %**

	By age (p-value<0.001)				By monthly personal income (p-value<0.001)			Total
	15-19	20-24	25-34	35 +	under 5000	5001-10 000	more than 10 000	
On the highway/driveway/motorways	4.8	18.5	21.0	26.5	24.2	18.0	19.5	<b>20.8</b>
Through intermediaries (pimp, "madam", etc.)	19.5	25.9	19.1	14.5	11.9	23.0	27.8	<b>19.8</b>
Outdoor (open area, park, square, etc.)	9.8	10.7	14.8	13.4	13.4	11.6	14.8	<b>13.3</b>
On the Internet	23.3	15.6	10.7	7.2	8.1	14.9	12.7	<b>11.7</b>
By phone (phone number in newspapers, magazines, business cards)	3.0	4.8	8.6	7.6	8.3	7.9	4.9	<b>7.2</b>
The bar/restaurant/cafe etc.	6.3	4.0	6.2	9.5	10.2	5.1	2.2	<b>6.4</b>
At the disco/nightclub/art club/strip club	15.2	8.7	3.8	0.7	5.7	5.0	3.5	<b>4.8</b>
Through existing clients	4.4	3.0	3.6	7.1	5.1	3.9	3.2	<b>4.2</b>
The sauna/bath/massage salon/spa/beauty salon	3.9	2.5	3.6	3.0	3.3	3.8	2.5	<b>3.2</b>
The hotel/motel	0.4	1.5	3.0	1.7	1.3	2.5	3.1	<b>2.2</b>
Through other SWs (friends, acquaintances, etc.)	3.8	1.1	1.2	2.2	0.9	1.3	2.8	<b>1.5</b>
I have only regular customers	4.2	1.7	1.1	1.7	2.3	0.9	0.9	<b>1.5</b>
At bus stops	0.9	0.8	1.4	1.4	1.4	0.9	1.6	<b>1.2</b>
At the railway and bus stations	0.2	0.4	0.9	2.4	2.3	0.4	0.2	<b>1.1</b>
Other	0.3	0.8	1.0	1.1	1.6	0.8	0.3	<b>1.1</b>

Most sex workers (87.6%) had regular customers over the last month (tab. 8). The average number of regular clients over the past 30 days was six among the entirety of respondents, eight among PWID SWs. Number of regular clients is lower among adolescent sex workers (on average, 4 persons in the last month); respondents with higher education and those who are studying or have odd jobs in addition to sex business, persons with low and medium income had in average 5 regular clients. Regarding the location type, on average higher number of clients was typical for the SWs who work on the streets or in apartments.

Less than 3% of SWs provided commercial sex services to only occasional clients over the past 30 days. On average, SWs had 25 occasional clients last month, adolescent SWs - 19. SWs living with their husband/regular sexual partner had fewer occasional clients (on average - 23). Higher number of occasional clients is typical for the SWs who work only in the sex business (average - 29); sex workers living in rented housing, those who support others at the expense of their sex business earnings or are clients of HIV service organizations (average - 27); high income SWs (the average number is 37) and PWID SWs (mean number - 34). Compared with other locations, higher average number of occasional clients is observed among sex workers who work on the street or through the Internet (average - 29).

**Table 8. Existence and number of regular and occasional SW clients during the last month**

		Regular clients				Occasional clients			
		% had such clients*	Average number**	Average deviation	Median No.**	% had such clients*	Average number**	Average deviation	Median No.**
<b>Among all</b>		87.6	6	5	4	97.3	25	22	20
Age (p-values: *0.578; **0.015; ***0.010; ****<0.001)	15–19 years	87.5	4	4	3	95.6	19	18	11
	20–24 years	87.2	6	6	4	97.9	26	22	20
	25–34 years	87.8	6	5	4	97.4	25	22	20
	35+ years	87.7	6	6	4	96.7	25	23	18
Education (p-values: *0.106; **0.002; ***<0.001; ****<0.001)	Basic secondary education or less	87.0	6	5	4	97.9	25	26	17
	Complete general secondary education	85.6	6	5	4	98.6	26	21	20
	Vocational training	87.4	6	6	4	97.4	26	24	17
	Basic higher education	90.6	6	5	4	95.6	20	16	15
	Complete higher education	90.5	5	5	4	95.4	26	23	18
Employment (p-values: *<0.001; **<0.001; ***<0.001; ****<0.001)	No other employment except sex business	89.6	6	6	4	98.9	29	22	20
	Permanent employment	87.4	6	7	4	95.2	19	21	10
	Odd jobs	84.5	5	4	4	94.5	20	20	15
	Pupils/students, unemployed persons, housewives	83.8	5	4	4	95.8	19	20	12
Housing type (p-values: *0.001; **0.072; ***<0.001; ****0.001)	Own home	88.2	5	5	4	95.2	23	22	15
	Housing of relatives/friends (without paying for tenancy)	86.6	5	5	4	97.9	23	20	15
	Rented housing (paying for tenancy alone or together with another person)	88.0	6	6	5	98.5	27	23	20
	Other option	85.3	5	6	3	97.5	23	17	20
Monthly personal income (p-values: *<0.001; **<0.001; ***0.013; ****<0.001)	Up to 5000 UAH.	85.9	5	4	4	96.6	15	14	12
	5001–10 000 UAH.	87.1	5	5	4	98.3	26	20	20
	More than 10 000 UAH.	89.6	7	7	5	96.9	37	27	30
Family status (p-values: *0.083; **0.134; ***0.001; ****0.002)	Live together with their husband/regular sexual partner	88.5	6	6	4	97.3	23	21	17
	Don't live together with a regular partner	87.2	6	5	4	97.3	26	23	20
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: *0.001; **<0.001; ***0.924; ****<0.001)	There are no such persons	86.3	5	5	4	97.1	22	21	15
	There are such persons	88.6	6	6	4	97.5	27	23	20

		Regular clients				Occasional clients			
		% had such clients*	Average number**	Average deviation	Median No.**	% had such clients*	Average number**	Average deviation	Median No.**
Location type (p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.001$ ; **** $<0.001$ )	Street, route, highway	87.0	6	6	5	98.8	29	22	20
	Apartments	90.8	6	6	4	96.4	23	23	15
	Hotel/motel	87.2	5	3	4	98.0	15	9	12
	Entertainment venues/events	90.6	5	4	4	97.2	15	12	12
	Sauna/massage parlor	89.7	5	7	3	98.4	14	10	10
	Virtual, through intermediaries	84.3	5	5	4	96.6	29	24	20
	Other option	91.4	6	6	5	87.9	13	12	10
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *0.183; **0.137; *** $<0.001$ ; ****0.959)	Yes	91.2	6	6	5	92.3	25	25	20
	No	87.4	6	5	4	97.7	25	22	20
Clients of HIV-servicing community organizations (p-values: *0.029; ** $<0.001$ ; ***0.002; **** $<0.001$ )	Yes	88.7	6	6	5	98.1	27	23	20
	No	85.2	4	4	3	95.6	19	19	12
Injecting drug use over the past 30 days (p-values: *0.416; ** $<0.001$ ; ***0.070; **** $<0.001$ )	Yes	89.3	8	5	10	98.7	34	21	30
	No	87.5	6	4	4	97.2	17	22	10

Overall, only 15% of sex workers had no clients during the last working day (tab. 9). More than a third (37.1%) had one client, a quarter (24.8%) had two clients, the rest (23%) – three clients. The number of clients for the last time increases depending on the SW age group. Also statistically significant differences are observed in the number of customers for the last working day depending on other socio-demographic characteristics, including education, employment, marital status, income, type of location and housing, migration experiences, belonging to the HIV-servicing NGO clients and double PWID/SW exposure.

**Table 9. Distribution of responses to the question: "How many different clients whom you provided commercial sex services you had during the last working day?", %**

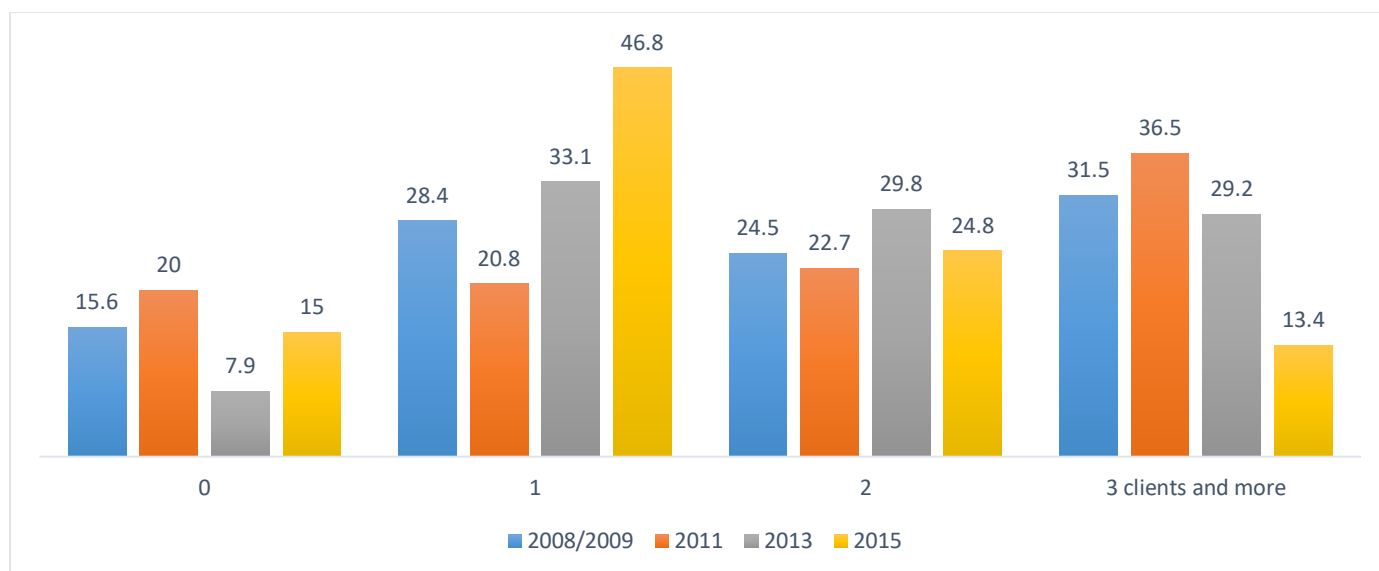
		Number of clients:				
		0	1	2	3	4 and more
<b>Total</b>		<b>15.0</b>	<b>37.1</b>	<b>24.8</b>	<b>12.2</b>	<b>10.8</b>
Age (p-value=0.015)	15–19 years	14.8	46.8	16.8	15.5	6.1
	20–24 years	14.1	38.6	22.1	13.2	12.0
	25–34 years	14.0	36.6	27.0	11.6	10.8
	35+ years	18.5	34.8	24.4	11.7	10.6



		Number of clients:				
		0	1	2	3	4 and more
Education (p-value<0.001)	Basic secondary education or less	15.6	27.0	25.6	15.8	16.0
	Complete general secondary education	15.0	35.0	24.3	13.6	12.1
	Vocational training	14.6	39.2	24.5	12.0	9.8
	Basic higher education	11.9	44.8	28.5	8.4	6.5
	Complete higher education	20.8	34.7	21.8	10.4	12.3
Employment (p-value<0.001)	No other employment except sex business	15.8	35.0	24.1	13.3	11.7
	Permanent employment	22.4	39.3	19.2	7.9	11.2
	Odd jobs	13.2	38.6	27.5	12.7	8.1
	Pupils/students, unemployed persons, housewives	9.6	42.6	27.9	9.5	10.4
Housing type (p-value<0.001)	Own home	14.2	42.0	23.7	10.7	9.4
	Housing of relatives/friends (without paying for tenancy)	12.8	36.6	29.8	11.5	9.4
	Rented housing (paying for tenancy alone or together with another person)	17.0	34.6	23.4	13.2	11.9
	Other option	11.5	34.0	25.7	14.2	14.6
Monthly personal income (p-value<0.001)	Up to 5000 UAH.	19.8	42.3	23.3	8.4	6.3
	5001–10 000 UAH.	14.7	38.1	23.6	12.6	11.1
	More than 10 000 UAH.	9.9	29.0	27.6	16.8	16.7
Family status (p-value=0.004)	Live together with their husband/regular sexual partner	17.4	34.9	23.9	11.2	12.6
	Don't live together with a regular partner	13.9	38.2	25.3	12.6	10.0
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-value<0.001)	There are no such persons	13.4	43.6	24.5	11.0	7.5
	There are such persons	16.2	32.4	25.0	13.0	13.3
Location type (p-value<0.001)	Street, route, highway	17.5	33.1	24.5	14.4	10.5
	Apartments	16.1	42.7	20.8	9.9	10.5
	Hotel/motel	8.4	35.9	40.3	10.5	5.0
	Entertainment venues/events	15.2	43.4	28.7	8.6	4.1
	Sauna/massage parlor	8.9	40.9	37.5	11.6	1.2
	Virtual, through intermediaries	11.6	35.1	23.3	12.8	17.1
	Other option	21.9	39.5	28.0	8.8	1.8
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-value=0.041)	Yes	12.8	40.4	27.8	10.9	8.1
	No	15.0	36.9	24.7	12.3	11.1
Clients of HIV-servicing NGOs (p-value<0.001)	Yes	16.3	34.5	24.4	12.9	11.8
	No	12.0	43.3	25.7	10.5	8.5

		Number of clients:				
		0	1	2	3	4 and more
Injecting drug use over the past 30 days (p-value<0.001)	Yes	13.8	33.6	26.8	15.3	10.6
	No	15.1	37.4	24.7	11.9	10.9

The average number of customers for the last working day remains almost unchanged in recent years: in 2008/2009 study its value was 2.1 client, in 2011 - 1.9, in 2013 - 2, 2015 - 1.9. However, there is a gradual increase in the proportion of sex workers who had only one customer for the last working day (Fig. 11).



**Fig. 11. Number of SWs clients for the last working day (24 hours), 2008–2015, %**

### 2.5. Regular and casual partners of SWs

One-third of sex workers (33.6%) had regular sexual partners, from whom they did not receive remuneration during the last 30 days (table 10). The majority of all respondents (93.6%) had one such partner.

The presence of a permanent partner is characteristic mainly for older sex workers: 41.4% among those aged 35 and older reported having a permanent partner. There are also differences by type of employment: sex workers who had other type of employment than sex work often reported having a permanent partner. For example, 51% of respondents with a regular job confirmed the existence of such a partner.

Practice of having casual sexual partners who did not provide remuneration for services is less common. According to the survey, only 9.4% of sex workers had casual partners last month. The share of those who practice sex with casual partners continues to decline: in the 2008/2009 50% of sex workers had this type of partners, in 2011 - 34%, in 2013 - 15%.

Most sex workers have up to three casual partners for this period: 48% - one partner, 40.3% - two or three partners. Younger SWs (aged 25), sex workers without full secondary education, "street" and those working in saunas or massage parlors, as well as non-clients of NGOs more often reported having casual partners.

**Table 10. Existence and number of permanent and casual partners who did not provide remuneration during the last month (30 days), %**

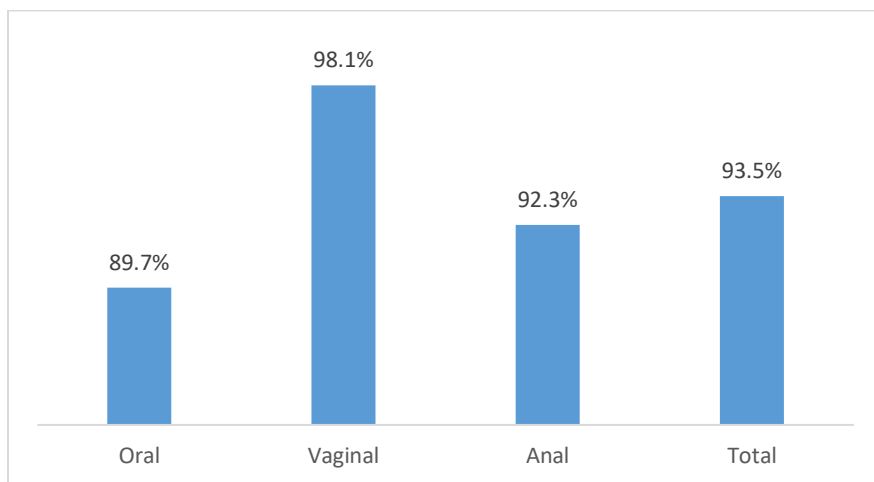
	Had permanent sexual partners who did not provide remuneration *	Number of permanent partners ** (among those who had such partners)		Had casual partners from whom they did not receive remuneration***	Number of casual partners**** (among those who had such partners)			
		1	2 and more		1 partner	2–3 partners	4 and more partners	
<b>Among all</b>	33.6	93.6	6.4	9.4	48.0	40.3	11.7	
Age (p-values: *<0.001; **0.01523; ***<0.001; ****0.862)	15–19 years	28.4	82.2	17.8	13.4	53.6	27.5	18.9
	20–24 years	26.9	94.5	5.5	10.4	44.0	40.4	15.5
	25–34 years	33.9	94.2	5.8	9.4	49.1	41.7	9.2
	35+ years	41.4	93.5	6.5	7.5	49.1	40.9	10.0
Education (p-values: *0.002; **0.009; ***<0.001; ****0.078)	Basic secondary education or less	32.0	92.9	7.1	13.7	37.9	40.6	21.5
	Complete general secondary education	32.7	92.6	7.4	9.5	40.1	45.8	14.1
	Vocational training	34.3	95.6	4.4	8.6	59.0	36.2	4.8
	Basic higher education	32.4	91.9	8.1	8.9	40.0	44.2	15.8
	Complete higher education	37.6	93.5	6.5	7.8	69.2	25.6	5.1
Employment (p-values: *<0.001; **0.841; ***0.013; ****0.037)	No other employment except sex business	28.6	94.6	5.4	8.4	44.2	45.0	10.8
	Permanent employment	50.9	93.9	6.1	7.5	45.4	37.3	17.3
	Odd jobs	40.8	91.2	8.8	11.7	45.6	43.2	11.3
	Pupils/students, unemployed persons, housewives	33.1	93.8	6.2	11.5	63.6	23.9	12.4

		Had permanent sexual partners who did not provide remuneration *	Number of permanent partners ** (among those who had such partners)		Had casual partners from whom they did not receive remuneration***	Number of casual partners**** (among those who had such partners)		
			1	2 and more		1 partner	2–3 partners	4 and more partners
Housing (p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.001$ ; **** $0.006$ )	Own home	38.6	95.7	4.3	7.1	43.7	47.5	8.8
	Housing of relatives/friends (without paying for tenancy)	30.5	90.3	9.7	9.5	43.3	42.2	14.5
	Rented housing (paying for tenancy alone or together with another person)	32.9	93.7	6.3	8.9	58.8	33.6	7.7
	Other option	22.6	88.2	11.8	23.7	30.0	46.5	23.5
Monthly personal income (p-values: * $0.033$ ; ** $0.001$ ; *** $0.150$ ; **** $0.004$ )	Up to 5000 UAH.	34.2	92.6	7.4	10.5	50.2	34.3	15.5
	5001–10 000 UAH.	32.6	93.8	6.2	8.4	53.7	40.4	5.9
	More than 10 000 UAH.	35.2	94.4	5.6	9.6	38.5	48.4	13.1
Family status (p-values: * $<0.001$ ; ** $<0.001$ ; *** $0.387$ ; **** $0.121$ )	Live together with their husband/regular sexual partner	93.2	94.8	5.2	7.7	47.2	37.4	15.5
	Don't live together with a regular partner	4.2	80.5	19.5	10.2	48.3	41.4	10.3
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: * $<0.001$ ; ** $0.811$ ; *** $0.018$ ; **** $0.514$ )	There are no such persons	22.9	92.7	7.3	11.2	45.1	42.1	12.8
	There are such persons	41.5	94.0	6.0	8.0	51.1	38.4	10.4

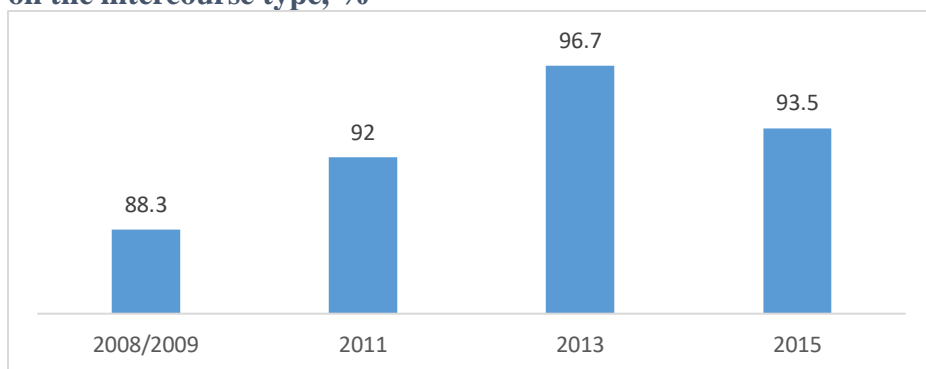
		Had permanent sexual partners who did not provide remuneration *	Number of permanent partners ** (among those who had such partners)		Had casual partners from whom they did not receive remuneration***	Number of casual partners**** (among those who had such partners)		
			1	2 and more		1 partner	2–3 partners	4 and more partners
Location type (p-values: *0.135; **<0.001; ***0.010; ****0.019)	Street, route, highway	33.9	96.3	3.7	11.0	34.9	51.4	13.7
	Apartments	31.7	88.5	11.5	6.7	51.1	30.2	18.7
	Hotel/motel	37.5	88.4	11.6	9.3	21.4	58.4	20.2
	Entertainment venues/events	26.1	92.6	7.4	10.9	57.5	37.3	5.2
	Sauna/massage parlour	31.9	96.8	3.2	12.4	38.2	49.5	12.2
	Virtual, through intermediaries	37.4	94.1	5.9	7.5	71.9	21.0	7.1
	Other option	37.0	89.7	10.3	16.7	42.1	52.7	5.2
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-value: *0.935; **0.167; ***0.338; ****0.935)	Yes	34.2	93.0	7.0	9.5	53.2	29.3	17.5
	No	33.6	93.6	6.4	9.4	47.6	41.1	11.3
Clients of HIV-servicing organizations (p-values: *0.019; **<0.001; ***0.007 ****0.302)	Yes	34.5	95.8	4.2	8.5	47.3	42.0	10.6
	No	31.3	87.8	12.2	11.3	49.2	37.3	13.5
Injecting drug use over the past 30 days (p-values: *0.401; **0.581; ***0.993; ****0.124)	Yes	31.9	95.1	4.9	14.2	28.7	51.4	19.9
	No	33.7	93.5	6.5	9.0	50.4	39.0	10.7

## 2.6. Using condoms with different partners and during different types of intercourses

**Condom use frequency.** According to the survey 93.5% sex workers used a condom during their last sexual contact with the client (Fig. 12). Almost all (98.1%) used it during their last vaginal sex with clients, but in the case of oral and anal sex the values are slightly less: 89.7% and 92.3% respectively. As for the dynamics of "condom use during the last sexual contact with a client", this value decreased slightly compared with the previous wave of the study (Fig. 13).



**Fig. 12. Proportion of SWs who used condom during the last sexual contact with a client, depending on the intercourse type, %**



**Fig. 13. Using condom during the last sexual contact with a client, 2008–2015, %**

Although almost all sex workers (93.5%) used condoms during their last sexual contact with the customer, the proportion of those who always used condoms during commercial sex in the last 30 days is slightly lower: 86.8% - every time during the last working week (tab. 11). During the last month 89.2% always used a condom during vaginal, 82.5% - during anal and 76.7% - during oral sex. The proportion of those who always use condoms increases depending on the SW age group. Among adolescent sex workers 80.2% reported that they always used a condom during vaginal, 63.6% - during anal and 63.9% - during oral sex in the last month. Condom use is more consistent among customers of NGOs providing HIV prevention services and among sex workers who do not inject drugs.



**Table 11. Percentage of SWs who used condoms with clients: during the last sexual contact, regularly during the last working week, regularly during the last 30 days, %**

		<b>During the last sexual contact*</b>	<b>Every time during the last week**</b>	<b>Always during oral sex in the last 30 days***</b>	<b>Always during vaginal sex in the last 30 days****</b>	<b>Always during anal sex in the last 30 days*****</b>
<b>Among all</b>		93.5	86.8	76.7	89.2	82.5
Age (p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.001$ ; **** $<0.001$ ; ***** $<0.001$ )	15–19 years	83.4	77.5	63.9	80.2	63.6
	20–24 years	89.7	86.6	77.7	89.5	84.6
	25–34 years	96.1	87.6	76.7	88.8	83.8
	35+ years	95.7	87.2	78.2	91.8	81.1
Education (p-values: *0.247; **0.026; ***0.029; ****0.132; ***** $<0.001$ )	Basic secondary education or less	88.3	83.9	78.2	87.7	71.6
	Complete general secondary education	92.8	87.7	79.1	90.4	78.7
	Vocational training	95.1	86.3	76.0	88.4	89.7
	Basic higher education	91.4	86.2	74.5	88.3	82.0
	Complete higher education	96.0	89.3	73.5	90.9	81.2
Employment (p-values: * $<0.001$ ; **0.001; *** $<0.001$ ; **** $<0.001$ ; ***** $<0.001$ )	No other employment except sex business	97.0	88.5	81.6	91.8	87.2
	Permanent employment	94.3	91.2	78.6	90.8	72.0
	Odd jobs	92.1	82.3	65.1	82.9	76.5
	Pupils/students, unemployed persons, housewives	87.7	82.8	70.0	85.7	77.2
Housing type (p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.001$ ; **** $<0.001$ ; *****0.020)	Own home	93.4	87.3	75.7	88.3	79.8
	Housing of relatives/friends (without paying for tenancy)	94.1	84.6	72.4	88.0	85.0
	Rented housing (paying for tenancy alone or together with another person)	95.6	89.2	80.8	91.1	84.5
	Other option	83.3	73.7	64.0	83.3	77.3
Monthly personal income (p-values: *0.127; ** $<0.001$ ; *** $<0.001$ ; ****0.012; ***** $<0.001$ )	Up to 5000 UAH.	91.2	86.5	75.3	89.2	77.1
	5001–10 000 UAH.	95.6	90.5	81.1	91.3	87.7
	More than 10 000 UAH.	96.2	84.6	75.0	88.4	83.1

		<b>During the last sexual contact*</b>	<b>Every time during the last week**</b>	<b>Always during oral sex in the last 30 days***</b>	<b>Always during vaginal sex in the last 30 days****</b>	<b>Always during anal sex in the last 30 days*****</b>
Family status (p-values: *0.685; **0.653; ***0.002; ****0.092; *****0.100)	Live together with their husband/regular sexual partner	93.8	88.0	79.5	90.1	81.2
	Don't live together with a regular partner	93.4	86.2	75.3	88.8	83.0
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: *<0.001; **0.001; ***<0.001; ****0.056; *****0.714)	There are no such persons	92.5	83.4	70.3	86.8	81.1
	There are such persons	94.7	89.3	81.4	91.0	83.8
Location type (p-values: *0.014; **0.065; ***<0.001; ****0.061; *****<0.001)	Street, route, highway	94.3	84.9	79.3	89.7	84.7
	Apartments	95.2	87.5	74.9	88.9	79.7
	Hotel/motel	91.8	92.8	87.4	92.9	89.1
	Entertainment venues/events	90.2	84.1	72.6	87.3	82.7
	Sauna/massage parlor	96.8	89.3	72.8	87.9	72.0
	Virtual, through intermediaries	92.3	89.4	76.2	89.6	83.3
	Other option	99.4	85.9	71.8	86.6	76.1
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *0.023; **0.003; ***<0.001; ****<0.001; *****0.103)	Yes	91.7	86.4	71.1	85.9	78.0
	No	93.7	86.8	77.1	89.4	82.8
Clients of HIV-servicing NGOs (p-values: *<0.001; **<0.001; ***<0.001; ****<0.001; *****<0.001)	Yes	94.7	89.3	82.0	91.6	86.1
	No	92.2	81.0	63.7	83.7	76.4

		During the last sexual contact*	Every time during the last week**	Always during oral sex in the last 30 days***	Always during vaginal sex in the last 30 days ****	Always during anal sex in the last 30 days *****
Injecting drug use over the past 30 days (p-values: *0.001; **<0.001; ***<0.001; ****0.075; *****0.649)	Yes	87.5	68.9	57.8	80.6	78.3
	No	94.2	88.3	78.3	89.9	83.0

The use of condoms during sex with regular partners is less common. Among those who had such partners, nearly one third (36.7%) used a condom during their last sexual intercourse (table 12). During the last month 27.7% of respondents always used a condom during vaginal, 30.1% - during anal and 20% - during oral sex. However, among sex workers who have a permanent partner but do not live with them, 71.8% used a condom during the last intercourse with such partner. This group of sex workers encompasses the largest proportion of those who always used condoms with regular partners during various types of sexual intercourses in the last 30 days: 51.8% always used a condom during vaginal, 46% - during anal and 32.7% - during oral sex. Among SWs that only work in the sex business and high income sex workers lower values of condom use were observed with regular partners both during last sex and in the last month.

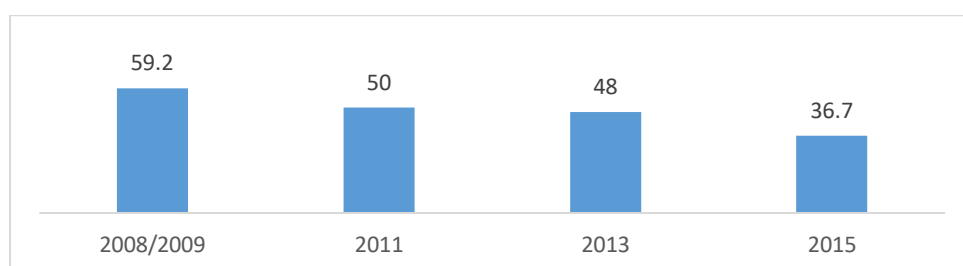
**Table 12. Proportion of SWs who used condoms with regular partners: during the last intercourse, regularly during the last working week, regularly during the last 30 days, % (among those who had such partners, N=1355)**

		During the last sexual contact*	Always during oral sex in the last 30 days***	Always during vaginal sex in the last 30 days ****	Always during anal sex in the last 30 days *****
<b>Among all</b>		36.7	20.0	27.7	30.1
Age (p-values: *0.206; **0.885; ***0.031; ****0.702)	15–19 years	43.8	18.1	21.5	35.5
	20–24 years	31.3	16.1	24.7	22.8
	25–34 years	36.5	20.2	27.7	32.0
	35+ years	40.1	22.5	30.8	30.8
Education (p-values: *0.681; **0.074; ***0.082; ****0.283)	Basic secondary education or less	42.5	24.6	31.3	24.6
	Complete general secondary education	35.4	20.6	26.0	28.5
	Vocational training	35.3	18.9	26.1	35.1
	Basic higher education	39.4	15.2	29.5	30.2
	Complete higher education	36.3	23.7	31.3	20.3
Employment (p-values: *0.004; **<0.001; ***<0.001; ****0.336)	No other employment except sex business	31.5	20.7	25.4	25.8
	Permanent employment	39.7	23.8	31.3	41.1
	Odd jobs	44.5	18.5	30.3	30.8

		<b>During the last sexual contact*</b>	<b>Always during oral sex in the last 30 days***</b>	<b>Always during vaginal sex in the last 30 days ****</b>	<b>Always during anal sex in the last 30 days *****</b>
	Pupils/students, unemployed persons, housewives	39.6	15.3	28.2	35.2
Housing (p-values: *0.510; **0.341; ***0.082; ****0.697)	Own home	35.0	18.8	26.6	28.5
	Housing of relatives/friends (without paying for tenancy)	42.0	19.7	30.0	31.4
	Rented housing (paying for tenancy alone or together with another person)	35.5	21.4	27.7	28.7
	Other option	42.6	16.2	28.2	51.8
Monthly personal income (p-values: *0.001; **0.021; ***0.001; ****0.001)	Up to 5000 UAH.	42.0	21.3	31.6	35.0
	5001–10 000 UAH.	32.9	19.1	26.6	25.3
	More than 10 000 UAH.	33.6	18.8	23.9	26.0
Family status (p-values: *<0.001; **<0.001; ***<0.001; ****<0.001)	Live together with their husband/regular sexual partner	33.6	18.8	25.6	28.1
	Don't live together with a regular partner	71.8	32.7	51.8	46.0
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: *<0.001; **0.002; ***<0.001; ****0.043)	There are no such persons	49.5	26.4	38.0	43.0
	There are such persons	31.5	17.3	23.5	23.9
Location type (p-values: *0.124; **0.010; ***0.001; ****0.143)	Street, route, highway	38.8	24.2	29.1	23.5
	Apartments	42.3	18.8	30.7	34.5
	Hotel/motel	36.1	24.4	26.1	47.1
	Entertainment venues/events	44.5	19.6	35.6	33.7
	Sauna/massage parlor	45.4	24.2	36.0	13.6
	Virtual, through intermediaries	28.3	14.6	21.4	32.1
	Other option	24.3	19.7	19.2	43.7

		During the last sexual contact*	Always during oral sex in the last 30 days***	Always during vaginal sex in the last 30 days ****	Always during anal sex in the last 30 days *****
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *0.246; **0.487; ***0.342; ****0.377)	Yes	30.1	18.7	25.4	13.4
	No	37.1	20.1	27.8	32.2
Clients of HIV-servicing organizations (p-values: *<0.001; **0.007; ***<0.001; ****<0.001)	Yes	32.4	20.1	25.6	28.7
	No	47.9	19.6	33.2	32.8
Injecting drug use over the past 30 days (p-values: *0.719; **0.994; ***0.048; ****0.659)	Yes	43.1	22.6	30.3	25.5
	No	36.2	19.8	27.5	30.6

Compared to previous waves of research, there is a tendency towards decrease of the percentage of sex workers who used a condom during their last sexual intercourse with a permanent partner (Fig. 14).

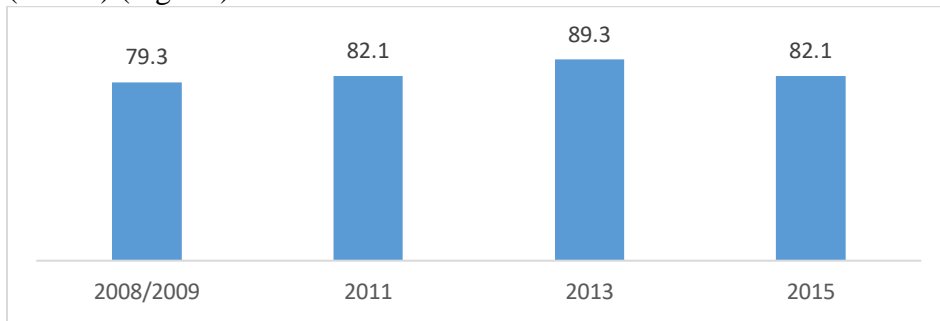


**Fig. 14. Dynamics of condom use indicators during the last sexual contact with a permanent partners (among those who indicated having permanent partners), %**

Regular condom use with casual partners who do not provide remuneration is more consistent in comparison with permanent partners, but lower than the corresponding figures regarding sexual contacts with clients. Over the past 30 days, 71.3% of respondents always used condoms with casual partners during vaginal, 67% - during anal and 60.9% - during oral sex (tab. 13).

82.1% of respondents reported condom use during the last intercourse with a casual partner. SWs who are NGO clients and those who had no experience of migration outside of the survey city to provide sex services more frequently reported regular condom use with casual partners in the last 30 days, regardless of the type of intercourse (vaginal, anal or oral).

Compared to previous wave of research, a decrease of the proportion of SWs who used a condom during their last sexual intercourse with a casual partner is observed. Accordingly, in the 2008/2009 study this figure was 79.3%, in 2011 - 82.1%, in 2013 it increased to 89.3% and in 2015 - returned to the 2011 level (82.1%) (Fig. 15).



**Fig. 15. Condom use during the last sexual contact with a casual partner, 2008–2015, % (among respondents who had casual partners in the last 30 days)**



**Table 13. Proportion of SWs who used condoms with casual partners: during the last sexual contact, regularly during the last working week, regularly during the last 30 days, % (among persons who had such partners, *N*=480)**

		<b>During the last sexual contact*</b>	<b>Always during oral sex in the last 30 days***</b>	<b>Always during vaginal sex in the last 30 days ****</b>	<b>Always during anal sex in the last 30 days *****</b>
<b>Among all</b>		82.1	60.9	71.3	67.0
Age (p-values: *0.113; **<0.001; ***0.052; ****0.407)	15–19 years	83.4	26.3	61.7	50.0
	20–24 years	77.2	55.0	68.4	79.2
	25–34 years	83.6	71.4	74.9	64.7
	35+ years	84.9	53.5	68.8	62.5
Education (p-values: *0.051; **0.001; ***0.019; ****0.131)	Basic secondary education or less	90.2	57.5	75.3	68.7
	Complete general secondary education	84.2	61.9	71.1	60.6
	Vocational training	85.2	72.0	74.0	78.9
	Basic higher education	74.0	49.1	70.5	72.4
	Complete higher education	65.8	41.6	58.4	47.3
Employment (p-values: *0.061; **<0.001; ***0.123; ****0.008)	No other employment except sex business	82.0	69.2	73.6	73.7
	Permanent employment	73.1	41.4	50.5	42.4
	Odd jobs	90.7	59.4	73.5	60.8
	Pupils/students, unemployed persons, housewives	74.9	42.3	68.9	65.7
Housing type (p-values: *0.561; **0.099; ***0.050; ****0.010)	Own home	87.4	57.6	73.5	55.1
	Housing of relatives/friends (without paying for tenancy)	80.5	59.6	61.6	54.2
	Rented housing (paying for tenancy alone or together with another person)	78.2	65.0	74.4	75.8
	Other option	87.1	55.7	72.2	82.9
Monthly personal income (p-values: *0.002; **0.001; ***0.152; ****0.068)	Up to 5000 UAH.	86.6	57.9	69.0	53.4
	5001–10 000 UAH.	78.9	65.2	75.1	75.0
	More than 10 000 UAH.	78.6	59.8	70.4	80.8
Family status (p-values: *0.696; **0.091; ***0.277; ****0.057)	Live together with their husband/regular sexual partner	83.9	58.4	66.1	53.8
	Don't live together with a regular partner	81.4	61.8	73.3	74.0
Presence of persons whom the SWs	There are no such persons	89.4	63.8	78.0	70.7

		<b>During the last sexual contact*</b>	<b>Always during oral sex in the last 30 days***</b>	<b>Always during vaginal sex in the last 30 days ****</b>	<b>Always during anal sex in the last 30 days *****</b>
support at the expense of their earnings in sex business (p-values: *0.077; **0.818; ***0.242; ****0.325)	There are such persons	74.5	57.7	64.2	61.8
Location type (p-values: *0.178; **<0.001; ***0.001; ****<0.001)	Street, route, highway	81.9	64.7	72.7	81.3
	Apartments	90.9	36.6	62.0	35.2
	Hotel/motel	85.7	95.8	100.0	87.5
	Entertainment venues/events	83.2	73.0	79.5	75.5
	Sauna/massage parlor	92.2	77.5	80.0	37.9
	Virtual, through intermediaries	70.1	50.5	61.0	57.3
	Other option	100.0	83.3	95.5	85.7
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *0.046; **0.006; ***0.014; ****0.007)	Yes	73.3	36.4	54.4	45.3
	No	82.6	62.5	72.3	67.8
Clients of HIV-servicing NGOs (p-values: *0.543; **<0.001; ***<0.001; ****<0.001)	Yes	80.8	66.3	74.8	78.5
	No	84.4	51.2	65.4	53.6
Injecting drug use over the past 30 days (p-values: *0.636; **0.021; ***0.683; ****0.138)	Yes	93.1	57.3	79.6	83.3
	No	80.6	61.4	70.2	60.9

The study demonstrated the following findings: one fifth (19.7%) of sex workers had experience of group sex in the last 30 days. Compared with the previous wave of research, their relative proportion has not changed (19.7% - in 2013). Among SWs who had group sex in the last 30 days, 89.5% used condoms; 83.4% reported using a condom with every change of a sexual partner (tab. 14). The lower indicator of condom use during group sex is characteristic of adolescent sex workers (71.6%), respondents with basic secondary education or lower (84.8%), low income sex workers (83%) and non-clients of HIV-servicing NGOs (80.5%). Among PWID SWs who participated in group sex, the proportion of persons who used a new condom with each change of sexual partner is lower compared to non-PWID SWs (61.6% and 85.5% respectively).

**Table 14. Use of condoms during group sex in the last 30 days (among PWID who had group sex, N=815)**

		<b>% of SWs who always used a condom during group sex*</b>	<b>% who used a new condom at each change of a sexual partner**</b>
<b>Among all</b>		89.5	83.4
Age (p-values: *<0.001; **0.002)	15–19 years	71.6	75.3
	20–24 years	90.6	83.8
	25–34 years	90.3	83.5
	35+ years	91.4	85.0
Education (p-values: *0.006; **0.005)	Basic secondary education or less	84.8	76.1
	Complete general secondary education	90.6	83.3
	Vocational training	89.9	82.4
	Basic higher education	88.8	86.4
	Complete higher education	91.8	88.7
Employment (p-values: *<0.001; **0.875)	No other employment except sex business	93.1	84.2
	Permanent employment	86.6	86.3
	Odd jobs	81.1	82.1
	Pupils/students, unemployed persons, housewives	79.2	77.9
Housing type (p-values: *<0.001; **0.072)	Own home	88.6	84.6
	Housing of relatives/friends (without paying for tenancy)	84.5	77.6
	Rented housing (paying for tenancy alone or together with another person)	92.4	87.7
	Other option	85.4	66.6
Monthly personal income (p-values: *<0.001; **<0.001)	Up to 5000 UAH.	83.0	80.4
	5001–10 000 UAH.	94.9	90.8
	More than 10 000 UAH.	88.9	78.3
Family status (p-values: *0.200; **0.306)	Live together with their husband/regular sexual partner	89.0	86.7
	Don't live together with a regular partner	89.6	82.3
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: *0.065; **0.005)	There are no such persons	85.3	77.4
	There are such persons	92.7	88.0
Location type (p-values: *0.769; **0.168)	Street, route, highway	90.8	76.4
	Apartments	91.1	89.2
	Hotel/motel	91.5	98.0
	Entertainment venues/events	91.8	88.6

		<b>% of SWs who always used a condom during group sex*</b>	<b>% who used a new condom at each change of a sexual partner**</b>
	Sauna/massage parlor	91.1	86.4
	Virtual, through intermediaries	86.5	85.4
	Other option	65.5	68.6
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *0.134; **0.629)	Yes	81.0	74.9
	No	90.4	84.2
Clients of HIV-servicing NGOs (p-values: *<0.001; **0.036)	Yes	92.7	85.2
	No	80.5	78.3
Injecting drug use over the past 30 days (p-values: *0.933; **0.028)	Yes	85.7	61.6
	No	89.8	85.5

### 2.6.1. Prevalence of incorrect condom use practice

Despite the high level of regular condom use with clients among sex workers, cases of incorrect use are quite common. 34.4% of respondents reported cases when a condom broke or slipped during intercourse during the last month (tab. 15). Over the past 30 days, more than two-thirds of sex workers (69.2%) initiated condom use already in the course of sexual contact with the clients. Cases where intercourse with a client continued after removing the condom are less common: 6.7% SWs had them last month. SWs who have no other employment, other than sex work, often reported having sexual contact with clients who put on the condom already amid the contact; often there were cases where a condom broke or slipped during sex with a client. Cases of improper condom use are more common among PWID SWs, high income sex workers and those who work on the street or through intermediaries. Among the clients of HIV service NGOs the cases prevail where a condom was put on amid the contact or when it broke or slipped during sex with a client, but the proportion of those who continued sexual contact after removing the condom is lower.

Regarding sexual contacts with permanent partners in the last month, 32.2% of SWs said that that they initiated sex without a condom; in 14.3% of cases the intercourse continued after its removal; in 9.6% cases the condom broke or slipped during sex (tab. 16). Among adolescent sex workers over a quarter (28.6%) had cases when the condom broke or slipped during sex with a permanent partner, which is almost three times higher than the average value for different age groups. Practices of incorrect condom use with permanent partners are more common among sex workers who do not support others at the expense of their sex work. Among the different groups of sex workers depending on the location those who worked in saunas and massage parlours more often reported beginning the intercourse without a condom or continuing after its removal (47.7% and 35.3% respectively).

Among SWs who had casual partners in the last month, 14.8% reported cases where the condom broke or slipped during sex, 58.5% started sex without a condom, and 8.7% continued the intercourse after having removed a condom (tab. 17). Sex workers with lower education level (complete or incomplete secondary) more often reported cases when the condom broke or slipped during sex with a casual partner. Sex workers with higher education demonstrate the lowest proportion of those who started having sex with a casual partner without a condom (49.2%) and continued after the condom removal (4.8%). Clients of HIV-servicing NGOs more often reported cases where sex with a casual partner began without a condom, than non-clients (63.4% - among clients and 49.8% - among non-clients). However, among this group the cases where sex with a casual partner continued after removing the condom are less common (6.2% - among clients and 13% - among non-clients). Compared with SWs who do not inject drugs, PWID SWs demonstrate greater proportion of those who started having sex with a casual partner without a condom (75.9% - among PWID and 56.2% - among non-PWID).

**Table 15. Prevalence of incorrect condom use practices with clients during the last 30 days: % of persons who had such cases**

		<b>Broke or slipped during sex *</b>	<b>Contact began without a condom (the condom was put on amid the intercourse)**</b>	<b>Contact continued after having removed the condom***</b>
<b>Among all</b>		34.4	69.2	6.7
Age (p-values: *0.079; **0.065; ***0.207)	15–19 years	36.5	62.7	7.2
	20–24 years	35.4	70.9	6.3
	25–34 years	32.2	69.5	6.6
	35+ years	37.7	68.2	7.3
Education (p-values: *0.171; **0.056; ***0.072)	Basic secondary education or less	40.4	65.0	8.1
	Complete general secondary education	34.8	72.4	5.4
	Vocational training	32.2	65.6	7.1
	Basic higher education	34.5	71.9	6.8
	Complete higher education	33.4	71.1	8.0
Employment (p-values: *0.042; **0.001; ***0.072)	No other employment except sex business	37.9	74.4	6.8
	Permanent employment	33.4	64.9	6.3
	Odd jobs	28.2	62.8	6.2
	Pupils/students, unemployed persons, housewives	28.6	59.4	7.5
Housing type (p-values: *0.116; **0.118; ***0.227)	Own home	31.8	65.0	7.4
	Housing of relatives/friends (without paying for tenancy)	32.0	63.4	7.6
	Rented housing (paying for tenancy alone or together with another person)	37.4	74.5	5.8
	Other option	32.3	69.0	7.6
Monthly personal income (p-values: *<0.001; **<0.001; ***0.001)	Up to 5000 UAH.	32.8	57.6	6.8
	5001–10 000 UAH.	32.8	72.8	7.5
	More than 10 000 UAH.	39.2	82.3	5.7
Family status (p-values: *0.476; **0.051 ***0.346)	Live together with their husband/regular sexual partner	35.9	68.9	7.3
	Don't live together with a regular partner	33.6	69.4	6.4
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: *0.001; **0.310; ***0.917)	There are no such persons	28.6	64.5	7.2
	There are such persons	38.6	72.7	6.4

		<b>Broke or slipped during sex *</b>	<b>Contact began without a condom (the condom was put on amid the intercourse)**</b>	<b>Contact continued after having removed the condom***</b>
Location type (p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.012$ )	Street, route, highway	36.6	69.6	6.2
	Apartments	31.5	67.8	6.9
	Hotel/motel	18.9	39.4	6.1
	Entertainment venues/events	22.7	55.4	5.3
	Sauna/massage parlor	21.1	74.5	12.1
	Virtual, through intermediaries	40.6	78.8	7.2
	Other option	48.5	59.9	9.1
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: * $<0.001$ ; ** $0.100$ ; *** $<0.001$ )	Yes	46.3	69.6	14.0
	No	33.4	69.3	6.1
Clients of HIV-servicing NGOs (p-values: * $0.002$ ; ** $<0.001$ ; *** $<0.001$ )	Yes	36.1	74.6	5.7
	No	30.3	56.7	9.0
Injecting drug use over the past 30 days (p-values: * $0.003$ ; ** $<0.001$ ; *** $0.002$ )	Yes	36.4	61.6	11.0
	No	34.2	69.9	6.4

**Table 16. Prevalence of incorrect condom use practices with permanent partners during the last 30 days: % of persons who had such cases (among persons who had such partners, N=1355)**

		<b>Broke or slipped during sex *</b>	<b>Contact began without a condom (the condom was put on amid the intercourse)**</b>	<b>Contact continued after having removed the condom***</b>
<b>Among all</b>		9.6	32.2	14.3
Age (p-values: * $0.004$ ; ** $0.114$ ; *** $0.275$ )	15–19 years	28.6	33.5	10.2
	20–24 years	8.3	31.7	13.0
	25–34 years	8.3	33.0	14.0
	35+ years	10.3	31.1	16.2
Education (p-values: * $0.040$ ; ** $0.041$ ; *** $0.196$ )	Basic secondary education or less	11.6	27.1	13.7
	Complete general secondary education	10.6	29.7	11.8
	Vocational training	10.2	33.3	17.9
	Basic higher education	6.2	40.5	16.1
	Complete higher education	8.3	29.3	8.3



		<b>Broke or slipped during sex *</b>	<b>Contact began without a condom (the condom was put on amid the intercourse)**</b>	<b>Contact continued after having removed the condom***</b>
Employment (p-values: *0.322; **<0.001; ***<0.001)	No other employment except sex business	9.0	27.2	13.7
	Permanent employment	10.0	35.7	9.0
	Odd jobs	10.6	39.1	16.0
	Pupils/students, unemployed persons, housewives	10.0	35.7	18.9
Housing type (p-values: *0.824; **0.491; ***0.326)	Own home	8.6	28.1	15.0
	Housing of relatives/friends (without paying for tenancy)	11.2	33.9	16.1
	Rented housing (paying for tenancy alone or together with another person)	9.2	35.0	12.2
	Other option	15.6	30.5	23.6
Monthly personal income (p-values: *<0.001; **0.041; ***0.001)	Up to 5000 UAH.	11.6	32.5	15.7
	5001–10 000 UAH.	6.9	31.2	12.0
	More than 10 000 UAH.	10.3	33.5	14.9
Family status (p-values: *<0.001; **<0.001; ***<0.001)	Live together with their husband/regular sexual partner	9.0	30.2	14.3
	Don't live together with a regular partner	16.5	54.9	14.2
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: *<0.001; **<0.001; ***<0.001)	There are no such persons	11.6	42.2	17.8
	There are such persons	8.8	28.2	12.8
Location type (p-values: *0.003; **<0.001; ***0.001)	Street, route, highway	9.4	33.6	15.8
	Apartments	9.0	30.5	10.3
	Hotel/motel	16.8	34.2	12.4
	Entertainment venues/events	12.2	41.8	15.4
	Sauna/massage parlor	14.1	47.7	35.3
	Virtual, through intermediaries	8.9	28.2	12.6
	Other option	3.4	13.8	13.5
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *<0.001; **<0.001; ***<0.001)	Yes	15.1	39.5	20.6
	No	9.1	31.6	13.7
Clients of HIV-	Yes	9.2	30.4	14.3

		<b>Broke or slipped during sex *</b>	<b>Contact began without a condom (the condom was put on amid the intercourse)**</b>	<b>Contact continued after having removed the condom***</b>
servicing NGOs (p-values: *0.715; **0.282; ***0.108)	No	10.8	37.0	14.3
	Yes	20.3	33.7	22.2
Injecting drug use over the past 30 days (p-values: *0.012; **0.280; ***0.125)	No	8.8	32.1	13.7

**Table 17. Prevalence of incorrect condom use practices with casual partners during the last 30 days: % of persons who had such cases (among persons who had such partners, N=480)**

		<b>Broke or slipped during sex *</b>	<b>Contact began without a condom (the condom was put on amid the intercourse)**</b>	<b>Contact continued after having removed the condom***</b>
<b>Among all</b>		14.8	58.5	8.7
Age (p-values: *0.052; **0.122; ***0.206)	15–19 years	30.3	53.0	4.8
	20–24 years	15.5	52.2	8.8
	25–34 years	14.3	64.3	7.1
	35+ years	9.2	53.3	14.7
Education (p-values: *0.001; **<0.001; ***0.002)	Basic secondary education or less	22.1	49.2	4.8
	Complete general secondary education	20.1	60.3	4.8
	Vocational training	9.1	64.8	12.3
	Basic higher education	11.2	64.8	16.3
	Complete higher education	10.7	36.3	2.4
Employment (p-values: *0.119; **0.002; ***0.826)	No other employment except sex business	17.5	60.8	10.5
	Permanent employment	6.9	28.5	3.9
	Odd jobs	8.8	74.0	6.9
	Pupils/students, unemployed persons, housewives	17.9	43.7	7.7
Housing (p-values: *0.415; **0.915; ***0.528)	Own home	16.8	64.0	13.2
	Housing of relatives/friends (without paying for tenancy)	8.7	48.5	2.4
	Rented housing (paying for tenancy alone or together with another person)	12.6	59.1	10.1
	Other option	25.5	60.8	5.6

		<b>Broke or slipped during sex *</b>	<b>Contact began without a condom (the condom was put on amid the intercourse)**</b>	<b>Contact continued after having removed the condom***</b>
Monthly personal income (p-values: *0.048; **<0.001; ***0.039)	Up to 5000 UAH.	16.8	47.1	7.8
	5001–10 000 UAH.	11.9	61.3	12.2
	More than 10 000 UAH.	15.7	71.8	5.6
Family status (p-values: *0.133; **<0.001; ***0.179)	Live together with their husband/regular sexual partner	15.2	50.6	12.0
	Don't live together with a regular partner	14.6	61.4	7.4
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: *0.064; **0.022; ***0.016)	There are no such persons	15.9	67.6	8.1
	There are such persons	13.7	49.0	9.3
Location type (p-values: *0.521; **0.022; ***0.458)	Street, route, highway	16.4	62.9	12.7
	Apartments	17.7	47.1	9.2
	Hotel/motel	32.2	61.3	14.6
	Entertainment venues/events	19.9	53.0	1.9
	Sauna/massage parlor	7.8	73.3	12.7
	Virtual, through intermediaries	7.1	57.1	4.3
	Other option	7.1	58.8	2.2
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *0.164; **0.077; ***0.006)	Yes	14.5	40.3	13.4
	No	14.9	59.6	8.4
Clients of HIV-servicing NGOs (p-values: *0.018; **0.004; ***0.007)	Yes	13.1	63.4	6.2
	No	17.8	49.8	13.0
Injecting drug use over the past 30 days (p-values: *0.199; **0.042; ***0.166)	Yes	19.6	75.9	13.2
	No	14.2	56.2	8.1

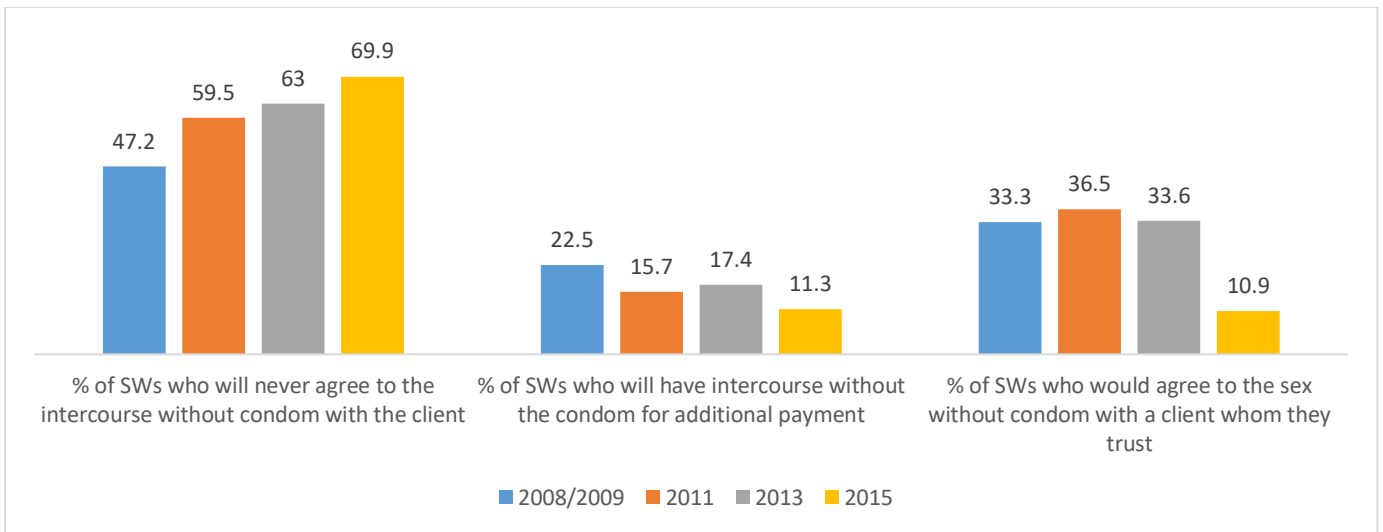
## 2.6.2. Reasons for not using condoms

The idea that in some cases it is possible to provide sex services without using a condom is quite common. About two-thirds of sex workers (69.9%) would not agree to have sex without a condom with a client under any circumstances (tab. 18), 11.3% will agree upon additional payment. 9.8% of respondents believe that it is possible to omit using a condom during oral sex, and 10.9% consider having sex with a client whom they trust to be valid reason for avoiding use of the condom. Opinion on valid reasons when it is possible to have sex without a condom vary in different age groups. Among adolescent sex workers more persons agree that it is possible to have sexual contact with a client without a condom for additional remuneration (18.3%) or that they may avoid using condom during oral sex (19%). Instead, in the group aged 35 and older these values are 9.7% and 8.7% respectively.

**Table 18. Distribution of responses to the question: "Indicate, in which cases you consider possible to provide sex services without using a condom": % of SWs agreeing to the indicated options, by age**

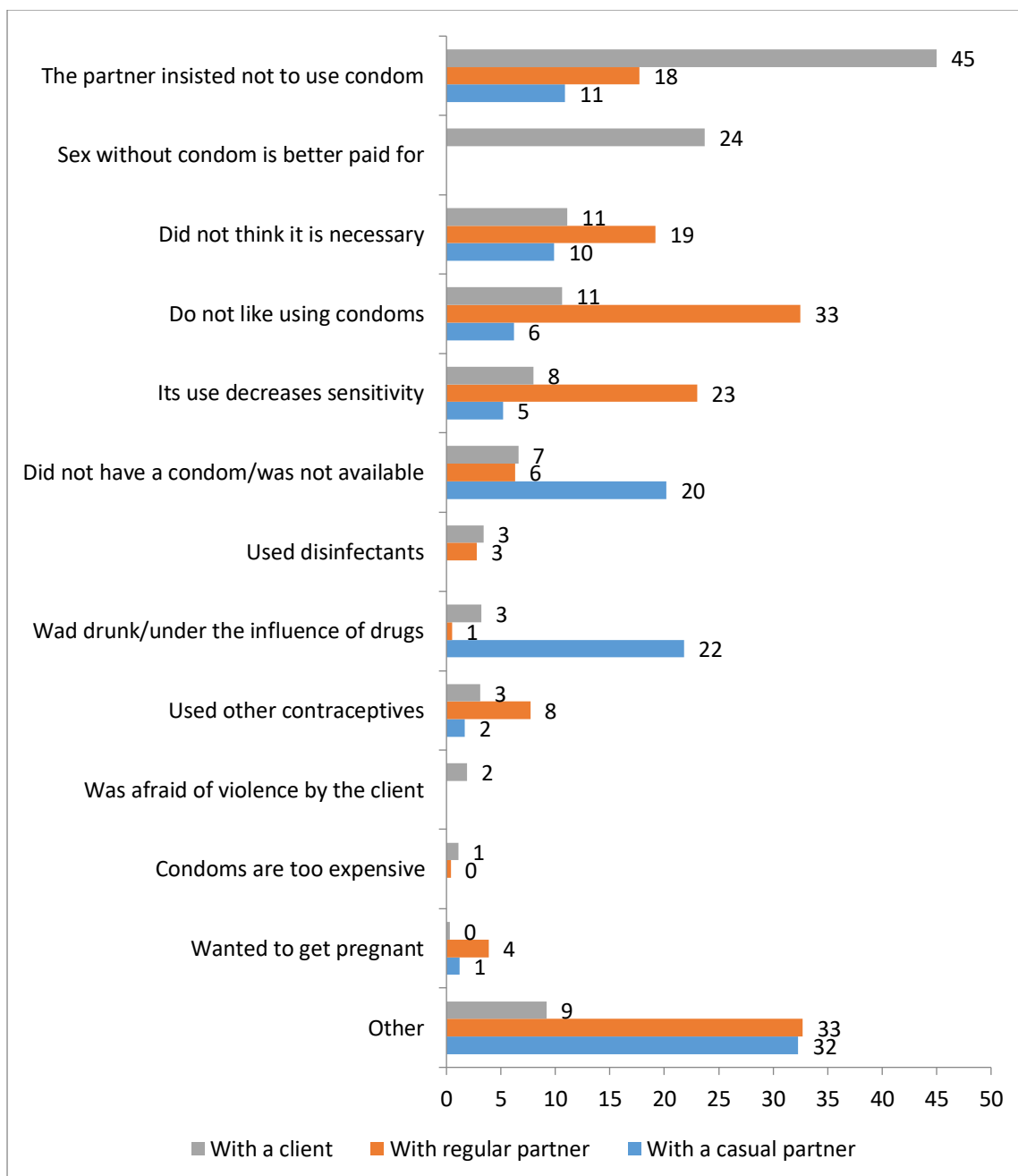
	<b>14–19</b>	<b>20–24</b>	<b>25–34</b>	<b>35 and older</b>	<b>total</b>
Always (p-value=0.914)	6.1	5.7	5.9	5.9	5.8
For additional remuneration (p-value<0.001)	18.3	10.6	11.6	9.7	11.3
With a client whom you trust (p-value=0.002)	16.2	11.8	11.0	8.7	10.9
No, under any condition (p-value<0.001)	60.2	69.5	70.0	72.2	69.9
During oral sex (p-value<0.001)	19.0	10.1	9.4	8.7	9.8

Comparing the survey data with the results of 2008/2009, 2011 and 2013, we observe a tendency towards increasing of the percentage of sex workers who report that they would not agree to have sex without a condom with a client under any circumstances. Thus, in the 2008/2009 the proportion of sex workers was 47.2% and in 2016 already nearly three quarters of respondents (69.9%) reported this (Fig. 16). Also there is a decrease in the proportion of sex workers who are ready to provide sex services without condoms for additional payment or if they trust the client - traditionally the main reasons for not using a condom during sex.



**Fig. 16. Possibility to provide sex services to a client without a condom, in SWs opinion: dynamics in 2008–2015, %**

The reasons for not using condoms vary depending on the type of partner. As for clients, the main reason is their insistence and additional charges: 45% and 23.7%, respectively, did not use a condom during their last sexual intercourse due to these reasons (Fig. 17). Among SWs who have not used a condom during their last sexual contact with a partner, 32.5% did so because they do not like using a condom. They mostly explained sex without a condom during their last contact with a casual partner by its unavailability (20.2%), being drunk or under the influence of drugs (21.8%).



**Fig. 17. Distribution of responses to the question: "Why you did not use a condom during the last sexual contact?" depending on the partner type, % (among SWs who had such partner and did not use condom during the last intercourse)**

### 2.6.3. Availability of condoms

86% of sex workers had condoms with them condoms at the time of participation in the study - an average of 8 (standard deviation - 10) (tab. 19). Adolescent sex workers; respondents who had other employment, except for sex work; low income SWs and those living with relatives/friends without paying rent; SWs that support others; those who provide sex services in apartments, and are not clients of HIV-servicing NGOs were less likely to carry condoms with them.

**Table 19. Proportion of SWs carrying condoms with them at the moment of the study and the number of condoms**

		% of SWs carrying condoms with them at the moment of the study*	Number of condoms they had**		
			mean	Standard deviation	median
<b>Among all</b>		86.0	8	10	6
Age (p-values: * $<0.001$ ; ** $0.481$ )	15–19 years	78.4	10	16	5
	20–24 years	86.8	8	8	6
	25–34 years	86.0	8	8	5
	35+ years	86.9	9	13	6
Education (p-values: * $0.001$ ; ** $0.012$ )	Basic secondary education or less	83.0	8	8	5
	Complete general secondary education	89.8	8	9	6
	Vocational training	83.2	8	11	5
	Basic higher education	87.3	7	6	5
	Complete higher education	84.9	10	13	6
Employment (p-values: * $<0.001$ ; ** $<0.001$ )	No other employment except sex business	89.3	9	11	6
	Permanent employment	84.9	8	8	6
	Odd jobs	84.6	6	6	5
	Pupils/students, unemployed persons, housewives	75.4	7	11	4
Housing (p-values: * $<0.001$ ; ** $<0.001$ )	Own home	82.9	7	6	5
	Housing of relatives/friends (without paying for tenancy)	79.4	7	10	4
	Rented housing (paying for tenancy alone or together with another person)	90.9	10	12	6
	Other option	85.7	8	7	5
Monthly personal income (*p-value $<0.001$ ; ** $<0.001$ )	Up to 5000 UAH.	79.1	6	5	4
	5001–10 000 UAH.	88.1	9	10	6
	More than 10 000 UAH.	92.4	10	13	6
Family status (p-values: * $0.102$ ; ** $0.017$ )	Live together with their husband/regular sexual partner	86.1	9	11	6
	Don't live together with a regular partner	86.0	8	9	5
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: * $<0.001$ ; ** $<0.001$ )	There are no such persons	81.7	6	5	5
	There are such persons	89.2	10	12	6



		% of SWs carrying condoms with them at the moment of the study*	Number of condoms they had**		
			mean	Standard deviation	median
Location type (p-values: * $<0.001$ ; ** $<0.001$ )	Street, route, highway	93.1	7	6	6
	Apartments	74.8	8	10	5
	Hotel/motel	92.1	7	5	6
	Entertainment venues/events	82.6	5	3	4
	Sauna/massage parlour	84.7	6	4	5
	Virtual, through intermediaries	85.6	12	15	6
	Other option	89.6	5	4	3
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: * $0.709$ ; ** $0.317$ )	Yes	87.7	7	6	5
	No	85.9	8	10	6
Clients of HIV-servicing organizations (p-values: * $<0.001$ ; ** $<0.001$ )	Yes	92.9	9	10	6
	No	69.9	6	8	3
Injecting drug use over the past 30 days (p-values: * $0.353$ ; ** $0.674$ )	Yes	85.5	6	6	4
	No	86.1	9	10	6

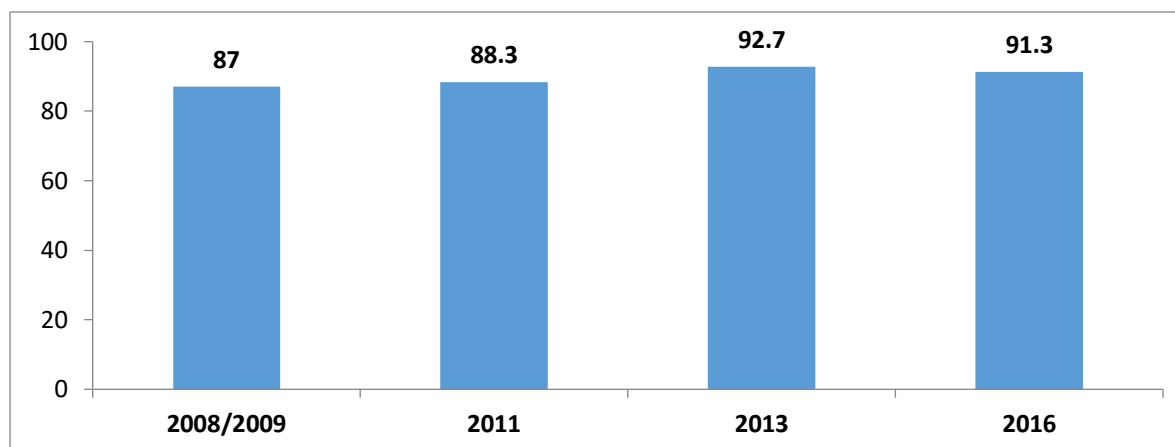
Most sex workers get condoms from a social worker: 61.2% during the last sexual contact with clients used condoms received from NGOs. The availability of free condoms is the highest among older sex workers. During the last sex with clients 42.9% among adolescent sex workers said that they used condoms received from a social worker, and 32.2% - a condom, which bought at the pharmacy or store. Instead, among SWs aged and older 71.2% used condoms received from a social worker, and 19% bought them in a pharmacy or store.

**Table 20. Distribution of answers to the question: "Please indicate where did you take the condom you used during the last sexual contact with a client?", by age, %**

p-value $<0.001$	SWs age groups				Total
	15–19	20–24	25–34	35+	
Bought at the pharmacy/store	32.2	23.0	26.4	19.0	<b>24.2</b>
Received from a social worker	42.9	58.6	59.5	71.2	<b>61.2</b>
Received from the customer	15.2	5.2	5.8	4.4	<b>5.7</b>
Got from another SW	5.4	7.4	4.2	3.0	<b>4.7</b>
Got from the pimp, "madam", administrator	3.4	3.9	2.8	0.7	<b>2.6</b>
Other	0.9	2.1	1.3	1.7	<b>1.5</b>

## 2.7. Use of alcohol and drugs

91% of sex workers said they consumed alcohol or alcoholic beverages in the last month (tab. 21). Compared with previous studies, the proportion of those who had practice of drinking alcohol within the past 30 days, remains high (in the 2008/2009 - 87%, in 2011- 88%, in 2013 - 93%) (Fig. 18 ).



**Fig. 18. Proportion of SWs who used alcohol during the last 30 days: dynamics of 2008–2015, %**

On average SWs used alcohol or alcoholic beverages 12 times in the last 30 days. Frequency of alcohol consumption increases with age, is higher among sex workers with low education and those who have no other employment than sex work, those with high income and PWID SWs. Regarding the location type, alcohol use is more typical of the "street" SWs and those working in entertainment establishments.

**Table 21. Distribution of answers to the question: "How many times did you use alcohol or soft beverages during the last 30 days?", %**

		Never	1–5 times	6–10 times	11–20 times	21 and more
<b>Among all</b>		8.7	27.8	23.3	28.1	12.1
Age (p-value<0.001)	15–19 years	7.2	39.4	30.8	17.1	5.5
	20–24 years	9.0	26.9	24.9	30.4	8.8
	25–34 years	8.7	27.4	23.5	28.4	12.0
	35+ years	8.7	27.3	19.3	27.2	17.4
Education (p-value<0.001)	Basic secondary education or less	6.0	27.4	20.5	27.2	18.9
	Complete general secondary education	7.2	28.3	19.8	30.9	13.8
	Vocational training	8.1	27.8	26.4	25.9	11.9
	Basic higher education	10.9	24.6	26.1	30.5	8.0
	Complete higher education	13.5	32.3	21.8	24.4	8.0
Employment (p-value<0.001)	No other employment except sex business	8.5	25.9	20.0	31.1	14.4
	Permanent employment	15.8	30.7	25.2	22.5	5.7
	Odd jobs	7.9	26.4	27.8	27.0	11.0
	Pupils/students, unemployed persons, housewives	5.7	35.6	29.6	21.0	8.1
Housing type (p-value: 0.106)	Own home	8.6	29.7	21.9	27.2	12.6
	Housing of relatives/friends (without paying for tenancy)	9.0	28.3	23.3	28.1	11.4
	Rented housing (paying for tenancy alone or together with another person)	9.6	27.0	22.9	29.3	11.1

		Never	1–5 times	6–10 times	11–20 times	21 and more
	Other option	1.7	23.0	32.9	23.9	18.5
Monthly personal income (p-value<0.001)	Up to 5000 UAH.	9.6	30.9	25.3	25.3	8.9
	5001–10 000 UAH.	8.0	29.9	25.2	28.0	8.9
	More than 10 000 UAH.	8.8	22.1	19.2	32.2	17.8
Family status (p-value: 0.066)	Live together with their husband/regular sexual partner	10.0	30.1	22.3	26.4	11.2
	Don't live together with a regular partner	8.1	26.7	23.8	29.0	12.5
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-value<0.001)	There are no such persons	7.5	24.0	26.4	30.2	11.9
	There are such persons	9.6	30.7	20.9	26.6	12.2
Location type (p-value<0.001)	Street, route, highway	7.2	18.8	19.7	36.1	18.2
	Apartments	11.9	34.6	27.8	19.2	6.6
	Hotel/motel	12.2	38.3	21.1	21.3	7.1
	Entertainment venues/events	5.3	20.7	30.4	32.1	11.6
	Sauna/massage parlour	9.6	37.1	24.0	21.9	7.3
	Virtual, through intermediaries	9.7	36.5	22.0	22.8	9.0
	Other option	4.8	26.0	19.0	37.1	13.1
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-value: 0.482)	Yes	9.9	29.1	25.2	19.2	16.6
	No	8.6	27.9	23.2	28.7	11.7
Clients of HIV-servicing NGOs (p-value<0.001)	Yes	9.5	27.0	20.5	29.6	13.4
	No	6.8	29.9	29.8	24.6	9.0
Injecting drug use over the past 30 days (p-value<0.001)	Yes	10	16	15	27	32
	No	9	29	24	28	11

Approximately one fifth of the SWs (22.2%) used non-injecting drugs through the last 12 months, 17.2% - non-injectable drugs in the last month (tab. 22).

**Table 22. Use of non-injecting drugs among SWs: prevalence and frequency**

		% of SWs who used any non-injecting drugs in the last 12 months (among all surveyed)*	% of SWs who used any non-injecting drugs in the last 30 days (among all surveyed)**	Frequency of use in the last 30 days, <i>times</i> (among those who used non-injecting drugs, <i>N=816</i> ***)		
				mean	Standard deviation	median
<b>Among all</b>		22.2	17.2	8	8	5
Age (p-values: *0.556; **0.156; ***<0.001)	15–19 years	23.9	17.6	6	7	4
	20–24 years	23.4	15.9	8	8	5
	25–34 years	23.1	19.2	7	8	5
	35+ years	18.5	14.1	10	10	6
Education (p-values: *0.351; **0.005; ***0.131)	Basic secondary education or less	25.5	20.5	9	9	7
	Complete general secondary education	20.8	16.3	8	9	5
	Vocational training	24.1	19.8	8	8	5
	Basic higher education	21.8	16.8	8	7	5
	Complete higher education	18.6	10.1	6	7	3
Employment (p-values: *<0.001; **<0.001; ***0.001)	No other employment except sex business	22.0	17.5	9	9	5
	Permanent employment	18.1	11.8	5	6	3
	Odd jobs	26.1	20.7	7	7	5
	Pupils/students, unemployed persons, housewives	20.7	15.2	7	7	5
Housing (p-values: *0.052; **0.080; ***0.057)	Own home	20.4	15.0	9	9	5
	Housing of relatives/friends (without paying for tenancy)	22.8	18.9	8	8	5
	Rented housing (paying for tenancy alone or together with another person)	21.8	16.7	8	8	5
	Other option	32.8	27.0	7	5	5
Monthly personal income (p-values: *<0.001; **<0.001; ***<0.001)	Up to 5000 UAH	18.7	14.0	7	8	5
	5001–10 000 UAH	21.5	16.4	7	8	4
	More than 10 000 UAH	27.4	21.8	10	9	5

		% of SWs who used any non-injecting drugs in the last 12 months (among all surveyed)*	% of SWs who used any non-injecting drugs in the last 30 days (among all surveyed)**	Frequency of use in the last 30 days, <i>times</i> (among those who used non-injecting drugs, <i>N=816</i> ***)		
				mean	Standard deviation	median
Family status (p-values: *0.773; **0.220; ***0.979)	Live together with their husband/regular sexual partner	21.1	15.9	8	9	5
	Don't live together with a regular partner	22.7	17.9	8	8	5
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: *0.698; **0.591; ***0.003)	There are no such persons	21.6	16.6	8	8	5
	There are such persons	22.6	17.6	8	9	5
Location type (p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.001$ )	Street, route, highway	24.4	20.3	9	9	5
	Apartments	16.2	12.2	6	7	4
	Hotel/motel	14.1	12.2	5	4	3
	Entertainment venues/events	18.7	15.9	6	5	5
	Sauna/massage parlor	19.1	16.4	8	13	5
	Virtual, through intermediaries	26.3	17.5	8	8	5
	Other option	23.1	22.5	8	9	5
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *0.008; ** $<0.001$ ; ***0.006)	Yes	24.2	21.0	11	10	6
	No	22.0	16.8	8	8	5
Clients of HIV-servicing organizations (p-values: * $<0.001$ ; **0.014; ***0.052)	Yes	22.6	17.8	8	9	5
	No	21.3	15.9	7	8	5

		% of SWs who used any non-injecting drugs in the last 12 months (among all surveyed)*	% of SWs who used any non-injecting drugs in the last 30 days (among all surveyed)**	Frequency of use in the last 30 days, <i>times</i> (among those who used non-injecting drugs, <i>N=816</i> ***)		
				mean	Standard deviation	median
Injecting drug use over the past 30 days (p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.001$ )	Yes	64.6	54.3	11	11	6
	No	18.7	14.1	7	7	5

Smaller proportion of those who used non-injectable drugs in the last month is observed among sex workers with higher education; those with permanent jobs, in addition to sex work, and among pupils and students; among those who provide sex services or searched for clients in hotels/motels. In the group of SWs who practiced injecting drug use, 54.3% indicated that they had also taken non-injectable drugs in the last 30 days, meanwhile, only 14.1% of those who are not active injecting drug users reported that they used non-injectable drugs.

SWs who are active PWID, on average, used injection drugs 19 times in the last 30 days. The share of active PWID increases with age: 1.7% - among adolescent sex workers and 12.5% - among sex workers aged 35 and older. The lowest proportion of active PWID was recorded among sex workers with higher education (3.6%), those having full-time work, in addition to sex business (2.3%), middle income SWs (4.9%) and those who work in hotels (2.6%).

8.6% of respondents had used any injecting drugs in the last 12 months (tab. 23). Overall, 7.7% of SWs are active PWID, that is, have used injecting drugs during the last 30 days.

**Table 23. Use of injecting drugs among SWs: prevalence and frequency**

		% of SWs who used any injecting drugs in the last 12 months (among all surveyed)*	% of SWs who used any injecting drugs in the last 30 days (among all surveyed)**	Frequency of use in the last 30 days, <i>times</i> (among those who used injecting drugs, <i>N=425</i> ***)		
				mean	Standard deviation	median
<b>Among all</b>		8.6	7.7	19	20	10
Age (p-values: * $<0.001$ ; ** $<0.001$ ; ***0.785)	15–19 years	2.0	1.7	14	5	15
	20–24 years	4.5	3.8	16	21	10
	25–34 years	8.9	8.1	19	22	10
	35+ years	14.0	12.5	20	14	20

		% of SWs who used any injecting drugs in the last 12 months (among all surveyed)*	% of SWs who used any injecting drugs in the last 30 days (among all surveyed)**	Frequency of use in the last 30 days, <i>times</i> (among those who used injecting drugs, N=425)***		
				mean	Standard deviation	median
Education (p-values: *0.001; **0.001; ***0.047)	Basic secondary education or less	12.9	11.4	30	35	20
	Complete general secondary education	8.9	8.4	15	16	10
	Vocational training	9.7	8.2	18	14	10
	Basic higher education	6.1	5.9	17	12	15
	Complete higher education	4.5	3.6	23	17	20
Employment (p-values: * $<0.001$ ; ** $<0.001$ ; ***0.002)	No other employment except sex business	8.7	8.0	21	22	15
	Permanent employment	2.8	2.3	11	8	10
	Odd jobs	11.1	9.8	14	14	10
	Pupils/students, unemployed persons, housewives	8.7	7.5	16	12	15
Housing (p-values: * $<0.001$ ; ** $<0.001$ ; ***0.099)	Own home	11.2	9.7	20	14	20
	Housing of relatives/friends (without paying for tenancy)	9.7	9.0	18	19	10
	Rented housing (paying for tenancy alone or together with another person)	5.8	5.4	20	26	10
	Other option	13.5	10.9	11	11	10
Monthly personal income (p-values: * $<0.001$ ; ** $<0.001$ ; ***0.536)	Up to 5000 UAH.	10.1	9.1	22	22	20
	5001–10 000 UAH.	5.7	4.9	18	15	10
	More than 10 000 UAH.	10.6	9.8	15	18	10
Family status (p-values: *0.118; **0.202; ***0.186)	Live together with their husband/regular sexual partner	8.5	7.4	19	17	15
	Don't live together with a regular partner	8.7	7.9	18	20	10
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: *0.043; **0.065; ***0.295)	There are no such persons	9.3	8.5	16	15	10
	There are such persons	8.1	7.1	21	22	15

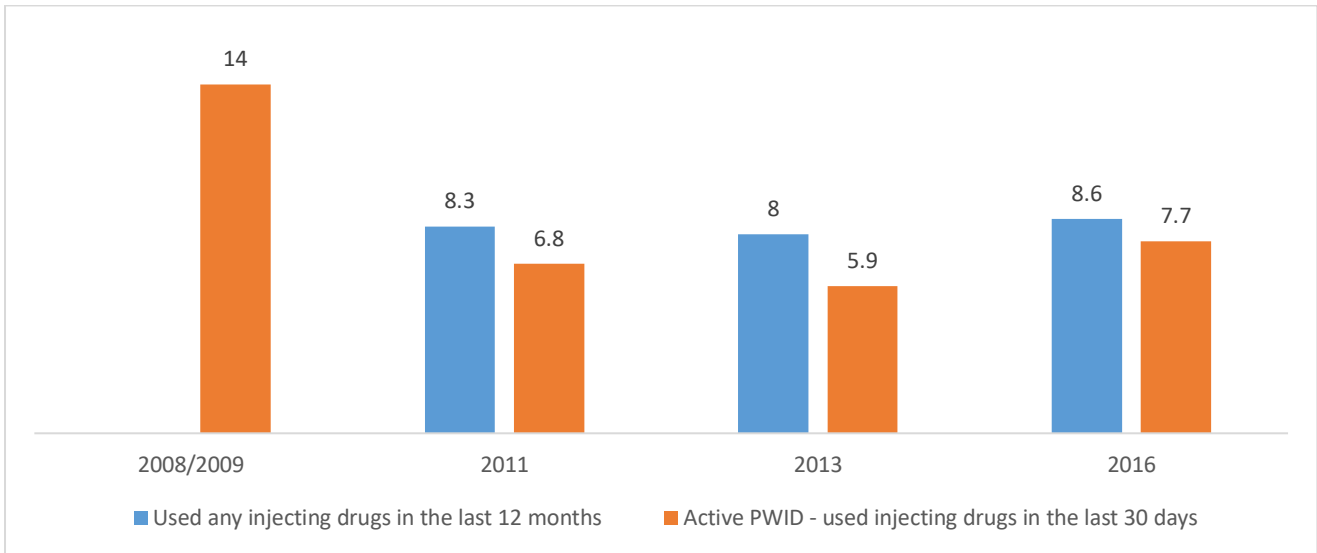


		% of SWs who used any injecting drugs in the last 12 months (among all surveyed)*	% of SWs who used any injecting drugs in the last 30 days (among all surveyed)**	Frequency of use in the last 30 days, <i>times</i> (among those who used injecting drugs, N=425)***		
				mean	Standard deviation	median
Location type (p-values: *<0.001; **<0.001; ***0.041)	Street, route, highway	15.1	14.4	20	21	15
	Apartments	4.4	3.2	13	10	10
	Hotel/motel	2.6	2.6	25	19	15
	Entertainment venues/events	7.2	6.5	18	18	20
	Sauna/massage parlor	4.4	4.4	18	9	20
	Virtual, through intermediaries	4.4	3.3	16	15	10
	Other option	9.9	8.3	6	2	5
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *0.343; **0.351; ***0.763)	Yes	6.0	5.0	22	24	15
	No	8.7	7.8	19	19	10
Clients of HIV-servicing NGOs (p-values: *<0.001; **<0.001; ***0.323)	Yes	10.6	9.6	18	20	10
	No	3.9	3.3	20	20	20

The share of active PWID among sex workers slightly increased in comparison with the previous wave of study, while injecting drug use rate did not significantly change in the last year (Fig. 19).

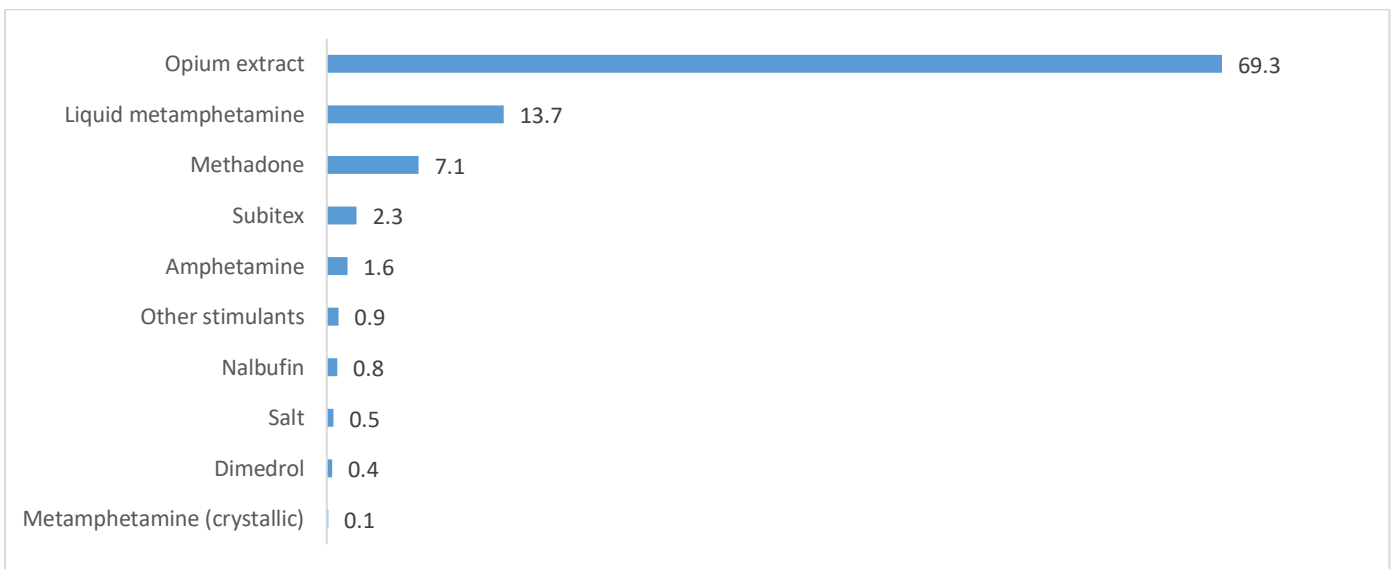
Almost all PWID SWs (95.4%) used a sterile needle and syringe when injecting drugs recently.

Over the last month, 14.3% of SWs have never used alcohol prior to sexual contacts with clients (tab. 24). The use of drugs prior to commercial sexual contacts is less common: 21.5% SWs had cases of drug use, and 15.1% combined alcohol and drugs. The prevalence of alcohol consumption practices and (or) drugs immediately before sexual contact with clients among SWs increases depending on age group and is higher among those who work outdoors or in entertainment establishments.



**Fig. 19. Proportion of SWs using injecting drugs, dynamics during 2008–2015, %**

Most of PWID SWs (66.8%) consume opium extract (Fig. 20). The second and third most common drug types are liquid methamphetamine (13.7%) and methadone (7.1%).



**Fig. 20. Distribution of responses to the question: "Which of the injecting drugs you consider to be primary for you?", % (among SWs who used injecting drugs in the last 30 days, N=425)**

**Table 24. Distribution of responses to the question: "How often during the last month, before sexual contacts with the clients from whom you received remuneration, you consumed...?"**

		Alcohol (among persons who used such substances, N=4163)*						Drugs (among persons who used such substances, N=3500)**						Alcohol together with drugs (among persons who consumed such substances, N=3462)***					
		Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never	Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never	Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never
<b>Among all</b>		13.5	17.7	17.0	15.0	22.5	14.3	2.9	2.6	3.0	5.2	7.8	78.5	0.9	0.9	2.4	3.8	7.1	84.9
Age (p-values: *<0.001; **<0.001; ***<0.001)	15–19 years	7.4	14.1	10.7	20.4	37.0	10.4	0.8	4.7	1.0	2.8	8.8	81.9	0.0	0.0	3.5	1.8	7.2	87.5
	20–24 years	11.4	14.9	21.0	16.0	22.8	13.9	1.6	1.2	2.8	4.6	7.7	82.1	0.3	0.1	2.5	2.2	7.5	87.5
	25–34 years	14.0	17.7	17.2	13.3	22.3	15.5	2.2	2.3	3.4	6.0	8.8	77.3	0.4	1.3	2.1	4.4	7.3	84.5
	35+ years	15.8	21.8	13.3	16.6	19.7	12.8	6.4	4.2	2.8	4.2	5.5	76.9	2.9	1.0	2.6	4.7	6.2	82.6
Education (p-values: *<0.001; **0.064; ***0.010)	Basic secondary education or less	17.8	18.6	20.1	14.7	17.9	11.0	4.9	2.8	4.1	5.5	6.8	75.9	2.6	0.5	2.3	5.1	7.2	82.3
	Complete general secondary education	13.2	19.0	17.0	14.1	24.0	12.7	2.6	2.1	2.6	4.8	7.6	80.5	0.9	0.8	2.1	3.8	6.6	85.8
	Vocational training	15.0	17.9	14.6	14.1	23.2	15.3	3.1	3.5	3.6	6.4	9.1	74.3	0.6	1.5	2.9	5.0	7.9	82.2

		Alcohol (among persons who used such substances, <i>N</i> =4163)*					Drugs (among persons who used such substances, <i>N</i> =3500)**					Alcohol together with drugs (among persons who consumed such substances, <i>N</i> =3462)***							
		Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never	Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never	Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never
	Basic higher education	9.7	17.0	16.5	18.6	21.6	16.7	3.0	2.0	2.8	5.2	6.9	80.1	1.0	0.6	2.3	2.3	8.2	85.6
	Complete higher education	11.7	13.6	22.4	15.6	21.7	15.1	0.9	2.4	2.0	2.1	7.1	85.5	0.2	0.1	2.2	1.4	4.1	92.0
Employment (p-values: *<0.001; **<0.001; ***<0.001)	No other employment except sex business	12.7	17.4	16.9	14.5	22.8	15.8	3.9	2.1	3.0	4.2	8.3	78.5	1.2	0.9	2.5	3.5	7.4	84.5
	Permanent employment	11.8	14.2	16.7	19.5	20.7	17.1	0.4	2.2	0.7	2.8	6.5	87.4	0.0	0.1	2.1	2.7	3.7	91.3
	Odd jobs	18.1	18.5	18.9	14.2	19.6	10.7	1.8	4.0	4.1	9.0	8.0	73.1	0.7	1.5	3.0	5.2	7.3	82.2
	Pupils/students, unemployed persons, housewives	11.6	20.5	15.2	15.4	26.2	11.2	1.4	3.0	2.8	5.5	6.5	80.8	0.3	0.3	1.3	4.0	7.5	86.6

		Alcohol (among persons who used such substances, N=4163)*						Drugs (among persons who used such substances, N=3500)**						Alcohol together with drugs (among persons who consumed such substances, N=3462)***					
		Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never	Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never	Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never
Housing (p-values: *<0.001; **<0.001; ***<0.001)	Own home	14.2	20.0	13.5	15.5	21.0	15.7	4.6	2.7	2.4	4.6	6.8	79.0	1.6	0.8	1.7	4.1	6.2	85.5
	Housing of relatives/friends (without paying for tenancy)	16.7	19.0	15.3	10.0	23.0	16.1	3.4	5.1	3.0	5.8	9.6	73.1	1.0	1.7	2.7	4.7	10.5	79.5
	Rented housing (paying for tenancy alone or together with another person)	10.7	16.1	20.4	16.2	22.9	13.8	1.7	1.5	3.2	4.5	7.6	81.5	0.3	0.3	2.8	3.2	5.7	87.7
	Other option	19.6	15.0	14.9	19.1	25.9	5.5	1.3	3.0	4.7	10.9	9.7	70.3	1.6	2.7	2.1	4.5	11.5	77.7
Monthly personal income (p-values: *<0.001; **<0.001; ***<0.001)	Up to 5000 UAH.	12.0	20.1	16.5	16.7	21.6	13.1	3.3	3.7	2.2	4.3	5.9	80.5	0.9	0.7	2.0	3.6	6.0	86.8
	5001–10 000 UAH.	9.5	14.0	17.1	14.8	27.8	16.7	1.8	1.0	2.0	3.8	8.7	82.8	0.8	0.9	1.3	2.5	5.9	88.6
	More than 10 000 UAH.	17.9	18.7	18.5	13.4	18.2	13.3	3.9	3.3	5.7	8.3	9.0	69.8	1.2	1.2	4.8	5.4	10.3	77.0

		Alcohol (among persons who used such substances, N=4163)*						Drugs (among persons who used such substances, N=3500)**						Alcohol together with drugs (among persons who consumed such substances, N=3462)***					
		Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never	Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never	Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never
Family status (p-values: *0.022; **0.984; ***0.558)	Live together with their husband/regular sexual partner	11.8	17.8	16.7	15.7	23.3	14.6	3.1	2.6	2.2	5.7	7.6	78.7	1.3	0.8	1.9	4.5	7.6	83.9
	Don't live together with a regular partner	14.2	17.7	17.1	14.7	22.1	14.2	2.8	2.5	3.4	4.9	7.9	78.5	0.8	0.9	2.6	3.5	6.8	85.4
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: *0.034; **0.009; ***0.051)	There are no such persons	14.6	19.1	16.7	14.9	22.0	12.6	2.2	2.8	2.3	5.9	8.3	78.5	0.7	1.3	1.4	3.6	8.1	85.0
	There are such persons	12.6	16.7	17.2	15.1	22.9	15.6	3.4	2.4	3.6	4.6	7.4	78.6	1.1	0.5	3.2	4.0	6.3	84.9

		Alcohol (among persons who used such substances, <i>N</i> =4163)*						Drugs (among persons who used such substances, <i>N</i> =3500)**						Alcohol together with drugs (among persons who consumed such substances, <i>N</i> =3462)***					
		Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never	Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never	Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never
Location type (p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.001$ )	Street, route, highway	19.4	21.3	18.6	13.5	15.8	11.3	4.9	3.3	4.0	6.5	7.5	73.8	1.8	1.7	3.1	5.4	7.7	80.4
	Apartments	7.9	10.5	13.9	13.8	28.9	25.1	0.5	1.2	1.9	3.4	5.1	87.8	0.1	0.2	0.7	2.5	3.4	93.1
	Hotel/motel	5.8	11.6	14.6	12.7	27.6	27.6	1.3	0.0	0.5	2.5	8.7	87.1	0.6	0.0	0.5	2.0	3.1	93.8
	Entertainment venues/events	14.0	26.8	17.7	17.2	16.9	7.4	1.8	2.7	2.4	4.3	8.4	80.3	0.8	0.4	1.2	2.5	7.8	87.3
	Sauna/massage parlour	9.0	15.7	7.2	14.1	35.1	18.9	2.6	2.2	0.6	2.2	9.6	82.8	0.8	0.0	0.2	1.1	9.5	88.3
	Virtual, through intermediaries	10.1	13.5	17.8	17.8	28.6	12.2	1.8	2.7	3.5	4.6	10.0	77.4	0.0	0.4	3.7	3.1	8.8	83.9
	Other option	13.0	30.2	20.9	10.1	15.2	10.6	2.1	1.1	0.0	11.1	7.0	78.7	0.4	0.0	3.7	5.6	4.4	86.0



		Alcohol (among persons who used such substances, <i>N</i> =4163)*						Drugs (among persons who used such substances, <i>N</i> =3500)**						Alcohol together with drugs (among persons who consumed such substances, <i>N</i> =3462)***					
		Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never	Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never	Always (100)	In most cases (75)	In half of the cases(50)	Sometimes (25)	Rarely (less than 10)	Never
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *0.069; **0.425; ***0.192)	Yes	12.8	20.3	18.8	15.9	18.4	13.8	4.2	1.9	4.6	5.1	5.9	78.3	2.6	0.6	3.6	3.7	7.4	82.1
	No	13.5	17.4	16.9	14.9	22.9	14.4	2.8	2.6	2.9	5.1	8.0	78.6	0.8	0.9	2.3	3.7	7.0	85.3
Clients of HIV-servicing NGOs (p-values: *0.532; **<0.001; ***<0.001)	Yes	13.8	18.4	17.0	14.7	21.9	14.2	3.1	3.0	3.4	5.6	7.5	77.5	1.0	1.0	2.7	3.9	7.5	83.9
	No	12.8	16.1	16.9	15.7	24.0	14.5	2.2	1.5	2.1	4.0	8.7	81.5	0.5	0.6	1.6	3.5	6.0	87.7

## 2.8. Prevalence of STIs and other diseases

Regarding various STIs and other diseases, SWs most often reported to have candidiasis (38.1%), less than 5% of the respondents reported other diseases (Fig. 21). The proportion of sex workers who report candidiasis continues to grow. In the last year 4.7% were diagnosed with Hepatitis C. Almost as many sex workers (4.6%) suffered from chlamydia, 3.9% - trichomoniasis, 2.9% - genital herpes. Incidence of Hepatitis C, chlamydia, trichomoniasis and genital herpes decreased compared to 2013. There occur rather isolated cases of tuberculosis, syphilis, gonorrhea and Hepatitis B among sex workers, according to the self-reports.

Significant differences in the disease prevalence are observed between PWID and non-PWID sex workers. Among PWID SWs 45.7% suffered from candidiasis in the last 12 months (Fig. 22). Almost a third (30.2%) reported Hepatitis C, 10.4% - Hepatitis B; such diseases as chlamydia (10.6%), tuberculosis (6.5%), gonorrhea (5.5%) and genital herpes (5.3%) also are more common among this group.

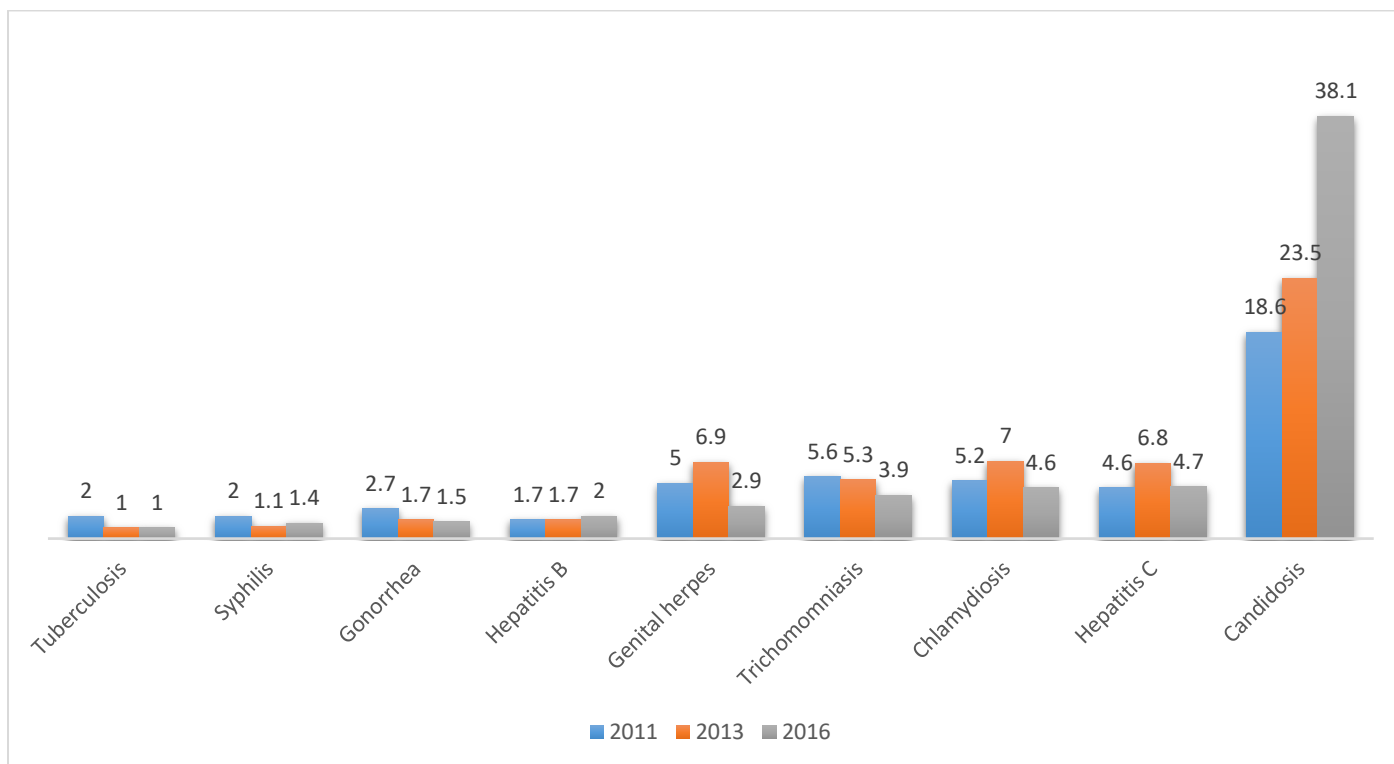
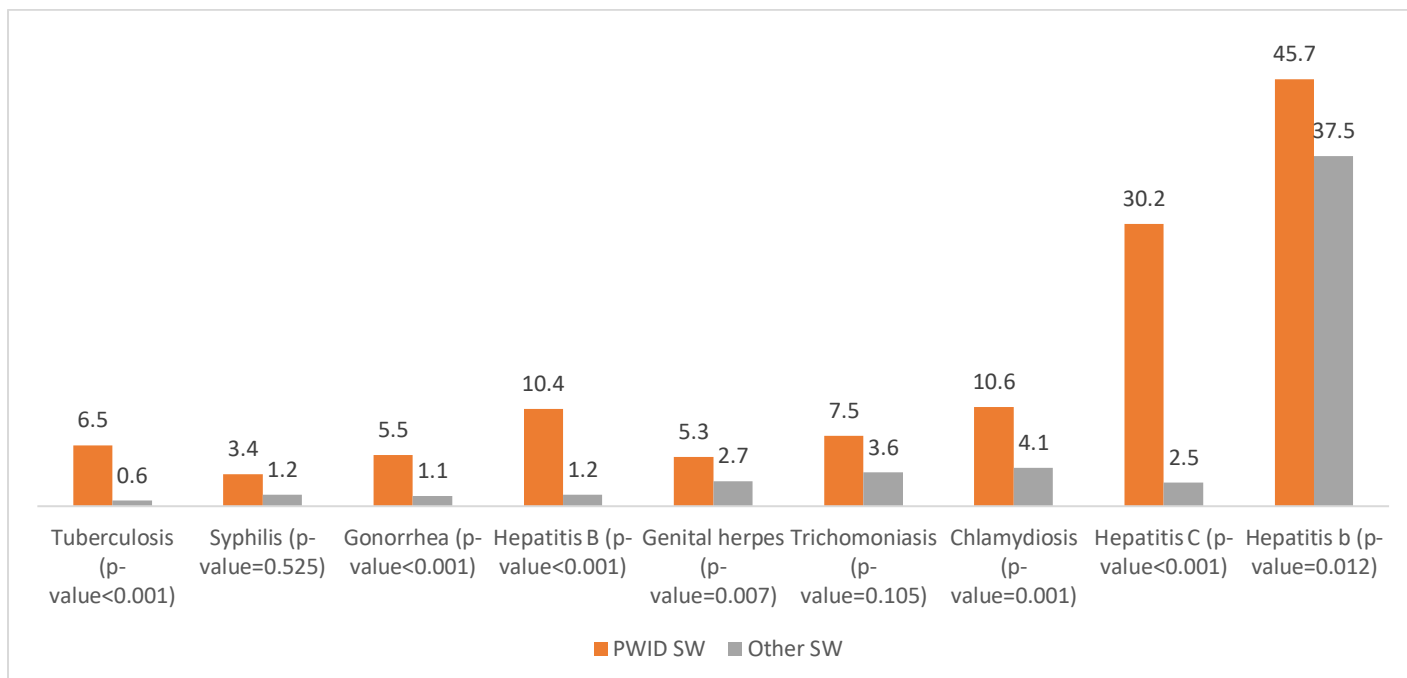


Fig. 21. Proportion of SWs who had Hepatitis B and C, TB and STI for the last year, dynamics of 2011–2015, % (self-reported)



**Fig. 22. Distribution of answers to the question: "Did you have the following diseases in the last 12 months?" among PWID and non-PWID SWs, %**

Overall, 46.6% of SWs reported that they suffered from TB, Hepatitis or STIs the last 12 months (tab. 25). In general, only half (54.5%) among people who have these diseases sought treatment from medical facilities. About 5% of SWs who suffered from TB, Hepatitis or STI applied to NGOs, this is more common to PWID SWs (14.5%).

**Table 25. Prevalence of STI and other diseases among SWs and experience of seeking assistance, %**

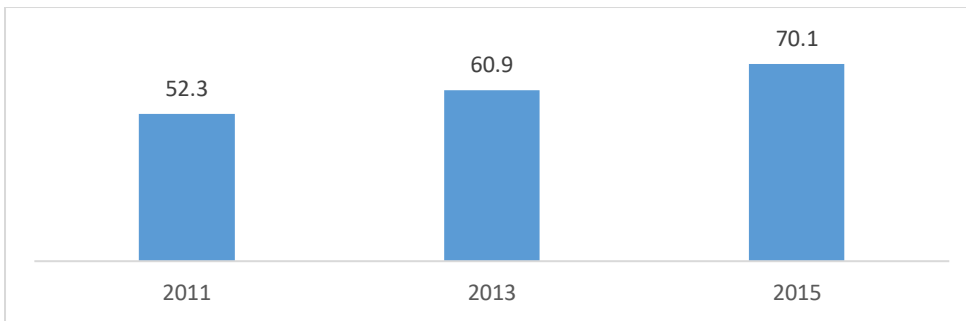
		% of SWs who reported to suffer from TB, Hepatitis or STI during the last 12 months *	% of SWs who said they applied to medical facilities for treatment of TB, Hepatitis or STI (among those who had these diseases) <i>N=1729</i> **	% of SWs who said they applied to NGOs for treatment of TB, Hepatitis or STI (among those who had these diseases) <i>N=1729</i> ***
<b>Among all</b>		46.6	54.5	5.3
Age (p-values: *<0.001; **0.572; ***0.002)	15–19 years	39.6	46.5	0.7
	20–24 years	44.8	58.4	3.8
	25–34 years	46.4	51.9	4.6
	35+ years	50.5	57.5	9.0
Education (p-values: *<0.001; **0.047; ***0.757)	Basic secondary education or less	54.7	62.0	9.2

		<b>% of SWs who reported to suffer from TB, Hepatitis or STI during the last 12 months *</b>	<b>% of SWs who said they applied to medical facilities for treatment of TB, Hepatitis or STI (among those who had these diseases) N=1729)**</b>	<b>% of SWs who said they applied to NGOs for treatment of TB, Hepatitis or STI (among those who had these diseases) N=1729)***</b>
	Complete general secondary education	48.6	48.4	5.1
	Vocational training	44.0	55.8	3.6
	Basic higher education	43.5	56.5	5.9
	Complete higher education	46.2	58.1	5.7
Employment (p-values: *0.001; **0.007; ***0.795)	No other employment except sex business	48.9	52.2	4.8
	Permanent employment	47.3	69.2	7.1
	Odd jobs	45.8	56.0	6.3
	Pupils/students, unemployed persons, housewives	37.5	52.2	4.5
Housing type (p-values: * $<0.001$ ; **0.739; ***0.116)	Own home	43.8	52.6	7.9
	Housing of relatives/friends (without paying for tenancy)	40.1	50.7	5.2
	Rented housing (paying for tenancy alone or together with another person)	50.2	57.1	3.3
	Other option	52.9	53.0	8.2
Monthly personal income (p-values: * $<0.001$ ; **0.206; ***0.053)	Up to 5000 UAH.	40.8	58.5	7.2
	5001–10 000 UAH.	47.3	49.2	5.7
	More than 10 000 UAH.	54.9	56.7	3.0
Family status (p-values: * $<0.001$ ; **0.208; ***0.478)	Live together with their husband/regular sexual partner	54.7	57.3	6.0

		<b>% of SWs who reported to suffer from TB, Hepatitis or STI during the last 12 months *</b>	<b>% of SWs who said they applied to medical facilities for treatment of TB, Hepatitis or STI (among those who had these diseases) N=1729)**</b>	<b>% of SWs who said they applied to NGOs for treatment of TB, Hepatitis or STI (among those who had these diseases) N=1729)***</b>
	Don't live together with a regular partner	42.5	52.8	4.8
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: *<0.001; **0.519; ***0.994)	There are no such persons	40.0	52.1	6.0
	There are such persons	51.4	55.9	4.8
Location type (p-values: *<0.001; **0.043; ***0.005)	Street, route, highway	49.7	55.7	6.4
	Apartments	39.4	53.6	0.9
	Hotel/motel	42.5	63.7	4.7
	Entertainment venues/events	39.6	47.3	9.0
	Sauna/massage parlour	29.9	56.3	6.3
	Virtual, through intermediaries	52.6	53.1	4.9
	Other option	54.9	80.3	5.2
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *0.006; **0.547; ***0.526)	Yes	51.9	53.8	5.3
	No	46.2	54.5	5.3
Clients of HIV-servicing NGOs (p-values: *<0.001; **0.422; ***<0.001)	Yes	51.2	54.8	6.7
	No	35.8	53.7	0.5
Injecting drug use over the past 30 days (p-values: *<0.001; **0.106; ***<0.001)	Yes	69.1	60.0	14.5
	No	44.7	53.8	4.1

## 2.9. Coverage with harm reduction programs

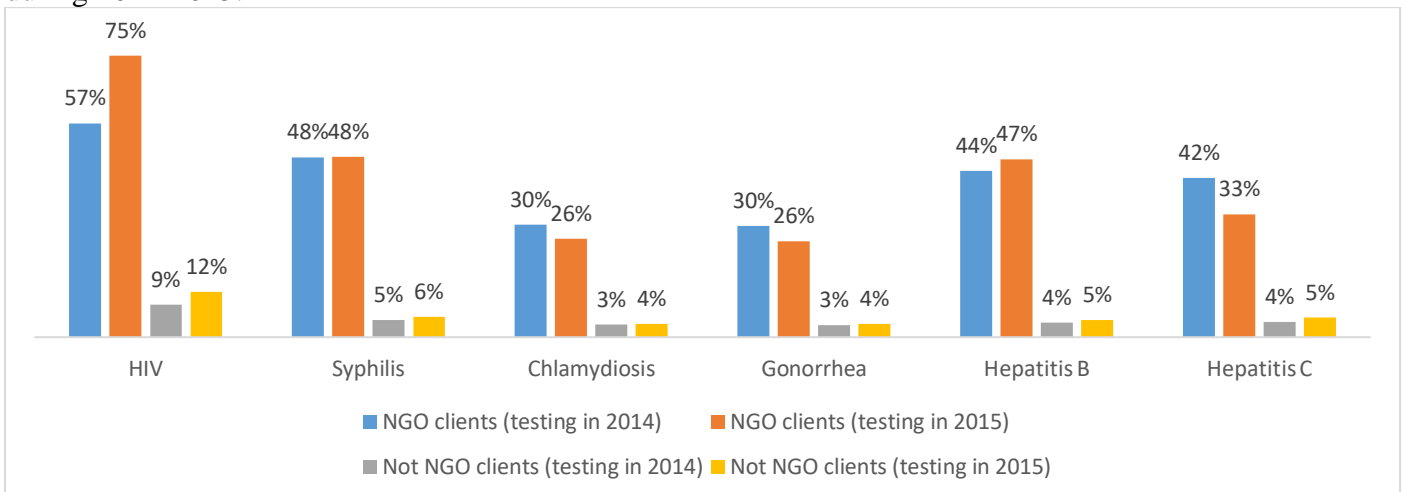
Most sex workers (70.1%) are clients of HIV-servicing NGOs working with this target group (Fig. 24). Relative share of NGO clients among sex workers is growing steadily.



**Fig. 23. Percentage of SWs who are clients of civil society organizations in 2008–2015, %**

Less than half of respondents (42.8%) among adolescent sex workers had an NGO client card, while among the sex workers aged 35 and older there were 81.4% of NGO clients (tab. 26). Larger proportions are observed among sex workers engaged only in sex business (77.5%); high income SWs (80.5%) and those living with husband/permanent sexual partner (73.6%). Depending on the location type, the lowest coverage with HIV-servicing NGOs services (as clients) is observed among sex workers working in apartments (58.9%), saunas (60.3%) and entertainment establishments (61.7%).

Almost all NGO clients (97.2%) during the last six months received male condoms from an NGO representative, about a third (34.6%) – received femidoms. More than half of the NGO clients (56.9%) were tested for HIV using rapid tests on the basis of NGOs in 2014, in 2015 - already three-quarters of respondents (74.9%) were tested (Fig. 25). The availability of other rapid tests is lower. About half of the customers NGO had done rapid tests for syphilis and Hepatitis B in the 2014-2015, for Hepatitis C - 42% in 2014 and 33% - in 2015. Less than a third of respondents took rapid tests for gonorrhea and chlamydia during 2014-2015.



**Fig. 24. Proportion of SWs tested for HIV and STI by rapid tests in the NGOs during 2014–2015, among clients and non-clients of NGOs, %**

**Table 26. The coverage of SWs by services of NGOs %**

		<b>% of SWs who are clients of NGOs providing preventive services to persons who provide sex services for a fee</b>	<b>% of SWs who over the last 6 months received male condoms from a NGO representative (among NGO clients)</b>	<b>% of SWs who over the last 6 months received female condoms from a NGO representative (among NGO clients)</b>
<b>Among all</b>		70.1	97.2	34.6
Age (p-values: * $<0.001$ ; **0.216; *** $<0.001$ )	15–19 years	42.8	100.0	50.2
	20–24 years	67.0	98.1	35.9
	25–34 years	69.3	97.2	30.8
	35+ years	81.4	96.0	39.0
Education (p-values: *0.001; **0.444; *** $<0.001$ )	Basic secondary education or less	72.2	99.3	32.9
	Complete general secondary education	72.8	96.9	34.3
	Vocational training	67.2	96.1	31.8
	Basic higher education	66.8	97.9	36.5
	Complete higher education	74.8	98.3	42.2
Employment (p-values: * $<0.001$ ; ** $<0.064$ ; ***0.035)	No other employment except sex business	77.5	97.5	34.5
	Permanent employment	63.5	96.7	39.9
	Odd jobs	62.9	96.9	28.3
	Pupils/students, unemployed persons, housewives	53.8	96.3	40.2
Housing type (p-values: * $<0.001$ ; **0.109; ***0.288)	Own home	68.0	95.5	32.7
	Housing of relatives/friends (without paying for tenancy)	60.2	96.6	37.0
	Rented housing (paying for tenancy alone or together with another person)	77.2	98.2	35.7
	Other option	59.3	99.6	26.1
Monthly personal income (p-values: * $<0.001$ ; **0.480; ***0.006)	Up to 5000 UAH.	59.9	97.6	37.2
	5001–10 000 UAH.	73.1	96.4	32.1
	More than 10 000 UAH.	80.5	97.5	36.4
Family status (p-values: * $<0.001$ ; **0.182; ***0.607)	Live together with their husband/regular sexual partner	73.6	97.6	38.5
	Don't live together with a regular partner	68.4	97.0	32.5



		<b>% of SWs who are clients of NGOs providing preventive services to persons who provide sex services for a fee</b>	<b>% of SWs who over the last 6 months received male condoms from a NGO representative (among NGO clients)</b>	<b>% of SWs who over the last 6 months received female condoms from a NGO representative (among NGO clients)</b>
Presence of persons whom the SWs support at the expense of their earnings in sex business (p-values: * $<0.001$ ; ** $0.033$ ; *** $0.778$ )	There are no such persons	61.8	97.6	30.9
	There are such persons	76.3	97.0	36.8
Type of location (p-values: * $<0.001$ ; ** $0.017$ ; *** $<0.001$ )	Street, route, highway	82.7	96.9	18.4
	Apartments	58.9	98.2	40.9
	Hotel/motel	77.2	94.8	22.2
	Entertainment venues/events	61.7	97.8	33.3
	Sauna/massage parlor	60.3	99.0	24.6
	Virtual, through intermediaries	65.5	97.0	61.1
	Other option	72.2	96.8	38.2
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: * $0.617$ ; ** $0.165$ ; *** $0.002$ )	Yes	74.3	96.4	42.3
	No	69.8	97.3	34.0
Injecting drug use over the past 30 days (p-values: * $<0.001$ ; ** $0.344$ ; *** $<0.001$ )	Yes	87.1	96.2	38.3
	No	68.7	97.3	34.2

## 2.10. Availability of HIV testing

Almost all SWs (94.6%) know where to go to get tested for HIV (Table 27). 85.9% among the scope of the respondents were tested for HIV in the course of their lifetime. More than half (55.9%) did it over the last 12 months and got their results. Comparing with the previous study, the share of persons who had the experience of testing for HIV infection throughout their life has not actually changed (85% in 2013), however, the share of sex workers who passed the test last year and got their results decreases (63.1% in 2013).

**Table 27. Knowledge of the places where they can get tested for HIV, and having the experience of passing such a test, %**

		<b>% of SWs who know where to go to get tested for HIV *</b>	<b>% of SWs who were tested for HIV in the course of their lifetime **</b>	<b>% of SWs who were tested for HIV the last 12 months and got their results ***</b>
<b>Among all</b>		94.6	85.9	55.9
Age (p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.001$ )	15–19 years	82.1	58.7	20.6
	20–24 years	93.8	81.7	53.5
	25–34 years	95.9	87.7	62.4
	35+ years	95.1	92.1	58.2
Education (p-values: *0.001; **0.011; ***0.148)	Basic secondary education or less	92.9	88.2	59.9
	Complete general secondary education	93.6	85.5	55.6
	Vocational training	95.3	83.5	55.4
	Basic higher education	94.5	88.2	53.0
	Complete higher education	97.3	88.7	59.8
Employment (p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.001$ )	No other employment except sex business	95.5	87.7	64.0
	Permanent employment	95.4	91.4	49.9
	Odd jobs	94.1	82.5	48.1
	Pupils/students, unemployed persons, housewives	91.0	79.2	51.1
Housing type (p-values: *0.004; ** $<0.001$ ; *** $<0.001$ )	Own home	95.0	85.9	55.6
	Housing of relatives/friends (without paying for tenancy)	95.8	80.9	52.7
	Rented housing (paying for tenancy alone or together with another person)	94.3	88.9	62.7
	Other option	91.6	78.6	42.6
Monthly personal income (p-values: *0.558; ** $<0.001$ ; *** $<0.001$ )	Up to 5000 UAH.	94.1	81.5	50.5
	5001–10 000 UAH.	93.8	86.4	59.3
	More than 10 000 UAH.	96.4	91.3	63.0
Family status (p-values: *0.066; ** $<0.001$ ; ***0.007)	Live together with their husband/regular sexual partner	95.7	90.6	58.2
	Don't live together with a regular partner	94.1	83.5	54.9
There are persons whom the SWs support at the expense of their earnings in sex business (p-values: *0.067; ** $<0.001$ ; *** $<0.001$ )	There are no such persons	94.1	80.5	52.2
	There are such persons	95.0	89.9	60.5
Type of location(p-values: *0.197; ** $<0.001$ ; *** $<0.001$ )	Street, route, highway	95.7	91.0	68.5
	Apartments	95.2	82.7	49.1
	Hotel/motel	95.8	84.5	54.2

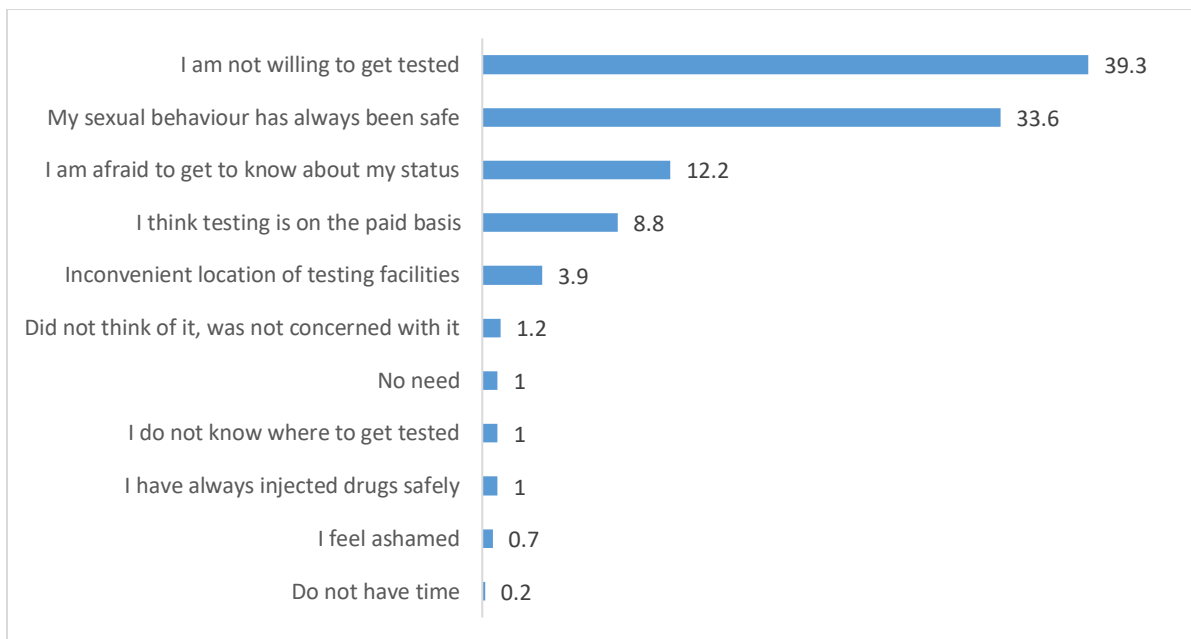
		<b>% of SWs who know where to go to get tested for HIV *</b>	<b>% of SWs who were tested for HIV in the course of their lifetime **</b>	<b>% of SWs who were tested for HIV the last 12 months and got their results ***</b>
	Entertainment venues/events	93.7	76.5	52.2
	Sauna/massage parlour	96.6	83.3	67.6
	Virtual, through intermediaries	92.7	85.5	49.1
	Other option	95.6	88.7	73.2
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: *0.005; **0.412; ***0.325)	Yes	91.2	86.9	71.4
	No	94.9	85.7	54.3
Clients of HIV service NGOs (p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.001$ )	Yes	97.4	95.2	77.7
	No	88.0	64.0	33.6
Injecting drug use over the past 30 days (p-values: *0.008; ** $<0.001$ ; *** $<0.001$ )	Yes	97.2	93.8	69.0
	No	94.4	85.2	54.3

Among the teenage SWs there was the highest share of persons who did not know where to go to get tested for HIV infection (17.9%). Among this age group, only every fifth (20.6%) did the HIV test last year and got the result. 12% of SWs among persons not being the clients of HIV service NGOs didn't know where it can be done. Among clients of HIV service NGOs, more than three quarters of respondents (77.7%) were tested for HIV last year and got their result, however, among people not being clients of NGOs there was only a third (33.6%) of such people.

There are differences in testing by type of employment and income: a smaller number of HIV testing in the last 12 months is found among sex workers who have other jobs besides sex work, and the SWs with a monthly income up to 5000 UAH.

The “street” SWs and those who work in saunas or massage parlours are best covered by HIV testing. However, less than half of respondents (49.1%) among sex workers who work in apartments and through intermediaries had done HIV test and received results.

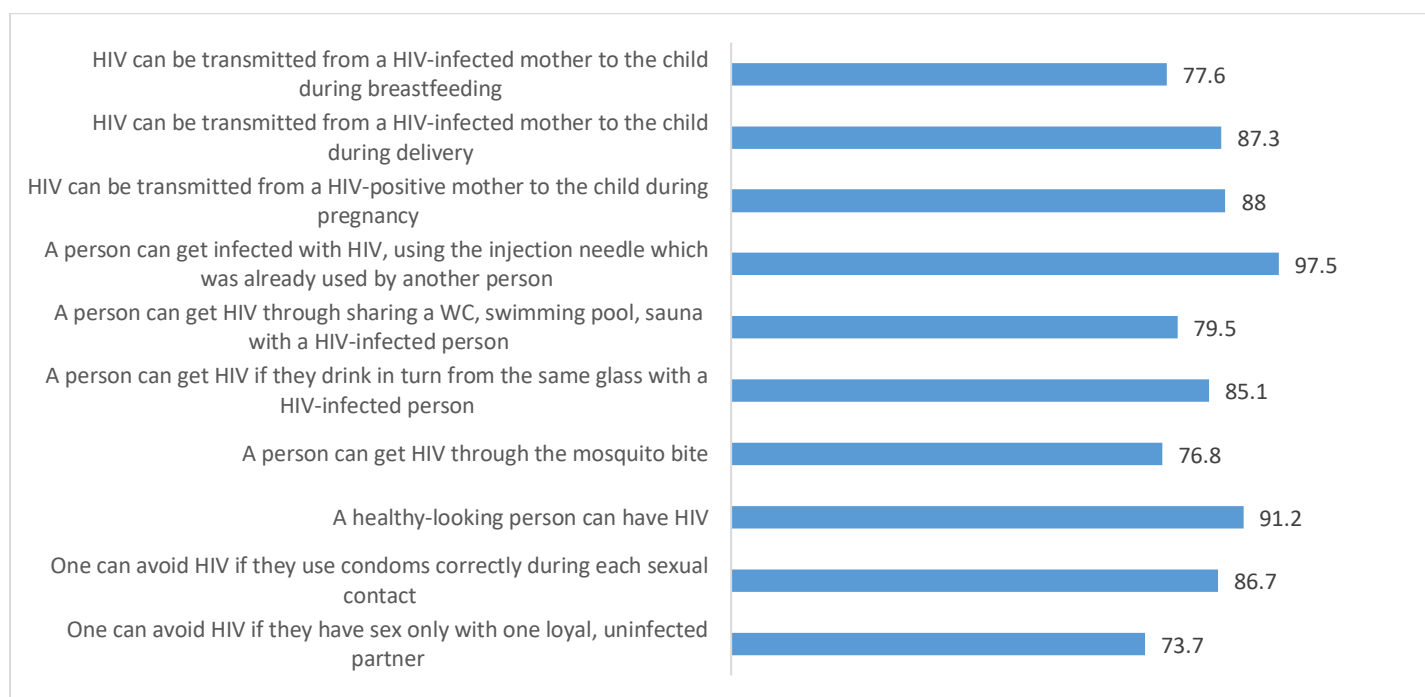
The main reasons why SWs do not get tested for HIV is the unwillingness to do it (39.2% among those who never got tested) and the confidence in the safety of their own sexual behavior (33.6%) (Fig. 25). Over one tenth of SWs (12.2%) do not get tested for HIV because they are afraid to know their status.



**Fig. 25. Distribution of answers to the question: “Why didn't you get tested for HIV?”, % (among those who never got tested, N=769)**

### 2.11. Knowledge of HIV transmission ways

In general, SWs have a high level of knowledge about transmission and prevention of HIV. Almost all respondents have correctly answered that HIV can be transmitted using a needle for injection which has been used by another person (97.5%), and that a healthy-looking person can have HIV (91.2%) (Fig. 26). More than three quarters (86.7%) have correctly identified sexual transmission of HIV, agreeing with the statement that infection can be avoided by using a condom properly during each sexual contact.

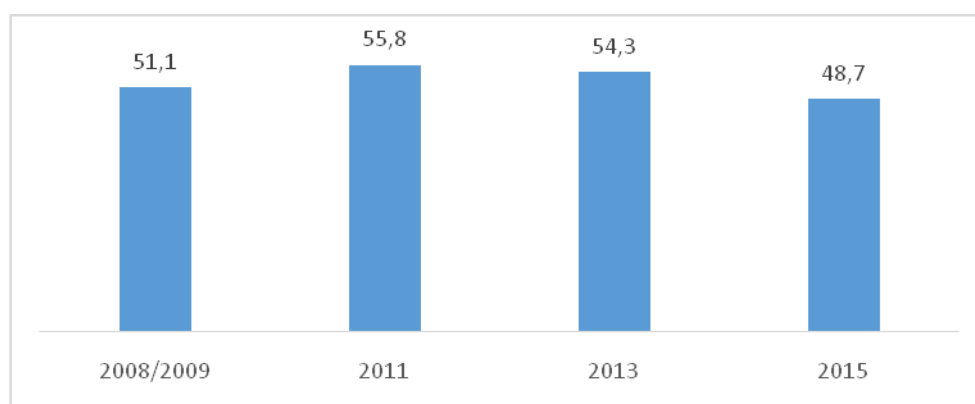


**Fig.26. The percentage of sex workers who gave correct answers regarding statements about the transmission and prevention of HIV infection, %**

However, less than half of respondents (48.7%) have been able to give correct answers to all five questions which determine main ways of prevention and myths about HIV infection transmission (Fig.27):

- 1) *Can you avoid HIV infection if you have sex only with one faithful uninfected partner?*
- 2) *Can you avoid HIV by using a condom properly during each sexual contact?*

- 3) Can a healthy-looking person have HIV?  
 4) Is it possible to get HIV infection through a mosquito bite?  
 5) Can a person get HIV by drinking in turns from one cup with an HIV-infected person?  
 Comparing with previous studies, the rate of knowledge about HIV in 2015 is somewhat lower.



**Fig. 27. The percentage of sex workers who correctly identify the ways of preventing sexual transmission of HIV and the ways it is not transmitted: the dynamics during 2008-2015.**

The knowledge about HIV improves with age and education and is higher among groups of SWs with high incomes (Table 28). According to the location type the smallest share of individuals with correct knowledge about HIV has been found among sex workers who work in virtual locations or through intermediaries (43.4%).

**Table 28. The percentage of SWs having a correct knowledge about the ways of transmission and prevention of HIV infection (based on 5 questions of the indicator)**

<b>Among all</b>		<b>48.7</b>
Age (p-value<0.001)	15–19 years	36.6
	20–24 years	43.9
	25–34 years	52.9
	35+ years	47.1
Education (p-value<0.001)	Basic secondary education or less	33.7
	Complete general secondary education	47.3
	Vocational training	54.2
	Basic higher education	50.7
	Complete higher education	47.9
Employment (p-value<0.001)	No other employment except sex business	45.8
	Permanent employment	43.3
	Odd jobs	58.7
	Pupils/students, unemployed persons, housewives	51.4
Housing type (p-value<0.001)	Own home	53.0
	Housing of relatives/friends (without paying for tenancy)	60.7
	Rented housing (paying for tenancy alone or together with another person)	41.8
	Other option	42.3

Monthly personal income (p-value=0.991)	Up to 5000 UAH.	47.2
	5 001–10 000 UAH	45.3
	More than 10 000 UAH.	52.9
Family status(p-value<0.001)	Live together with their husband/regular sexual partner	42.5
	Don't live together with a regular partner	51.8
There are persons whom the SWs support at the expense of their earnings in sex business (p-value<0.001)	There are no such persons	56.1
	There are such persons	43.2
Type of location (p-value<0.001)	Street, route, highway	49.7
	Apartments	50.0
	Hotel/motel	50.7
	Entertainment venues/events	55.7
	Sauna/massage parlour	56.7
	Virtual, through intermediaries	43.4
	Other option	33.3
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-value<0.001)	Yes	42.6
	No	49.3
Clients of HIV service NGOs (p-value=0.101)	Yes	48.8
	No	48.7
Injecting drug use over the past 30 days (p-value=0.057)	Yes	57.3
	No	48.0

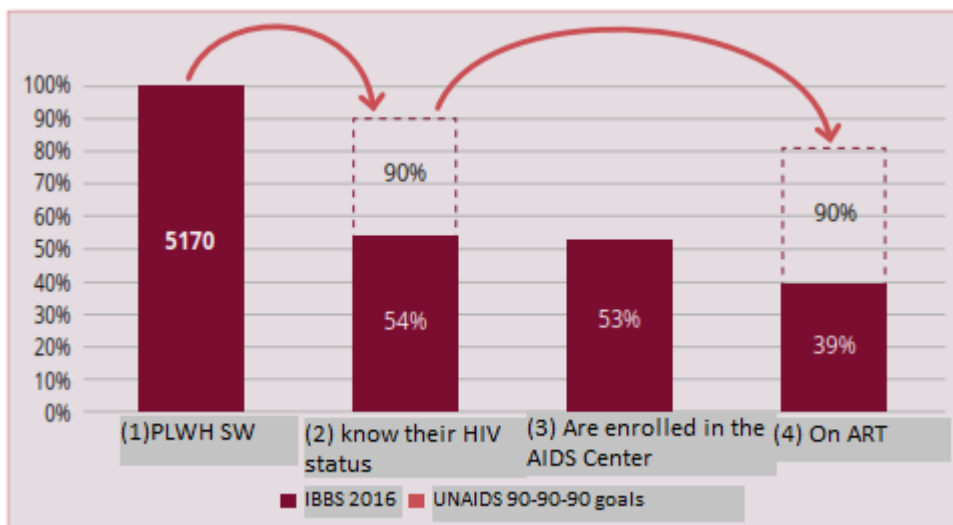
## 2.12 Knowing their HIV status and the access to treatment programs for SWs- PLWH

In 2014, the UNAIDS strategy for speeding up actions in response to HIV/AIDS (Fast Track) offered new target indicators for progress in ending the global pandemic of HIV after 2015: “90-90-90”.

It is possible to reduce significantly the likelihood of HIV transmission and the further spread of the epidemic by 2020 if three ambitious goals are achieved: 90% of all PLWH know their status; 90% of PLWH who know their status, receive ART; 90% of PLWH receiving ART have an undetectable viral load. The results of the bio-behavioral study allow evaluating the first two indicators.

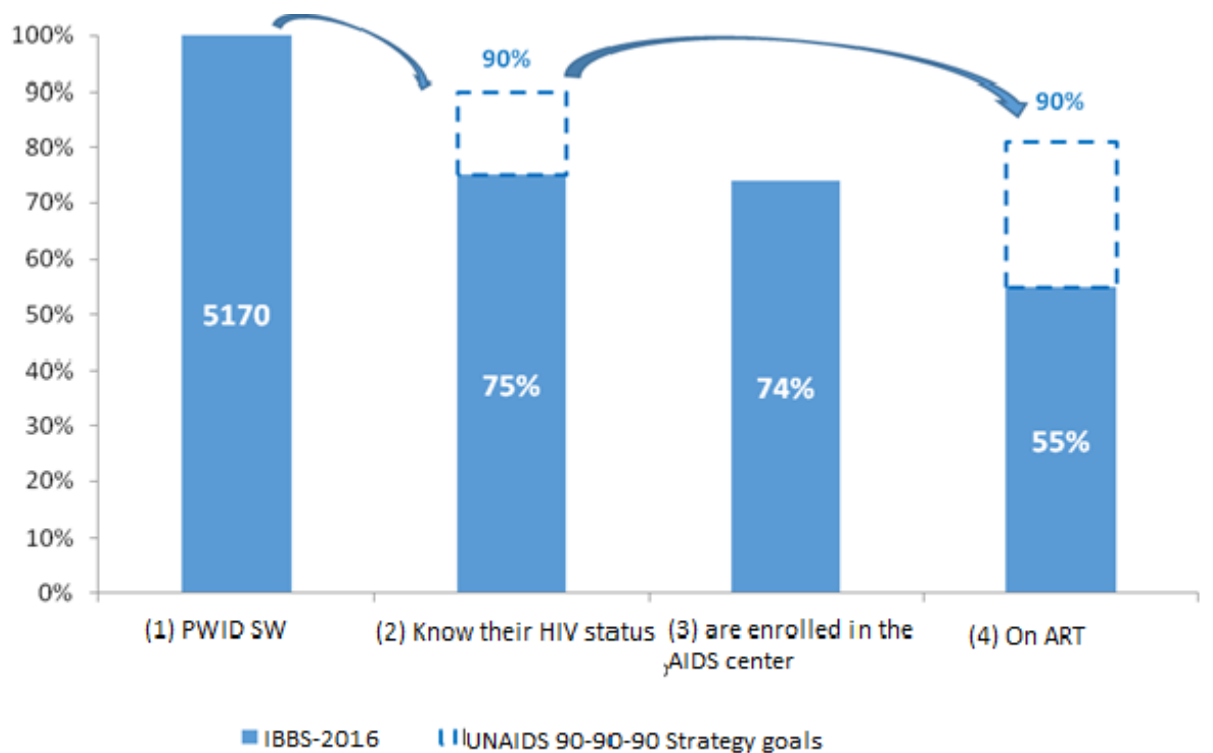
From the overall number of sex workers who received a positive HIV test result during testing with rapid tests in the study, 54% knew their HIV status, 53% reported that were enrolled for supervision at the AIDS center, and 39% said they were already receiving ART (Fig. 28).

This method of cascade construction contains an error due to the fact that the information is self-reported by the respondent and cannot be verified in any way. The questions regarding HIV status are quite sensitive even under the conditions ensuring complete confidentiality: 10% of SWs refused to report their HIV status and to answer further questions. Among the sex workers who received the HIV-positive result of the rapid test this figure is 29%. Cascade indicators are calculated only among the share of SWs with HIV-positive test result who have agreed to answer the questions about the HIV status: 75% already knew about their HIV status, 74% reported that they were enrolled for supervision at the AIDS center, 55% said that they were taking ART (Fig.28).



**Fig. 28 Treatment cascade of HIV infection among the SWs who have received the HIV positive result of the rapid test within the scope of the study (n=270), %**





**Fig. 29. Treatment cascade of HIV infection among the SWs who have received the HIV positive result of the rapid test within the scope of the study and agreed to answer the question about the HIV status (n=204), %**

- (1) “SWs who are living with HIV”: the estimated number in 2014 (73 850 SWs) multiplied by the HIV prevalence among SWs (7.0 %).
- (2) Know their HIV status”: the percentage of SWs who reported about their HIV positive status during the interview.
- (3) “Are registered with the AIDS center”: the percentage of sex workers who reported that they were registered with the dispensary at the AIDS center, during the interview.
- (4) “Taking ART”: the percentage of sex workers who reported during the interview that they were taking ART.

### 2.13. Prevalence of HIV, Hepatitis B, Hepatitis C and syphilis

**HIV prevalence.** Among the respondents who have reported about their HIV status, 96.3% (130 of 135 persons) confirmed a positive result in course of the study (Table 29). 1.5% of respondents (43 persons), who according to the results of previous tests reported the negative HIV status, received a positive result after testing in course of the study. Overall, the proportion of individuals who first learned about the positive test result for HIV is 3.3% of all the respondents and the tested SWs, that is, they previously received a negative HIV test result or had no experience of testing for HIV infection.

0.1% of the total number of the respondents (5 people, or 3.7% of SWs among those who have reported their HIV-positive status) obtained a negative result in the study. The reason for such discrepancies may be a limited sensitivity and specificity of tests that never ensure 100% accuracy. A certain share of SWs could have also incorrectly considered themselves HIV positive due to the low awareness about the infection or misunderstanding of the post-test counseling.

**Table 29. Self-reported HIV status and the HIV status confirmed by the results of the related study, % and absolute numbers**

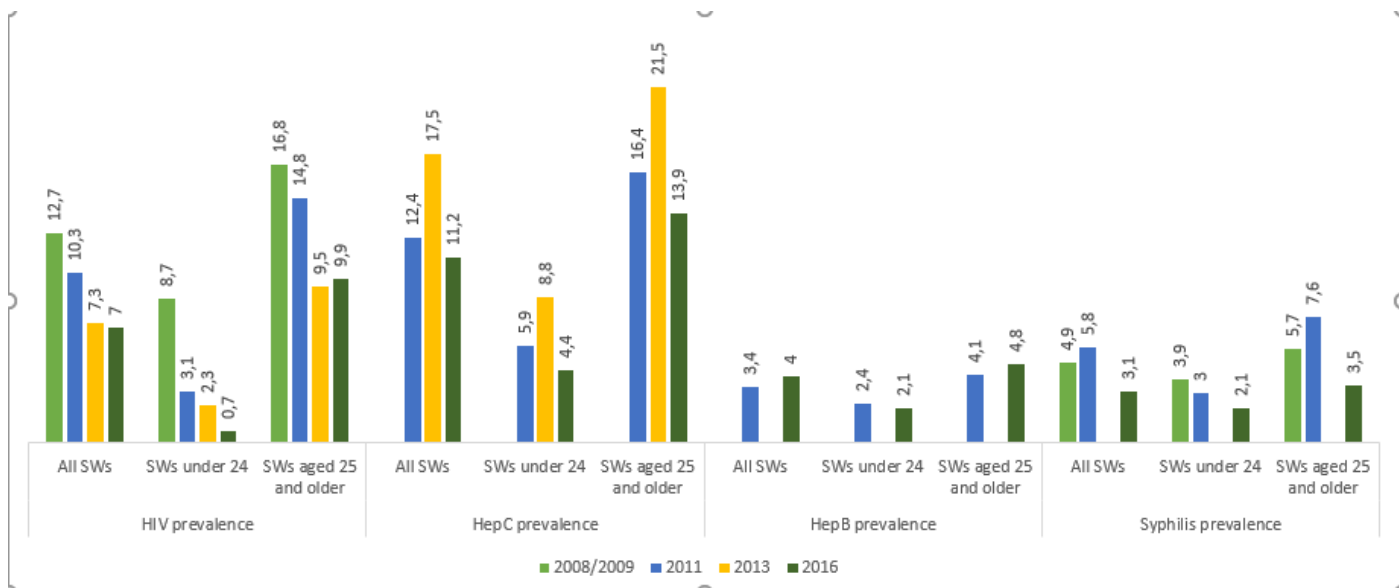
HIV status according to the test results within the scope of the study	HIV status (self-reported)		
	Positive	Negative	Did not answer the question about HIV status
Positive	96.3% (N=130)	1.5% (N=43)	7.7% (N=97)
Negative	3.7% (N=5)	98.5% (N=2867)	92.3% (N=1158)

According to the study, 7% of respondents received a positive HIV test result (Table 30). The prevalence of HIV infection increases with age. In the group of teenage SWs 0.1% of persons received a positive test result for HIV. Among SWs aged 35 and older the share of people living with HIV has increased to 16.6%. A high share of HIV positive SWs according to the test results is observed among persons with basic secondary or lower level education (11.3%) and the SWs having low income (10.2%). Among those working on the street, 11.8% of respondents received a positive test result which is the highest level of HIV prevalence, when compared with other working locations. The lowest level is found among the SWs who work in hotels (2.3%). In the group of SWs who used injecting drugs during the past 30 days, the share of HIV-infected people is almost one third (30.3%), which is seven times higher than in the group without such experience.

**Table 30. Prevalence of HIV, Hepatitis B, Hepatitis C and syphilis among SWs according to the test results within the framework of the research, %**

		HIV*	Hepatitis B**	Hepatitis C***	Syphilis ****
<b>Among all</b>		7.0	4.0	11.2	3.1
Age (p-values: * $<0.001$ ; ** $0.001$ ; *** $<0.001$ ; **** $<0.001$ )	15–19 years	0.1	1.2	1.1	0.5
	20–24 years	0.9	2.3	5.0	2.5
	25–34 years	6.9	4.4	11.3	2.6
	35+ years	16.6	5.8	20.0	5.5
Education (p-values: * $0.007$ ; ** $0.031$ ; *** $0.001$ ; **** $<0.001$ )	Basic secondary education or less	11.3	3.9	16.3	4.3
	Complete general secondary education	5.4	5.7	10.1	4.2
	Vocational training	8.7	3.9	13.0	2.4
	Basic higher education	3.7	3.3	9.4	2.1
	Complete higher education	5.5	0.9	7.2	2.6
Employment (p-values: * $0.056$ ; ** $0.631$ ; *** $0.026$ ; **** $0.022$ )	No other employment except sex business	7.5	4.1	12.0	2.9
	Permanent employment	6.2	3.3	6.1	4.1
	Odd jobs	4.9	4.8	11.2	4.0
	Pupils/students, unemployed persons, housewives	8.8	3.2	11.5	2.1
Housing type (p-values: * $<0.001$ ; ** $0.997$ ; *** $<0.001$ ; **** $0.510$ )	Own home	11.2	4.4	15.7	3.9
	Housing of relatives/friends (without paying for tenancy)	6.3	4.1	11.9	2.4
	Rented housing (paying for tenancy alone or together with another person)	3.1	3.7	8.4	2.7
	Other option	3.7	4.6	7.6	4.3

		<b>HIV*</b>	<b>Hepatitis B**</b>	<b>Hepatitis C***</b>	<b>Syphilis ****</b>
Monthly personal income (p-values: * $<0.001$ ; ** $0.022$ ; *** $0.002$ ; **** $0.034$ )	Up to 5000 UAH.	10.2	4.2	14.5	4.0
	5001–10 000 UAH.	4.3	2.7	11.3	3.3
	More than 10 000 UAH.	2.5	5.1	6.6	1.7
Family status(p-values: * $0.069$ ; ** $0.071$ ; *** $0.624$ ; **** $0.522$ )	Live together with their husband/regular sexual partner	10.3	5.3	12.2	3.7
	Don't live together with a regular partner	5.6	3.4	10.7	2.8
There are persons whom the SWs support at the expense of their earnings in sex business (p-values: * $0.010$ ; ** $0.278$ ; *** $0.108$ ; **** $0.623$ )	There are no such persons	5.5	3.6	11.3	3.0
	There are such persons	8.9	4.4	11.1	3.2
Type of location(p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.001$ ; **** $<0.001$ )	Street, route, highway	11.8	6.4	15.7	5.1
	Apartments	6.6	2.7	12.1	1.0
	Hotel/motel	2.3	2.7	5.9	1.1
	Entertainment venues/events	4.7	2.4	9.8	2.9
	Sauna/massage parlor	4.2	2.3	6.3	0.6
	Virtual, through intermediaries	6.3	1.9	6.1	1.9
Experience of migration outside the survey city for the purpose of providing sex services (in the last month) (p-values: * $0.112$ ; ** $0.964$ ; *** $0.193$ ; **** $0.538$ )	Yes	6.3	3.2	9.0	4.3
	No	7.1	4.0	11.3	3.0
Clients of HIV service NGOs (p-values: * $<0.001$ ; ** $0.602$ ; *** $<0.001$ ; **** $0.057$ )	Yes	11.3	4.3	11.9	3.5
	No	2.6	3.3	9.7	2.1
Injecting drug use over the past 30 days (p-values: * $<0.001$ ; ** $<0.001$ ; *** $<0.001$ ; **** $<0.001$ )	Yes	30.3	9.9	49.8	7.6
	No	4.2	3.5	8.0	2.7

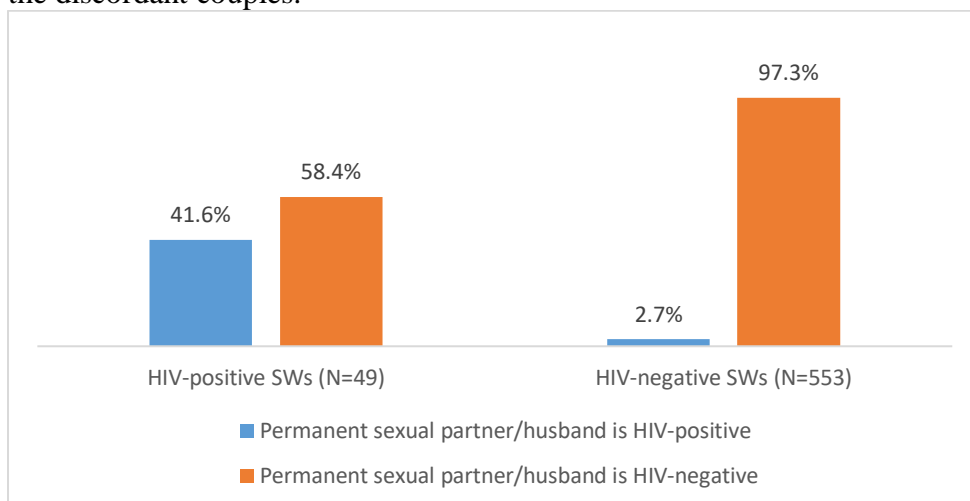


\*Testing for HIV markers has been conducted in all waves of the study; testing for markers of Hepatitis C - in the studies during 2011, 2013 and 2015, testing for markers of Hepatitis B – in the studies during 2011 and 2015; for syphilis - in the studies during 2008/2009, 2011 and 2015

**Fig.30. Prevalence dynamics of HIV, Hepatitis B, Hepatitis C and syphilis among SWs during 2008–2015, %**

The overall HIV prevalence among SWs gradually decreased during the 2008-2013. In the studies of 2013 and 2015, the share of SWs with a positive HIV test result is almost the same (Fig. 31). The HIV prevalence among SWs in the age of 24 during the same period decreases from 2.3% to 0.7%, and among the 25-year-old and older ones does not change significantly (9.5% in 2013 and 9.9% in 2015).

**HIV prevalence among permanent partners of SWs.** From the total number of individuals who have agreed to report the HIV status of their partner, 41.6% SWs-PLWH have reported that he is HIV-positive, and 58.4% that he is HIV-negative (Fig. 32). Among the SWs with a negative HIV test result 2.7% had a permanent partner with a diagnosis of HIV infection. From the total number of respondents 1% belonged to the discordant couples.



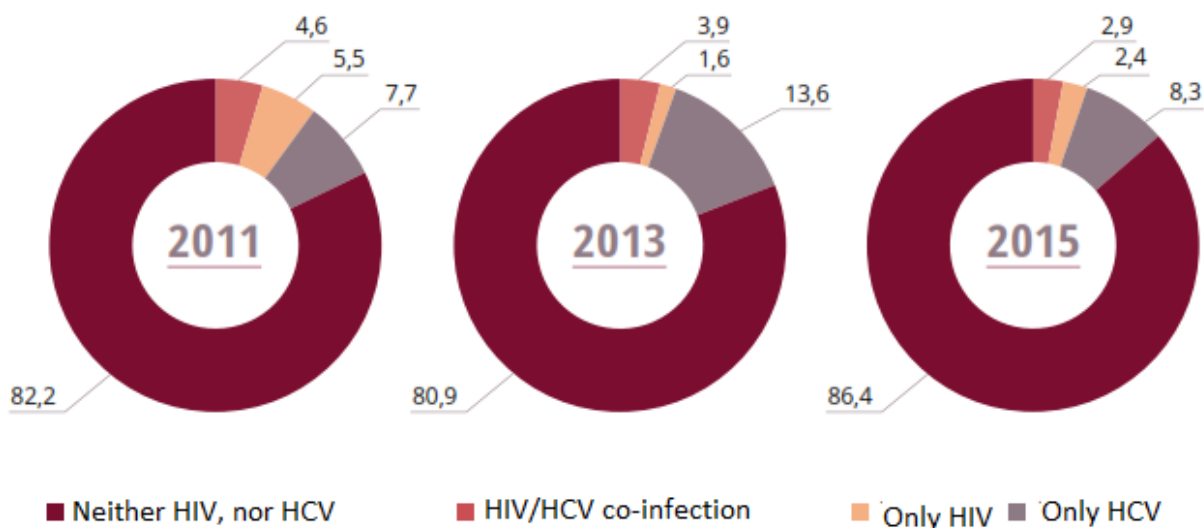
**Fig.31. Distribution of answers to the question: “What is the HIV status of your husband/permanent sexual partner?”, according to the HIV status of SWs, %**

**Hepatitis C prevalence.** 11.2% of the SWs received a positive test result for Hepatitis C. During the interview, only 4.7% have reported that they suffered from Hepatitis C during last 12 months. The principal group of individuals who have Hepatitis C is among PWID-SW double exposure group, and half of them

(49.8%) have obtained positive test result according to the study. But in the group of sex workers who did not inject drugs in the past month, the prevalence of Hepatitis C is 8%. Similar to the trends of HIV and Hepatitis B, the share of persons infected with Hepatitis C increases with age. If among teenage SWs 1.1% have got a positive test result, in the group 20-24-year-old ones the prevalence of Hepatitis has risen to 5%. Among the SWs aged 25-34 already one in ten (11.3%) has Hepatitis C, and in the group of SWs aged 35 and older – one in five (20%). According to the type of location the highest prevalence of Hepatitis C is observed among the “street” SWs (15.7%), which is a consequence of the greater share of people using injecting drugs among this group compared to SWs who work at other locations.

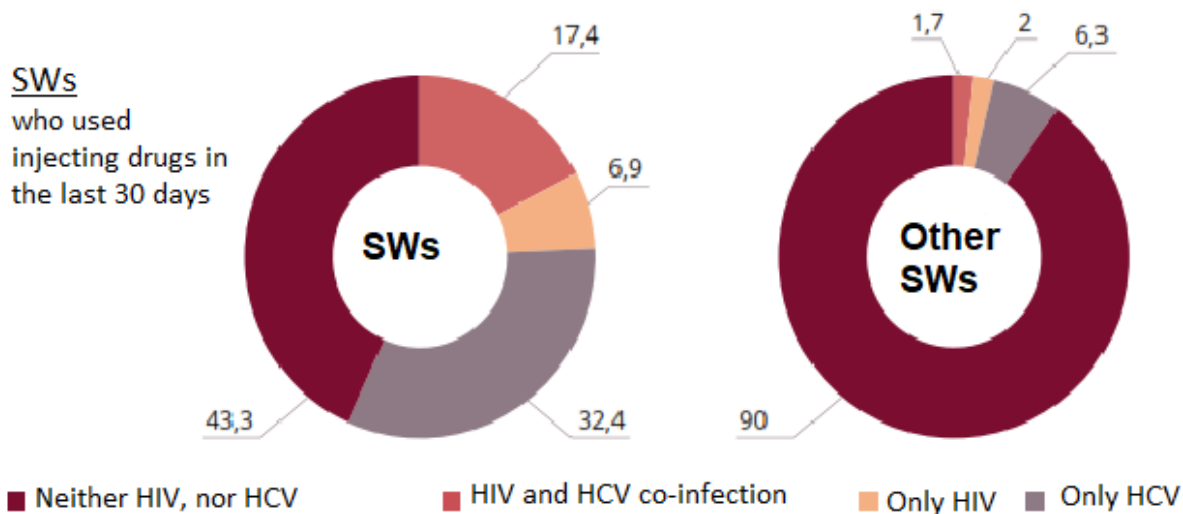
The proportion of SWs with the positive test results for Hepatitis C reduces in comparison with the last wave of the study in 2013. The decrease in prevalence of this disease is observed both among the younger (from 8.8% to 4.4% among people aged up to 24 years) and the older SWs (from 21.5% to 13.9% among people aged 25 and older).

**HIV and HCV coinfection.** 2.9% of SWs have received positive test results both for HIV and Hepatitis C (Fig.33). The proportion of the group with co-infection gradually decreased during 2011-2016, mainly due to the portion of SWs infected with Hepatitis C only.



**Fig. 32. The overlap between the groups infected with HIV and Hepatitis C among the total number of SWs, the dynamics during 2011-2015, %**

Among SWs-PWID almost one in five respondents (17.4%) had co-infection of HIV and Hepatitis C, while among SWs having no experience of injecting drug use the number of such persons was 1.7%. A third of SW-PWID (32.4%) received a positive test result for Hepatitis C and negative for HIV. Less than half of respondents (43.3%) in this double risk group had neither HIV nor Hepatitis C.



**Fig.33. The overlap between the groups infected with HIV and Hepatitis C among the total number of SWs who used injected drugs during the past 30 days, and the SWs that had no such experience, %**

**The prevalence of Hepatitis B.** According to the results of the study, 4% of the SWs received a positive test result for Hepatitis B. It's more than the proportion of sex workers who reported having Hepatitis B (2%). The key differences are observed according to age, type of location and injecting drug use. In adolescent SWs the prevalence rate of Hepatitis B is 1.2%. In the group of 20-24-year old ones 2.3% have a positive test result for this type of Hepatitis, and in the group aged 25-34 years 4.4% were infected with Hepatitis B. Among SWs aged 35 years and more this figure rises to 5.8%. The prevalence of Hepatitis B is higher among sex workers who work in other locations, except the streets, apartments, hotels, entertainment venues, saunas and virtual locations (17.2%). Among PWID SWs the share of patients with Hepatitis B is three times higher than in the group of SWs that did not use injecting drugs (9.9% among the first and 3.5% among the second).

Before the study of the 2016 testing for markers of Hepatitis B in bio-behavioral study was carried out only in 2011. During this period, the prevalence of Hepatitis B among SWs remains almost unchanged: 4.0% in 2011 and 3.4% in 2016.

**The prevalence of syphilis.** 3.1% SWs received a positive test result for syphilis, which is higher than the share of sex workers who reported having the disease during the interview (1.4%). The prevalence of syphilis increases with age. Among adolescent SWs the prevalence of this disease is 0.5%. In the group of 20-24-year old ones 2.5% have a positive test result for syphilis, and in the group aged 25-34 years it is 2.6%. Among SWs of 35 years and more this figure increases to 5.5%. The share of positive test results becomes less among the SWs with the higher level of education. For example, among SWs with basic secondary or lower level of education 4.3% are infected with syphilis, and among the SWs with complete higher education – 2.6%. A large share of persons infected with syphilis is observed in PWID SWs: in this group, according to the study, 7.6% received a positive test result, and among sex workers who did not inject drugs in the last month, only 2.7% tested positive. Similar to the trend in HIV prevalence, the prevalence of syphilis is higher among sex workers who work in other locations, except the streets, apartments, hotels, entertainment venues, saunas and virtual locations (10.7%).

During 2008-2011, the prevalence of syphilis decreased among SWs in the age of 24 and increased among the 25-year-old and older ones. The comparison of bio-behavioral studies in 2016 and 2011 shows a decrease in the share of SWs having syphilis, in both age groups.

#### 2.14. Key factors of HIV, HBV, HCV and syphilis infection



**Methodology.** To assess the risk factors for HIV infection and Hepatitis C regression analysis has been used that helps to estimate the relationship between socio-demographic characteristics of sex workers, their behavior and the chance to be infected. The assessment of risk factors for HIV infection, Hepatitis B and C and syphilis is carried out according to the results of rapid tests. When analyzing the data according to the results of rapid tests only the prevalence of infection can be assessed and no new cases since there is no information about the time of acquiring the status. Therefore, the assessment of risk factors includes both new infection cases and the SWs who already know about their diagnosis.

Regression analysis includes 4,300 sex workers aged 15-61 years from 27 cities: Bila Tserkva, Vinnitsa, Donetsk, Dnipropetrovsk, Zhytomyr, Zaporizhzhya, Ivano-Frankivsk, Kyiv, Kirovograd, Luhansk, Lutsk, Lviv, Mykolayiv, Odesa, Poltava, Rivne, Sevastopol, Simferopol, Sumy, Ternopil, Uzhgorod, Kharkiv, Kherson, Khmelnytsky, Chernivtsi, Cherkasy, Chernihiv.

Statistical analysis includes several steps. First, a bivariate analysis was carried out for all independent variables (behavioral practices and socio-demographic characteristics) on the prevalence of HIV, Hepatitis B and C and syphilis. For each variable the odds ratio (OR) and 95% confidence intervals (CI) were calculated. Odds ratio demonstrates how the risk of having positive HIV, Hepatitis B and C or syphilis test result differs in one group compared to another (reference group or comparison group). Odds ratio exceeding 1 indicates that this factor can be considered as a risk factor: chance of infection in the analyzed group is greater than in the reference group. Odds ratio less than 1 indicates that this factor, by contrast, is "protective": the chances to have an infection in this population are lower than in the reference group. The essence of the 95% confidence interval is as follows: we can assume with 95% probability that the true value of the odds ratio within the SW population belongs within this range. If the 95% confidence interval includes 1, it means that the two groups have the same chances of a positive test result for these infections. If the 95% confidence interval does not include 1, the differences in the infection prevalence among different groups are statistically significant.

Second, multivariate analysis was conducted, that is, the infection prevalence model was calculated comprising a number of factors at the same time. Thus, the odds ratio and 95% CI estimates for certain behaviors were adjusted for socio-demographic characteristics. Multivariate analysis is designed as a two-level logistic regression, taking into account the structure of the study design: grouping of sex workers in the surveyed cities. While the standard regression models "approximate the results to the average" to demonstrate the main trend in the country, two-level regression has a more complex structure. The model is calculated on two levels, where level 1 is focused on the respondents (SWs) and level 2 – on the social context (city).

Two-level logistic regression was formed in the following way. At first it was researched whether there exists a sufficient extent of variance in the prevalence of HIV, Hepatitis B and C and syphilis on the city level for the selected method to be properly applied. This was made by evaluating the zero model (without independent variables) and variance probability coefficient - VPC) based on Snijders and Bosker approach<sup>11</sup>. Subsequently we generated an optimal model with a random constant and fixed independent variables, that is, we accounted for significant differences in the infection prevalence across different cities while assessing the risk factors. Additionally, we checked the existence of "random effects" with regard to specific independent variables – statistically significant differences in OR of different cities, as well as possible "interaction effects" – how the OR of having an infection for one factor differs from the OR for another factor. Wald test and likelihood ratio test were used to assess the possible interaction effects. Based on the assessment results, no such "random effects" and "interaction effects" were identified, thus, final models with a random constant looked like this:

$$\log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right) = \alpha + \sum_{n=1} \beta_n \chi_n + u_0, \text{ where}$$

<sup>11</sup> Snijders, T. A. B., & Bosker, R. J. (1999). Multilevel analysis: an introduction to basic and advanced multilevel modeling. London: Sage Publications.



$\pi_{ij}$  – probability of positive test for HIV/HBV/HCV/syphilis for PWID in the city  $j$ ;

$\alpha$  – constant or logarithm of average chances to have a positive test result in the country, while  $u_0$  – a factor for which the constant varies across different cities;

$\sum_{n=1} \beta_n \chi_n$  – sum of the effects of independent variables or logarithms from ORs for each risk factor.

Forward selection approach was used to construct the models: successive addition of each variable, assessment of its statistical significance and the overall quality of the model. The model quality was assessed by the information criteria and likelihood criteria. Monte-Carlo emulation of Markov chains was used to evaluate the confidence intervals of estimates?

The analysis used *R*, "lme4" package software for the analysis. Missing data for all independent variables were omitted

*Dependent variables.* Results of rapid test for HIV, HBV, HCV and syphilis after the interview (positive results compared to the negative ones).

*Independent variables, or risk factors.* List of variables for risk factor assessment includes the following:

- Condom use practices that can cause infection, namely the existence of such cases during the last month:
  - 1) the condom broke or slipped;
  - 2) did not wear a condom during sex;
  - 3) sex continued after removing the condom. The group of SWs who had such incidents with any partners (customers, regular and (or) random sexual partners), were compared with SWs who did not have them in the last month;
- irregular condom use in the last 30 days. SWs who not always used condoms, compared with SWs who always used condoms with customers, regular and (or) casual sexual partners;
- injecting drug use was estimated as a factor of infection in the context of comparing the SWs who used drugs in the last 30 days, and those who did not use them during this period.

Risk factors were adjusted according to the following socio-demographic characteristics:

- Age (25 years old and older SWs compared with SWs under 25);
- Experience of providing sex services for a fee in years;
- Education in terms of five categories: (1) SWs with basic secondary or lower education, (2) complete secondary, (3) vocational or (4) incomplete higher compared with (5) SWs with higher education;
- Employment in terms of five categories: (1) SWs having permanent employment, (2) odd jobs or (3) other employment (pupils, students or unemployed persons) compared with (4) SWs who had no employment other than sex business;
- The type of housing in terms of four categories: (1) SWs who live in their own homes, compared with (2) SWs living in rented apartments, (3) with relatives or friends without paying for tenancy, or (4) other housing;
- The amount of a personal monthly income in terms of three categories: (1) SWs having low income (Up to 5000 UAH) and (2) the average income (5001-10 000 UAH) were compared with (3) SWs with high income (more than 10 000 UAH);
- Family status, sex workers living with their husband or regular sexual partner, were compared with sex workers who do not live with a regular partner;
- Supporting others at the expense of income from sex work: sex workers who support other persons at the expense of their earnings (children, parents, relatives, husband, etc.) compared to SWs who have no such experience;
- Type of locations in terms of seven categories: (1) the SWs who work on the streets, roads or highways, were compared to each of these categories, (2) the SWs who work in apartments, (3) in hotels or motels (4) in entertainment venues (5 in saunas or massage parlors, (6) in virtual locations or through intermediaries, (7) in other locations;

- Having the experience of migration for sex business in Ukraine or to another country: the SWs who had such an experience were compared with the rest of the group.

**Methodology limitations.** The following limitations should be mentioned regarding the infection prevalence factors assessment:

- 1) *Limitations related to infection prevalence rather than incidence assessment.* Knowledge of the diagnosis can cause changes in risk behavior. For example, sex workers who know their HIV or Hepatitis C status may adhere to safer drug use practices and always use a condom. Based on the guidelines of the Ministry of Health of Ukraine, patients with confirmed HIV status are referred to public HIV service organizations for social support in addition to enrolment in AIDS centers. Thus, participation in harm reduction or safer behavior programs implemented by NGOs may be associated with higher levels of infection, although these factors are not risky. To avoid this situation, cross-sectional studies envisage common practice of regression analysis among a group of respondents who have been tested for HIV/Hepatitis C within a year before the survey and received a negative result. That is, they were confident in their status and likely had no reasons for behavior change. However, such an approach as taking into account "recently detected infections" substantially limits the available sample for analysis, in particular, excludes those who were not tested. Moreover, the problem of unreliable information occurs. For example, sex workers may declare that they have already been tested, but incorrectly report status or refuse to disclose it. In the case of Hepatitis C, free testing in other facilities than the study is less common, including in the basic packages of HIV-servicing NGOs. In addition, the questionnaire does not include questions about the results of previous tests for Hepatitis B and C and syphilis, only the experience of the disease during the last year. For example, sex workers who do not have acute Hepatitis, probably are not tested and are unaware of their diagnosis. In this context, the assessment of the prevalence of infection is, in fact, the only possible approach. It also allows you to test more risk factors through larger sample size.

- 2) *Limitations connected with relatively low infection prevalence.*

Multivariate analysis based on the simultaneous assessment of several risk factors is sensitive to the sample size and the number of positive test results. As a rule, there must be at least 10 "events" (positive tests) for one parameter in the model<sup>12</sup>. If the model contains too many options, it can cause convergence problems (inability to estimate the parameters of the model) or incorrect assessments. Multilevel models are particularly sensitive to this issue, given the availability of additional options compared to conventional regressions. In a 2016 study with the sample size of 4300 respondents (non-weighted data set) 270 positive test results for HIV, 181 - Hepatitis B, 544 - Hepatitis C and 159 – for syphilis were detected. This means that in case of assessing syphilis prevalence factors an optimal number of parameters in the model (and including constant factor, which is different for each city) should not exceed 15, and in the case of HIV - 27. This limits the possibility of evaluating various factors in a model, including the number of "control" variables that are used to adjust the odds ratio and avoid confounding effect. Thus, the model of syphilis factors evaluation, which also evaluates the effect of injecting drug use (2 categories of responses), inconsistent condom use (2 categories), improper use (2 categories) and the location type (7 categories), would contain 11 parameters (parameters  $\beta_n \chi_n$  - number of answer options in the independent variables excluding references) for each parameter  $\alpha$ , and one - for  $u_0$ . Behavioral variables were aggregated to the greatest possible extent to reduce the number of parameters in the model. For example, a variable "improper use of condoms" is used, which includes cases with any type of sexual partner, not for each type of partner separately, such as commercial clients, permanent partners, casual partners.

## Factor assessment results

### Factors related to HIV-positive status.

Based on the results of bivariate analysis, the higher likelihood to have a positive test result for HIV infection is associated with injecting drug use in the past 30 days (not adjusted OR = 7.40; 95% CI: 5.31-10.32), low income (not adjusted OR = 1.88; 95% CI: 1.17-3.01), having a husband or permanent sexual

<sup>12</sup> Agresti, Alan, and Maria Kateri. *Categorical data analysis*. Springer Berlin Heidelberg, 2011.

partner (not adjusted OR = 1.31; 95% CI: 1.01-1.70), and supporting others at the expense of sex work earnings (not adjusted OR = 1.55; 95% CI: 1.19-2.00) (Table 31). Modeling of the HIV status of sex workers based on the duration of experience in the sex business has demonstrated the following: the chances of HIV positive status increase by 11% with every additional year in sex work (not adjusted OR = 1.11; 95% CI: 1.09-1.13). According to the bivariate analysis, lower probability of a positive HIV test result was observed among sex workers who lived in a rented apartment compared to those living in their own homes (not adjusted OR = 0.43; 95% CI: 0.31-0.59) or with relatives/friends without paying rental fee (not adjusted OR = 0.62; 0.46-0.86). Modelling of HIV status depending on the location type shows that compared to the "street" SWs, persons working in other locations are less likely to have a positive HIV test result. In particular, for those who work in apartments, such chances are lower by 61% (not adjusted OR = 0.39; 95% CI: 0.26-0.58) in hotels - by 81% (not adjusted OR = 0.09; 95% CI: 0.01-0.61) in entertainment facilities – by 75% (not adjusted OR = 0.25; 95% CI: 0.15-0.40), in saunas or massage parlors – by 72% (not adjusted OR = 0.28; 95% CI: 0.12- 0.66), and for those who work via Internet or intermediaries - by 52% (not adjusted OR = 0.48; 95% CI: 0.32-0.71). According to the bivariate analysis, lower likelihood of having HIV infection is also associated with younger age (not adjusted OR = 0.15; 95% CI: 0.09-0.25) and having a full-time job in addition to sex work (not adjusted OR = 0.55; 95 % CI: 0.32-0.95).

Based on the results of multivariate analysis, the key factors of HIV presence are injecting drug use (adjusted OR = 5.45; 95% CI: 3.82-7.75) and experience of sex work (adjusted OR = 1.09; 95% CI: 1.06-2.11). Risky practices of condom use (inconsistent or incorrect use) were not statistically significant with regard to HIV both in bilateral and multivariate analysis. Taking into account the experience of injecting drug use, risky practices of using condoms and sex business experience, the provision of sex services in hotels (adjusted OR = 0.11; 95% CI: 0.01-0.81), entertainment facilities (adjusted OR = 0.41; 95% CI: 0.25-0.68) and saunas (adjusted OR = 0.40; 95% CI: 0.16-0.97) are related to lower chances of having HIV infection compared with street locations. SWs working on other points have the same chances of HIV infection as sex workers who work on the streets or highways, taking into account adjusted estimates.

**Hepatitis B factors.** According to the bivariate analysis, statistically significant differences in the probability of Hepatitis B were observed depending on the experience of injecting drug use, age, duration of experience in the sex business and family status (Table. 32). Thus, based on non-adjusted estimates, PWID SWs had 2.32 times higher chances of a positive test result for Hepatitis B compared with SWs without such experience; chances of Hepatitis B among SWs under and including 24 years are 42% lower than in those aged 25 and older; with each successive year in sex business the chances of having HBV increase by 5%; among SWs who have permanent sexual partner or husband the chances of a positive test result for Hepatitis B are 39% higher than the chances of SWs without a partner.

Based on the multivariate analysis results, the only statistically significant factors of Hepatitis B presence are the use of injecting drugs in the last 30 days (adjusted OR = 2.10; 95% CI: 1.32-3.32) and experience of sex work (adjusted OR = 1.08; 95% CI: 1.02-1.08).

**Hepatitis C factors.** The results of bivariate analysis of Hepatitis C factors discovered the correlations similar to the evaluated factors of HIV. According to non-adjusted estimates, among SWs who are active PWID, the chances of the presence of Hepatitis B were 11.56 times higher than among SWs without injecting drug use experience (95% CI: 8.67-15.41). According to the bivariate analysis, the likelihood of having positive HCV test increases with each year of work in the sex industry (not adjusted OR = 1.09; 95% CI: 1.07-1.11), and is higher for SWs having a husband or permanent sexual partner (not adjusted OR = 1.54; 95% CI: 1.27-1.87) and supporting others at the expense of sex work earnings (not adjusted OR = 1.55; 95% CI: 1.19-2.00). Instead, lower likelihood to have positive test for Hepatitis C was observed among SWs under and including 24 years old (not adjusted OR = 0.25; 95% CI: 0.18-0.36), those working in apartments (not adjusted OR = 0.47; 95% CI: 0.15-0.28), hotels (not adjusted OR = 0.34; 95% CI: 0.16-0.76), entertainment facilities (not adjusted OR = 0.32; 95% CI: 0.22-0.45), saunas (not adjusted OR = 0.27; 95% CI: 0.14-0.53) and through intermediaries (not adjusted OR = 0.41; 95% CI: 0.30-0.56). Modeling of relation between inconsistent condom use and the presence of Hepatitis C also showed a statistically significant difference (not adjusted OR = 1.42; 95% CI: 1.17-1.73).

Based on results of multivariate analysis, there are statistically significant differences in the chances of Hepatitis C presence, depending on the experience of injecting drug use (adjusted OR = 8.66; 95% CI: 6.40-11.72); inconsistent condom use with clients, permanent or casual partners in the last 30 days (adjusted OR = 1.35; 95% CI: 1.08-1.67); younger age (adjusted OR = 0.42; 95% CI: 0.30-0.58); duration of experience in sex business (adjusted OR = 1.04; 95% CI: 1.02-1.06), and such types of locations as entertainment facilities (adjusted OR = 0.56; 95% CI: 0.38-0.82), saunas or massage parlors (adjusted OR = 0.41; 95% CI: 0.20-0.83), Internet or intermediaries (adjusted OR = 0.64; 95% CI: 0.46-0.90) when compared with street locations.

**Syphilis factors.** Bivariate analysis shows that higher likelihood to have a positive test result for syphilis is associated with injecting drug use in the past 30 days (not adjusted OR = 1.94; 95% CI: 1.18-3.17), having a husband or permanent sexual partner (not adjusted OR = 1.56; 95% CI: 1.13-2.16), and duration of experience in sex business (not adjusted OR = 1.07; 95% CI: 1.04-1.10). Instead, chances of having syphilis are lower for younger SWs and those SWs (not adjusted OR = 0.50; 95% CI: 0.33-0.75), who work in apartments (not adjusted OR = 0.29; 95% CI: 0.03-0.06), entertainment facilities (not adjusted OR = 0.53; 95% CI: 0.31-0.93), saunas or massage parlors (not adjusted OR = 0.22; 95% CI: 0.05-0.90).

The results of multivariate analysis revealed only two statistically significant factors for syphilis presence: injecting drug use in the past 30 days (adjusted OR = 1.69; 95% CI: 1.02-2.81) and duration of experience in sex business (adjusted OR = 1.06; 95% CI: 1.04-1.09).

**Table 31. Key factors of HIV presence: results of logistic regressions with mixed effects, odds ratio and 95% CI**

Factors		Number/average		% (weighted)		Not adjusted OR and 95% CI (bivariate analysis)	Adjusted OR and 95% CI (multivariate analysis)
		HIV–	HIV+	HIV–	HIV+		
Use of injecting drugs	Used over the last 30 days	326	99	69.7	30.3	<b>7.40 [5.31–10.32]</b>	<b>5.44 [3.82–7.75]</b>
	Not used over the last 30 days	3704	171	95.8	4.2		
Sex without a condom	Not always used condoms with customers, regular or random partners in the last 30 days	1344	84	93.2	6.8	0.95 [0.72–1.25]	0.85 [0.63–1.15]
	Always used condoms during this period (ref.)	2686	186	92.9	7.1		
Incorrect use of condoms	Had instances of incorrect condom use with customers, regular or random partners in the last 30 days	2743	156	94.0	6.0	0.72 [0.52–1.02]	0.71 [0.50–1.02]
	Had no such instances during this period(ref.)	1287	114	91.8	8.2		
Age	15–24 years	1236	17	99.3	0.7	<b>0.15 [0.09–0.25]</b>	
	25 years and more (ref.)	2794	253	90.1	9.9		
Experience	Average experience of providing sex services for a fee	7.1	11.1			<b>1.11 [1.09–1.13]</b>	<b>1.09 [1.06–1.11]</b>
Education	Basic (incomplete) secondary education or less	440	43	88.7	11.3	<b>2.29 [1.26–4.16]</b>	
	Complete general secondary education	1199	73	94.6	5.4	1.21 [0.70–2.10]	
	Vocational training	1325	102	91.3	8.7	1.46 [0.85–2.49]	
	Basic and incomplete higher education	689	33	96.3	3.7	0.80 [0.43–1.46]	
	Complete higher education (specialist, master)(ref.)	369	17	94.5	5.5		
Employment	Are permanently employed	357	18	93.8	6.2	<b>0.55 [0.32–0.95]</b>	
	Have odd jobs	932	53	95.1	4.9	0.74 [0.52–1.06]	
	Other employment (pupils, students or unemployed persons)	718	64	91.2	8.8	0.80 [0.56–1.15]	
	No other employment except sex business (ref.)	2023	135	92.5	7.5		



Factors		Number/average		% (weighted)		Not adjusted OR and 95% CI (bivariate analysis)	Adjusted OR and 95% CI (multivariate analysis)
		HIV-	HIV+	HIV-	HIV+		
Type of housing	In their own home(ref.)	1275	138	88.8	11.2		
	In the flat of relatives/friends (not paying for tenancy)	912	57	93.7	6.3	<b>0.62 [0.46–0.86]</b>	
	In a rented flat (hire alone or with someone)	1529	61	96.9	3.1	<b>0.43 [0.31–0.59]</b>	
	Other option	314	14	96.3	3.7	<b>0.51 [0.29–0.91]</b>	
Income	Up to 5000 UAH.	1802	168	89.8	10.2	<b>1.88 [1.17–3.01]</b>	
	5001–10 000 UAH.	1227	57	95.7	4.3	1.06 [0.65–1.74]	
	Over 10 000 UAH (ref.)	828	35	97.5	2.5		
Family status	Live together with their husband/regular sexual partner	1235	97	89.7	10.3	<b>1.31 [1.01–1.70]</b>	
	Don't live together with a regular partner (ref.)	2795	173	94.4	5.6		
Support other persons at the expense of income from sex business	No (ref.)	1983	111	94.5	5.5		
	Yes	2047	159	91.1	8.9	<b>1.55 [1.19–2.00]</b>	
Type of location	Street, route, highway (ref.)	1389	141	88.2	11.8		
	Apartments	738	42	93.3	6.7	<b>0.39 [0.26–0.58]</b>	0.66 [0.44–1.01]
	Hotel/motel	121	1	97.7	2.3	<b>0.09 [0.01–0.61]</b>	<b>0.11 [0.01–0.81]</b>
	Entertainment venues/events	622	25	95.3	4.7	<b>0.25 [0.15–0.40]</b>	<b>0.41 [0.25–0.68]</b>
	Sauna/massage parlor	157	6	95.8	4.2	<b>0.28 [0.12–0.66]</b>	<b>0.40 [0.16–0.97]</b>
	Virtual, through intermediaries	882	43	93.7	6.3	<b>0.48 [0.32–0.71]</b>	0.74 [0.48–1.12]
	Other option	121	12	91.7	8.3	1.02 [0.54–1.93]	1.36 [0.67–2.72]
Experience of migration for the purpose of sex business	Yes	316	14	93.7	6.3	0.76 [0.43–1.32]	
	No (ref.)	3683	254	92.9	7.1		

**Table 32. Key factors of HBV presence: results of logistic regressions with mixed effects, odds ratio and 95% CI**

Factors		Number/average		% (weighted)		Not adjusted OR and 95% CI (bivariate analysis)	Adjusted OR and 95% CI (multivariate analysis)
		Hep. B-	Hep. B +	Hep. B-	Gen. B +		
Use of injecting drugs	Used over the last 30 days	390	35	90.1	9.9	<b>2.32 [1.47–3.64]</b>	<b>2.10 [1.32–3.32]</b>
	Not used over the last 30 days	3729	146	96.5	3.5		
Sex without a condom	Not always used condoms with customers, regular or random partners in the last 30 days	1356	72	94.8	5.2	1.30 [0.95–1.79]	1.23 [0.88–1.70]
	Always used condoms during this period (ref.)	2763	109	96.6	3.4		
Incorrect use of condoms	Had instances of incorrect condom use with customers, regular or random partners in the last 30 days	2775	124	96.0	4.0	1.17 [0.79–1.74]	1.12 [0.75–1.67]
	Had no such instances during this period(ref.)	1344	57	95.9	4.1		
Age	15–24 years	1221	32	97.9	2.1	<b>0.58 [0.39–0.86]</b>	
	25 years and more(ref.)	2898	149	95.2	4.8		
Experience	Average experience of providing sex services for a fee	7.2	9.4			<b>1.05 [1.03–1.08]</b>	<b>1.08 [1.02–1.08]</b>
Education	Basic (incomplete) secondary education or less	461	22	96.1	3.9	2.05 [0.85–4.92]	
	Complete general secondary education	1206	66	94.3	5.7	2.10 [0.95–4.63]	
	Vocational training	1364	63	96.1	3.9	2.05 [0.93–4.51]	
	Basic and incomplete secondary education	699	23	96.7	3.3	1.42 [0.60–3.34]	
	Complete higher education (specialist, master)(ref.)	379	7	99.2	0.8		
Employment	Are permanently employed	358	17	96.7	3.3	0.58 [0.32–1.07]	
	Have odd jobs	939	46	95.2	4.8	0.90 [0.59–1.36]	
	Other employment (pupils, students and unemployed persons)	755	27	96.8	3.2	0.84 [0.51–1.36]	
	No other employment except sex business (ref.)	2067	91	95.9	4.1		
Type of housing	In their own home(ref.)	1353	60	95.6	4.4		
	In the flat of relatives/friends (not paying for tenancy)	928	41	95.9	4.1	0.85 [0.56–1.29]	
	In a rented flat (hire alone or with someone)	1523	67	96.3	3.7	0.85 [0.58–1.23]	
	Other option	315	13	95.4	4.6	0.72 [0.38–1.36]	
Income	Up to 5000 UAH.	1888	82	95.8	4.2	0.79 [0.45–1.39]	
	5001–10 000 UAH.	1246	38	97.3	2.7	0.80 [0.47–1.36]	
	Over 10 000 UAH. (ref.)	817	46	94.9	5.1		
Family status	Live together with their husband/regular sexual partner	1260	72	94.7	5.3	<b>1.39 [1.02–1.90]</b>	
	Don't live together with a regular partner (ref.)	2859	109	96.6	3.4		

Factors		Number/average		% (weighted)		Not adjusted OR and 95% CI (bivariate analysis)	Adjusted OR and 95% CI (multivariate analysis)
		Hep. B-	Hep. B +	Hep. B-	Геп. B +		
Support other persons at the expense of income from sex business	No (ref.)	2013	81	96.4	3.6		
	Yes	2106	100	95.6	4.4	1.18 [0.87–1.60]	
Location type	Street, route, highway (ref.)	1431	99	93.6	6.4		
	Apartments	749	31	97.3	2.7	0.82 [0.51–1.30]	
	Hotel/motel	120	2	97.3	2.7	0.55 [0.13–2.24]	
	Entertainment venues/events	631	16	97.6	2.4	0.69 [0.39–1.23]	
	Sauna/massage parlor	159	4	97.7	2.3	0.72 [0.25–2.03]	
	Virtual, through intermediaries	906	19	98.1	1.9	0.62 [0.35–1.10]	
	Other option	123	10	82.9	17.1	1.50 [0.74–3.05]	
Experience of migration for the purpose of sex business	Yes	316	14	96.8	3.2	1.35 [0.76–2.39]	
	No (ref.)	3772	165	96.0	4.0		



Table 33. Key factors of HCV presence: results of logistic regressions with mixed effects, odds ratio and 95% CI

Factors		Number/average		% (weighted)		Not adjusted OR and 95% CI (bivariate analysis)	Adjusted OR and 95% CI (multivariate analysis)
		Hep. C-	Hep. C+	Hep. C-	Hep. C+		
Use of injecting drugs	Used over the last 30 days	233	192	50.2	49.8	11.56 [8.67–15.41]	8.66 [6.40–11.72]
	Not used over the last 30 days	3523	352	92.0	8.0		
Sex without a condom	Not always used condoms with customers, regular or random partners in the last 30 days	1211	217	87.3	12.7	1.42 [1.17–1.73]	1.35 [1.08–1.67]
	Always used condoms during this period (ref.)	2545	327	89.6	10.4		
Incorrect use of condoms	Had instances of incorrect condom use with customers, regular or random partners in the last 30 days	2555	344	89.6	10.4	0.94 [0.73–1.22]	0.83 [0.63–1.10]
	Had no such instances during this period(ref.)	1201	200	85.6	14.4		
Age	15–24 years	1196	57	95.6	4.4	0.25 [0.18–0.36]	0.42 [0.30–0.58]
	25 years and more (ref.)	2560	487	86.1	13.9		
Experience	Average experience of providing sex services for a fee	7	9.8			1.09 [1.07–1.11]	1.04 [1.02–1.06]
Education	Basic (incomplete) secondary education or less	414	69	83.7	16.3	1.45 [0.92–2.25]	
	Complete general secondary education	1118	154	89.9	10.1	1.11 [0.75–1.64]	
	Vocational training	1214	213	87.0	13.0	1.28 [0.87–1.86]	
	Basic and incomplete secondary education	654	68	90.6	9.4	0.82 [0.53–1.25]	
	Complete higher education (specialist, master)(ref.)	348	38	92.8	7.2		
Employment	Are permanently employed	343	32	93.9	6.1	0.54 [0.36–0.81]	
	Have odd jobs	872	113	88.8	11.2	0.90 [0.69–1.16]	
	Other employment (pupils, students or unemployed persons)	674	108	88.5	11.5	0.92 [0.70–1.21]	
	No other employment except sex business (ref.)	1867	291	88.0	12.0		

Factors		Number/average		% (weighted)		Not adjusted OR and 95% CI (bivariate analysis)	Adjusted OR and 95% CI (multivariate analysis)
		Hep. C-	Hep. C+	Hep. C-	Hep. C+		
Type of housing	In their own home(ref.)	1166	247	84.3	15.7		
	In the flat of relatives/friends (not paying for tenancy)	851	118	88.1	11.9	0.65 [0.51–0.84]	
	In a rented flat (hire alone or with someone)	1430	160	91.6	8.4	0.59 [0.47–0.74]	
	Other option	309	19	92.4	7.6	0.36 [0.22–0.59]	
Income	Up to 5000 UAH.	1683	287	85.5	14.5	1.61 [1.15–2.24]	
	5001–10 000 UAH.	1131	153	88.7	11.3	1.36 [0.98–1.89]	
	Over 10 000 UAH. (ref.)	777	86	93.4	6.6		
Family status	Live together with their husband/regular sexual partner	1122	210	87.8	12.2	1.54 [1.27–1.87]	
	Don't live together with a regular partner (ref.)	2634	334	89.3	10.7		
Support other persons at the expense of income from sex business	No (ref.)	1873	221	88.7	11.3		
	Yes	1883	323	88.9	11.1	1.55 [1.19–2.00]	
Location type	Street, route, highway (ref.)	1256	274	84.3	15.7		
	Apartments	668	112	87.9	12.1	0.47 [0.15–0.28]	0.85 [0.63–1.16]
	Hotel/motel	115	7	94.1	5.9	0.34 [0.16–0.76]	0.59 [0.25–1.35]
	Entertainment venues/events	602	45	90.3	9.7	0.32 [0.22–0.45]	0.56 [0.38–0.82]
	Sauna/massage parlor	152	11	93.6	6.4	0.27 [0.14–0.53]	0.41 [0.20–0.83]
	Virtual, through intermediaries	846	79	93.9	6.1	0.41 [0.30–0.56]	0.64 [0.46–0.90]
	Other option	117	16	89.7	10.3	0.71 [0.41–1.24]	0.89 [0.47–1.67]
Experience of migration for the purpose of sex business	Yes	296	34	91.0	9.0	0.77 [0.53–1.13]	
	No (ref.)	3434	503	88.7	11.3		

**Table 34. Key factors of syphilis presence: results of logistic regressions with mixed effects, odds ratio and 95%CI**

Factors		Number/average		% (weighted)		Not adjusted OR and 95% CI (bivariate analysis)	Adjusted OR and 95% CI (multivariate analysis)
		syphilis -	syphilis +	syphilis -	syphilis +		
Use of injecting drugs	Used over the last 30 days	399	26	92.4	7.6	<b>1.94 [1.18–3.17]</b>	<b>1.69 [1.02–2.81]</b>
	Not used over the last 30 days	3742	133	97.3	2.7		
Sex without a condom	Not always used condoms with customers, regular or random partners in the last 30 days	1364	64	96.8	3.2	1.30 [0.93–1.81]	1.23 [0.88–1.73]
	Always used condoms during this period (ref.)	2777	95	96.9	3.1		
Incorrect use of condoms	Had instances of incorrect condom use with customers, regular or random partners in the last 30 days	2788	111	96.7	3.3	1.06 [0.70–1.60]	1.01 [0.66–1.53]
	Had no such instances during this period(ref.)	1353	48	97.5	3.0		
Age	15–24 years	1225	28	97.9	2.1	<b>0.50 [0.33–0.75]</b>	
	25 years and more(ref.)	2916	131	96.5	3.5		
Experience	Average experience of providing sex services for a fee	7.2	10			<b>1.07 [1.04–1.10]</b>	<b>1.06 [1.04–1.09]</b>
Education	Basic (incomplete) secondary education or less	450	33	95.7	4.3	1.45 [0.71–2.93]	
	Complete general secondary education	1210	62	95.8	4.2	1.32 [0.70–2.49]	
	Vocational training	1388	39	97.6	2.4	0.82 [0.43–1.58]	
	Basic and incomplete secondary education	709	13	97.9	2.1	0.53 [0.24–1.17]	
	Complete higher education (specialist, master)(ref.)	374	12	97.4	2.6		
Employment	Are permanently employed	357	18	95.9	4.1	1.49 [0.85–2.59]	
	Have odd jobs	938	47	96.0	4.0	1.37 [0.92–2.04]	
	Other employment (pupils, students or unemployed persons)	765	17	97.9	2.1	0.61 [0.35–1.05]	
	No other employment except sex business (ref.)	2081	77	97.1	2.9		
Type of housing	In their own home(ref.)	1352	61	96.1	3.9		
	In the flat of relatives/friends (not paying for tenancy)	937	32	97.6	2.4	0.80 [0.52–1.25]	
	In a rented flat (hire alone or with someone)	1535	55	97.3	2.7	0.82 [0.56–1.21]	
	Other option	317	11	95.7	4.3	0.81 [0.42–1.57]	
Income	Up to 5000 UAH.	1881	89	96.0	4.0	1.64 [0.94–2.86]	
	5001–10 000 UAH.	1246	38	96.7	3.3	1.31 [0.75–2.30]	
	Over 10 000 UAH. (ref.)	837	26	98.3	1.7		
Family status	Live together with their husband/regular sexual partner	1263	69	96.3	3.7	<b>1.56 [1.13–2.16]</b>	
	Don't live together with a regular partner (ref.)	2878	90	97.2	2.8		

Factors		Number/average		% (weighted)		Not adjusted OR and 95% CI (bivariate analysis)	Adjusted OR and 95% CI (multivariate analysis)
		syphilis -	syphilis +	syphilis -	syphilis +		
Support other persons at the expense of income from sex business	No (ref.)	2032	62	97.0	3.0		
	Yes	2109	97	96.8	3.2	1.38 [1.00–1.92]	
Location type	Street, route, highway (ref.)	1449	81	94.9	5.1		
	Apartments	769	11	99.0	1.0	<b>0.29 [0.03–0.06]</b>	
	Hotel/motel	121	1	99.0	1.0	0.16 [0.02–1.15]	
	Entertainment venues/events	630	17	97.1	2.9	<b>0.53 [0.31–0.93]</b>	
	Sauna/massage parlor	161	2	99.4	0.6	<b>0.22 [0.05–0.90]</b>	
	Virtual, through intermediaries	893	32	98.1	1.9	0.66 [0.41–1.06]	
	Other option	118	15	89.3	10.7	1.79 [0.96–3.34]	
Experience of migration for the purpose of sex business	Yes	316	14	95.7	4.3	0.96 [0.55–1.71]	
	No (ref.)	3796	141	97.0	3.0		

### 3. Discussion

The socio-demographic characteristics of sex workers vary considerably depending on the types of locations where they provide sexual services or search for clients. In apartments, in entertainment venues and in virtual locations young sex workers with high incomes have been often found compared to the SWs working in street locations. The obtained data on the socio-demographic structure of SWs may be due to the number of locations of certain typology that have been included in the study sample. Although the formative research preceded the bio-behavioral study in order to identify the locations for providing sexual services by SWs or searching for clients for correct sampling of the study, the apartments, saunas, massage parlors are much more difficult to identify as the locations for provision of commercial sex services and get access to them for conducting the study, which could have caused some limitations.

According to the recommendations of UNAIDS, the use of a condom during the most recent sexual contact with a client is to demonstrate the level of safe sexual behavior in a group of sex workers. This figure is extremely high (almost 100%). However, this may be due not only to the expansion of the risk reduction programs coverage, but to a tendency to provide socially acceptable answers. A question about the regularity of condom use during the last week and month, in course of various types of sexual contacts can detect a much larger proportion of sex workers suggesting the risky practices during sexual contact with clients. There is also the probability that the use of the same wording of the question during many waves of biobehavioral studies (from 2007) and during other studies among the target group taught them how to answer questions.

The risk of HIV infection among sex workers can be increased not only through drug use by injection, but also due to the existence of injecting drug users among clients or sexual partners. However, the proportion of PWID among clients of sex workers is difficult to define exactly because not all representatives of the target group can identify that their client belongs to the PWID group, so the obtained indicator can be considered minimal. The results concerning the presence of MSM among clients can be interpreted in the same way.

The testing figures over the past 12 months and the coverage with prevention services are closely related to the activities of non-governmental organizations that implement programs to reduce risks. These figures differ significantly among the groups working in different types of locations. Both for researchers and for the representatives of NGOs street locations are more accessible for working, so the performance figures and coverage is much higher in comparison with other ones.

The presence of sexually transmitted infections (STIs) increases the risk of sexual HIV transmission and infecting, because it is accompanied by erosions and inflammations that weaken the body's defense. HIV transmission is contributed by syphilis, genital herpes, gonorrhea, chlamydia infection, trichomoniasis, candidiasis, mycoplasmosis and other infections. The evaluation of presence of infections based on self-reported data may not be considered as the actual prevalence of tuberculosis, Hepatitis B and C and STIs among sex workers because they do not include the respondents who could conceal the diagnosis or do not know about their disease. Instead, we can talk about minimum estimate of prevalence.

According to the result of rapid tests used to measure the prevalence of HIV and other infections in the study, it is impossible to estimate new cases of infection, because the time of acquiring the status is not known. The data on new cases is received according to the results DBS tests - a procedure which was carried out in addition to rapid tests. This data will be presented following the conducted laboratory analysis in some subsequent publications. It is also worth noting that the procedure of rapid testing within the framework of the study did not provide for verification of the results, which also could make some difference in the interpretation of the prevalence of these infections.

The lack of dynamics of HIV prevalence indicator among sex workers in general and low dynamics in group of sex workers under 25 in recent years may indicate a stabilization of the epidemic. At the same time, high

levels of HIV in the SW-PWID group are found. This figure is the highest in comparison with other key groups in Ukraine.

The lack of statistically significant correlations between condom use practices and the presence of HIV infection and syphilis is consistent with the results of the triangulation research <sup>13</sup>, according to which the injecting drug use is the major epidemic driver among sex workers, either as their own injecting drug use or the presence of PWID sexual partners. According to the simulation results, the experience of injecting drug use was a key behavioral factor that determined a higher probability of having HIV, Hepatitis B and C and syphilis.

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<sup>13</sup> Проект зі збору та узагальнення даних щодо ВІЛ-інфекції в Україні. Підсумковий звіт. – Київ, 2013.

## 4. Conclusions

### **Social and demographic profile**

The average age of sex workers is 29. The downward trend in the proportion of adolescent sex workers under the 19 is continuing.

Majority of SWs have complete secondary (grade 11) or vocational education (31.2% and 32.4% respectively). Only 58% of the target group have no other employment than sex work; the remaining proportion combines sex work with work in other areas, training and more.

More than a third of SWs (34.7%) earn between 5001 to 10 000 UAH per month; 26% have higher income; 57.4% of SWs support other people, mostly children and parents, at the expense of their sex work earnings.

Most sex workers (60.6%) live in the survey city since birth, mostly in a rented apartment, which they lease either on their own or with someone else (45.1%), less than a third (30.2%) have their own dwelling.

About half of sex workers (57.5%) are not married and do not have permanent sexual partner. Among those who have a husband (wife) or permanent partner, half (49.9%) believe that their partner does not know about their work in the sex business.

The prevailing locations of SWs work are the streets, roads or highways (35.7%) and work via intermediaries (25.8%) and in apartments or via Internet (19.4%). Compared with previous studies, the proportion of sex workers who work through intermediaries and in apartments increases.

Almost one in ten of the target group (7.1%) has experience of temporary migration to provide commercial sex services within Ukraine or to another country (traveling more than a month for the last 12 months). SWs who have experience traveling to another country, tended to opt for Turkey, Russia and Poland.

### **Experience of violence**

According to the survey, there is a high prevalence of violence among the target group. 46.6% of SWs experienced violence in the course of sex work. Most of them faced verbal humiliation (69.5%), threats (50.1%) and compulsion to the free provision of services (49.5%), over a third (38.3%) – were beaten, a quarter (24.3%) were raped. In the vast majority of cases the perpetrators were clients (82.1%); in 12.4% incidents of violence by law enforcement officials were reported. Only half (49.5%) sought help from among the totality of SWs who experienced violence during commercial sex.

### **Sexual debut and entry into sex work**

The average age of sexual debut is 16, as in previous waves of research. The transition from sexual debut to providing commercial sex services takes an average of six years; the average age of first commercial sex contact is 22, and it gradually increases.

### **SW clients characteristics**

The most common socio-demographic group of clients who use the services of sex workers are businessmen (73% provided services to such persons), military personnel (59.4%), taxi drivers (50.8%), law enforcement (46.2%) and long-haul truckers (39.6%).

It is common to provide sexual services to a number of risk groups and vulnerable population who may act as bridge groups in spreading HIV. Over the last month, 12.4% SWs had clients who inject drugs. Among the double exposure group of PWID SW almost half of the respondents (44.8%) had clients who inject drugs. 5.4% of the target group provided services to bisexual (or) homosexual clients over the past 30 days, 41.8% - to the foreigners within last month.



87.6% of SWs have regular clients, 97.3% had occasional clients over the last 30 days. In average, the target group representatives had six regular and 25 occasional clients last month. The average number of clients during the last working day remains unchanged in recent years and is two clients.

### **Permanent and casual partners of SWs**

During the last month, a third of sex workers (33.6%) had regular sexual partners, 9.4% had casual partners from which they did not receive remuneration for sex services. The proportion of sex workers who practice sexual contacts with casual partners continues to decline.

### **Use of condoms with different types of partners and during various types of intercourses**

The survey results demonstrate a high level of condom use during sexual encounters with clients. 93.5% of SWs used them during their last sexual intercourse, 86.8% - every time during the past week. During the last month, 89.2% of SWs always used a condom with clients during vaginal sex, 82.5% - during anal and 76.7% - during oral intercourse.

Consistent condom use with non-commercial partners is less common. Over the past 30 days among those who had casual partners 71.3% always used condoms during vaginal sex, 67% - during anal and 60.9% - during oral. Over the last month among those who had regular partners, 27.7% always used a condom during vaginal sex, 30.1% - during anal and 20% - during oral.

Specific percentage of SWs who practiced group sex in the last month remained on the same level compared to the previous wave of study (19.7% in 2013 and in 2016). Among SWs who practiced group sex in the last 30 days, 83.4% reported using a condom with a change of each sexual partner.

Cases of incorrect use of condoms, which may increase the risk of HIV and STIs, are quite common. Over the past 30 days 34.4% SWs had cases when the condom broke or slipped during sexual contact with clients; 69.2% put it on amid the process of sexual intercourse; 6.7% continued the intercourse after condom removal. Regarding sexual contacts with regular partners in the last month, 32.2% of SWs started sexual contact without a condom; in 14.3% of instances sexual contacts continued after the condom removal; 9.6% had cases when the condom broke or slipped during sex. Among SWs who had casual partners in the last month, 14.8% of respondents had cases when the condom broke or slipped during sex, 58.5% started sexual contact without a condom and 8.7% continued sexual contact after condom withdrawal.

About two-thirds of sex workers (69.9%) reported that they would not agree to sex without a condom with a client under any circumstances. The reasons for avoiding the use of condom depend on the type of sexual partner. Some SWs who did not use a condom during last sex with a client did so because the client insisted on it or for an additional remuneration (45% and 23.7% respectively). Among SWs who did not use a condom during their last sexual contact with a partner, 32.5% did so because of they do not like condoms. Avoiding the use of condoms with casual partners was mainly explained by its unavailability at hand (20.2%) or being under influence of alcohol or drugs (21.8%).

86% of sex workers were carrying condoms at the time of participation in the study. 61.2% of respondents used a condom during the most recent sexual contact with a client which they received from a NGO representative.

### **Alcohol and drugs**

Only 8.7% of SWs did not use alcohol or alcoholic beverages in the last month.

About a fifth of respondents (22.2%) used non-injecting drugs during the last 12 months, 17.2% - non-injectable drugs in the last month, 8.6% - any injecting drugs in the last 12 months. Among all SWs 7.7% are active PWID who used injection drugs in the last 30 days. Almost all PWID SWs (95.4%) used a sterile needle and syringe at the last injection.

Only 14.3% of SWs never used alcohol before sexual contacts with clients. The use of drugs in sex work is less common: 21.5% SWs had cases of drug use, 15.1% -alcohol with various drugs.



### **STI and other diseases**

46.6% of the surveyed SWs reported that they suffered from TB, Hepatitis or STIs the last 12 months. Most often they reported to have candidiasis (38.1%). 4.7% of respondents were diagnosed with Hepatitis C during the last year. Almost as many (4.6%) suffered from chlamydia infection, 3.9% had trichomoniasis, 2.9% had genital herpes. According to self-reports, cases of tuberculosis, syphilis, gonorrhea and Hepatitis B are rather sporadic among sex workers. Among all people who have these diseases only half (54.5%) sought treatment from medical facilities.

### **Coverage with harm reduction programs and attitude towards pre-exposure prophylaxis**

Most sex workers (70.1%) are clients of HIV-servicing NGOs working with this target group. Almost all NGO clients (97.2%) received male condoms during the last six months from a NGO representative, about a third (34.6%) received female condoms.

### **HIV testing accessibility**

Almost all sex workers (94.6%) know where to apply for HIV testing. More than half of respondents (55.9%) were tested for HIV in the last 12 months and received their results. From the totality of persons tested, the vast majority (78.3%) applied for this service to the AIDS center, 49.2% - to NGOs.

The main reason why sex workers are not tested for HIV include unwillingness to do a test (39.2% among those who never tested in their life), belief that their own sexual behavior is safe (33.6%) and fear to learn about their HIV-positive status (12.2%).

### **Knowledge of HIV transmission ways**

Less than half of respondents (48.7%) gave correct answers to all five questions in the national indicator that defines the ways of prevention and myths about HIV transmission. Compared with previous studies, the rate of knowledge about HIV in 2016 is the lowest.

### **Awareness of their HIV status and access to the treatment programs for SWs living with HIV**

From the totality of SWs who received a positive HIV test result during the study tests, 87% already know their HIV status. Of these, more than half (53%) were registered in AIDS center, this is 46% of all HIV-positive sex workers on the study. Among those who were aware of their status, 39% were receiving ART – this is 73% of all sex workers registered at the AIDS center, or 34% of all HIV-positive sex workers. Consequently, only a third of sex workers living with HIV have access to treatment.

### **Prevalence of HIV, HBV, HCV and syphilis**

According to a study, among all SWs the HIV prevalence is 7%, Hepatitis C - 11.2%, Hepatitis B - 4%, syphilis - 3.1%.

2.9% of respondents received positive test results for both HIV and HCV.

From the totality of respondents agreeing to disclose HIV status of their partner, 41.6% of PLWH SWs reported that he is HIV positive, and 58.4% - that their partner is HIV-negative. Among SWs with negative test result 2.7% had a permanent partner with HIV.

### **The main factors of the presence of HIV, Hepatitis B, Hepatitis C and syphilis**

Based on the results of multivariate analysis, key factors for the presence of HIV is injecting drug use (adjusted OR= 5.45; 95% CI: 3.82-7.75) and experience of commercial sex work (adjusted OR= 1.09; 95% CI: 1.06-2.11). Providing sexual services in hotels (adjusted OR= 0.11; 95% CI: 0.01-0.81), entertainment (adjusted OR= 0.41; 95% CI: 0.25-0.68) and saunas (adjusted OR= 0.40; 95% CI: 0.16- 0.97) associated with a lower risk of contracting HIV compared with street locations.

The main risk factors of Hepatitis B were the following: injecting drugs in the last 30 days (adjusted OR= 2.10; 95% CI: 1.32-3.32) and experience to provide sexual services for a fee (adjusted OR= 1.08; 95% CI: 1.02- 1.08).

The main risk factors of Hepatitis C were the following: the experience of injecting drug use (adjusted OR= 8.66; 95% CI: 6.40-11.72); inconsistent condom use with clients, permanent or casual partners in the last 30 days (adjusted OR= 1.35; 95% CI: 1.08-1.67); younger age (adjusted OR= 0.42; 95% CI: 0.30-0.58);

experience of working in the sex business (adjusted OR= 1.04; 95% CI: 1.02-1.06), and the type of operating location. Chances of contracting Hepatitis C are lower among sex workers who work in entertainment establishments (adjusted OR= 0.56; 95% CI: 0.38-0.82), saunas or massage parlors (adjusted OR= 0.41; 95% CI: 0.20-0.83), via internet or intermediaries (adjusted OR= 0.64; 95% CI: 0.46-0.90) when compared with street locations.

Only two statistically significant factors related to the presence of syphilis are detected: injecting drug use in the past 30 days (adjusted OR= 1.69; 95% CI: 1.02-2.81) and experience of sex work (adjusted OR= 1.06; 95% CI: 1.04-1.09).

## 5. Recommendations

### Programmatic recommendations:

- The problem of developing and implementing standards of programs for SWs, in particular, evidence-based STI management standards among SWs.
- In connection with the fact that sex business in Ukraine is moving into virtual area (that is, SWs increasingly search for clients in the Internet), it is worth to develop special websites using Internet resources which allow informing the SWs about HIV prevention programs, especially those who work in apartments, in bars, saunas etc, that is are less accessible for NGOs than the street SWs.
- Considering the high level of violence to which SWs are exposed, it is recommended to develop appropriate preventive measures, in particular expansion of access to post-exposure prophylaxis services.
- The PWID-SW double exposure group needs special attention. It is necessary to take coordinated effort to detect such persons and cover them with prevention program, in particular, improve access to substitution therapy.
- Developing prevention programs for adolescents involved in the sex business and are the most vulnerable to HIV/STI remains feasible.
- Actively implement prevention programs among SWs, providing comprehensive and reliable information about the main HIV transmission ways and real prevention methods, especially in the area of sexual relations.
- Improve SWs awareness not on the knowledge of HIV transmission ways, but on the ability to negotiate with the client to avoid unprotected sex, as well as form the skills of personal responsibility for their behavior and health.
- Improve the access of SWs living with HIV to ART, including expansion of the access to integrated services (ART and OST) for PLWH who inject drugs.

### Methodological recommendations:

- Considering the downward trend in the weight of the adolescent age group among SWs it is recommended to increase the regional level IBBS sample to ensure statistically grounded calculations of regional indicators by age groups.
- Continue the research of the above problem using additional research tools to study the channels and methods of impacting the improvement of situation with HIV infection among SWs. In particular, it is necessary to collect additional information on the TB and TB/HIV coinfection prevalence level among this group. It is important to improve biobehavioral study toolkit to explore the full cascade of HIV treatment among SWs: from the awareness of their status to viral load suppression.

## 6. Annexes

### 6.1. Tables of key national and regional M&E indicators

**Summary table of national indicators among SWs-2016**  
(27 regions)

Indicator	<25	25+	all
<b>1. Proportion of commercial sex workers who reported using condom with their last client</b>			
Among all	<i>N=1130</i> 88.0	<i>N=2889</i> 96.0	<i>N=4019</i> <b>93.5</b>
Among SWs who are active PWID	<i>N=48</i> 61.7	<i>N=333</i> 92.1	<i>N=381</i> 87.5
Among non-PWID SWs	<i>N=1082</i> 89.4	<i>N=2556</i> 96.6	<i>N=3638</i> 94.2
<b>2. Proportion of sex workers who got tested for HIV and know their results</b>			
Among all	<i>N=686</i> 44.6	<i>N=1932</i> 61.1	<i>N=2618</i> <b>55.9</b>
Among SWs who are active PWID	<i>N=48</i> 86.3	<i>N=258</i> 65.9	<i>N=306</i> 69.0
Among non-PWID SWs	<i>N=638</i> 42.3	<i>N=1674</i> 60.4	<i>N=2312</i> 54.3
<b>3. Proportion of SWs living with HIV</b>			
Among all	<i>N=17</i> 0.7	<i>N=253</i> 9.9	<i>N=270</i> <b>7.0</b>
Among SWs who are active PWID	<i>N=2</i> 1.1	<i>N=97</i> 35.5	<i>N=99</i> 30.3
Among non-PWID SWs	<i>N=15</i> 0.7	<i>N=156</i> 6.0	<i>N=171</i> 4.2

**Summary table of national indicators among SWs-2016**  
(25 regions, except for Donetsk and Luhansk)

<b>Indicator</b>	<b>&lt;25</b>	<b>25+</b>	<b>All</b>
<b>1. Proportion of commercial sex workers who reported using condom with their last client</b>			
Among all	<i>N=1057</i>	<i>N=2645</i>	<i>N=3702</i>
	88.0	96.2	<b>93.6</b>
Among SWs who are active PWID	<i>N=48</i>	<i>N=314</i>	<i>N=362</i>
	61.7	92.3	87.6
Among non-PWID SWs	<i>N=1009</i>	<i>N=2331</i>	<i>N=3340</i>
	89.4	96.8	94.3
<b>2. Proportion of sex workers who got tested for HIV and know their results</b>			
Among all	<i>N=630</i>	<i>N=1795</i>	<i>N=2425</i>
	44.0	61.5	<b>55.9</b>
Among SWs who are active PWID	<i>N=48</i>	<i>N=246</i>	<i>N=294</i>
	86.3	66.2	69.3
Among non-PWID SWs	<i>N=582</i>	<i>N=1549</i>	<i>N=2131</i>
	41.6	60.7	54.3
<b>3. Proportion of SWs living with HIV</b>			
Among all	<i>N=14</i>	<i>N=218</i>	<i>N=232</i>
	0.6	9.8	<b>6.9</b>
Among SWs who are active PWID	<i>N=2</i>	<i>N=85</i>	<i>N=87</i>
	1.1	35.2	29.9
Among non-PWID SWs	<i>N=12</i>	<i>N=133</i>	<i>N=145</i>
	0.6	5.8	4.1

**Indicator 1****Proportion of commercial sex workers who reported using condom with their last client**

**Numerator:** number of those who gave affirmative answer to the question: 1. Did you use condom during the last intercourse with the client?

**Denominator:** number of respondents who reported having commercial sex contacts in the last 12 months.

**Indicator:** proportion of commercial sex workers who reported using a condom with their last client.

Region	Proportion of commercial sex workers who reported using a condom with their last client				
	Among all (men and women)				
	Methodology	Sample (persons)	Indicators		
<25			25+	all	
<b>Ukraine (27 cities)</b>		<b>4300</b>	88.0	96.0	<b>93.5</b>
<b>Ukraine (25 cities – without Donetsk and Luhansk)</b>		<b>3950</b>	88.0	96.2	<b>93.6</b>
AR of Crimea	TLS	150	70.0	94.0	<b>89.0</b>
Vinnitsya	RDS	150	100.0	100.0	<b>100.0</b>
Volyn	TLS	150	87.1	79.0	<b>80.9</b>
Dnipropetrovsk	TLS	200	97.1	79.0	<b>98.2</b>
Donetsk	KI	200	88.2	91.8	<b>91.5</b>
Zhytomyr	TLS	150	91.0	84.7	<b>87.9</b>
Zakarpattia	TLS	150	89.4	88.7	<b>89.5</b>
Zaporizhzhya	TLS	150	100.0	98.2	<b>98.6</b>
Ivano-Frankivsk	TLS	150	57.9	93.3	<b>89.0</b>
Kyiv oblast (Bila Tserkva)	TLS	150	78.0	96.8	<b>89.7</b>
Kirovohrad	RDS	150	98.5	97.8	<b>98.0</b>
Luhansk	KI	150	87.9	90.5	<b>89.3</b>
Lviv	TLS	150	100.0	99.2	<b>99.3</b>
Mykolayiv	TLS	200	95.5	96.4	<b>96.3</b>
Odesa	TLS	150	100.0	100.0	<b>100.0</b>
Poltava	TLS	200	82.2	97.2	<b>90.6</b>
Rivne	TLS	150	96.1	96.5	<b>97.0</b>
Sumy	RDS	150	84.1	96.7	<b>92.6</b>
Ternopil	TLS	150	73.0	87.2	<b>83.4</b>
Kharkiv	TLS	200	100.0	99.4	<b>99.5</b>
Kherson	TLS	150	100.0	99.1	<b>99.3</b>
Khmelnitskyy	RDS	150	100.0	99.5	<b>99.6</b>
Cherkasy	RDS	150	74.2	93.6	<b>90.1</b>
Chernivtsi	TLS	150	100.0	98.9	<b>99.2</b>
Chernihiv	RDS	100	77.2	91.7	<b>79.6</b>
Kyiv	TLS	200	98.8	98.9	<b>98.9</b>
Sevastopol	TLS	150	87.5	84.7	<b>85.1</b>

Region	Proportion of commercial sex workers who reported using a condom with their last client				
	Among women				
	Methodology	Number of women (persons)	Indicator		
<25			25+	all	
Ukraine (27 cities)		<b>4262</b>	87.8	96.0	<b>93.4</b>
Ukraine (25 cities – without Donetsk and Luhansk)		<b>3915</b>	87.8	96.2	<b>93.5</b>
AR of Crimea	TLS	150	70.0	94.0	<b>89.0</b>
Vinnitsya	RDS	148	100.0	100.0	<b>100.0</b>
Volyn	TLS	150	87.1	79.0	<b>80.9</b>
Dnipropetrovsk	TLS	200	97.1	98.1	<b>98.2</b>
Donetsk	KI	200	88.2	91.8	<b>91.5</b>
Zhytomyr	TLS	150	91.0	84.7	<b>87.9</b>
Zakarpattia	TLS	144	88.9	88.2	<b>89.1</b>
Zaporizhzhya	TLS	150	100.0	98.2	<b>98.6</b>
Ivano-Frankivsk	TLS	150	57.9	93.3	<b>89.0</b>
Kyiv oblast (Bila Tserkva)	TLS	150	78.0	96.8	<b>89.7</b>
Kirovohrad	RDS	131	98.2	98.3	<b>98.3</b>
Luhansk	KI	150	87.9	90.5	<b>89.3</b>
Lviv	TLS	150	100.0	99.2	<b>99.3</b>
Mykolayiv	TLS	200	95.5	96.4	<b>96.3</b>
Odesa	TLS	150	100.0	100.0	<b>100.0</b>
Poltava	TLS	197	82.2	97.1	<b>90.4</b>
Rivne	TLS	149	96.1	96.4	<b>96.9</b>
Sumy	RDS	149	84.1	96.7	<b>92.5</b>
Ternopil	TLS	149	72.2	87.2	<b>83.3</b>
Kharkiv	TLS	199	100.0	99.4	<b>99.5</b>
Kherson	TLS	150	100.0	99.1	<b>99.3</b>
Khmelnitsky	RDS	150	100.0	99.5	<b>99.6</b>
Cherkasy	RDS	150	74.2	93.6	<b>90.1</b>
Chernivtsi	TLS	149	100.0	98.9	<b>99.2</b>
Chernihiv	RDS	98	77.2	91.0	<b>79.3</b>
Kyiv	TLS	199	98.8	98.9	<b>98.8</b>
Sevastopol	TLS	150	87.5	84.7	<b>85.1</b>

Region	Proportion of commercial sex workers who reported using a condom with their last client			
	Among male SWs			
	Number of men (persons)	Indicator		
<25		25+	all	
Ukraine (27 cities)	<b>38</b>	100.0	96.1	<b>96.7</b>
Ukraine (25 cities – without Donetsk and Luhansk)	<b>38</b>	100.0	96.1	<b>96.7</b>

## **Indicator 2**

### **Proportion of SWs who got tested for HIV and know their results**

**Numerator:** number of those who gave affirmative answer to the question: 1. Did you pass an HIV test in the last 12 months? 2. We are not asking about the results, but did you obtain them?

**Denominator:** total number of sex workers who participated in the study.

**Indicator:** number of commercial sex workers who got tested for HIV and know their results.

Region	Proportion of SWs who got tested for HIV and know their results				
	Among all (men and women)				
	Methodology	Sample (persons)	Indicator		
<25			25+	all	
Ukraine (27 cities)	Methodology	4300	44.6	61.1	55.9
Ukraine (25 cities – without Donetsk and Luhansk)		3950	44.0	61.5	55.9
AR of Crimea	TLS	150	46.7	59.5	56.8
Vinnitsya	RDS	150	62.7	81.0	72.6
Volyn	TLS	150	68.8	71.0	71.0
Dnipropetrovsk	TLS	200	58.6	65.2	63.1
Donetsk	KI	200	47.1	46.4	46.5
Zhytomyr	TLS	150	12.8	9.9	12.0
Zakarpattia	TLS	150	23.4	27.8	26.4
Zaporizhzhya	TLS	150	56.7	58.6	58.2
Ivano-Frankivsk	TLS	150	52.6	77.0	74.0
Kyiv oblast (Bila Tserkva)	TLS	150	40.0	57.9	51.7
Kirovohrad	RDS	150	30.4	58.0	53.1
Luhansk	KI	150	72.7	61.9	66.7
Lviv	TLS	150	70.0	60.6	61.9
Mykolayiv	TLS	200	59.1	63.7	63.2
Odesa	TLS	150	88.9	83.3	85.7
Poltava	TLS	200	63.0	84.1	75.6
Rivne	TLS	150	51.3	73.7	60.6
Sumy	RDS	150	34.5	53.3	47.2
Ternopil	TLS	150	23.7	56.8	49.1
Kharkiv	TLS	200	77.8	78.3	78.1
Kherson	TLS	150	23.8	50.4	46.4
Khmelnitskyy	RDS	150	67.1	76.6	74.2
Cherkasy	RDS	150	66.8	54.5	56.8
Chernivtsi	TLS	150	100.0	84.3	89.3
Chernihiv	RDS	100	15.8	37.9	19.3
Kyiv	TLS	200	79.3	81.1	80.5
Sevastopol	TLS	150	36.0	47.1	45.3



Region	Proportion of SWs who got tested for HIV and know their results				
	Among women				
	Methodology	Number of women (persons)	Indicator		
<25			25+	all	
Ukraine (27 cities)		<b>4262</b>	45.1	61.9	<b>56.6</b>
Ukraine (25 cities – without Donetsk and Luhansk)		<b>3915</b>	44.6	62.3	<b>56.6</b>
AR of Crimea	TLS	150	46.7	59.5	<b>56.8</b>
Vinnitsya	RDS	148	62.7	83.9	<b>73.9</b>
Volyn	TLS	150	68.8	71.0	<b>71.0</b>
Dnipropetrovsk	TLS	200	58.6	65.2	<b>63.1</b>
Donetsk	KI	200	47.1	46.4	<b>46.5</b>
Zhytomyr	TLS	150	12.8	9.9	<b>12.0</b>
Zakarpattia	TLS	144	22.2	29.0	<b>26.8</b>
Zaporizhzhya	TLS	150	56.7	58.6	<b>58.2</b>
Ivano-Frankivsk	TLS	150	52.6	77.0	<b>74.0</b>
Kyiv oblast (Bila Tserkva)	TLS	150	40.0	57.9	<b>51.7</b>
Kirovohrad	RDS	131	35.4	60.5	<b>56.0</b>
Luhansk	KI	150	72.7	61.9	<b>66.7</b>
Lviv	TLS	150	70.0	60.6	<b>61.9</b>
Mykolayiv	TLS	200	59.1	63.7	<b>63.2</b>
Odesa	TLS	150	88.9	83.3	<b>85.7</b>
Poltava	TLS	197	63.0	85.6	<b>76.3</b>
Rivne	TLS	149	51.3	73.2	<b>60.6</b>
Sumy	RDS	149	34.5	53.7	<b>47.4</b>
Ternopil	TLS	149	21.6	56.8	<b>48.8</b>
Kharkiv	TLS	199	77.8	78.3	<b>78.0</b>
Kherson	TLS	150	23.8	50.4	<b>46.4</b>
Khmelnitsky	RDS	150	67.1	76.6	<b>74.2</b>
Cherkasy	RDS	150	66.8	54.5	<b>56.8</b>
Chernivtsi	TLS	149	100.0	84.3	<b>89.2</b>
Chernihiv	RDS	98	15.8	41.0	<b>19.6</b>
Kyiv	TLS	199	79.3	81.0	<b>80.5</b>
Sevastopol	TLS	150	36.0	47.1	<b>45.3</b>

Region	Proportion of SWs who got tested for HIV and know their results				
	Among male SWs				
	Number of men (persons)	Indicator			
<25		25+	all		
Ukraine (27 cities)	<b>38</b>	6.0	37.3	<b>32.1</b>	
Ukraine (25 cities – without Donetsk and Luhansk)	<b>38</b>	6.0	37.1	<b>32.0</b>	

**Indicator 3**  
**Proportion of SWs living with HIV**

**Numerator:** Number of SWs who had positive HIV test result.

**Denominator:** total number of SWs who got tested.

**Indicator:** proportion of SWs living with HIV.

Region	Proportion of SWs living with HIV				
	Among all (men and women)				
	Methodology	Sample ( <i>persona</i> )	Indicator		
<25			25+	all	
Ukraine (27 cities)		<b>4300</b>	0.7	9.9	<b>7.0</b>
Ukraine (25 cities – without Donetsk and Luhansk)		<b>3950</b>	0.6	9.8	<b>6.9</b>
AR of Crimea	TLS	150	3.3	3.4	<b>3.4</b>
Vinnitsya	RDS	150	0.0	14.0	<b>7.6</b>
Volyn	TLS	150	0.0	5.1	<b>3.8</b>
Dnipropetrovsk	TLS	200	0.0	3.2	<b>2.2</b>
Donetsk	KI	200	11.8	17.5	<b>17.0</b>
Zhytomyr	TLS	150	0.0	1.4	<b>0.7</b>
Zakarpattia	TLS	150	0.0	3.1	<b>2.1</b>
Zaporizhzhya	TLS	150	0.0	9.1	<b>7.1</b>
Ivano-Frankivsk	TLS	150	5.3	17.8	<b>16.2</b>
Kyiv oblast (Bila Tserkva)	TLS	150	2.0	16.8	<b>11.7</b>
Kirovohrad	RDS	150	0.0	7.9	<b>6.5</b>
Luhansk	KI	150	1.5	3.6	<b>2.7</b>
Lviv	TLS	150	0.0	1.6	<b>1.4</b>
Mykolayiv	TLS	200	9.1	5.4	<b>5.8</b>
Odesa	TLS	150	4.8	13.1	<b>9.5</b>
Poltava	TLS	200	1.4	14.0	<b>8.9</b>
Rivne	TLS	150	0.0	14.0	<b>6.1</b>
Sumy	RDS	150	0.0	2.5	<b>1.7</b>
Ternopil	TLS	150	0.0	5.6	<b>4.3</b>
Kharkiv	TLS	200	1.9	0.6	<b>0.9</b>
Kherson	TLS	150	0.0	8.5	<b>7.2</b>
Khmelnyskyy	RDS	150	4.0	6.8	<b>6.1</b>
Cherkasy	RDS	150	0.0	22.8	<b>18.6</b>
Chernivtsi	TLS	150	2.4	1.1	<b>1.5</b>
Chernihiv	RDS	100	0.0	17.9	<b>2.9</b>
Kyiv	TLS	200	0.0	2.9	<b>1.9</b>
Sevastopol	TLS	150	4.2	4.4	<b>4.3</b>

Region	Proportion of SWs living with HIV				
	Among women				
	Methodology	Number of women (persons)	Indicator		
<25			25+	all	
Ukraine (27 cities)		<b>4262</b>	0.7	9.9	<b>7.0</b>
Ukraine (25 cities – without Donetsk and Luhansk)		<b>3915</b>	0.6	9.7	<b>6.8</b>
AR of Crimea	TLS	150	3.3	3.4	<b>3.4</b>
Vinnitsya	RDS	148	0.0	14.6	<b>7.7</b>
Volyn	TLS	150	0.0	5.1	<b>3.8</b>
Dnipropetrovsk	TLS	200	0.0	3.2	<b>2.2</b>
Donetsk	KI	200	11.8	17.5	<b>17.0</b>
Zhytomyr	TLS	150	0.0	1.4	<b>0.7</b>
Zakarpattia	TLS	144	0.0	3.2	<b>2.2</b>
Zaporizhzhya	TLS	150	0.0	9.1	<b>7.1</b>
Ivano-Frankivsk	TLS	150	5.3	17.8	<b>16.2</b>
Kyiv oblast (Bila Tserkva)	TLS	150	2.0	16.8	<b>11.7</b>
Kirovohrad	RDS	131	0.0	7.0	<b>5.8</b>
Luhansk	KI	150	1.5	3.6	<b>2.7</b>
Lviv	TLS	150	0.0	1.6	<b>1.4</b>
Mykolayiv	TLS	200	9.1	5.4	<b>5.8</b>
Odesa	TLS	150	4.8	13.1	<b>9.5</b>
Poltava	TLS	197	1.4	14.4	<b>9.0</b>
Rivne	TLS	149	0.0	14.3	<b>6.1</b>
Sumy	RDS	149	0.0	2.5	<b>1.7</b>
Ternopil	TLS	149	0.0	5.6	<b>4.3</b>
Kharkiv	TLS	199	1.9	0.6	<b>0.9</b>
Kherson	TLS	150	0.0	8.5	<b>7.2</b>
Khmelnitskyy	RDS	150	4.0	6.8	<b>6.1</b>
Cherkasy	RDS	150	0.0	22.8	<b>18.6</b>
Chernivtsi	TLS	149	2.4	1.1	<b>1.5</b>
Chernihiv	RDS	98	0.0	19.4	<b>2.9</b>
Kyiv	TLS	199	0.0	2.9	<b>1.9</b>
Sevastopol	TLS	150	4.2	4.4	<b>4.3</b>

Region	B Proportion of SWs living with HIV			
	Among male SWs			
	Number of men (persons)	Indicator		
<25		25+	all	
Ukraine (27 cities)	<b>38</b>	0.0	11.3	<b>9.5</b>
Ukraine (25 cities – without Donetsk and Luhansk)	<b>38</b>	0.0	11.3	<b>9.5</b>

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**ANALYTICAL REPORT  
MONITORING OF BEHAVIOR AND HIV PREVALENCE  
AMONG SEX WORKERS**

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