

**RESEARCH ON RISK BEHAVIOUR IN RELATION TO HIV/STI
PREVALENCE AMONG GROUPS EXPOSED TO HIGHER RISK
(MSM AND SW) IN BOSNIA AND HERZEGOVINA, 2012**

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ACRONYMS

| | |
|------------------|--|
| AIDS | Acquired immune deficiency syndrom |
| AAA | Action against AIDS |
| BBS | Bio-Bihevioral Study |
| B&H | Bosnia and Herzegovina |
| F B&H | Federation of Bosnia and Herzegovina |
| GFATM | Global Fund to Fight HIV/AIDS, Tuberculosis |
| HBV | Hepatitis B virus |
| HCV | Hepatitis C virus |
| HIV | Human immunodeficiency virus |
| MSM | Men who have sex with men |
| NGO | Non-governmental organisation |
| RC | Resource centre |
| RS | Republic of Srpska |
| STD | Sexually transmitted disease |
| STI | Sexually transmitted infection |
| WHO | World Health Organization |
| SW | Sex workers |
| PROI | Association for support and re-socialisation of injecting drug users |
| UNDP | United Nations Development Programme |
| UNICEF | United Nations Children's Fund |
| UNAIDS | The Joint United Nations Programme on HIV and AIDS |
| XY | Association for sexual and reproductive health – XY |

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AUTHORS

1. INTRODUCTION

HIV still remains an important public health problem, visible from continuous infection transmissions in many countries, especially among population exposed to higher risk as a result of the high risk of their sexual behaviour: persons who frequently change partners, men who have sex with men (MSM), persons who provide sexual services in exchange for money or some other recompense (sex workers, SW).

In that context, testing for HIV along with monitoring behavioural trends represents the key monitoring activity for tracking HIV epidemics, especially in populations that are difficult to reach – MSM, SW.

According to data of routine statistics, a total of 222 HIV-infected persons, 120 of whom in the AIDS stage, have been registered from the first reported case of HIV/AIDS in 1986 until November 2012.

Bosnia and Herzegovina is a country with a low level of HIV epidemics, but the circumstances in the country (bad socioeconomic conditions, high unemployment, insufficient education of population, especially regarding HIV and STI transmission, increase in drug use, increase in crime, prostitution, human trafficking, migrations, stigma, discrimination, not being familiar with the population exposed to higher risk that is difficult to access) represent a potential danger for HIV transmission even in the next period.

The dominant way of HIV transmission in B&H is sexually, 52% heterosexually and 28.5% homo/bisexually, 9.5% get infected injecting drugs. In the Federation of B&H, the dominant way of transmission is also through heterosexual intercourse (52.6%), homo/bisexual one 30.8%, and drug injecting 11.2%. Population groups exposed to higher risk of HIV/AIDS are men who have sex with men, sex workers, injecting drug users, mobile population that behaves promiscuously.

Social barriers created by a low level of education, ignorance, prejudice, stigma, discrimination cause that many of these high risk groups are marginalised and have restricted access to health care. The problem is that these subpopulation groups are not easily accessible, are hidden; their size, sociodemographic characteristics and geographical distribution are mostly unknown.

Fear of loss of anonymity, questionable confidentiality of data (as it is mostly an illegal form of behaviour – selling sexual services, drug abuse etc) additionally complicate their accessibility.

Surveillance of HIV/AIDS is adjusted to the current status of epidemics (BiH is a country of low epidemics, thus according to the WHO, surveillance activities are focused on the population whose behaviour exposes them to the risk of HIV infection).

The purpose of biological surveillance (serosurvey) is to follow the trend of HIV infection in these groups, while the surveillance of behaviour is focused on monitoring behaviour, understanding the relationship between the population at risk and populations that do not directly share exposure to risk. By conducting these bio-behavioural studies data that enable monitoring of HIV prevalence and behaviour patterns in subpopulation groups are gathered (II generation of surveillance) in order to assess and control HIV risk and evaluate programme activities (GF).

In this research we have continued surveillance of HIV and other blood transmitted and sexually transmitted infections among MSM and SW in Bosnia and Herzegovina. Similar studies were conducted in 2008 and 2010. This report represents new knowledge and discussions in relation to the results of the previous research.

2. OBJECTIVES OF THE STUDY

General aim

Explore risk behaviour of selected populations exposed to higher risk of HIV/STI, identify risk factors and risk behaviours so as to enable planning preventive measures and conducting assessment of success and coverage of target populations in conducted programmes of prevention.

Specific aims

- Assess HIV and selected STI prevalence among the MSM and SW populations and risk factors associated with HIV infection;
- explore knowledge, attitude and behaviour in relation to HIV/STI in subpopulation groups of SW and MSM
- explore sociodemographic and cultural characteristics in relation to the relevant risk behaviour of target subpopulations

3. METHODOLOGY

Research was conducted as a descriptive, multicentre bio-behavioral prevalent study among the MSM population and among the SW population.

3.1. Target population

Sociogeographic mapping determined the locations of subpopulations exposed to risk of HIV/STI which enabled sampling for behavioural and biological research.

Sex workers are defined as persons of female gender that exchange sexual favours for money or something else.

Men who have sex with men are defined as any one person of male gender that is involved in sexual activities with another man.

3.2. Place of research:

The study was conducted in bigger towns in BiH : Sarajevo, Tuzla Zenica-Travnik, Mostar Banjaluka, Bijeljina, Prijedor. All the places were selected on the basis of estimated existence of high risk groups, accessibility of outreach workers, engagement of NGOs, availability of confidential information and data from the two previous researches.

3.3. Framework of the sample:

The research included a total of 200 sex workers (SW) and 340 men who have sex with men (MSM).

The criteria for including sex workers: self-identification as sex workers, that they have provided a paid sexual service (penetrational sex) in the last 12 months, that they are older than 16 and that they are participating in the study with informed consent.

The criteria for including MSM: self-identification as MSM, that they have had a sexual intercourse with a man in the past 6 months, that they are older than 16 and that they are participating in the study with informed consent.

The criteria for exclusion of both target populations: younger than 16, if they are injecting drug users (IDU) at the moment.

3.4. Methodology of sampling

a) Both samples were selected applying the method of “snowball sampling”.

After previously collected quantitative and qualitative data from different sources which determined locations within which target population (SW and MSM) could be found, a preliminary qualitative research was conducted and it included field “mapping”.

There was initial locating of a certain number of the target population that satisfied the criteria for inclusion, these were the initial source of information through which the other “members” were reached and taken into the sample (if they complied with the given standards for inclusion).

The interviewees were recruited through activists (outreach workers who have experience working with these populations and had previously attended a workshop intended for the members of the research team).

MSM and SW sample

Table 1: Sample structure according to location

| Municipality | Number of interviewees | |
|--------------|--------------------------|-------------------------|
| | MSM | SW |
| Sarajevo | 100 | 50 |
| Banja Luka | 105 | 55 |
| Zenica | - | 30 |
| Tuzla | 40 | - |
| Prijedor | 30 | / |
| Mostar | 30 | 30 |
| Bijeljina | 35 | 35 |
| Total | 340 (FB&H-170 + RS -170) | 200 (FB&H-110 + RS- 90) |

4. RESEARCH TOOL – COLLECTION OF DATA, QUESTIONNAIRE

Questionnaires (MSM i SW) are constructed according to guidelines for repeated bio-behavioural research in populations with higher risk of HIV and contain key set of questions and answers about the agreed national and UNGASS indicators on MSM and SW. The questionnaire was coded. The same code was also used for the blood sample (5ml) that was taken (using vacutiner) after the informed consent had been obtained, and for a sample (blood, throat swab culture) taken for quick test.

The interviewees were offered free counselling before and after the test, condoms and recompense in form of a credit for their mobile phones. Due to sensitive nature of HIV/AIDS, for better protection of the participants the consent for participation in the study was oral, but was confirmed by the interviewee's signature on the form for informed consent.

The quick test (blood, oral) was read on the spot, the result was reported (communicated by a certified counsellor – health worker along with post-test counselling).

Blood (serum) was delivered to chosen laboratories (Microbiological laboratory of the Institute of Public Health of RS and Institute for Biomedical Diagnostics and Research "Nalaz" from Sarajevo). Testing was conducted with the help of ELISA tests of the newer generation. Every interviewee got the number of the contact telephone they could use after 7-10 days to get informed on the possibility of getting the results and inclusion in post-test counselling. In case of a positive HIV test, a confirmation test and referral to an infectologist for further analysis were suggested to the interviewee interested in the result.

5. AGREEMENT OF THE ETHICAL COMMITTEE

The research protocol and survey questionnaires were delivered to the ethical committee in order to secure agreement on implementation of research that would not hurt the interviewees' dignity and rights to protection of privacy, that the research would not oppose the principles of the Helsinki Declaration.

Furthermore, ethics of research was secured by getting an informed consent for each interviewee.

6. COLLECTION, PROCESSING AND STATISTICAL ANALYSIS OF DATA

After logical processing of filled questionnaires and data entry into the Microsoft Access 2000 database, SPSS for Windows (version 15.00, SPSS INC, Chicago, Illinois, USA) was used for statistical analysis.

The method of descriptive statistics was used for data processing. Data were shown as frequency and percentage for category variables, median and range for ordinals, and mean value and standard deviation for continuing variables, the latter depending on the distribution of data. To test differences, the χ^2 test was used, with the probability level from $p < 0.05$.

**RESEARCH ON RISK BEHAVIOUR IN RELATION TO HIV/STI
PREVALENCE AMONG GROUPS EXPOSED TO HIGHER RISK**

MSM POPULATION



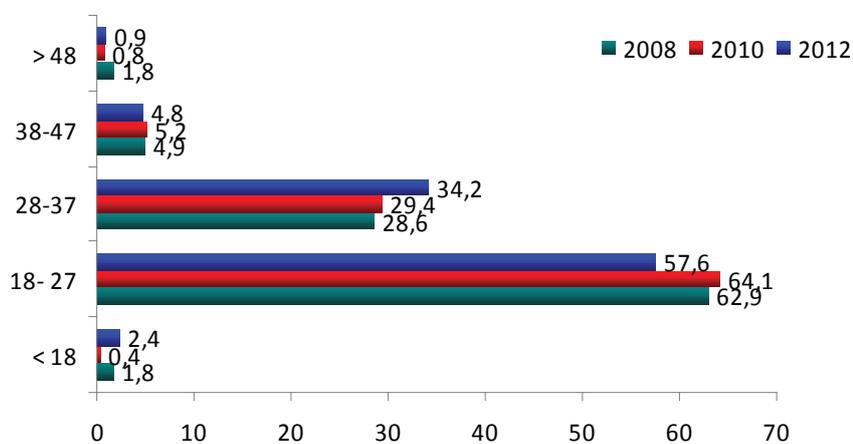
7. RESULTS

7.1. Sociodemographic characteristics

The research included a total of 333 interviewees in six towns in Bosnia and Herzegovina: Bijeljina (32), Banja Luka (104), Prijedor (30), Sarajevo (97), Tuzla (40) and Mostar (30).

The interviewees are mostly citizens of B&H (98.5%), most of them urban population (94.0%) and almost 96% of them have been living in their place of residence for more than a year. The average age of interviewees is 27 (standard deviation 6.54) with the range of 16-60 years of age. The majority of them belong to the age group 18-27 (62.9%), similar to previous researches (2008 and 2010).

Graph 1: MSM interviewees according to age groups/years of research



They are mostly well educated. The biggest percentage of the interviewees has a secondary education (63.7%), then university (20.1%) and college education (8.7%), while 7.5% of them have primary education. Of relatively good education were also the interviewees in the previous researches (in 2008 97% and in 2010 99.6% of the interviewees had secondary, college and university education).

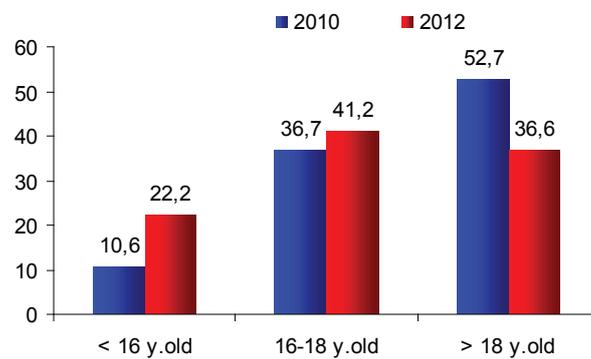
At the time of the survey, one third of participants (32.4%) was unemployed, 37.2% of them had a permanent employment, 15.9% worked occasionally and 14.4% were students. Comparing that to the data on the employment status of interviewees in the previous two researches, a slight decrease in the employment rate and a slightly smaller proportion of student interviewees are visible. 85.6% of the interviewees say they have health insurance.

As for the marital status, the interviewees are for the most part single (82.5%), 4.2% of them are married (which is more than in the previous two researches), while 2.4% of them are divorced.

7.2. Sexual behaviour

The average age at first sexual intercourse with a man is 19 (standard deviation 8.49). 22.2% of them state they had their first sexual intercourse with a man before the age of 16, 41.1% at age of 16-18 and 36.5% had it after the age of 18.

Graph 2: Distribution of interviewees according to age groups, age at first sexual intercourse with a man



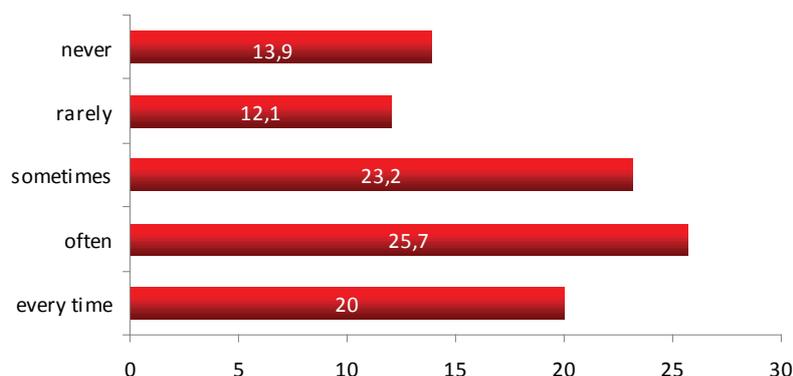
In comparison to the 2010 research, a decrease in age limit for the first sexual intercourse is noticeable; in 2010 10.6% of them had sex with a man before the age of 16. 36.6% of the interviewees had their first anal sex when they were over 18, which is less than in the 2010 research (52.7%). 77.5% of them state that they were the insertive partner with 3 different men on average in the last 6 months, 60.7% state they were the receptive partner with 2 different men on average.

In the last six months anal intercourse with a regular partner was what 83.3% of the interviewees had, with two different regular partners on average. In the last month, the interviewees state they had seven anal intercourses with their regular partner on average. There are no significant differences when compared to the 2010 research (84.5% of interviewees, average of 2 different regular partners, 8 anal intercourses).

7.2.1. Condom use

The interviewees who have had anal intercourses with a regular partner in the last 6 months used a condom every time in 20% of cases, often in 25.7%, sometimes in 23.2% and rarely in 12.1%, while 13.9% state they never used a condom during that period. In comparison to the research in 2010, a smaller percentage of interviewees used a condom during every anal intercourse with their regular partner (23% in 2010), but there is also a smaller percentage of interviewees who never used a condom (16.9% in 2010).

Graph 3. Condom use with a regular partner

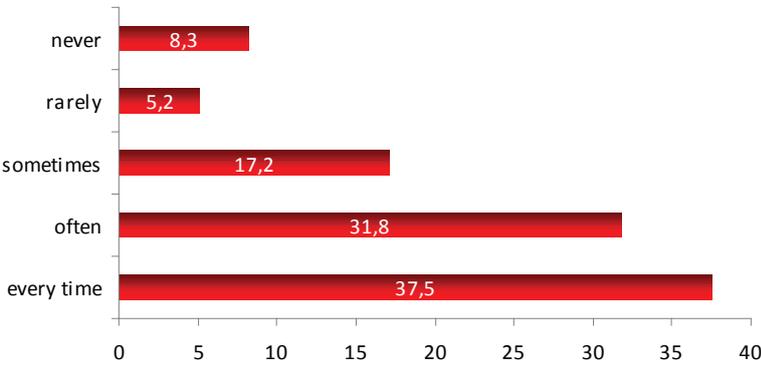


According to the obtained results, 63.9% of the interviewees have had anal sex with a random partner in the last 6 months. This percentage shows a slightly increasing trend in comparison to the researches in 2008 (57.4%) and 2010 (63.1%).

On average the interviewees had 2-3 different random partners, with the average of 3 anal intercours in the last month, which is less than in the 2010 research (3-4 random partners, with 3 anal intercours on average).

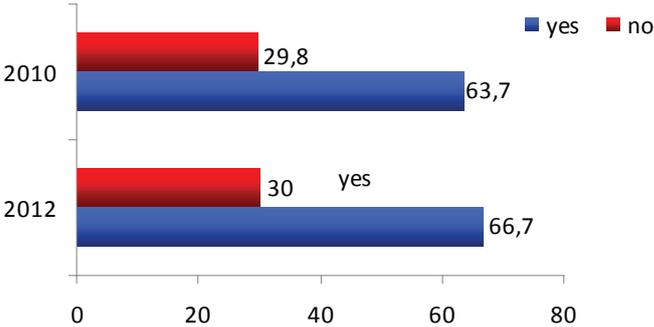
Upon question of frequency of the use of a condom during anal intercourse, 37.5% answered they use a condom every time. In comparison to previous researches, there is an uneven trend with a decrease in the 2012 research (49.2% in 2008, 54.8% in 2010).

Graph 4: Condom use with a random partner



During last anal intercourse with a male partner, 66.7% used a condom and this percentage is slightly higher than during the research in 2010 (63.7%).

Graph 5: Condom use during last anal intercourse, parallel data from researches in 2010 and 2012



As the reason for not using a condom during anal intercourse with a man, most of the interviewees state they “do not like having sex with a condom” (25.0%), “a condom was not available at that moment” (19%) and some say they “trust their partner” (11.0%). When compared to the research in 2010, a smaller portion of the interviewees are those who believe their partner, and a bigger portion are those who state that the reason for not using a condom is “not liking having sex with a condom”.

Out of the total number of participants, 11 (3.3%) state they have had commercial partners in the last 6 months. 8 of them (57.1%) used a condom during last sexual intercourse with a commercial partner, same result as in 2010.

Most interviewees (85.0%) have practiced oral sex with their male partners in the last 6 months, with 3 different partners on average. During last oral sex 87.4% interviewees did not use a condom, while only 4.6% of the interviewees used a condom every time they had oral sex in the last 6 months. In the research conducted in 2010 a slightly higher percentage of interviewees (89.5%) report practicing oral sex with a male partner in the last 6 months, with the average of 3 different partners. During last oral sex, a slightly smaller percentage (85.5%) did not use a condom, while a higher number of them (6.3%) used a condom every time they had oral sex in the last 6 months.

7.2.2. Use of lubricants

In the last 6 months, 89.8% of the interviewees used a lubricant during every anal intercourse, mostly water-based industrial lubricants (84.9%), 27.9% of them used it every time, 44.7% used it often, while 4.9% did not use a lubricant in that period. In comparison to the research in 2010 (27,4%), only slightly higher number of interviewees used a lubricant during every anal intercourse with a man.

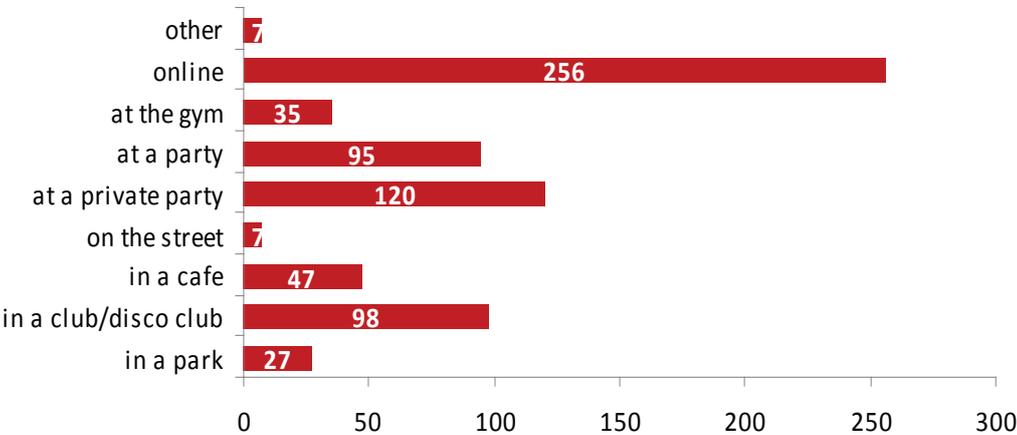
7.2.3. Places of meeting, sexual contacts

Upon question of whether they are familiar with the personal data of their last sex partner, 83.5% of the interviewees responded affirmatively. This is a somewhat higher percentage than in previous two studies (82.1% in 2008 and 80.6% in 2010).

Every fourth interviewee (66 – 25.7%) claims to know the first and last names of 1-10 persons of same sexual orientation, every interviewee knows on average 48 persons of same sexual orientation (standard deviation 79.47, range 2-700). In comparison to the previous researches, this average has an increasing trend (28.3 in 2008, 42.7 in 2010, 47.9 in 2012). These data can serve for the assessment of a social and sexual network and description of risk behaviour of their members.

The most common way of making contact with male partners is online (76.9%), just like in the previous two studies, only that the percentage is significantly higher in comparison to the researches in 2008 and 2010 (58.3% in 2008 and 56.3% in 2010). Private parties at 36.0% and clubs/disco clubs at 29.4% are significantly less present.

Graph 6: Places for finding sexual partners



One third of the interviewees (28.7%) claim they never frequent places where you usually encounter MSM population, while only 5.4% of them go there a few times a week.

Similar to results in the previous study, as places for having sex with a male partner in the last six months, the interviewees most often state their own house/apartment (73.3%), their partner's house/apartment (55.0%) and a car (29.1%).

7.2.4. Bisexual relations

Almost one half of the interviewees (45.5%) say they have had a sexual experience with a woman. In comparison to the previous researches, this percentage shows a decreasing trend (68.3% in 2008 and 55.4% in 2010). In the last 12 months, 8 interviewees (6.6%) say they have had five and more different sexual partners, which is less than in the 2008 research (12 interviewees – 7.8%) and 2010 (11 – 12.2%).

Out of 152 of the interviewees who answered the question of whether they were in a relationship with a woman at that moment, 32 (21.2%) answered affirmatively. This is slightly more than compared to the research in 2010 (20.3%) and less compared to the research in 2008 (22.2%).

Out of 151 interviewees who report having had sex with a woman, 67 (54.5%) used a condom during last sexual intercourse. In comparison to previous researches, this percentage has an uneven trend (55.2% in 2008), an increase in 2010 (58.4%) and decrease in 2012.

7.2.5. Other sexual risk behaviours

Practicing group sex in the last six months is what 14.8% of the interviewees state to have done, which is less than in the two previous researches (16.1% in 2008 and 17.7% in 2010). At the same period, 69.6% of them report having a sexual intercourse under the influence of alcohol. In comparison to the previous researches, this percentage has an uneven trend (58.8% in 2008, 76.9% in 2010) with a significant increase in 2010 and decrease in 2012. In the last six months, 26.7% report having had a sexual intercourse under the influence of drugs. When compared to the previous researches, this percentage also shows an uneven trend (24.1% in 2008, 31.5% in 2010) with an increase in 2010 and decrease in 2012.

7.3. Exposure to violence

One third of the interviewees has had experience with some form of violence – sexual abuse with 3.6% of them (which is twice less than in the study conducted in 2010 – 6.9%, and significantly more than in the study conducted in 2008 – 0.4%), physical abuse – 9.6% of the them (which is less than in the 2010 study – 11.3% and slightly higher than in 2008 – 9.4%). The number of those who have suffered psychological abuse (29.1%) is slightly higher, especially when compared to the research in 2010 (19.8%).

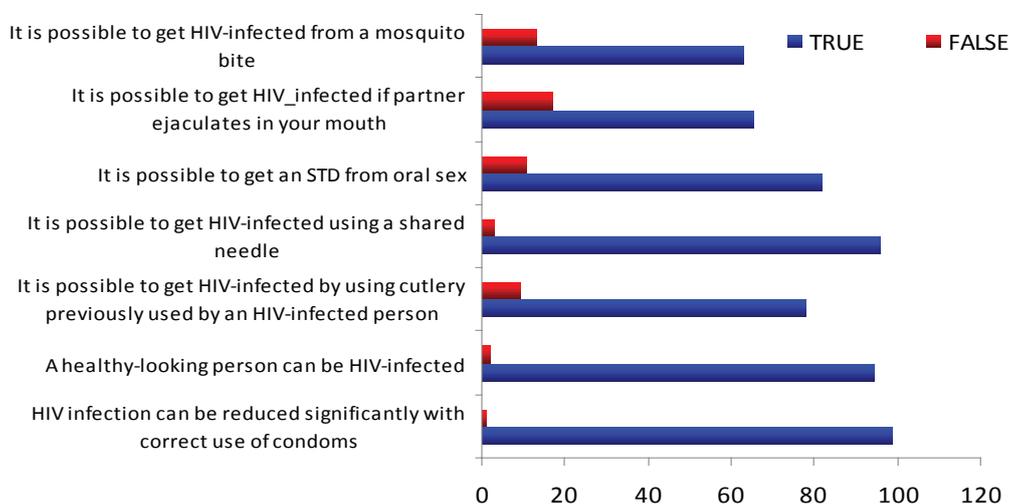
7.4. Knowledge of HIV/STI and risk assessment

21.3% of the interviewees responded correctly to all 7 questions on HIV transmission, which is significantly less than in the research conducted in 2010 (32.7%).

Table 2: MSM, Knowledge of HIV/STI and self-assessment of risk, according to years of research

| Questions | B&H 2008 | B&H 2010 | B&H 2012 |
|--|--------------|--------------|--------------|
| HIV infection can be significantly reduced by correct use of condoms | n=224 | n=248 | n=333 |
| Yes | 98,2 | 99,6 | 98,8 |
| No | 1,3 | - | 0,9 |
| I do not know | 0,4 | 0,4 | 0,3 |
| A healthy-looking person can be HIV-infected | n=223 | n=248 | n=333 |
| Yes | 83,4 | 89,9 | 94,3 |
| No | 4,0 | 4,4 | 2,1 |
| I do not know | 12,6 | 5,6 | 3,6 |
| It is possible to get HIV-infected using cutlery previously used an HIV-infected person | n=223 | n=248 | n=333 |
| Yes | 9,4 | 11,3 | 9,0 |
| No | 74,4 | 73,0 | 77,8 |
| I do not know | 16,1 | 15,7 | 13,2 |
| It is possible to get HIV-infected using a shared needle | n=223 | n=248 | n=333 |
| Yes | 99,6 | 97,6 | 95,8 |
| No | - | 1,6 | 2,7 |
| I do not know | 0,4 | 0,8 | 1,5 |
| It is possible to get an STI from oral sex | n=221 | n=248 | n=333 |
| Yes | 70,6 | 80,2 | 82,2 |
| No | 11,3 | 7,3 | 10,5 |
| I do not know | 18,1 | 12,5 | 7,5 |
| It is possible to get HIV-infected if a partner ejaculates in the mouth | n=223 | n=247 | n=333 |
| Yes | 66,4 | 72,5 | 65,5 |
| No | 12,1 | 8,1 | 16,8 |
| I do not know | 21,5 | 19,4 | 17,7 |
| It is possible to get HIV-infected from a mosquito bite | | n=248 | n=333 |
| Yes | | 11,3 | 12,9 |
| No | | 54,8 | 63,1 |
| I do not know | | 33,9 | 24,0 |
| Knowledge of (current or former) partner's HIV status | n=223 | n=248 | n=332 |
| Never been tested for HIV | 27,8 | 21,8 | 19,6 |
| HIV positive | 0,4 | - | 0,9 |
| HIV negative | 27,4 | 34,7 | 40,7 |
| We have never talked about it | 44,4 | 43,5 | 38,9 |
| Self-assessed risk of HIV infection | n=224 | n=247 | n=332 |
| There is no risk | 16,5 | 21,5 | 14,8 |
| The risk is small | 49,6 | 51,8 | 41,3 |
| The risk is moderate | 24,1 | 21,1 | 37,3 |
| The risk is big | 9,8 | 5,7 | 6,6 |

Graph 7: Knowledge of HIV infection – way of transmission



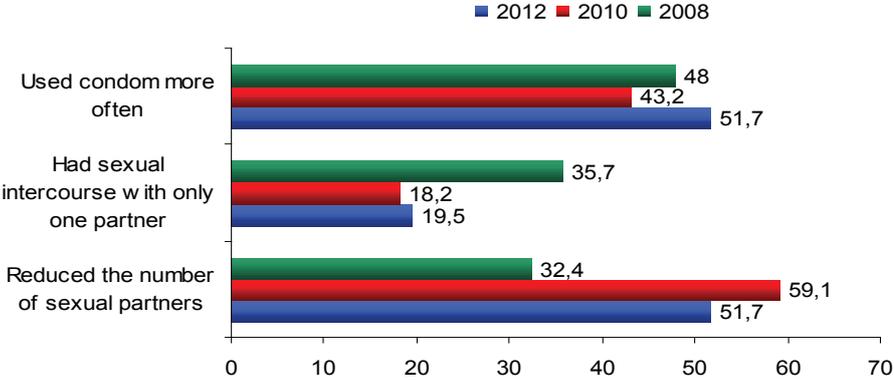
That the risk of HIV infection can be reduced with correct use of condoms is what 98.8% of the interviewees are familiar with, and 94.3% of them are aware that a healthy-looking person can be HIV-infected (which is more than in the previous researches). Most of the interviewees do not know HIV status of their sexual partner because the partner has never been tested for HIV (19.6% of them), or they have never talked about it (38.9%), which is in both cases less than in the researches conducted in 2008 and 2010. It is interesting that the percentage of those who know it is possible to get HIV-infected using a shared needle is less than in the previous researches (99.6% in 2008, 97.6% in 2010 and 95.8% in 2012).

Despite having multiple sexual partners, inconsistent and incorrect use of condoms, on the question of self-assessment of the risk of HIV infection most of the interviewees (41.3%) responded they believe there is no risk (less than in the researches in 2008 and 2010). The percentage of those who assess the risk is big (6.6%) is bigger than in 2010 (5.7%) and smaller than in 2008 (9.8%). The percentage of the interviewees that assess the risk is moderate (37.3%) is higher than in 2008 (24.1%) and 2010 (21.1%).

7.5. Changes in sexual behaviour

On question of what they have changed in their sexual behaviour in the last six months in order to reduce the risk of HIV infection, 51.7% of the interviewees report using a condom more often (which is more than in the research done in 2008 (48.0%) and 2010 (43.2%)). The same percentage of interviewees (51.7%) report reducing the number of sexual partners, which is significantly more than in the 2008 research (32.4%) and the 2010 research (59.1%).

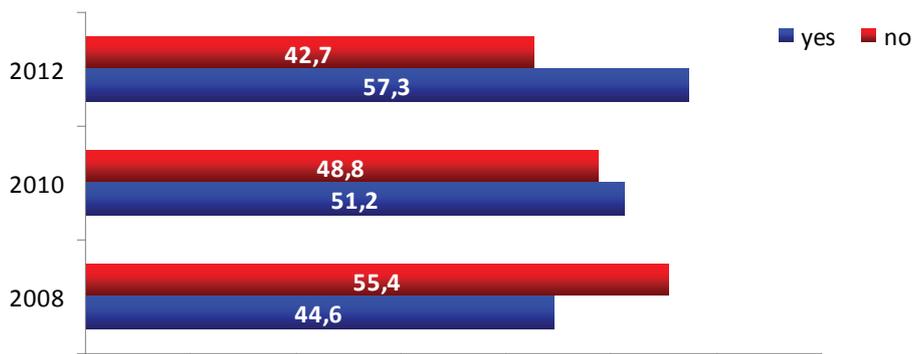
Graph 8. Most common changes in sexual behaviour of the interviewees, according to age



7. 6. Testing for HIV and other sexually transmitted infections

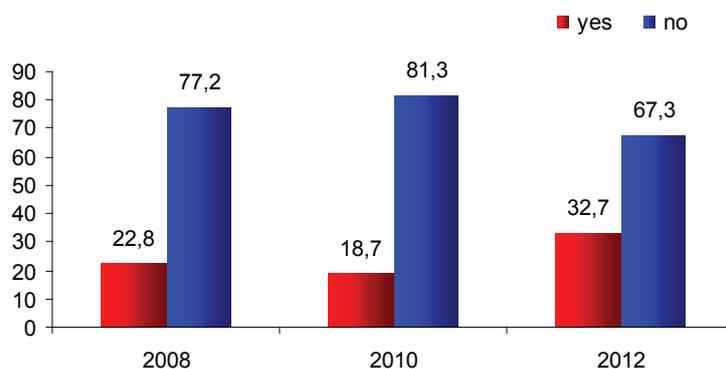
On question of whether they have ever been tested for HIV, 57.3% state they have been tested once or more, more than in 2010 (51.2%) and 2008 (44.6%).

Graph 9: Ever been tested for HIV



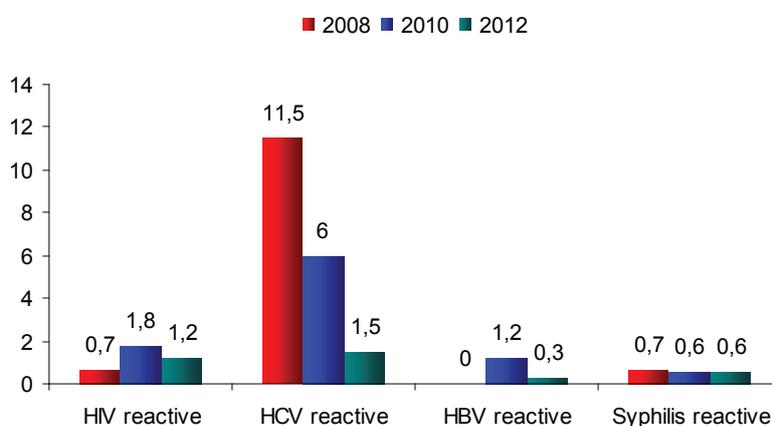
In the last 12 months, 59.5% of the interviewees have been tested for HIV which is significantly more than in 2010 (37.5%) and slightly more than in 2008 (54.0%)

Graph 10: Tested for HIV in the last 12 months and know the test result



Out of 333 interviewees, 32.7% have been tested for HIV in the last 12 months and know the test result, which is significantly more than in the two previous researches (18.7% in 2010 and 22.8% in 2008). Out of 333 people participating in this research, 330 got tested after their informed consent.

Graph 11: Results of tests for HIV, HBV, HCV and syphilis, MSM



The rate of HIV/STI infections in the MSM population is low. There is a noticeable decrease in the HIV-positive rate in comparison to the 2010 research, and an increase in comparison to the 2008 research, as well as a significant reduction of the HCV-positive rate in comparison to the previous two researches. The HBV-positive rate is lower than in 2010, while the syphilis rate is the same as in the previous research and smaller than in 2008. These results can be explained by a higher proportion of injecting drug users in the research conducted in 2010.

7.7. Logistic regression analysis – factors associated with the use of condoms

Creating a predictive model of condom use during last anal sex was achieved through logistic regression analysis and the variables with high intercorrelations were excluded before creating the model. Questions that provide answers about risk behaviours, experiences with sexually transmitted diseases and knowledge of HIV infection (Nagelkerke $R^2=0,178$) are included in the predictive model. The included variables have shown as insignificant predictors of condom use during last anal intercourse.

Table 3: MSM, Results of the logistic regression analysis for factor associated with condom use

| Questions/ Variables | Wald | P | OR | 95% C.I.for EXP(B) | |
|---|-------|-------|-------|--------------------|--------|
| | | | | Lower | Upper |
| How many times have you had anal intercourse with a regular partner in the last month | 0,022 | 0,882 | 0,993 | 0,906 | 1,089 |
| With how many different random partners have you had anal intercourse in the last 6 months | 1,317 | 0,251 | 1,311 | 0,826 | 2,080 |
| Have you obtained condoms in the last 12 months (e.g. through outreach services, drop-in centers, VCCT health care centers) | 0,443 | 0,506 | 1,815 | 0,314 | 10,504 |
| With how many different women have you had a sexual intercourse in the last 12 months | 0,839 | 0,360 | 0,837 | 0,571 | 1,225 |
| Have you had group sex (with two or more persons) in the last 6 months | 0,213 | 0,644 | 0,544 | 0,041 | 7,197 |
| Have you ever had a sexual intercourse under the influence of alcohol | 2,347 | 0,126 | 4,559 | 0,654 | 31,765 |
| Have you ever had a sexual intercourse under the influence of drugs | 0,008 | 0,928 | 1,061 | 0,290 | 3,881 |
| Have you ever had a sexually transmitted infection | 1,155 | 0,283 | 0,181 | 0,008 | 4,089 |
| Knowledge of HIV infection | 0,752 | 0,386 | 0,771 | 0,428 | 1,389 |
| NGO counselling centre | 0,226 | 0,634 | 0,739 | 0,213 | 2,569 |
| Age | 1,728 | 0,189 | 1,073 | 0,966 | 1,193 |

8. MSM INTERVIEWEES YOUNGER THAN 24

8.1. Sociodemographic data

Out of 333 interviewees, 135 (21%) are younger than 24, with the average age of 21, mostly urban population (93.3%), slightly more than in the 2010 research (90.2%) and slightly less than in the 2008 research (98.9%). There are 97.8% of BiH citizens, most of them have a secondary education (77%). 15.6% are employed, slightly more than in 2010 (4.1%) and significantly less than in 2008 (22.8%).

8.2. Sexual behaviour

16.8% of the interviewees had their first anal intercourse with a man at the age of 16, more than in the research conducted in 2010 (14.7%).

According to obtained data, the interviewees were insertive partners in 85.1% of the cases, with the average of 2 different partners, and receptive partners in 63.4% of cases, with 2 different partners on average.

In the last 6 months, the interviewees on average had one regular partner with whom they have had anal sex, while in 2010 they had two different regular partners on average.

In the last month they had 5 sexual intercourses with their regular partner on average.

8.3. Condom use

On the question of frequency of condom use with a regular partner in the last 6 months, 31% of interviewees state they use a condom every time (more than in the 2010 research – 20.7%) and 14.5% have never used a condom (a higher rate than in the total sample and a lower rate than in 2010 – 15.9%).

A total of 56.8% of the interviewees report having anal intercourses with a random male partner in the last 6 months, which is a decrease in comparison to 2010 (61.4%) and 2008 (58.7%). The average number of different random male partners with whom the interviewees report having anal intercourse is 2.2, with average of 3.5 intercourses with a random partner in the last month.

In the last six months, 40.3% of the interviewees used a condom with a random male partner every time, which is a decrease in comparison to 2010 (58.2%) and 2008 (49.2%).

A percentage of younger interviewees who report using a condom during last anal intercourse is 67.4%, slightly more than in comparison to the total sample (66.7%) and more than in the 2010 research (65%). During last oral sex with a male partner, 8.8% used a condom, which is more than in the total sample (8.1%).

The average number of persons of same sexual behaviour the interviewees know by name is 35, somewhat more than in the 2008 research (27) and the 2010 research (34). As in the previous studies, the most common way of finding a partner is online (76.3%).

On the question of whether they ever had a sexual intercourse with a woman, 39.3% of the interviewees answered affirmatively, slightly less than in 2010 (45.0%) and significantly less than in 2008 (66.3%). 12.9% are currently in a relationship with a woman, less than in the previous researches in 2010 (19.5%) and 2008 (26.2%).

During last sexual intercourse with a woman, 62.5% of the interviewees used a condom, more than in 2010 (58.8%) and slightly less than in 2008 (64.4%).

8.4 Knowledge and self-assessment of HIV risk

19.3% responded correctly on all 7 given questions about HIV transmission, less than in the research in 2010 (29.1%).

On the question of what they have changed in their sexual behaviour in the last 6 months in order to reduce the risk of HIV infection, most of the interviewees (52.6%) report using a condom more frequently and reducing the number of sexual partners (50.0%). In comparison to the previous two researches, the interviewees state that they use a condom more frequently in a higher percentage (44.2% in 2010, 50.0% in 2008). Compared to the research done in 2010 (65.1%), a smaller percentage of them have reduced the number of their sexual partners, and compared to the research in 2008 (28.3%) a bigger percentage of the interviewees have reduced the number of their sexual partners.

8.5 Testing for HIV and other sexually transmitted infections

This research includes 31.1% interviewees that have been tested for HIV once, 16.3% of them have been tested more than once, while 52.6% have never been tested for HIV. In the last 12 months 68.8% of the interviewees have been tested for HIV. In younger interviewees HIV and HBV infections have not been registered – results of testing in 2012 : HCV (1.5%), syphilis (0.8%).

The research conducted in 2008 did not register HIV, HBV and syphilis infection and results showed 7.2% HCV reactive cases. This result can be explained by the fact that the research included interviewees that were injecting drug users.

9. MSM QUESTIONNAIRE ACCORDING TO LOCATION

This biobehavioural research included 333 interviewees in six towns in Bosnia and Herzegovina: Bijeljina (32), Banja Luka (104), Prijedor (30), Sarajevo (97), Tuzla (40) and Mostar (30).

On the question of condom use during last anal intercourse with a man, the highest rate of affirmative answers was registered among the interviewees in Tuzla (80%), then in Mostar (76.9%), Prijedor (75.9%), Sarajevo (67.8%), Banja Luka (64.7%) and Bijeljina (58.1%).

The biggest percentage of the interviewees that state they are in a relationship with a woman was in Mostar (37.5%), then in Bijeljina (25%), Banja Luka (15.1%), Tuzla (6/22), Sarajevo (11/56) and Prijedor (11/12).

Correct answers to all questions on HIV transmission were in biggest percentage given in Bijeljina (44%), then in Mostar (26.6%), Sarajevo (25.7%), Tuzla (17.5%), Banja Luka (17%) and Prijedor (10.1%).

The highest rate of the interviewees that have ever been tested for HIV was in Sarajevo (68%), followed by Banja Luka (60.5%), Bijeljina (59.3%), Mostar (50.0%), Prijedor (46.6%) and Tuzla (35%).

The highest rate of the interviewees that have been tested for HIV in the last year was in Sarajevo (78.4%), then in Mostar (66.6%), Banja Luka (58.7%), Bijeljina (36.8%), Prijedor (35.7%) and Tuzla (21%).

The highest rate of the interviewees that have been tested in the last 12 months and know the test result was in Sarajevo (54.4%), Banja Luka (35.3%), Mostar (33.3%), Bijeljina (19.5%), Prijedor (17.2%) and the lowest in Tuzla (7.5%).

Results of serological tests according to location: HIV positive: Sarajevo (3) and Prijedor (1), HCV positive: Banja Luka (3), Sarajevo (1) and Tuzla (1), HBV infection: Bijeljina (1) and syphilis: Banja Luka (2).

10. DISCUSSION

Men who have sex with men (MSM) have been recognized as an especially sensitive population group for HIV infection. MSM are at risk of HIV infection through unprotected anal intercourse which is estimated to be a much higher risk in comparison to a vaginal intercourse. The risk is a lot bigger for the receptive male partner than the insertive partner. The risk gets bigger according to the level of exposure to virus and through multiple and simultaneous sexual partnerships.

The research was performed using a cross-sectional study on the sample of 333 interviewees with the aim of assessing prevalence of HIV infection in this population, assessing attitudes and knowledge, as well as frequency of the risk and protective forms of behaviour.

This is the third integrated biobehavioural study conducted with the aim of gathering parallel data on key behaviours and biological indicators of HIV/STI among the MSM population, which will enable monitoring time trend of the HIV epidemics in the course of future studies.

The total sample of the MSM population includes 333 interviewees, with the average age of 27, mostly (94%) urban (just like in 2010 (94.3%) and slightly less in 2008 (96.4%). 98.5% are BiH citizens, most have secondary education (63.7%), 32.4% are unemployed (less than in the 2010 research (39.1%) and significantly more than in the 2008 research (22.4%)).

First anal intercourse with a man in the age under 16 was what 16.8% of the interviewees have experienced and the average age of first sexual intercourse with a man is 19.

In the last six months 77.5% of the interviewees were the insertive partner, with 3 different partners on average, and 60.7% were the receptive partners with the average of 3 different partners.

In the last six months, 83.3% of the interviewees report sexual relations with a regular partner, which is slightly less than in 2010 (84.5%) and slightly more than in 2008 (75.4%). The average number of sexual intercourses with a regular partner in the last month was 7.

A high percentage of the interviewees know that a consistent and correct use of condoms can prevent HIV infection (over 98.8% of them know that the risk of HIV can be reduced by using condoms correctly), that a healthy-looking person can be HIV-infected is known to 94.3%, while the highest percentage of the interviewees do not their sexual partner's HIV status because the partner has never been tested (19.6%) or they have never talked about it (38.9%). Despite relative awareness of the existence of HIV risk, including knowing the ways of HIV/STI transmission, there is still a considerable percentage of those that state they never use a condom present in the sexual behaviour of the MSM population.

The results of research show that the frequency of regular use of condoms with a regular partner in the last 6 months is not over 20% (which is less than in the research in 2010 – 23%), while 14% of the interviewees never use a condom (less than in 2010 – 17%).

Anal intercourses with a random male partner in the last 6 months are reported by 64% of the interviewees, which is an increase in comparison to 2008 (57.4%) and 2010 (63.1%). The interviewees report anal intercourse with the average of two different random male partners in the last six months. In the last month, the interviewees had on average 3 sexual intercourses with a random partner.

During a sexual intercourse with a random partner in the last six months, 37.5% of the interviewees report using a condom every time which is less than in 2010 (54.8%) and 2008 (49.2%).

During last anal intercourse with a male partner, 66.7% of the interviewees report using a condom, while during last oral sex only 8% of the interviewees used a condom.

There is an increase in the percentage of those who have been tested for HIV in the last 12 months and know the test result (32.7%) in comparison to the research in 2010 (18.7%) and 2008 (22.8%).

The results of research show a relatively good general knowledge regarding HIV/STI, awareness of HIV risk, the need for the use of condoms, testing, but it is also observed that the knowledge is rarely translated into the reported behaviour.

The research shows a significant proportion of the interviewees with unprotected anal intercourse, with multiple non-commercial sexual partners. The MSM population's sex network differs, is concentrated in urban areas, is not limited to male partners which indicates a potential link for HIV transmission in the general population. It is interesting to note that the interviewees reported bisexual behaviour, 45.5% of them report having had a sexual experience with a woman, every fifth interviewee (out of 152 that answered that question) is in a relationship with a woman and 54.5% did not use a condom during last sexual intercourse.

Thus, all programmes of prevention have to take into consideration the fact that the MSM population is highly stigmatised, not easily accessible and that it is necessary to conduct planned informational-educational activities using acceptable communication channels and develop campaigns for the use of condoms and lubricants, not just of their availability but also their consistent and correct use, along with raising awareness of the risk of HIV/STI in the MSM community continuously.

11. CONCLUSION AND PROPOSAL FOR MEASURES

All three conducted bio-behavioural studies generally show a relatively good knowledge of the ways of HIV transmission, an increase in protected sexual behaviour among the MSM population (increase in the rate of condom use during last anal intercourse with a man, in the rate of the use of lubricants, in the rate of those who have been tested in the last 12 months and know the test result, a decrease in the number of sexual and random partners, a decrease in the rate of sexual intercourses under the influence of drugs etc). There is an evident change of behaviour, but it is still insufficient because the risks are still present (sexual intercourse under the influence of alcohol, unprotected sex with women, only 8% use a condom during oral sex). Serological examinations show that a low level of HIV infection is maintained, as well as a decrease in the rate of HCV infected people which can be explained with the exclusion of those who inject drugs. The obtained data provide basic guidelines for future research and formation of programmes of prevention intended for this population that need to be focused on:

Strengthening field activities in the community, distribution of condoms and condom-compatible lubricants, HIV counselling and testing, availability of health care services, STI prevention, screening and treatment, along with:

- Comprehensive solving of the level of stigma and discrimination of the MSM population;
- Advancement of individual knowledge and behaviour, creation of a stimulating environment for behavioural changes;
- Participation of members of the MSM population in the development of programmes of prevention and target messages;
- Use of communication channels such as the Internet and other social media that can play a role in programming of prevention and protection of the MSM population.

Annex I: MSM – Descriptive analysis

1. Demographic characteristics, MSM

| 1. Place | 2012 | | X ² ; df; P | |
|---|---------------|------|------------------------|--------------------|
| | n=333 | % | | |
| Bijeljina | 32 | 9,6 | 111,126; 5; <0,001 | |
| Banja Luka | 104 | 31,2 | | |
| Mostar | 30 | 9,0 | | |
| Prijedor | 30 | 9,0 | | |
| Sarajevo | 97 | 29,1 | | |
| Tuzla | 40 | 12,0 | | |
| 2. Age | | | | |
| Mean value/standard deviation | 26,94/6,54 | | | |
| Median | 26 | | | |
| Mode | 26 | | | |
| Range | 16 - 60 | | | |
| 3. Place of residence | n=333 | | 257,805; 1; <0,001 | |
| Town | 313 | 94,0 | | |
| Village | 20 | 6,0 | | |
| 4. Citizenship | n=333 | | 313,300; 1; <0,001 | |
| B&H | 328 | 98,5 | | |
| Outside B&H | 5 | 1,5 | | |
| 5. Lives in place of residence for | n=333 | | 279,354; 1; <0,001 | |
| < 1 year | 14 | 4,2 | | |
| > 1 year | 319 | 95,8 | | |
| Mean value/standard deviation | 18,34 / 11,12 | | | |
| Median | 20 | | | |
| Mode | 4 | | | |
| Range | 1 - 56 | | | |
| 6. Level of education | n=333 | | | 278,399; 3; <0,001 |
| Primary school | 25 | 7,5 | | |
| Secondary school | 212 | 63,7 | | |
| College | 29 | 8,7 | | |
| University | 67 | 20,1 | | |
| 7. How many years of school do you have in total | n=332 | | | 249,566; 3; <0,001 |
| 8 | 8 | 2,4 | | |
| 9-12 | 182 | 54,8 | | |
| 13-16 | 121 | 36,4 | | |
| >16 | 21 | 6,3 | | |
| 8. Employes | n=333 | | | 53,222; 3; <0,001 |
| Yes | 124 | 37,2 | | |
| No | 108 | 32,4 | | |
| Working occasionally | 53 | 15,9 | | |
| Student | 48 | 14,4 | | |
| 9. Marital status | n=332 | | 1046,120; 5; <0,001 | |
| In a marital/extramarital relationship | 14 | 4,2 | | |
| Single | 274 | 82,5 | | |
| Divorced | 8 | 2,4 | | |
| Widower | 2 | 0,6 | | |
| Separated | 4 | 1,2 | | |
| Living with a partner | 30 | 9,0 | | |
| 10. Health insurance | n=333 | | | 168,676; 1; <0,001 |
| Yes | 285 | 85,6 | | |
| No | 48 | 14,4 | | |
| 11. Participation in similar research | n=332 | | 108,735; 1; <0,001 | |
| Yes | 71 | 21,4 | | |
| No | 261 | 78,6 | | |

2. Sexual activities, MSM

| 11. In the past six months had ANAL intercourse with man | 2012 | | X ² ; df; P |
|---|--------------|-------|------------------------------|
| | n=333 | % | |
| Yes | 333 | 100,0 | |
| 12. First anal intercourse with a man at the age of | n=333 | | 19,514; 2; <0,001 |
| < 16 | 74 | 22,2 | |
| 16 - 18 | 137 | 41,1 | |
| > 18 | 122 | 36,6 | |
| Mean value/ standard deviation | 18,74/8,49 | | |
| Median | 17,0 | | |
| Mode | 17 | | |
| Range | 4 - 99 | | |
| 13_a Interviewee was the insertive partner in the last 6 months | n=333 | | 492,622; 3; <0,001 |
| Yes | 258 | 77,5 | |
| No | 38 | 11,4 | |
| Does not know | 14 | 4,2 | |
| No answer | 23 | 6,9 | |
| 13_aa Interviewee was the insertive partner in the last 6 month with | n=258 | | 57,938; 3; <0,001 |
| 1 partner | 86 | 33,3 | |
| 2-3 partners | 102 | 39,5 | |
| 4-5 partners | 43 | 16,7 | |
| > 5 partners | 27 | 10,5 | |
| Mean value/ standard deviation | 2,61/2,63 | | |
| Median | 2 | | |
| Mode | 1 | | |
| Range | 1 - 16 | | |
| 13_b Interviewee was the receptive partner in the last 6 months | n=333 | | 274,195; 3; <0,001 |
| Yes | 202 | 60,7 | |
| No | 95 | 28,5 | |
| Does not know | 12 | 3,6 | |
| No answer | 24 | 7,2 | |
| 13_bb Interviewee was the receptive partner in the last 6 months with | n=202 | | 30,752; 3; <0,001 |
| 1 partner | 77 | 38,1 | |
| 2-3 partners | 60 | 29,7 | |
| 4-5 partners | 25 | 12,4 | |
| > 5 partners | 40 | 19,8 | |
| Mean value/ standard deviation | 2,34/3,39 | | |
| Median | 1,0 | | |
| Mode | 0 | | |
| Range | 1 - 20 | | |
| 14. Interviewee had anal intercourses with a regular partner in the last 6 months (those who answered with „I di not know“ or gave no answer are excluded) | n=318 | | 141,333; 1; <0,001 |
| Yes | 265 | 83,3 | |
| No | 53 | 16,7 | |
| 14_1 Number of different regular partners with whom the interviewee had anal intercourse in the last 6 month | n=265 | | 182,592; 3; <0,001 |
| 1 partner | 142 | 53,6 | |
| 2-3 partners | 95 | 35,8 | |
| 4-5 partners | 20 | 7,5 | |
| > 5 partners | 8 | 3,0 | |
| Mean value/ standard deviation | 1,62/1,63 | | |
| Median | 1,0 | | |
| Mode | 1 | | |
| Range | 1 - 12 | | |
| 15. Number of anal intercourses with a regular partner in the last month | n=280 | | 175,550; 6; <0,001 |

| | | | |
|---|--------------|------|------------------------------|
| 0 | 21 | 7,5 | |
| 1 – 5 | 112 | 40,0 | |
| 6 – 10 | 52 | 18,6 | |
| 11 – 15 | 14 | 5,0 | |
| > 15 | 22 | 7,9 | |
| I do not know | 37 | 13,2 | |
| No answer | 22 | 7,9 | |
| Mean value / standard deviation | 6,57/6,43 | | |
| Median | 5,0 | | |
| Mode | 10 | | |
| Range | 0 - 30 | | |
| 16. Frequency of condom use with a regular partner in the last 6 months | n=280 | | 104,250; 6; <0,001 |
| Every time | 56 | 20,0 | |
| Often | 72 | 25,7 | |
| Sometimes | 65 | 23,2 | |
| Rarely | 34 | 12,1 | |
| Never | 39 | 13,9 | |
| I do not know | 2 | 0,7 | |
| No answer | 12 | 4,3 | |
| 17. Interviewee had anal intercourse with random partner in the last 6 months (those who answered with „I do not know“ or gave no answer are excluded) | n=280 | | 21,729; 1; <0,001 |
| Yes | 179 | 63,9 | |
| No | 101 | 36,1 | |
| 17_1 Number of different | n=232 | | 16,061; 3; <0,001 |
| 1 partner | 46 | 25,7 | |
| 2-3 partnera | 66 | 36,9 | |
| 4-5 partnera | 36 | 20,1 | |
| > 5 partnera | 31 | 17,3 | |
| I do not know | 11 | | |
| No answer | 42 | | |
| Mean value / standard deviation | 2,31/3,26 | | |
| Median | 1,0 | | |
| Mode | 0 | | |
| Range | 1 - 25 | | |
| 18. Number of anal intercourse with a random partner in the last month | n=232 | | 227,069; 4; <0,001 |
| 0 | 26 | 16,4 | |
| 1 - 5 | 106 | 66,7 | |
| 6 - 10 | 18 | 11,3 | |
| 11 - 15 | 4 | 2,5 | |
| >15 | 5 | 3,1 | |
| I do not know | 23 | | |
| No answer | 50 | | |
| Mean value / standard deviation | 3,38/4,27 | | |
| Median | 2,0 | | |
| Mode | 1 | | |
| Range | 0 - 20 | | |
| 19. Frequency of condom use with a random partner in the last 6 months (those who answered „I do not know“ or gave no answer are excluded) | n=232 | | 77,531; 4; 0,001 |
| Every time | 72 | 37,5 | |
| Often | 61 | 31,8 | |
| Sometimes | 33 | 17,2 | |
| Rarely | 10 | 5,2 | |
| Never | 16 | 8,3 | |
| I do not know | 2 | | |
| No answer | 38 | | |
| 20. Condom use during last anal intercourse with man | n=333 | | 379,853; 3; <0,001 |

| | | | |
|--|--------------|------|------------------------------|
| Yes | 222 | 66,7 | |
| No | 100 | 30,0 | |
| I do not know | 6 | 1,8 | |
| No answer | 5 | 1,5 | |
| 21. Reason for not using a condom during the last sexual intercourse with man | n=100 | | 51,740; 8; <0,001 |
| It was unavailable at that moment | 19 | 19,0 | |
| They are too expensive | 1 | 1,0 | |
| I do not like sex with a condom | 25 | 25,0 | |
| Partner did not want it | 12 | 12,0 | |
| I am in a monogamous relationship | 10 | 10,0 | |
| I estimated that it was not necessary with that partner | 18 | 18,0 | |
| I trust my partner | 11 | 11,0 | |
| I was afraid I would lose erection | 3 | 3,0 | |
| Something else | 1 | 1,0 | |
| 22. Have you had commercial partners in the last 6 months | n=333 | | 287,467; 1; <0,001 |
| Yes | 11 | 3,3 | |
| No | 319 | 96,7 | |
| No answer | 3 | | |
| 23. Commercial partners in the last 6 months were | n=14 | | 10,286; 1; <0,001 |
| Only men | 13 | 92,9 | |
| Only women | | | |
| Men and women | 1 | 7,1 | |
| 24. Number of different commercial partners with whom the interviewee had anal intercourse in the last 6 months | n=13 | | 4,538; 3; 0,209 |
| 1 partner | 6 | 46,2 | |
| 2-3 | 4 | 30,8 | |
| 4-5 | | | |
| >5 | 2 | 15,4 | |
| I do not know | | | |
| No answer | 1 | 7,7 | |
| 25. Number of anal intercourses with a commercial partner in the last month | n=12 | | 13,769; 3; 0,003 |
| 1-5 | 9 | 69,2 | |
| 6-10 | | | |
| 11-15 | 1 | 7,7 | |
| I do not know | | | |
| No answer | 2 | 15,4 | |
| 26. Condom use during last anal intercourse with a commercial partner | n=14 | | 8,286; 3; 0,004 |
| Yes | 8 | 57,1 | |
| No | 3 | 21,4 | |
| I do not know | 1 | 7,1 | |
| No answer | 2 | 14,3 | |
| 27. Reason for not using a condom during last sexual intercourse with a commercial partner | n=3 | | 0,000; 2; 1,000 |
| With a commercial partner | 1 | 33,3 | |
| I do not like sex with a condom | 1 | 33,3 | |
| I was afraid I would lose erection | 1 | 33,3 | |
| 28. Frequency of condom use with a commercial partner in the last 6 months | n=14 | | 4,571; 4; 0,334 |
| Every time | 4 | 28,6 | |
| Often | 5 | 35,7 | |
| Sometimes | 1 | 7,1 | |
| Rarely | 1 | 7,1 | |
| No answer | 3 | 21,4 | |
| 29. Paid partner for a sexual favour | n=332 | | 599,645; 2; <0,001 |
| Often | | | |
| Sometimes | 5 | 1,5 | |
| Rarely | 6 | 1,8 | |
| Never | 321 | 96,7 | |
| 30. Had anal intercourse with an HIV positive person without condom in the last 6 months | n=333 | | 607,369, 2, <0,001 |

| | | | |
|--|--------------|------|------------------------------|
| Yes | 4 | 1,2 | |
| No | 323 | 97,0 | |
| No answer | 6 | 1,8 | |
| 31. Obtained condoms in the last 12 months (e.g. through outreach services, drop-in centres or VCCT health centres) | n=332 | | 137,940; 1; <0,001 |
| Yes | 273 | 82,2 | |
| No | 59 | 17,8 | |
| 32. Used a lubricant during anal intercourse with a man in the last 6 months | n=333 | | 750,520; 3; <0,001 |
| Yes | 299 | 89,8 | |
| No | 28 | 8,4 | |
| I do not know | 3 | 0,9 | |
| No answer | 3 | 0,9 | |
| 33. How often was a lubricant used during anal intercourses with a man | n=333 | | 286,550; 5; <0,001 |
| Every time | 93 | 27,9 | |
| Often | 149 | 44,7 | |
| Sometimes | 55 | 16,5 | |
| Rarely | 17 | 5,1 | |
| Never | 14 | 4,2 | |
| No answer | 5 | 1,5 | |
| 34. Which lubricant was used most often | n=317 | | 609,498; 3; <0,001 |
| Body cream/ lotion | 22 | 6,9 | |
| Oil | 24 | 7,6 | |
| Water-based industrial lubricant | 269 | 84,9 | |
| Other | 2 | 0,6 | |
| 35. Have you had oral sex with a man in the last 6 months | n=333 | | 409,315; 2; <0,001 |
| Yes | 283 | 85,0 | |
| No | 48 | 14,4 | |
| No answer | 2 | 0,6 | |
| 36. Number of different partners with whom the interviewee had oral sex in the last 6 months | n=286 | | 124,131; 5; <0,001 |
| 1 partner | 81 | 28,6 | |
| 2-3 partners | 96 | 33,9 | |
| 4-5 partners | 38 | 13,4 | |
| > 5 partners | 39 | 13,8 | |
| I do not know | 10 | 3,5 | |
| No answer | 19 | 6,7 | |
| Mean value / standard deviation | 3,32/3,1 | | |
| Median | 2,0 | | |
| Mode | 1 | | |
| Range | 1-18 | | |
| 37. Condom use during last oral sex | n=285 | | 594,144; 3; <0,001 |
| Yes | 23 | 8,1 | |
| No | 249 | 87,4 | |
| I do not remember | 3 | 1,1 | |
| No answer | 10 | 3,5 | |
| 38. Frequency of condom use during oral sex in the last 6 months | n=285 | | 332,891; 6; <0,001 |
| Every time | 13 | 4,6 | |
| Often | 32 | 11,2 | |
| Sometimes | 31 | 10,9 | |
| Rarely | 55 | 19,3 | |
| Never | 141 | 49,5 | |
| I do not know | 4 | 1,4 | |
| No answer | 9 | 3,2 | |
| 39. Knows personal information (name, surname, address) of the last sexual partner | n=333 | | 380,162; 2; <0,001 |
| Yes | 278 | 83,5 | |
| No | 41 | 12,3 | |
| No answer | 14 | 4,2 | |
| 40. Number of persons they know by name that are of the same sexual behaviour (those who answered „I do not know“ or gave no answer are excluded) | n=257 | | 8,389; 4; 0,078 |

| | | | |
|---|--------------|-------------|-----------------------------|
| 1-10 | 66 | 25,7 | |
| 11-20 | 50 | 19,5 | |
| 21-30 | 37 | 14,4 | |
| 31-50 | 50 | 19,5 | |
| >50 | 54 | 21,0 | |
| Mean value / standard deviation | 47,96/79,47 | | |
| Median | 26,0 | | |
| Mode | 20 | | |
| Range | 2-700 | | |
| 41. Finds a male sexual partner most often | n=333 | | |
| In a park | 27 | 8,1 | |
| In a club/disco club | 98 | 29,4 | |
| In a café | 47 | 14,1 | |
| On the street | 7 | 2,1 | |
| At a private party | 120 | 36,0 | |
| At a party | 95 | 28,5 | |
| At the gym | 35 | 10,5 | |
| Online | 256 | 76,9 | |
| Other | 7 | 2,1 | |
| 42. Have you frequented places where you usually encounter MSM in the last 6 months | n=331 | | 58,471; 4; <0,001 |
| Never | 95 | 28,7 | |
| Several times a year | 80 | 24,2 | |
| Once a month | 85 | 25,7 | |
| Once a week | 53 | 16,0 | |
| Several times a week | 18 | 5,4 | |
| 43. Had a sexual intercourse with a man in the last 6 months most frequently in: | n=333 | | |
| A hotel | 50 | 15,0 | |
| Own house/apartment | 244 | 73,3 | |
| Partner's house/apartment | 183 | 55,0 | |
| A rented room | 36 | 10,8 | |
| A public facility (a cafe, a club) | 32 | 9,6 | |
| A park or other public open space | 37 | 11,1 | |
| In a car | 97 | 29,1 | |
| Other | 2 | 0,6 | |
| 44. Ever suffered: | n=333 | | |
| Sexual violence | 12 | 3,6 | |
| Physical abuse | 32 | 9,6 | |
| Psychological abuse | 97 | 29,1 | |
| Mobbing | 14 | 4,2 | |
| None of the above | 212 | 63,7 | |
| 45. Ever had a sexual intercourse with a woman (those who provided no answer are excluded) | n=333 | | 2,711; 1; 0,100 |
| Yes | 151 | 45,5 | |
| No | 181 | 54,5 | |
| No answer | 1 | | |
| 46. Currently a relationships with a woman (those who provided no answer are excluded) | n=152 | | 50,126; 1; <0,001 |
| Yes | 32 | 21,2 | |
| No | 119 | 78,8 | |
| No answer | 1 | | |
| 47. Number of women – sexual partners in the last 12 months (those who „do not know“ or provided no answer are excluded) | n=152 | | 61,727; 5; <0,001 |

| | | | |
|--|--------------|-----------|------------------------------|
| 0 | 39 | 32,2 | |
| 1 | 41 | 33,9 | |
| 2 | 17 | 14,0 | |
| 3 | 7 | 5,8 | |
| 4 | 9 | 7,4 | |
| 5 and mor | 8 | 6,6 | |
| I do not know | 12 | | |
| No answer | 19 | | |
| Mean value / standard deviation | | 1,60/2,11 | |
| Median | | 1,0 | |
| Mode | | 1 | |
| Range | | 0-11 | |
| 48. Use a condom during last sexual intercourse with a woman (those who chose „I do not remember“ or gave no answer are excluded) | n=152 | | 0,984; 1; 0,321 |
| yes | 67 | 54,5 | |
| No | 56 | 45,5 | |
| I do not remember | 12 | | |
| No answer | 17 | | |
| 49. Frequency of condom use during sexual intercourses with a women in the last 6 months | n=152 | | 42,618; 6; <0,001 |
| Every time | 29 | 19,1 | |
| Often | 18 | 11,8 | |
| Sometimes | 19 | 12,5 | |
| Rarely | 17 | 11,2 | |
| Never | 19 | 12,5 | |
| Does not know | 5 | 3,3 | |
| No answer | 45 | 29,6 | |
| 50. Had a sexual intercourse in a group (with 2 or more persons) in the last 6 months (those who gave no answer are excluded) | n=333 | | 160,444; 1; <0,001 |
| Yes | 48 | 14,8 | |
| No | 276 | 85,2 | |
| No answer | 9 | | |
| 51. Had a sexual intercourse under the influence of alcohol | n=333 | | 50,904; 1; <0,001 |
| Yes | 231 | 69,6 | |
| No | 101 | 30,4 | |
| No answer | 1 | | |
| 52. Had a sexual intercourse under the influence of drugs | n=333 | | 71,867; 1; <0,001 |
| Yes | 88 | 26,7 | |
| No | 242 | 73,3 | |
| No answer | 3 | | |
| 53. Have you ever used drugs | n=333 | | 48,109; 1; <0,001 |
| Yes | 102 | 30,9 | |
| No | 228 | 69,1 | |
| No answer | 3 | | |
| 54. Have you ever injected drugs | n=104 | | 91,350; 1; <0,001 |
| Yes | 3 | 2,9 | |
| No | 100 | 97,1 | |
| No answer | 1 | | |
| 55. Have you ever shared drug injection equipment with others | n=4 | | 0,333; 1; 0,564 |
| Yes | 2 | 66,7 | |
| No | 1 | 33,3 | |
| No answer | 1 | | |
| 56. Have you ever served sentence in prison | n=333 | | 630,505; 2; <0,001 |
| Yes | 4 | 1,2 | |
| No | 327 | 98,2 | |
| No answer | 2 | 0,6 | |
| 57. How long was the sentence served | n=5 | | |
| < 1 year | 1 | 20,0 | |
| 1-5 years | 2 | 40,0 | |
| > 5 years | 2 | 40,0 | |
| 58. Have you ever had an STI | n=330 | | 224,194; 1; <0,001 |

| | | | |
|---|--------------|------|------------------------------|
| Yes | 29 | 8,8 | |
| No | 301 | 91,2 | |
| No answer | 3 | | |
| 59. Self-assessed STI – index structure | <i>n=35</i> | | |
| Gonorrhea | 5 | 16,1 | |
| Genital herpes | 5 | 16,1 | |
| Human papillomavirus | 9 | 29,0 | |
| Syphilis | 10 | 32,3 | |
| Viral hepatitis B | 3 | 9,7 | |
| Other | 3 | 9,7 | |
| 60. Have you had a penile discharge accompanied by prickly sensations/itching/pain in the last 12 months | <i>n=330</i> | | 302,594; 1; <0,001 |
| Yes | 7 | 2,1 | |
| No | 323 | 97,9 | |
| I do not remember | | | |
| No answer | | | |
| 61. Have you had an anal discharge accompanied by prickly sensations/itching/pain in the last 12 months | <i>n=329</i> | | 321,049; 1; <0,001 |
| Yes | 2 | 0,6 | |
| No | 327 | 99,4 | |
| I do not remember | 2 | | |
| No answer | 2 | | |
| 62. Have you had little bubbles on the penis that later evolved into a crust in the last 12 months | <i>n=333</i> | | 642,261; 2; <0,001 |
| Yes | 2 | 0,6 | |
| No | 329 | 98,8 | |
| I do not remember | 2 | 0,6 | |
| No answer | | | |
| 63. Have you had bubbles in the anal area that later evolved into a crust in the last 12 months | <i>n=333</i> | | 642,261; 2; <0,001 |
| Yes | 2 | 0,6 | |
| No | 329 | 98,8 | |
| I do not remember | 2 | 0,6 | |
| No answer | | | |
| 64. In case of a suspected STI, you would refer to: | <i>n=333</i> | | 248,577; 4; <0,001 |
| A family doctor | 118 | 35,4 | |
| A private practice doctor | 150 | 45,0 | |
| Seek advice at a pharmacy | 12 | 3,6 | |
| Use medications I have in the house | 7 | 2,1 | |
| Other | 46 | 13,8 | |

3. Knowledge of HIV/STI and risk assessment, MSM

| 65. HIV infection can be reduced significantly with correct use of condoms | 2012 | | χ^2 ; df; P |
|--|--------------|------|------------------------------|
| | n=333 | % | |
| Yes | 329 | 98,8 | 642,234; 2; <0,001 |
| No | 3 | 0,9 | |
| No answer | 1 | 0,3 | |
| 66. A healthy-looking person can be HIV-infected | n=333 | | 556,991; 2; <0,001 |
| Yes | 314 | 94,3 | |
| No | 7 | 2,1 | |
| No answer | 12 | 3,6 | |
| 67. It is possible to get HIV-infected by using cutlery previously used by an HIV- infected person | n=333 | | 296,883; 2; <0,001 |
| Yes | 30 | 9,0 | |
| No | 259 | 77,8 | |
| No answer | 44 | 13,2 | |
| 68. It is possible to get HIV-infected using a shared needle | n=333 | | 584,721; 2; <0,001 |
| Yes | 319 | 95,8 | |
| No | 9 | 2,7 | |
| No answer | 5 | 1,5 | |
| 69. It is possible to get an STD from oral sex | n=333 | | 355,099; 2; <0,001 |
| Yes | 273 | 82,0 | |
| No | 35 | 10,5 | |
| No answer | 25 | 7,5 | |
| 70. It is possible to get HIV-infected if partner ejaculates in your mouth | n=333 | | 154,757; 2; <0,001 |
| Yes | 218 | 65,5 | |
| No | 56 | 16,8 | |
| No answer | 59 | 17,7 | |
| 71. It is possible to get HIV-infected from a mosquito bite | n=333 | | 138,613; 2; <0,001 |
| Yes | 43 | 12,9 | |
| No | 210 | 63,1 | |
| No answer | 80 | 24,0 | |
| 71.a The risk of HIV transmission is reduced if non-HIV infected sexual partners are mutually faithful | n=333 | | 115,261; 2; <0,001 |
| Yes | 203 | 61,0 | |
| No | 72 | 21,6 | |
| No answer | 58 | 17,4 | |
| 72. Knowledge of partner's HIV status (current or last) | n=332 | | 139,084; 3; <0,001 |
| Never been tested for HIV | 65 | 19,6 | |
| HIV-positive | 3 | 0,9 | |
| HIV-negative | 135 | 40,7 | |
| Never talked about it | 129 | 38,9 | |
| 73. Self-assessed risk of HIV infection | n=332 | | 114,145; 3; <0,001 |
| There is no risk | 49 | 14,8 | |
| There is a small risk | 137 | 41,3 | |
| There is a moderate risk | 124 | 37,3 | |
| There is a big risk | 22 | 6,6 | |
| 74. Have you changed something in your sexual behaviour in the last 6 months in order to reduce the risk of transmission of HIV and other STIs (those who 'do not know' and 'do not remember' are excluded) | n=302 | | 44,556; 1; <0,001 |
| Yes | 93 | 30,8 | |
| No | 209 | 69,2 | |
| I do not know | | | |
| No answer | | | |
| 75. Changes in sexual behaviour (multiple answers possible) | n=118 | | 19,917; 2; <0,001 |
| Reduced the number of sexual partners | 61 | 51,7 | |
| Had sexual intercourse with only one partner | 23 | 19,5 | |
| Used condom more often | 61 | 51,7 | |

4. Testing for HIV and other sexually transmitted infections, MSM

| 76. Do you know where you can get tested for HIV | 2012 | | X ² ; df; P |
|--|--------------|-------------|------------------------------|
| | n=333 | % | |
| Yes | 311 | 93,4 | 250,814; 1; <0,001 |
| No | 22 | 6,6 | |
| 77. Name a place where HIV testing is possible | n=310 | | |
| Infectious disease clinic (VCCT) | 193 | 62,3 | |
| NGO counselling | 152 | 45,6 | |
| Institute of public health (VCCT) | 55 | 17,7 | |
| Private laboratory | 57 | 18,4 | |
| Institute/division for transfusion medicine | 88 | 28,4 | |
| Other | 7 | 2,3 | |
| 78. Have you ever been tested for HIV | n=333 | | 14,973; 2; 0,001 |
| Yes, once | 106 | 31,8 | |
| Yes, several times | 85 | 25,5 | |
| No | 142 | 42,6 | |
| 79. Have you been tested for HIV in the last 12 months | n=190 | | 6,821; 1; 0,009 |
| Yes | 113 | 59,5 | |
| No | 77 | 40,5 | |
| 80. Have you been tested for HIV in the last 12 months and know the result | n=113 | | 97,566; 1; <0,001 |
| Yes | 109 | 96,5 | |
| No | 4 | 3,5 | |
| 80. Tested for HIV in the past 12 months and know the result of the test (total sample) | n=333 | | 95,717; 1; <0,001 |
| Yes | 109 | 32,7 | |
| No | 224 | 67,3 | |
| 81. Do you want to get tested for HIV, hepatitis B, hepatitis C and syphilis now | n=333 | | 305,589; 1; <0,001 |
| Yes | 326 | 97,9 | |
| No | 7 | 2,1 | |
| 82. Reasons for lack of want for getting tested | n=7 | | |
| Mistrust | 4 | 57,1 | |
| Fear | 1 | 14,2 | |
| Testing done 1 month ago | 1 | 14,2 | |
| Not stated | 1 | 14,2 | |
| 83. Interviewing with informed consent | n=333 | | |
| Yes | 333 | 100 | |
| No | | | |
| 84. Blood sample taken with informed consent | n=333 | | 321,108; 1; <0,001 |
| Yes | 330 | 99,1 | |
| No | 3 | 0,9 | |
| 84.a. Blood sample taken with informed consent | n=330 | | |
| HIV reactive | 4 | 1,2 | |
| HCV reactive | 5 | 1,5 | |
| HBV positive | 1 | 0,3 | |
| Syphilis reactive | 2 | 0,6 | |

Annex II: MSM, total sample, Chosen indicators, trend (95% C.I.)

| Question | 2008.godina n=224 | n/N | 2010. n=248 | n/N | 2012. n=333 | n/N |
|---|----------------------|---------|-----------------|---------|-----------------|---------|
| Age | 26,9(26,0-27,8) | 224 | 26,7(25,9-27,4) | 248 | 26,9(26,2-27,6) | 333 |
| Town (%) | 96,4(93,4-98,6) | 213/221 | 94,0(89,1-97,0) | 232/248 | 94,0(91,4-96,6) | 313/333 |
| B&H Citizenship (%) | 97,3(94,7-99,3) | 214/220 | 98,8(97,4-100) | 243/246 | 98,5(97,2-99,8) | 328/333 |
| Education High school (%) | 57,2(50,7-63,7) | 127/222 | 72,7(67,2-78,2) | 179/248 | 64(58,8-69,2) | 212/333 |
| University (%) | 40,1(33,6-46,4) | 89/222 | 27,4(21,5-32,5) | 68/248 | 28,8(24,1-33,9) | 96/333 |
| Employed (%) | 40,4(33,6-46,4) | 90/223 | 35,9(30,0-42,0) | 89/248 | 37,2(31,8-42,2) | 124/333 |
| Married (%) | 3,6(1,1-6,1) | 8/221 | 3,7(1,3-6,1) | 9/246 | 4,2(2,0-6,4) | 14/332 |
| First anal sexual intercourse with man | - | - | 19,3(18,8-19,7) | 245 | 18,7(17,8-19,6) | 333 |
| Insertive partner in the last 6 months (%) | - | - | 74,2(68,5-79,5) | 184/248 | 77,5(73,0-82,0) | 258/333 |
| With average insertive male partners (mean value) | - | - | 3,2(2,7-3,6) | 184 | 2,6(2,3-2,9) | 258 |
| Receptive partner in the last 6 months (%) | - | - | 63,3(57,0-69,0) | 157/248 | 60,7(60,5-73,5) | 202/333 |
| With average receptive male partners | - | - | 2,8(2,3-3,2)157 | 2,3(| 2,3(1,9-2,7) | 202 |
| Number of regular male partners in the last 6 months | - | - | 1,8(1,6-2,0) | 185 | 1,6(1,4-1,8) | 318 |
| Number of anal intercourses with a regular partner /1 month | - | - | 8,0(6,5-9,4) | 125 | 6,5(5,7-7,4) | 221 |
| Use of condoms with a regular partner (%): | - | - | 23,0(16,8-29,2) | 41/178 | 20,0(15,3-24,7) | 6/280 |
| - always | - | - | 16,9(11,5-22,5) | 30/178 | 13,9(9,9-18,1) | 39/280 |
| - never | - | - | | | | |
| Had anal intercourse with a random partner/ 6 months(%) | 57,4(50,9-63,9) | 128/223 | 63,1(56,6-69,6) | 135/214 | 36,1(30,4-41,6) | 101/280 |
| Number of different random partners | - | - | 3,6(3,0-4,1) | 135 | 2,3(1,9-2,6) | 280 |
| Number of anal intercourses with a random partner/ last month | - | - | 2,9(2,3-3,5) | 97 | 3,3(2,7-4,0) | 159 |
| Frequency of condom use in the last 6 months/ random partners | 49,2(40,5-57,9) | 63/128 | 54,8(46,2-63,8) | 68/124 | 37,5(30,7-44,3) | 72/192 |
| - every time(%) | 4,7(1,0-8,4) | 6/128 | 3,2(0,1-6,3) | 4/124 | 8,3(4,2-11,8) | 16/192 |
| - never (%) | | | | | | |
| Reason for not using a condom (%): | | | | | | |
| - trusts his partner | - | - | 28(17,8-38,29) | 21/74 | 11(4,9-17,1) | 11/100 |
| - was unavailable at that time | - | - | 20(10,9-29,1) | 15/74 | 19(11,3-26,7) | 19/100 |
| - does not like sex with a condom | - | - | 12,2(4,7-19,7) | 9/74 | 25(16,5-33,5) | 25/100 |
| Obtained condoms in the last 12 months (e.g.through outreach service, drop-in centre or VCCT – health facilities) (%) | - | - | - | - | 82,2(78,1-86,3) | 273/332 |
| Condom use during last: | | | | | | |
| - oral sex | 49(40,3-57,7) | 63/128 | 8,6(4,9-12,3) | 19/221 | 8(4,9-11,1) | 23/285 |
| - anal sex with a man (%) | | | 63,7(57,7-69,7) | 158/248 | 66,7(61,6-71,8) | 222/333 |
| Average number of MSM persons that the interviewee knows | 28,3(22,4-34,1) | 215 | 42,7(32,7-52,7) | 159 | 47,9(38,2-57,7) | 257 |
| Way of meeting a partner - Online (%) | 58,3(51,5-64,59) | 130/223 | 56,3(49,8-62,2) | 139/247 | 76,9(71,4-80,6) | 256/333 |
| Had sexual intercourse with a woman (%) | 68,3(61,9-74,1) | 100/224 | 55,4(48,7-61,3) | 134/242 | 45,5(40,6-51,4) | 151/332 |

| | | | | | | |
|---|-----------------|---------|-----------------|---------|-----------------|---------|
| Currently in a relationship with woman | 22,2(15,6-28,8) | 34/153 | 20,3(13,3-27,3) | 26/128 | 21,2(14,7-27,7) | 32/151 |
| Number of women with whom they had sexual intercourse in the last 12 months | 2,3(2,0-2,7) | 100 | 3,1(2,1-3,9) | 67 | 1,6(1,2-1,9) | 121 |
| Used a condom during last intercourse with woman (%) | 55,2(46,8-63,2) | 79/143 | 58,4(48,4-67,6) | 59/101 | 54,5(46,2-63,8) | 67/123 |
| Had a sexual intercourse under the influence of: | | | | | | |
| - alcohol (%) | 58,8(52,4-65,6) | 124/211 | 76,9(71,7-82,3) | 186/242 | 69,6(65,1-74,9) | 231/332 |
| - drugs(%) | 24,1(18,1-29,9) | 48/199 | 31,5(25,6-37,4) | 76/241 | 26,7(22,2-31,8) | 88/330 |
| Experience of serving sentence in prison (%) | 8,1(4,5-11,7) | 18/222 | 4,5(1,9-7,1) | 11/247 | 1,2(0,1-2,1) | 4/333 |
| Experience of drug taking (%) | 45,5(39,5-52,5) | 102/224 | 47,3(40,7-53,3) | 113/239 | 30,9(26,0-36,0) | 102/330 |
| Out of them- injection drug use (%) | 14,9(8,0-22,0) | 15/101 | 8,1(3,0-13,0) | 9/111 | 2,9(0,3-6,2) | 3/103 |
| Ever had an STD(%) | 9,5(6,0-14,0) | 21/221 | 10,4(6,2-13,8) | 25/240 | 8,8(5,9-12,1) | 29/330 |
| Correctly answered all the questions on HIV transmission (%) | - | - | 32,7(25,5-38,5) | 81/248 | 21,3(16,9-25,7) | 71/333 |
| Changes in sexual behaviour (%): | | | | | | |
| - reduced number of sexual partners | 32,4(23,3-41,5) | 33/10 | 59,1(48,8-69,4) | 52/88 | 51,7(43,6-59,8) | 61/145 |
| - used a condom more often | 48,0(38,3-57,7) | 49/102 | 43,2(32,7-53,3) | 38/88 | 51,7(43,6-59,8) | 61/145 |
| Ever been tested for HIV: | | | | | | |
| - yes, once | 27,2(21,4-33,0) | 61/224 | 31,3(25,5-37,1) | 77/246 | 31,8(26,8-36,8) | 106/333 |
| - yes, several times | 17,4(12,4-22,4) | 39/224 | 19,9(14,9-24,9) | 49/246 | 25,5(20,8-30,2) | 85/333 |
| - no | 55,4(48,9-61,9) | 124/224 | 48,8(42,6-55,0) | 120/246 | 42,6(37,3-47,9) | 142/333 |
| Tested for HIV in the last 12 months | 54,0(44,2-63,8) | 54/100 | 37,5(29,1-45,9) | 48/128 | 59,5(52,5-66,5) | 113/190 |
| Tested for HIV in the last 12 months and know the test result | 22,8(17,3-28,3) | 51/224 | 18,7(13,8-23,6) | 46/246 | 32,7(27,7-37,7) | 109/333 |
| HIV prevalence | 0,4(0,4-1,2) | 1/224 | 1,2(0,0-2,6) | 3/248 | 1,2(0,0-2,4) | 4/333 |
| HCV prevalence | 7,6(4,1-11,1) | 17/224 | 4,0(1,6-6,4) | 10/248 | 1,5(0,2-2,8) | 5/333 |
| HBV prevalence | - | 0/224 | 0,8(0,3-1,9) | 2/248 | 0,3(0,3-0,9) | 1/333 |
| Syphilis prevalence | 0,4(0,4-1,2) | 1/224 | 0,4(0,4-1,2) | 1/248 | 0,6(0,2-1,4) | 2/333 |

Annex III: MSM, Chosen indicators in relation to previous researches, trend, total sample

| <i>Variable</i> | <i>2008.</i> | | <i>2010.</i> | | <i>2012.</i> | | <i>χ²; df; P</i> |
|--|-------------------------------|-------------|-----------------------|-------------|---------------------|-------------|-------------------------------------|
| <i>Condom use during last anal intercourse with a man</i> | | | <i>n=248</i> | <i>%</i> | <i>n=333</i> | <i>%</i> | <i>280,730; 3; <0,001</i> |
| Yes | | | 158 | 63,7 | 222 | 66,7 | |
| No | | | 74 | 29,8 | 100 | 30,0 | |
| <i>I do not know</i> | | | 12 | 4,8 | 6 | 1,8 | |
| <i>No answer</i> | | | 4 | 1,6 | 5 | 1,5 | |
| <i>Currently in a relationship with a woman (those who did not give an answer are excluded)</i> | <i>n=153</i> | | <i>n=128</i> | | <i>n=151</i> | | <i>0,153; 2; 0,926</i> |
| Yes | 34 | 22,2 | 26 | 20,3 | 32 | 21,2 | |
| No | 119 | 77,8 | 102 | 79,7 | 119 | 78,8 | |
| <i>Knowledge of HIV transmission</i> | | | <i>n=248</i> | | <i>n=333</i> | | <i>122,569 1; <0,001</i> |
| Interviewees with all correct answers | | | 167 | 67,3 | 71 | 21,3 | |
| Other interviewees | | | 81 | 32,7 | 262 | 78,7 | |
| <i>Ever been tested for HIV</i> | <i>n=224</i> | | <i>n = 246</i> | | <i>n=333</i> | | <i>10,099; 4; 0,038</i> |
| Yes, once | 61 | 27,2 | 77 | 31,3 | 106 | 31,8 | |
| Yes, several times | 39 | 17,4 | 49 | 19,9 | 85 | 25,5 | |
| No | 124 | 55,4 | 120 | 48,8 | 142 | 42,6 | |
| <i>Tested for HIV in the last 12 months</i> | <i>n=100</i> | | <i>n=128</i> | | <i>n=190</i> | | <i>15,129; 2; <0,001</i> |
| Yes | 54 | 54,0 | 48 | 37,5 | 113 | 59,5 | |
| No | 46 | 46,0 | 80 | 62,5 | 77 | 40,5 | |
| <i>Tested for HIV in the last 12 months and know the last test result</i> | <i>n=224</i> | | <i>n=246</i> | | <i>n=333</i> | | <i>230,055; 2; <0,001</i> |
| Yes | 51 | 22,8 | 46 | 18,7 | 109 | 32,7 | |
| No | 173 | 77,2 | 200 | 81,3 | 224 | 67,3 | |
| <i>Blood sample</i> | <i>n=148/152za HIV</i> | | <i>n=168</i> | | <i>n=330</i> | | <i>9,519; 6; 0,146</i> |
| HIV reactive | 1 | 0,7 | 3 | 1,8 | 4 | 1,2 | |
| HCV reactive | 17 | 11,5 | 10 | 6,0 | 5 | 1,5 | |
| HBV positive | | | 2 | 1,2 | 1 | 0,3 | |
| Syphilis reactive | 1 | 0,7 | 1 | 0,6 | 2 | 0,6 | |

Annex IV: MSM, Chosen indicators, population of interviewees ≤ 24 years old (95% C.I.)

| Question | 2012. n=135 | n/N |
|--|-------------------|---------|
| Age | 21,2(20,8-21,5) | 133 |
| Town (%) | 93,3(89,1-97,5) | 126/135 |
| B&H Citizenship (%) | 97,8 (95,3-100,0) | 132/135 |
| Education Secondary school (%) | 77,0 (69,9-84,1) | 104/135 |
| University (%) | 10,3 (5,2-15,4) | 14/135 |
| Employes (%) | 15,6 (9,5-21,7) | 21/135 |
| Married (%) | - | 0/135 |
| First anal sexual intercourse with a man | 16,8 (16,4-17,2) | 135 |
| Insertive partner in the last 6 months (%) | 85,1 (78,8-91,4) | 103/121 |
| With average insertive male partners (mean value) | 2,4 (1,9-2,8) | 121 |
| Receptive partner in the last 6 months (%) | 63,4 (55,0-71,8) | 80/126 |
| With average receptive male partners | 2,1 (1,5-2,6) | 126 |
| Number of regular male partners in the last 6 months | 1,3 (1,1-1,5) | 130 |
| Number of anal intercourses with a regular partner/ 1 month | 5,4 (4,3-6,4) | 98 |
| Use of condoms with a regular partner (%): | | |
| - always | 30,9 (22,3-39,5) | 34/110 |
| - never | 14,5 (7,9-21,1) | 16/110 |
| Had anal intercourse with a random partner/ 6 months(%) | 56,8 (47,9-65,7) | 67/118 |
| Number of different random partners | 2,2 (1,6-2,9) | 118 |
| Number of anal intercourses with a random partner/ last month | 3,5 (2,4-4,6) | 61 |
| Frequency of condom use in the last 6 months/ random partners | | |
| - every time (%) | 40,3 (29,0-51,6) | 29/72 |
| - never (%) | 4,1 (0,0-8,7) | 3/72 |
| Reason for not using a condom (%): | | |
| - trusts his partner | 11,6 (2,0-21,2) | 5/43 |
| - was unavailable at that time | 11,6 (2,0-21,2) | 5/43 |
| - does not like sex with a condom | 30,2 (16,5-43,9) | 13/43 |
| Obtained condoms in the last 12 months (e.g.through outreach services, drop-in centre or VCCT- health facility (%) | 80,7 (74,0-87,4) | 109/135 |
| Condom use during last: | | |
| - oral sex | 8,8 (3,3-14,3) | 9/102 |
| - anal sex with a man(%) | 67,4 (59,4-75,4) | 89/132 |
| Average number of MSM persons that the interviewee knows | 34,5 (26,7-42,4) | 114 |
| Way of meeting a partner - Online (%) | 76,3 (69,1-83,5) | 103/135 |
| Used lubricants (%) | 92,4 (87,9-96,9) | 123/133 |
| Had sexual intercourse with a woman (%) | 39,3 (31,1-47,5) | 53/135 |
| Currently in a relationship with a woman | 12,9 (4,0-21,8) | 7/54 |
| Number of women with whom they had sexual intercourse in the last 12 months | 2,0 (1,3-2,6) | 45 |

| | | |
|---|---------------------|--------|
| Used a condom during last intercourse with a woman (%) | 62,5 (48,8-76,2) | 30/48 |
| Had a sexual intercourse under the influence of: | | |
| - alcohol (%) | 66,7 (58,7-74,7) | 90/135 |
| - drugs (%) | 25,2 (17,9-32,5) | 34/135 |
| Experience of serving sentence in prison(%) | 0,7 (0,0-2,1) | 1/134 |
| Experience of drug taking (%) | 30,8 (23,0-38,6) | 41/133 |
| Out of them – injection drug use (%) | 2,4 (0,0-7,0) | 1/42 |
| Ever had an STD (%) | 5,9 (1,9-9,9) | 8/134 |
| Correctly answered all the answers on HIV transmission (%) | 19,3 (12,6-26,0) | 26/135 |
| Changes in sexual behaviour (%): | | |
| - reduced number of sexual partners | 50,0 (34,1-65,9) | 19/38 |
| - used a condom more often | 52,6 (36,7-68,5) | 20/38 |
| Ever been tested for HIV: | | |
| - yes, once | 31,1 (23,3-38,9) | 42/135 |
| - yes, several times | 16,3 (10,1-22,5) | 22/135 |
| - no | 52,6 (44,2-61,0) | 71/135 |
| Tested for HIV in the last 12 months | 68,8 (57,4-80,2) | 44/64 |
| Tested for HIV in the last 12 months and know the test result | 100,0 (100,0–100,0) | 44/44 |
| HIV prevalence | - | 0/133 |
| HCV prevalence | 1,5 (0,0–3,6) | 2/133 |
| HBV prevalence | - | 0/133 |
| Syphilis prevalence | 0,8 (0,0-2,3) | 1/133 |

Annex V: MSM – questionnaire according to location

| Variables | n | Interviewees according to place of research (N=333) | | | | | | | χ^2 test; df; P |
|---|--------------------|---|------------------------|----------------|------------------|------------------|---------------|--------------------------|--------------------------|
| | | Bijeljina n=31 | Banja Luka n=102 | Mostar n=30 | Prijedor n=29 | Sarajevo n=90 | Tuzla n=40 | Ukupno $\Sigma n=322$ | |
| Condom used during last anal intercourse with a man | Yes | 18 5,4% | 66 19,8% | 23 6,9% | 22 6,6% | 61 18,3% | 32 9,6% | 222 66,7% | 6,394; 5; 0,270 |
| | No | 13 3,9% | 36 10,8% | 7 2,1% | 7 2,1% | 29 8,7% | 8 2,4% | 100 33,3% | |
| Yes, according to location (%) | | 58,1 | 64,7 | 76,7 | 75,9 | 67,8 | 80,0 | | |
| Currently in a relationship with a woman | n | 12 | 33 | 16 | 12 | 56 | 22 | 151 | 4,949; 5; 0,417 |
| | Yes | 3 0,9% | 5 1,5% | 6 1,8% | 1 0,3% | 11 3,3% | 6 1,8% | 32 9,6% | |
| | No | 9 2,7% | 28 8,4% | 10 3,0% | 11 3,3% | 45 13,5% | 16 4,8% | 119 35,7% | |
| Yes, according to location (%) | | 25 | 15,1 | 37,5 | 1/12 | 11/56 | 6/22 | | |
| Knowledge (interviewees correctly answered all the questions) | n | 32 | 104 | 30 | 30 | 97 | 40 | 333 | 9,082; 5; 0,106 |
| | Yes | 11 3,3% | 17 5,1% | 8 2,4% | 3 0,9% | 25 7,5% | 7 2,1% | 71 21,3% | |
| | No | 21 6,3% | 87 26,1 | 22 6,6% | 27 8,1% | 72 21,6% | 33 9,9% | 262 78,7% | |
| Yes, according to location (%) | | 44,0 | 17,0 | 26,6 | 10,0 | 25,7 | 17,5 | | |
| Ever been tested for HIV | n | 32 | 104 | 30 | 30 | 97 | 40 | 333 | 32,421; 10; <0,001 |
| | Yes, several times | 6 1,8% | 18 5,4% | 7 2,1% | 8 2,4% | 40 12,0% | 6 1,8% | 85 25,5% | |
| | No | 13 3,9% | 41 12,3% | 15 4,5% | 16 4,8% | 31 9,3% | 26 7,8% | 142 42,6% | |
| Yes, according to location (%) | | 59,3 | 60,5 | 50,0 | 46,6 | 68,0 | 35,0 | | |
| Tested for HIV in the last year | n | 19 | 63 | 15 | 14 | 65 | 14 | 190 | 25,783; 5; <0,001 |
| | Yes | 7 2,1% | 37 11,1% | 10 3,0% | 5 1,5% | 51 15,3% | 3 0,9% | 113 33,9% | |
| | No | 12 3,6% | 26 7,8% | 5 1,5% | 9 2,7% | 14 4,2% | 11 3,3% | 77 23,1% | |
| Yes, according to location (%) | | 36,8 | 58,7 | 66,6 | 35,7 | 78,4 | 21,4 | | |
| Tested within the last 12 months and know the test result | n | 31 | 102 | 30 | 29 | 90 | 40 | 333 | |
| | Yes | 6 19,5% | 36 35,3% | 10 33,3% | 5 17,2% | 49 54,4% | 3 7,5% | 109 32,7% | |
| | No | 25 80,5% | 66 64,7% | 20 66,7% | 24 82,8% | 41 45,6% | 37 92,5% | 224 67,3% | |

Results of serological analysis – according to location, MSM

| Variables | | Interviewees according to place of research(N=333) | | | | | | | χ^2 test; df; P |
|----------------------------------|------------------|--|------------------------|----------------|------------------|------------------|---------------|-----------------|-------------------------|
| HIV | n | Bijeljina n=32 | Banja Luka n=104 | Mostar n=27 | Prijedor n=30 | Sarajevo n=97 | Tuzla n=40 | Ukupno N=330 | 5,059; 5; 0,276 |
| | Reactive | 0 0,0% | 0 0,0% | 0 0,0% | 1 0,3% | 3 0,9% | 0 0,0% | 4 1,2% | |
| | Non- reactive | 32 9,6% | 104 31,2% | 27 8,1% | 29 8,7% | 94 28,2% | 40 12,0% | 326 98,7% | |
| Yes, according to location(%) | | | | | 3,3 | 3,0 | | | |
| HCV | n | 32 | 104 | 27 | 30 | 97 | 40 | 330 | 9,082; 5; 0,106 |
| | Reactive | 0 0,0% | 3 0,9% | 0 0,0% | 0 0,0% | 1 0,3% | 1 0,3% | 5 1,5% | |
| | Non- reactive | 32 9,6% | 101 30,3% | 27 8,1% | 30 9,0% | 96 28,8% | 39 11,7% | 325 98,4% | |
| Yes, according to location(%) | | | 2,8 | | | 1,0 | 2,5 | | |
| HBV | n | 32 | 104 | 27 | 30 | 97 | 40 | 330 | 7,216; 5; 0,270 |
| | Reactive | 1 0,3% | 0 0,0% | 0 0,0% | 0 0,0% | 0 0,0% | 0 0,0% | 1 0,3% | |
| | Non- reactive | 31 9,3% | 104 31,2% | 27 8,1% | 30 9,0% | 97 29,1% | 40 12,0% | 329 99,6% | |
| Yes, according to location(%) | | 3,1 | | | | | | | |
| Syphilis | n | 32 | 104 | 27 | 30 | 97 | 40 | 330 | 3,731; 5; 0,814 |
| | Reactive | 0 0,0% | 2 0,6% | 0 0,0% | 0 0,0% | 0 0,0% | 0 0,0% | 2 0,6% | |
| | Non- reactive | 32 9,6% | 102 30,6% | 27 8,1% | 30 9,0% | 97 29,1% | 40 12,0% | 328 99,3% | |

**RESEARCH ON RISK BEHAVIOUR IN RELATION TO HIV/STI
PREVALENCE AMONG GROUPS EXPOSED TO HIGHER RISK
SW POPULATION**



12. RESULTS

12.1. Sociodemographic characteristics

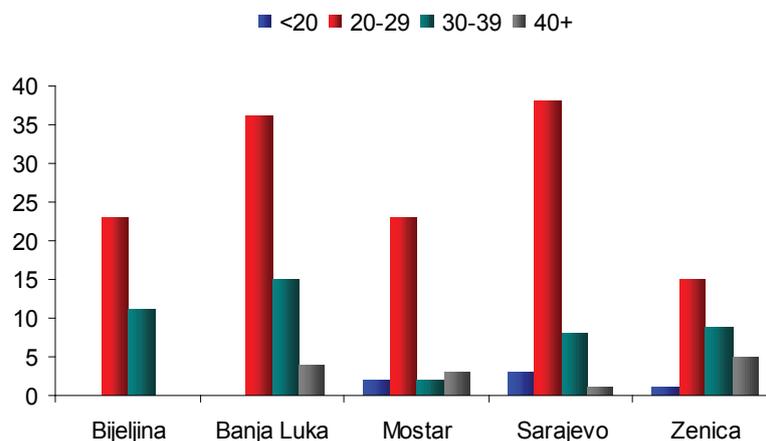
The research included a total of 199 interviewees in five towns in Bosnia and Herzegovina: Bijeljina (34), Banja Luka (55), Mostar (30), Sarajevo (50) and Zenica (30).

Most of the interviewees are citizens of BiH (95.5%), 89.4% of them live in a town, and 95.5% of them have been living in place of residence for more than a year.

The average age of interviewees is 27.5 (standard deviation 6,12, range 18-48), without significant differences in age in relation to research in 2008 and 2010.

The biggest proportion in all the locations of research is made of interviewees in the age group 20-29 (Graph 12).

Graph 12: Proportion of individual age groups in SW sample, according to location



Looking at the educational structure, most interviewees have secondary education (67.8%), followed by college (16.1%) and university education (10.1%), while 6% of them have primary education.

About half (51.8%) of the interviewees do not have a permanent employment, 17.6% of them are employed permanently, 21.1% work occasionally and 9.5% are students. Data on employment status of interviewees in all three conducted researches show an increase in employment rate (17.6%) in 2012, while the proportion of students has decreased in comparison to research in 2008. 54.3% of the interviewees have health insurance.

Data on marital status of the interviewees show that 11.6% of them are married, the largest percentage (67.8%) are single and that difference is statistically significant ($p < 0.001$), while 14.6% are divorced, without significant differences in comparison to 2010 and 2008 researches.

12.2. Sexual activities

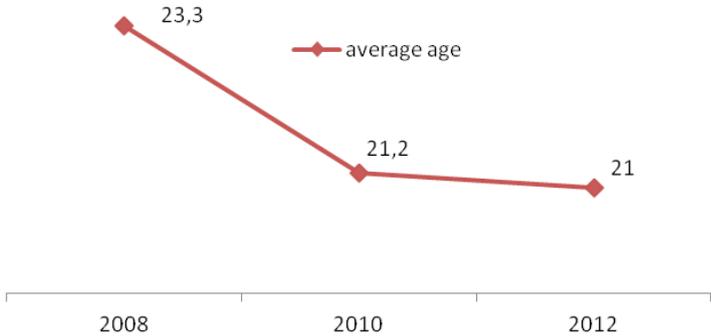
The average age at first sexual intercourse is 16.5 (standard deviation 1.72, range 13-22). Analysing results of the age at first sexual intercourse in all three researches, it is noticeable that the age limit is decreasing in comparison to research in 2008 (17.3 years) and is somewhat higher than in 2010 (16.3).

First sexual intercourse before the age of 16 was what 27.6% of the interviewees had, 59.8% of them in the age of 16-18, while the smallest percentage (12.6) had their first sexual intercourse after 18 years of age and that difference is statistically significant ($p < 0,001$).

Around half of interviewees (50.8%) provided their first sexual service in exchange for money or something else at the age of 17-21, around one third of them (32.7%) at 22-26, and 8% were under 16 years old.

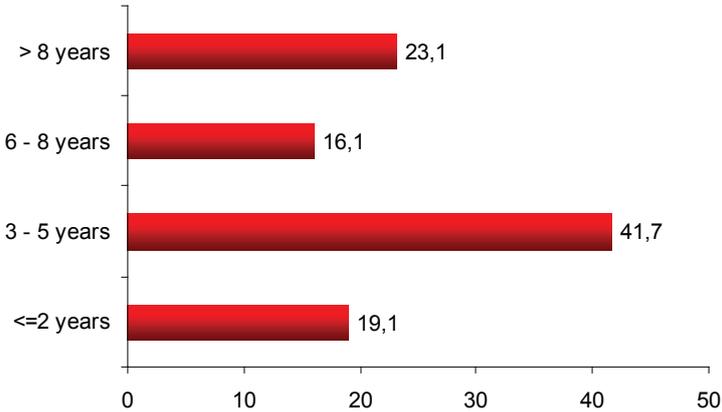
The average age at first sexual service is 21, and this average has a trend of decreasing when compared to other researches (2008 – 23.3; 2010 – 21.2), which shows that providing sexual services is done by ever younger population (Graph 13).

Graph 13: Average age at first sexual service in exchange for money or something else (2008, 2010 and 2012)



More than a third of interviewees (41.7%) has been providing sexual services for 3-5 years, 23.1% of them have been doing it for more than 8 years, 19.1% up to 2 years and 16.1% of them 6-8 years. (Graph 14)

Graph 14: Sample structure according to length of time as a sexual service provider

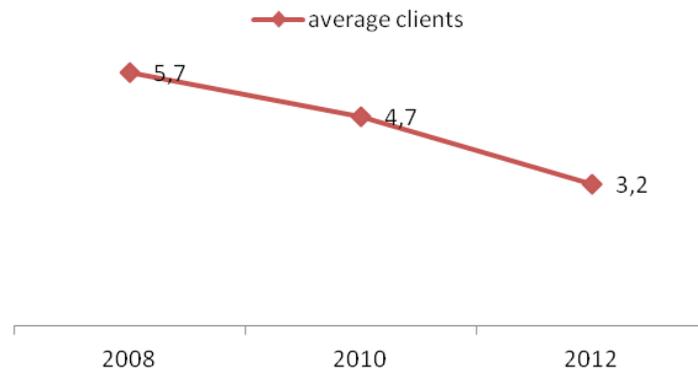


The average length of time doing sexual services is 6.1 years (standard deviation 4.58; range 1-24), which is somewhat smaller than in 2010 (6.7 years) and more than in 2008 (4.4).

Almost all of the interviewees (97%) state that they provide sexual services in exchange for money, less than a half (46.2%) for clothes, and a smaller percentage for food, drinks and drugs.

The biggest number of interviewees (75.9%) states up to 5 clients per week, then 5-10 (23%), and 1.1% of them state over 10 clients per week. The average weekly number of clients is 3.2, which is less than in 2010 and 2008 researches and has a decreasing trend (Graph 15).

Graph 15: The average number of clients, per week (2008, 2010 and 2012)



About two thirds of the interviewees (63.8%) state their clients are of different ages, of age 30-39 (22.6%), 18-29 (7%) and over 40 (6.5%).

According to their places of residence, majority of sexual service users (78.9%) are people living in town, then foreigners working in town (12.1%) and a smaller percentage includes those passing through on their travels (7.5%).

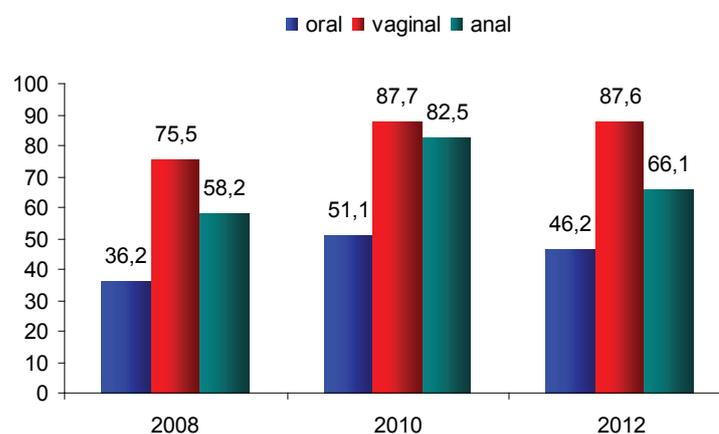
54% of the interviewees had a paid sexual intercourse in the last month.

Oral and vaginal commercial sexual services in the last month were provided by a large majority of the interviewees (about 90%), while 49.7% of them also states anal commercial sexual services.

12.3 Condom use

The biggest rate of condom use during sexual intercourse with a client is during vaginal intercourse (87.6%), then during anal intercourse (66.1%) and the smallest rate of condom use is reported during oral sex (46.2%). Frequency of condom use during last sexual intercourse is approximately the same as in 2010 and is at 87.6%, while it is noticeable that the rate of condom use decreased during anal intercourse (66.1%) when compared to the previous research (82.5%) (Graph 16).

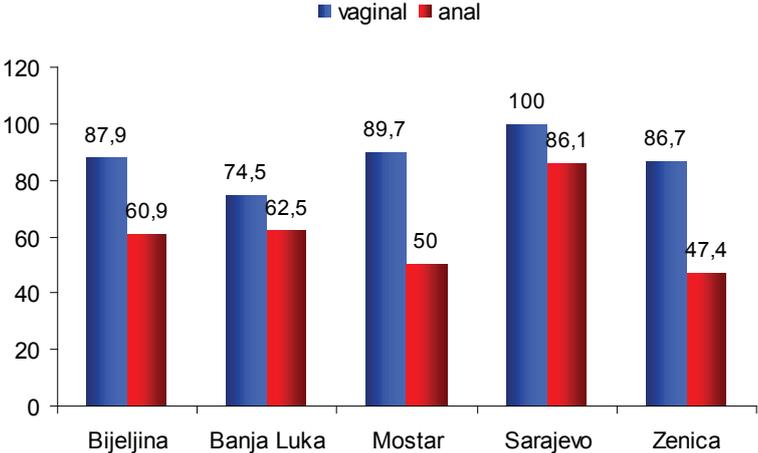
Graph 16: Frequency of condom use during last sexual intercourse (researches in 2008, 2010, 2012)



The smallest rate of condom use during last oral sex according to location/place of research is in Bijeljina (24-2%), the biggest one in Sarajevo (68%).

The smallest frequency of condom use during last vaginal intercourse according to location of research is in Banja Luka (74.5%) and the biggest in Sarajevo (100%), while during anal intercourse the smallest frequency is in Mostar (50%) and the biggest one in Sarajevo (86.1%) (graph 17).

Graph 17: Frequency of condom use during vaginal and anal intercourses, According to locations



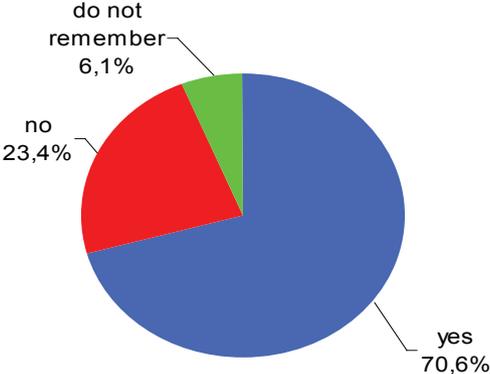
Using a condom every time is what 36.7% of the interviewees stated, 31.2% of them stated they use it often, and 2.5% of them state they have never used a condom during a sexual intercourse with a client in the last month.

As the reason for not using a condom while providing sexual services, the majority of the interviewees states it is "because they want it like that themselves" (80.8%), which is significantly more than in previous research (59.6%) and smallest percentage (39%) said it was upon client's request.

The biggest percentage of interviewees (42.8%) say they get condoms through NGOs, 40.2% buy them themselves, in 13.9% cases clients buy the condoms and 3.1% of them say their pimp gets condoms for them.

About two thirds of the interviewees (70.6%) state that in the last month they got condoms from outreach workers, drop-in centres or at voluntary confidential counselling and testing centres (Graph 18).

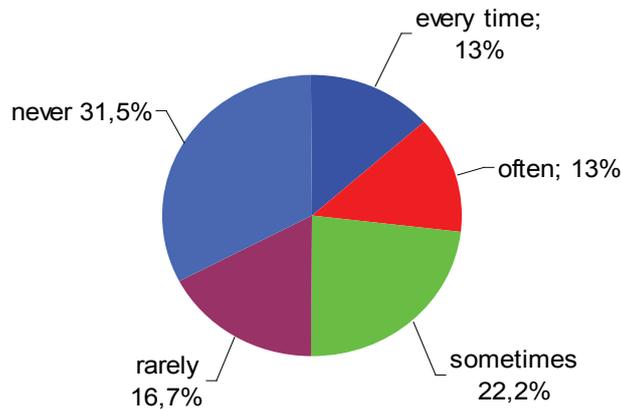
Graph 18: Getting condoms from: outreach workers, drop-in centres and VCCT centres



12.3.1. Condom use with a regular partner

On the question of using a condom with a regular sexual partner, only 13% of the interviewees say they use a condom every time, also 13% of them say they use it often and 31.5% say they never use it (Graph 19).

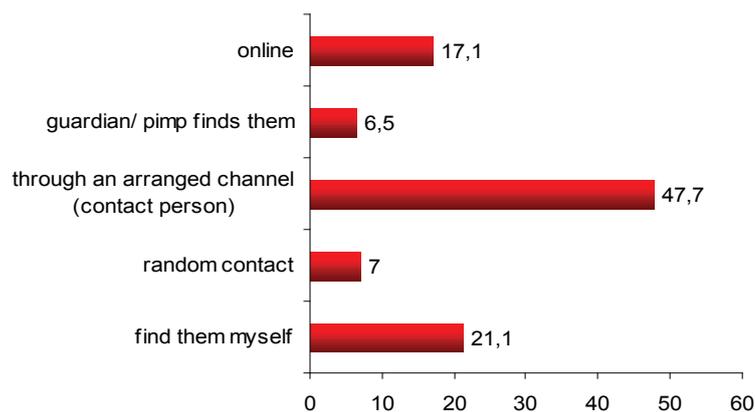
Graph 19. Frequency of condom use with a regular partner



12.4. Finding clients

The most common way for the interviewees to find clients is through arranged channels/contact person (47.7%), 21.1% find them on their own (21.1%), and 6.5% find clients through guardians/pimps (Graph 20).

Graph 20: Sample structure according to ways of finding clients



Places where the interviewees meet their clients most often are clubs/casinos (64.3%), private parties (53.6%), cafes (48.2%) and in a smaller percentage in parks and on the streets.

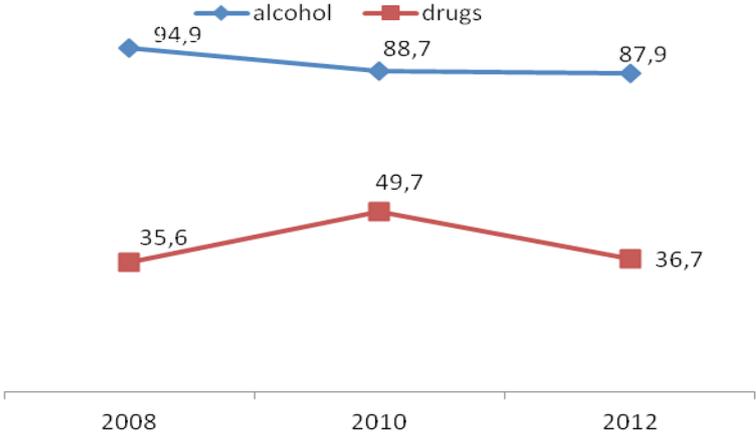
Places where they provide sexual services most often are rented rooms (59.8%), hotels (53.3%), own house/apartment (10.6%), public facilities (5%), park or other public place (3.5%). More than 50% of

the interviewees have experienced some kind of violence – most often it is psychological violence (33.7%), physical (33.2%), while 1.5% were subjected to women trafficking.

12.5. Other risk behaviours

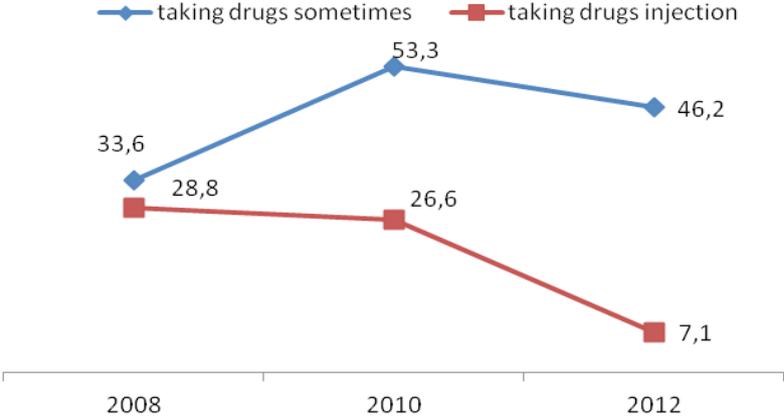
A big percentage (87.9%) say they have experienced a sexual intercourse under the influence of alcohol, 36.7% under the influence of drugs, which should be taken with consideration as SW-injecting drug users were not taken into account in the sample (Graph 21).

Graph 21: Providing sexual services under the influence of drugs, according to years of research



The question on whether they have ever used drugs was answered affirmatively with 46.2% of the interviewees, 7.1% of them have injected it, which is considerably less in comparison to previous researches (2010 and 2008) (Graph 22).

Graph 22: Sample structure according to the experience of drug use, trend (2008, 2010 and 2012)



Out of five who answered the question of sharing drug injecting equipment, 4 of them answered affirmatively. 5.3% answered they provided sexual services to clients who injected drugs.

The experience of serving a sentence in prison is stated by 4.5% of them, and the length of stay in prison with almost all of them is up to one year.

In comparison to previous researches, the percentage of those who say they have had a sexually transmitted infection is increasing (28.9%) (Graph 23).

Graph 23: Self-assessed STI, trend (2008, 2010, 2012)



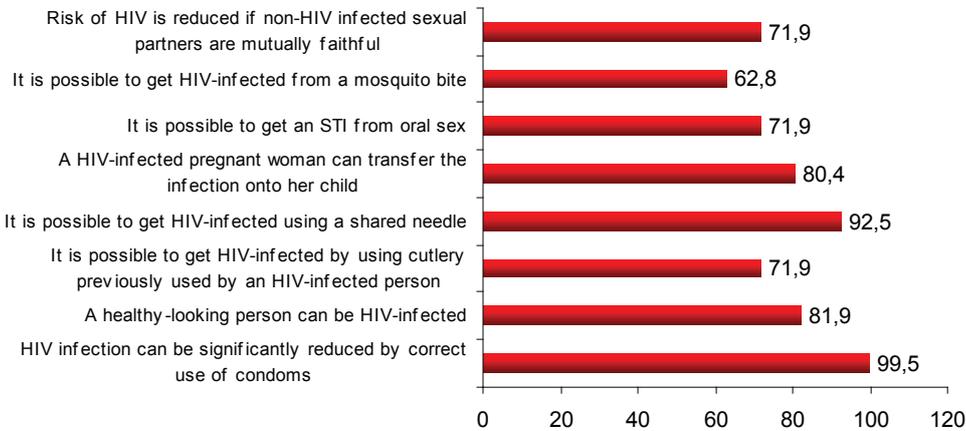
The most common self-assessed STIs are human papillomavirus (32.7%), gonorrhoea (26.2%), genital herpes (24.4%), and significantly less syphilis (3.2%) and viral hepatitis B (1.6%) or something else (13.1%).

In case of suspecting having an STI, 55.3% of the interviewed women would refer to a private practice doctor, only 24% of them to a family doctor and that difference is statistically significant ($p < 0,001$). In the last year, almost 60% of them have visited an STI specialist.

12.6. Knowledge of HIV/STI infection and self-assessment of risk

Out of 8 questions that refer to the knowledge of HIV/STI, 28.1% of the interviewees correctly answered all the questions, the weakest knowledge was demonstrated on the question whether HIV can be transmitted from a mosquito bite (Graph 24).

Graph 24. Knowledge of HIV infection (% of correct answers)



Comparing results of answers regarding knowledge of HIV/STI in comparison to previous researches (2008, 2010), the interviewees in this research (2012) show a slightly better knowledge when compared to the previous ones, and parallel results to posed questions are shown in table 4.

Table 4: Knowledge of HIV/STI, SW total sample (2008, 2010, 2012)

| Questions | B&H 2008 | B&H 2010 | B&H 2012 |
|---|---------------------|---------------------|---------------------|
| <i>HIV infection can be significantly reduced by correct use of condoms</i> | <i>n=146</i> | <i>n=154</i> | <i>n=198</i> |
| Yes | 92,5 | 96,1 | 99,5 |
| No | 1,4 | 1,9 | 0,5 |
| I do not know | 6,2 | 1,9 | 0 |
| <i>A healthy-looking person can be HIV-infected</i> | <i>n=146</i> | <i>n=154</i> | <i>n=199</i> |
| Yes | 70,5 | 84,4 | 81,9 |
| No | 8,2 | 5,2 | 6,5 |
| I do not know | 21,2 | 10,4 | 11,6 |
| <i>It is possible to get HIV-infected by using cutlery previously used by an HIV-infected person</i> | <i>n=144</i> | <i>n=154</i> | <i>n=199</i> |
| Yes | 11,0 | 12,3 | 11,6 |
| No | 56,3 | 56,5 | 71,9 |
| I do not know | 32,7 | 31,2 | 16,6 |
| <i>It is possible to get HIV-infected using a shared needle</i> | | <i>n=154</i> | <i>n=199</i> |
| Yes | | 96,8 | 92,5 |
| No | | 0,6 | 0,5 |
| I do not know | | 2,6 | 7,0 |
| <i>It is possible to get an STI from oral sex</i> | | <i>n=154</i> | <i>n=199</i> |
| Yes | | 54,5 | 71,9 |
| No | | 14,9 | 16,6 |
| I do not know | | 30,5 | 11,6 |
| <i>An HIV-infected pregnant woman can transfer the infection onto her child</i> | <i>n=146</i> | <i>n=154</i> | <i>n=199</i> |
| Yes | 72,6 | 81,2 | 80,4 |
| No | 5,5 | 5,8 | 4,0 |
| I do not know | 21,9 | 13,0 | 15,6 |
| <i>It is possible to get HIV-infected from a mosquito bite</i> | | <i>n=154</i> | <i>n=199</i> |
| Yes | | 11,0 | 14,1 |
| No | | 48,1 | 62,8 |
| I do not know | | 40,9 | 23,1 |
| <i>Risk of HIV is reduced if non-HIV infected sexual partners are mutually faithful</i> | | | <i>n=199</i> |
| Yes | | | 71,9 |
| No | | | 14,1 |
| I do not know | | | 14,1 |

n = number of interviewees that answered a given question

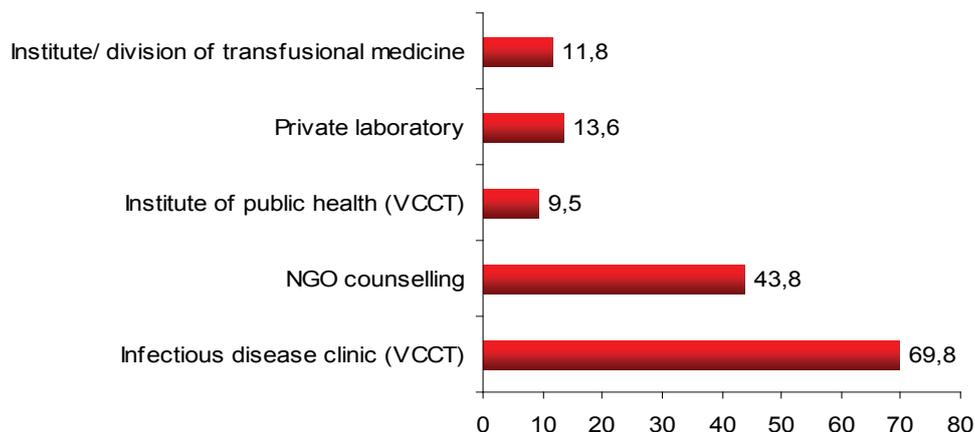
Analysing results of self-assessment of infection risk, the biggest percentage of interviewees (45.2%) state the risk is moderate, 31.2% that the risk is small and a smaller percentage of them say there is no risk (12.6%) or that the risk is big (11.1%).

Analysing trend of self-assessment of HIV infection risk in all three researches, one can notice the trend of assessment that the risk is big is decreasing, while the trend of assessment there is no risk is increasing.

12.7. Testing for HIV and other STIs

A large majority of the interviewees (84.9%) answered whether they knew where to get tested affirmatively, and as for the places where that is possible most of them listed an infectious disease clinic (69.8%), least of them listed an institute of public health (VCCT) (9.5%) (Graph 25). Surprisingly, 44% list NGO counselling centres as places where they can get tested for HIV?!

Graph 25: Places where it is possible to get tested for HIV

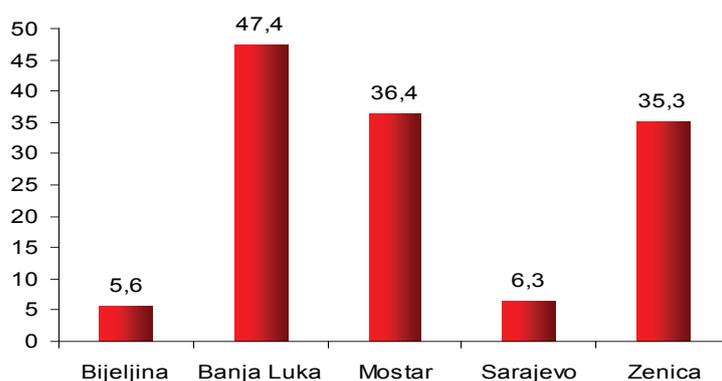


Results show that almost two thirds of the interviewees (59.8%) have never been tested for HIV, which is significantly higher in comparison to interviewees who have been tested once or more (40.2%) ($p < 0,001\%$), and 25.9% of them got tested in the last year.

Out of the total number of interviewees (199), 20 of them (10.1%) have been tested for HIV in the last 12 months and know the test result, which is significantly less in comparison to other previous research (13.6%, 2010) and (13.7%, 2008).

Analysis of results tested in the last 12 months according to locations show that the biggest number of the interviewees got tested in Banja Luka (47.4%) and smallest in Bijeljina (5.6%) (Graph 26).

Graph 26: Testing for HIV in the last 12 months according to location/place

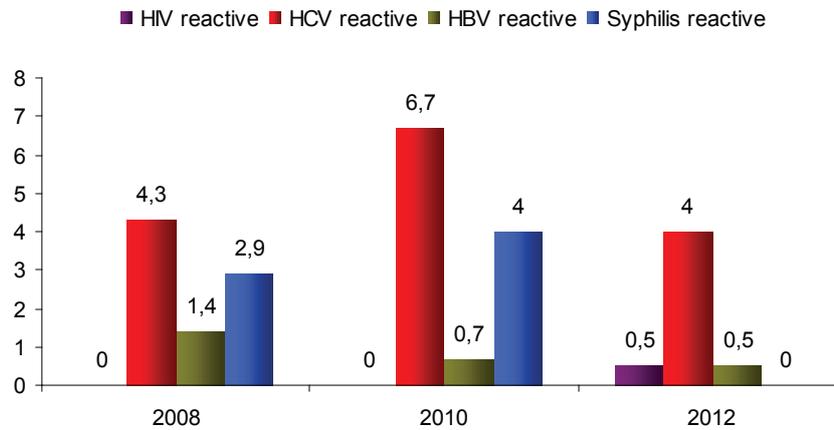


Results of research about the number of those who got tested in the last 12 months and who know the test result show that the biggest percentage is in Zenica (16.7%), then in Banja Luka (16.4%), Mostar (13.3%), and significantly less in Bijeljina (2.9%) and Sarajevo (2%).

All examinees gave their blood for HIV, HBV, HCV and syphilis tests with informed consent.

Results of tests show that one sample is HIV reactive, 8 of them HCV reactive, 1 HBV reactive and none syphilis reactive. Parallel results of tests in researches (2008, 2010 and 2012) are shown in graph 27.

Graph 27: Rate of positive serological analyses of HIV/STI, parallel data of researches in 2008, 2010 and 2012



Lower rate of reactive results for HCV infection in the 2012 research can be a result of applying criteria of exclusion of current injecting drug users.

12.8. Logistic regression analysis

Predictive model of condom use during last oral sex (Nagelkerke $R^2=0.256$) shows that there are more variables that significantly predict use of condoms in these situations. With earlier age at first sexual intercourse, higher number of different sexual partners, with history of STI and bigger knowledge of HIV infection, the possibility to use a condom during oral sex becomes bigger (Table 5)

Table 5: Factors associated with the use of condoms, SW

| Question/Variable | Wald | P | OR | 95% C.I. for EXP(B) | |
|---|-------|--------------|-------|---------------------|-------|
| | | | | Lower | Upper |
| Age | 1,491 | 0,222 | 1,107 | 0,940 | 1,305 |
| How old were you when you had your first sexual intercourse | 9,232 | 0,002 | 1,592 | 1,179 | 2,149 |
| How old were you when you had sex in exchange for money or something else for the first time | 0,427 | 0,514 | 0,942 | 0,789 | 1,126 |
| How long have you been providing sexual services in exchange for money or other form of recompense | 1,280 | 0,258 | 0,893 | 0,734 | 1,087 |
| With how many different sexual partners have you had a sexual intercourse in the last 7 days | 4,413 | 0,036 | 1,157 | 1,010 | 1,325 |
| Have you had a sexual intercourse under the influence of alcohol | 1,880 | 0,170 | 2,539 | 0,670 | 9,620 |
| Have you had a sexual intercourse under the influence of drugs | 0,416 | 0,519 | 0,775 | 0,358 | 1,681 |
| Have you ever had an STI | 4,480 | 0,286 | 0,614 | 0,250 | 1,504 |
| Knows about NGO/ counselling | 1,139 | 0,286 | 0,614 | 0,250 | 1,504 |
| Knowledge of HIV infection | 5,417 | 0,020 | 1,396 | 1,054 | 1,849 |

13. SW INTERVIEWEES 18-24 YEARS OLD (SEE ANNEX IV)

Out of the total number of interviewees (199), the proportion of young ones up to 24 years of age is 35.2%, which is somewhat higher in comparison to the research in 2010 (31.8%) and 2008 (27.4%). Their average age is 22, age at the time of first sexual intercourse 16, age at first paid sexual intercourse 18.7. The interviewees say they have been providing sexual services for 3 years on average with 3 clients per week on average.

13.1. Condom use

Interviewees 18-24 years old state smaller frequency of condom use during sexual intercourse in comparison to previous research. Half of the interviewees state they get condoms through NGOs. During last oral sex, 46.2% used a condom (50% in 2010), while in the 2008 research that rate was 42.1%. During last vaginal intercourse, 80% used a condom, which is a decrease of condom use rate among young people in comparison to the research in 2010 (91.1%) and 2008 (77.5%). During last anal intercourse, condom was used by 50% of the interviewees, which is a smaller rate in comparison to the year 2010 (90.9%) and 2008 (60.9%).

During a sexual intercourse with a client in the last month, 40.6% of interviewees have used a condom every time, 28.6% state they have used it often and 3% said they have not used it once.

Out of 15 interviewees who say they have a regular partner, only 3 (20%) say they use a condom during a sexual intercourse.

13.2. Risk behaviour

Sexual intercourse under the influence of alcohol was something 81.6% of interviewees have had, which is a smaller rate than when compared to the research in 2008 (97.2%).

Sexual intercourse under the influence of drugs was what 55.1% of interviewees have had, 58.3% have had the experience of using drugs, 18.5% of them have injected drugs, which is an increase when compared to the previous research in 2008, when 41.4% of them said they had a sexual intercourse under the influence of drugs, 40.5% had the experience of using drugs and one interviewee (18%) injected drugs.

13.3. Knowledge of HIV/STD and self-assessment of risk

One quarter (24.5%) of interviewees correctly answered all questions on HIV transmission, while 16.4% of them had 0-3 correct answers.

With regards to self-assessment of the risk of HIV infection, 44.9% of interviewees estimate the risk is small, which is more than in the previous research (32.5%). 14.3% believe the risk of HIV is big, while around 20% believed so in 2008.

13.4. Testing

Out of 70 interviewees at the age of 24 and younger, 58.6% have not been tested for HIV. In the last 12 months 29 interviewees have been tested, 10 of them know the test result. Out of the total number

of interviewees at the age of 24 and younger, 10 of them (14.3%) got tested in the last 12 months and know the test result which is somewhat higher in comparison to the total sample (10.1%).

Among that younger subgroup of sex workers, one HIV-positive result (1.4%) and 3 HCV-positive results (4.3%) have been detected.

14. RESULTS OF RESEARCH ACCORDING TO LOCATIONS (SEE ANEX V)

The research included a total of 199 interviewees in five towns of Bosnia and Herzegovina: Bijeljina (34), Banja Luka (55), Mostar (30), Sarajevo (50) and Zenica (30).

On the question of using a condom during last oral sex with a client, the highest rate of affirmative answers was among interviewees in Sarajevo (68%) and the lowest in Bijeljina (24.2%).

The highest rate of using a condom during last vaginal intercourse with a client was among the interviewees in Bijeljina (87.8%) and lowest in Banja Luka (74.5%).

During last anal intercourse with a client, the highest rate of condom use was among the interviewees in Sarajevo (86.1%) and the lowest in Zenica (47.3%).

Correct answers to all questions on HIV transmission were in biggest percentage given by the interviewees in Mostar (33.3%) and in smallest percentage in Banja Luka (22%).

The biggest percentage of the interviewees who have ever been tested for HIV was in Zenica (56.6%) and smallest in Sarajevo (32%).

The biggest percentage of interviewees who have been tested for HIV in the last year was in Banja Luka (47.3%) and smallest in Bijeljina (5.5%).

The highest rate of interviewees who have been tested in the last 12 months and who know the test result was in Zenica (16.7%) and the lowest in Sarajevo (only 2% of the total sample).

Results of serological tests according to location: HIV positive: Mostar (1), HCV positive: Banja Luka (1), Mostar (7), HBV positive: Zenica (1).

15. DISCUSSION

This behavioural study represents third respective research (within the Project GF) among persons that provide sexual services in exchange for money or some other material recompense (sex workers – SW). Previous studies were conducted in 2008 and 2010, and by comparing results from all three studies it is possible to track behavioural and biological indicators for HIV/STI with the objective of monitoring and controlling HIV epidemics.

The research included 199 sex workers in five towns in Bosnia and Herzegovina (Bijeljina, Banja Luka, Mostar, Sarajevo, Zenica) and was conducted in the period September-November 2012. The average age of interviewees was 28, mostly urban population and citizens of BiH. Majority of them have secondary education (67.8%), then university and college education, while 6% had primary education.

A bit more than a half of the interviewees (51.8%) was not employed at the time of the interview, 17.6% was employed permanently, which is higher than in researches conducted in 2010 and 2008. The biggest number of them are single (67.8%), 11.6% are married. 53.8% of them had a paid sexual intercourse in the last month.

The average age at first sexual intercourse among interviewees is 16.5 years. The majority of them (59.8%) had their first sexual intercourse at the age of 16-18, almost 30% of them before 16.

The average age of providing a first paid sexual service among the interviewees of the total sample is 21 years of age (in a subsample of younger interviewees it is 18.7), and in comparison to previous researches it has a decreasing trend, which points out to the fact that ever younger population is providing sexual services. The biggest number of the interviewees states that they have been providing sexual service for 6 years on average with 3 clients per week on average. The most common way for them to find clients is through arranged channels/contact person (47.7%), and places where they meet their clients most often are clubs/casinos (64.3%), then private parties and cafes. As places where they provide sexual services, they most often state rented rooms (59.8%) and hotels (53.3%), but also cars (29%), which can point to the economic status – availability of sexual service. A certain percentage of the interviewees have been exposed to certain types of violence in their lives, most commonly psychological (33.7%) and physical (33.2%), and in 14.5% cases they have been sexually abused.

The biggest rate of condom use during a sexual intercourse with a client is reported during a vaginal intercourse (87.6%), anal intercourse (66.1%) and the smallest rate during oral sex (46.2%). There is a noticeable decrease in the rate of condom use during anal intercourse (66.1%) in comparison to the previous research (82.5%).

Results of research on condom use according to locations show the most frequent use of a condom during all three types of sexual relations among the interviewees in Sarajevo, the least in Bijeljina for oral sex, Banja Luka for vaginal and Mostar for anal intercourse.

More than two thirds of the interviewees state that they obtain condoms from NGOs, through voluntary confidential counselling and testing (VCCT) centres, through outreach activities.

A big number of these interviewees state that they have provided sexual services under the influence of alcohol (87.9%), which has a slight decreasing trend when compared to previous researches, and

have provided sexual services under the influence of drugs (36.7%), less than in 2010. 28.9% of them report having had an STI, with an increasing trend in comparison to previous researches. As the most common STIs they report human papillomavirus, gonorrhoea and genital herpes, hepatitis B or other STIs.

In case of suspecting having an STI, more than half of them would refer to a private doctor which can point to a certain lack of trust, fear of stigma and thus insufficiently available health care.

Of the total of 8 questions related to the knowledge of HIV/STI and the ways of transmission, 28.1% of the interviewees answered correctly, over 70% answered correctly to most of the questions, which is slightly better than in previous researches. When it comes to self-assessment of risk of HIV/STI, the biggest percentage of them consider the risk of HIV infection is moderate to small, a part of them is aware of the existence of real risk, but that awareness decreases when compared to previous researches.

Interviewees mostly know where they can get tested for HIV, and as places where they can do it they list infectious disease clinics and NGO counselling centres (!?), while a small number of them state they can do it in institutes of public health.

A bit more than two thirds of interviewees (40.2%) have been tested for HIV so far, every tenth person (10.1%) has been tested in the past year and knows the test result which is less than in previous studies. According to results of this research in some research locations, the biggest rate of sex workers tested for HIV in the last year who know the test result was registered in Zenica (16.7%) and smallest in Sarajevo (2%).

Out of the total of 199 collected samples using serological analysis 1 case of HIV infection was detected with an interviewee in Mostar, 8 cases of HCV infection (1 in Banja Luka and 7 in Mostar) and 1 case of HBV infection in Zenica. In all three studies the most commonly registered is HCV infection, HBV infection sporadically. Biological indicators still show low prevalence of HIV in the population of sex workers.

Results of numerous research show that the key factors of risk behaviour for HIV transmission are unprotected sexual intercourse, inconsistent use of condoms, multiple sexual partners, common change of partners, frequent untreated sexually transmitted infections (STIs) with a considerable role of the social and biological context and co-factors which enlarge the possibility of exposure to HIV risk. The social climate in B&H, similar to many countries, is negative towards this especially threatened population, limiting their rights, which has side effects to their psychosocial health and represents additional, contextual risk factor for HIV, including a limited approach to corresponding services and support. Vulnerability of sex workers in relation to HIV infection also increases through their economic situation that is often made more difficult by criminalisation, violence and stigma. The SW population is exposed to higher risk of HIV and represents a part of wider sexual networks concerning that it includes other risk groups (e.g. spouses of their clients), thus impeding HIV transmission in the context of providing/using sexual services represents a high priority of the HIV programme.

16. CONCLUSION AND A PROPOSAL FOR MEASURES

All three studies show a relative progress in HIV prevention among sex workers: an increase in use of a condom during last vaginal intercourse (87.7%), but not during oral (8%) and anal sex (66.1%).

An increase of trend of self-assessed STIs is visible, a low self-assessment of HIV risk is maintained (11%). Almost 60% have never been tested for HIV, and throughout all three studies a low rate of those tested in the last 12 months who know the test result is noticeable. Results of serological analyses show maintenance of a low prevalence of HIV/STI.

Factors that affect the risk of HIV infection and sex workers' vulnerability:

- Number and frequency of sexual partners, especially if it is accompanied by a smaller rate of use/inconsistent use of condoms, bigger rate of STIs;
- Circumstances of sexual practice (violence, drug use, alcohol use etc) as well as the environment where sex workers meet with the clients (streets, hotels);
- Criminalisation/ban on sexual work can represent a serious challenge to programmes of HIV prevention;
- To work on securing a supportive environment through advocating and social mobilisation, including reduction of stigma and discrimination.

An important component of a supportive environment is a regular procurement of condoms and lubricants

Limitations of the study and possible bias, considering that all data were collected through self-registration and giving "socially acceptable" answers, were in part attempted to be overcome by engaging interviewers who are members of those populations. Because of that, for subsequent researches it may be advisable to plan RDS methodology even though its application in sex workers is complicated by non-existence of social networks.

It is important to identify factors that contribute to sex workers' risk behaviour in the future, strengthen capacities of organisations that work with sex workers, work on better coordination of civil society organisations and non-governmental sector, develop efficient interventions of early detection and prevention of HIV transmission (VCCT), new skills in outreach activities (quick testing – mobile teams etc)

Annex I: SW – Descriptive analysis

1. Demographic characteristics, SW

| 1. . Place | 2012 | | X ² ; df; P |
|---|---------------|------|------------------------|
| | n=199 | % | 14,090; 4; 0,007 |
| Bijeljina | 34 | 17,1 | |
| Banja Luka | 55 | 27,6 | |
| Mostar | 30 | 15,1 | |
| Prijedor | 50 | 25,1 | |
| Sarajevo | 30 | 15,1 | |
| 2. Age | | | |
| Mean value / standard deviation | 27,75/6,12 | | |
| Median | 27 | | |
| Mode | 23 | | |
| Range | 18-48 | | |
| 3. Place of residence | n=199 | | 123,865; 1; <0,001 |
| Town | 178 | 89,4 | |
| Village | 21 | 10,6 | |
| 4. Citizenship | n=199 | | 164,628; 1; <0,001 |
| B&H | 190 | 95,5 | |
| Outside B&H | 9 | 4,5 | |
| 5. Living in place of residence | n=199 | | 164,628; 1<0,001 |
| < 1 year | 9 | 4,5 | |
| > 1 year | 190 | 95,5 | |
| Mean value / standard deviation | 21,31 / 10,25 | | |
| Median | 23 | | |
| Mode | 23 | | |
| Range | 0-47 | | |
| 6. Level of education | n=199 | | 198,849; 3; <0,001 |
| Primary school | 12 | 6,0 | |
| Secondary school | 135 | 67,8 | |
| College | 20 | 10,1 | |
| University | 32 | 16,1 | |
| 7. How many years of school do you have in total | n=199 | | |
| 8 | 9 | 4,5 | |
| 9-12 | 132 | 66,3 | |
| 13-16 | 51 | 25,6 | |
| >16 | 7 | 3,5 | |
| 8. Employed | n=199 | | 81,583; 3; <0,001 |
| Yes | 35 | 17,6 | |
| No | 103 | 51,8 | |
| I work occasionally | 42 | 21,1 | |
| Student | 19 | 9,5 | |
| 9. Marital status | n=199 | | 296,402; 4; <0,001 |
| In a marital/extramarital relationship | 23 | 11,6 | |
| Single | 135 | 67,8 | |
| Divorced | 29 | 14,6 | |
| Widow | 1 | 0,5 | |
| Separated | 11 | 5,5 | |
| 10. Health insurance | n=199 | | 1,452; 1; 0,228 |
| Yes | 108 | 54,3 | |
| No | 91 | 45,7 | |

2. Sexual activities, SW

| 11. Have you had a paid (money, drugs etc) sexual (penetrational) intercourse in the last | 2012 | | X^2 ; df; P |
|---|--------------|-------------|------------------------------|
| | n=199 | % | 1,131; 1; 0,288 |
| Month | 107 | 53,8 | |
| 12 months | 92 | 46,2 | |
| 12. Age of first sexual intercourse | n=199 | | 69,508; 2; <0,001 |
| < 16 | 55 | 27,6 | |
| 16 - 18 | 119 | 59,8 | |
| > 18 | 25 | 12,6 | |
| Mean value / standard deviation | 16,5/1,72 | | |
| Median | 16 | | |
| Mode | 16 | | |
| Range | 13-22 | | |
| 13. Age of first sexual intercourse in exchange for money/something else | n=199 | | 175,045; 4; <0,001 |
| <=16 | 16 | 8,0 | |
| 17-21 | 101 | 50,8 | |
| 22-26 | 65 | 32,7 | |
| 27-31 | 14 | 7,0 | |
| =>32 | 3 | 1,5 | |
| Mean value / standard deviation | 21,03/4,11 | | |
| Median | 20,0 | | |
| Mode | 20 | | |
| Range | 0-38 | | |
| 14. How long have you been providing sexual services for money/ something else | n=199 | | 31,613; 3; <0,001 |
| <=2 years | 38 | 19,1 | |
| 3-5 years | 83 | 41,7 | |
| 6-8 years | 32 | 16,1 | |
| > 8 years | 46 | 23,1 | |
| Mean value / standard deviation | 6,09/4,58 | | |
| Median | 4,0 | | |
| Mode | 4 | | |
| Range | 1-24 | | |
| 15. Had you provided sexual services before coming to this place | n=199 | | 134,166; 3; <0,001 |
| Yes | 17 | 8,5 | |
| No | 66 | 33,2 | |
| I live in this place permanently | 109 | 54,8 | |
| No answer | 7 | 3,5 | |
| 16. Do you support someone | n=199 | | 117,779; 2; <0,001 |
| Yes | 66 | 33, | |
| No | 129 | 64,8 | |
| No answer | 4 | 2,0 | |
| 17. How many persons do you support | n=66 | | 17,758; 3; <0,001 |
| 1 person | 21 | 31,8 | |
| 2 persons | 27 | 40,9 | |
| 3 persons | 14 | 21,2 | |
| 4 and more persons | 4 | 6,1 | |
| 18. In the last 12 months have you provided sexual services in exchange for | n=199 | | 420,587; 6; <0,001 |
| Money | 193 | 97,0 | |
| Drugs | 13 | 6,5 | |
| Drinks | 20 | 10,1 | |
| Food | 30 | 15,1 | |
| Clothes etc. | 92 | 46,2 | |
| Other | 15 | 7,5 | |

| | | | |
|--|--------------|-------------|------------------------------|
| 19. Number of clients per week on average | n=174 | | 154,069; 2; <0,001 |
| <5 | 132 | 75,9 | |
| 5-10 | 40 | 23,0 | |
| >10 | 2 | 1,1 | |
| Mean value / standard deviation | 3,23/2,86 | | |
| Median | 2,0 | | |
| Mode | 1 | | |
| Range | 0-12 | | |
| 20. Users of sexual services of the interviewees are | n=199 | | 263,735; 2; <0,001 |
| Only men | 177 | 88,9 | |
| Men and women | 21 | 10,6 | |
| Couples, groups | 6 | 3,0 | |
| 21. Age of users of sexual services | n=199 | | 173,241; 3; <0,001 |
| <18 years old | 0 | 0 | |
| 18-29 | 14 | 7,0 | |
| 30-39 | 45 | 22,6 | |
| >40 | 13 | 6,5 | |
| Different ages | 127 | 63,8 | |
| 22. Users of paid sexual services according to the place of their residence are: | n=199 | | 312,739; 3; <0,001 |
| Citizens of the town where you live | 157 | 78,9 | |
| Foreigners working in the town | 24 | 12,1 | |
| People passing through on their travels | 15 | 7,5 | |
| Other | 3 | 1,5 | |
| 23. Types of sexual services provided to clients in the last month | n=199 | | 161,017; 3; <0,001 |
| Oral | 179 | 89,9 | |
| Vaginal | 183 | 92,0 | |
| Anal | 99 | 49,7 | |
| I have not provided sexual services in the last month | 14 | 7,0 | |
| 24. Used a condom during the last oral sex with a client (interviewees without answers excluded) | n=186 | | 1,054; 1; 0,305 |
| Yes | 86 | 46,2 | |
| No | 100 | 53,8 | |
| 25. Used a condom during the last vaginal sex with a client (interviewees without answers excluded) | n=193 | | 108,938; 1; <0,001 |
| Yes | 169 | 87,6 | |
| No | 24 | 12,4 | |
| 26. Used a condom during the last anal sex with a client (interviewees without answers excluded) | n=112 | | 11,571; 1; <0,001 |
| Yes | 74 | 66,1 | |
| No | 38 | 33,9 | |
| 27. Frequency of condom use during a sexual intercourse with a client in the last month | n=199 | | 182,482; 6; <0,001 |
| Every time | 73 | 36,7 | |
| Often | 62 | 31,2 | |
| Sometimes | 38 | 19,1 | |
| Rarely | 11 | 5,5 | |
| Never | 5 | 2,5 | |
| I do not know | 1 | 0,5 | |
| No answer | 9 | 4,5 | |
| 28. I use a condom during sex with a client because: | n=146 | | 181,434; 6; <0,001 |
| A client demands it | 57 | 39,0 | |
| I demand it | 118 | 80,8 | |
| That is what my friends do | 9 | 6,1 | |
| Guardian/pimp demands it | 3 | 2,0 | |
| Not to get pregnant | 100 | 68,4 | |
| Not to get AIDS | 65 | 44,5 | |
| To get protected from infections | 72 | 49,3 | |

| | | | |
|--|---------------|-------------|------------------------------|
| 29. Do you have a condom with you at the moment | n=194 | | 102,258; 2; <0,001 |
| Yes | 115 | 59,3 | |
| No | 77 | 39,7 | |
| No answer | 2 | 1,0 | |
| 30. How do you get a condom most often | n=194 | | 89,258; 3; <0,001 |
| I buy it myself | 78 | 40,2 | |
| Guardian/pimp buys it | 6 | 3,1 | |
| Client buys it | 27 | 13,9 | |
| I get it free from NGOs | 83 | 42,8 | |
| Other | | | |
| 31. The main reason for not using a condom | n=6 | | 0,667; 3; 0,881 |
| Not easily available | 1 | 16,7 | |
| I do not like sex with a condom | 2 | 33,3 | |
| Client does not want it | 2 | 33,3 | |
| Other | 1 | 16,7 | |
| 32. In what way do you find/contact your clients most often | n=199 | | 172,186; 5; <0,001 |
| Find them myself | 42 | 21,1 | |
| Random contact | 14 | 7,0 | |
| Through an arranged channel (contact person) | 95 | 47,7 | |
| Guardian/pimp finds them | 13 | 6,5 | |
| Online | 34 | 17,1 | |
| Other | 1 | 0,5 | |
| 33. Meets/finds clients most often | n=56 | | 51,179; 6; <0,001 |
| In a park | 7 | 12,5 | |
| In a club, casino | 36 | 64,3 | |
| In a cafe | 27 | 48,2 | |
| On the street | 6 | 10,7 | |
| At a private party | 30 | 53,6 | |
| At the sports ground | 0 | 0 | |
| Other | 6 | 10,7 | |
| 34. Provides sexual services to her clients | n=199 | | 223,921; 6; <0,001 |
| In a hotel | 106 | 53,3 | |
| In my own house/apartment | 21 | 10,6 | |
| In a client's house/apartment | 83 | 41,7 | |
| In a rented room | 119 | 59,8 | |
| In a public facility (a cafe, a disco club) | 10 | 5,0 | |
| In a park or other public open space | 7 | 3,5 | |
| In a car | 58 | 29,1 | |
| 34_a Average material benefit for oral sex | n=139 | | 2,560; 1; 0,110 |
| < 50 KM | 78 | 56,1 | |
| 50 – 100 KM | 61 | 43,9 | |
| Mean value / standard deviation | 44,01/24,32 | | |
| Median | 40, | | |
| Mode | 30 | | |
| Range | 0-100 | | |
| 34_b Average material benefit for vaginal intercourse | n=141 | | 243,078; 4; <0,001 |
| < 50 KM | 4 | 2,8 | |
| 50 – 100 KM | 101 | 71,6 | |
| 101 – 150 KM | 18 | 12,8 | |
| 151 – 200 KM | 17 | 12,1 | |
| >200 | 1 | 0,7 | |
| Mean value / standard deviation | 102,83/49,41 | | |
| Median | 100,0 | | |
| Mode | 100 | | |
| Range | 30-300 | | |

| | | | |
|--|--------------|------|------------------------------|
| 34_c Average material benefit for anal intercourse | n=90 | | 70,556; 4; <0,001 |
| < 50 KM | 12 | 13,3 | |
| 50 – 100 KM | 49 | 54,4 | |
| 101 – 150 KM | 16 | 17,8 | |
| 151 – 200 KM | 8 | 8,9 | |
| >200 | 5 | 5,6 | |
| Mean value / standard deviation | 104,22/84,79 | | |
| Median | 100,0 | | |
| Mode | 100 | | |
| Range | 0-500 | | |
| 35. Have you ever suffered | n=199 | | 114,642; 5; <0,001 |
| Sexual violence | 29 | 14,5 | |
| Women trafficking | 3 | 1,5 | |
| Physical abuse | 66 | 33,2 | |
| Psychological abuse | 67 | 33,7 | |
| Economical abuse | 22 | 11,1 | |
| No, none of the above | 87 | 43,7 | |
| 36. Are you in a permanent – regular relationship | n=199 | | 155,889; 2; <0,001 |
| Yes | 50 | 25,1 | |
| No | 145 | 72,9 | |
| No answer | 4 | 2,0 | |
| 37. Frequency of condom use during a sexual intercourse with a regular partner | n=54 | | 14,444; 5; 0,013 |
| Every time | 7 | 13,0 | |
| Often | 7 | 13,0 | |
| Sometimes | 12 | 22,2 | |
| Rarely | 9 | 16,7 | |
| Never | 17 | 31,5 | |
| 38. Have you got condoms in the last month (e.g. through outreach services, drop-in centre or VCCT health facilities) | n=197 | | 131,645; 2; <0,001 |
| Yes | 139 | 70,6 | |
| No | 46 | 23,4 | |
| Does not remember | 12 | 6,1 | |
| 39. Have you had a sexual intercourse with a person you know is HIV positive | n=199 | | 146,940; 1; <0,001 |
| No | 185 | 93,0 | |
| No answer | 14 | 7,0 | |
| 40. Have you had a sexual intercourse under the influence of alcohol (those who did not give an answer are excluded) | n=199 | | 270,040; 2; <0,001 |
| Yes | 175 | 87,9 | |
| No | 22 | 11,1 | |
| No answer | 2 | 1,0 | |
| 41. Have you had a sexual intercourse under the influence of drugs (those who gave no answer are excluded) | n=199 | | 105,960; 2; <0,001 |
| Yes | 73 | 36,7 | |
| No | 122 | 61,3 | |
| No answer | 4 | 2,0 | |
| 42. Have you ever used drugs (those who gave no answer are excluded) | n=195 | | 1,154; 1; 0,283 |
| Yes | 90 | 46,2 | |
| No | 105 | 53,8 | |
| 43. Have you ever injected drugs (those with no answer are excluded) | | | |
| Yes | 6 | 7,1 | |
| No | 79 | 92,9 | |
| 44. Have you ever shared drug injection equipment | n=5 | | 1,800; 1; <0,001 |
| Yes | 4 | 80,0 | |
| No | 1 | 20,0 | |
| 45. Has among your clients ever been those who take inject drugs | n=171 | | 90,140; 2; <0,001 |
| Yes | 9 | 5,3 | |
| No | 52 | 30,4 | |
| No answer | 110 | 64,3 | |

| | | | |
|---|--------------|-------------|------------------------------|
| 46. Have you ever served sentence in prison | n=199 | | 164,628; 1; <0,001 |
| Yes | 9 | 4,5 | |
| No | 190 | 95,5 | |
| No answer | | | |
| 47. Total time of serving sentence in prison | n=7 | | 3,571; 1; 0,059 |
| <1 year | 6 | 85,7 | |
| 1 year | 1 | 14,3 | |
| 48. Have you ever had an STI (those who gave no answer are excluded) | n=199 | | 1,330; 1; 0,249 |
| Yes | 56 | 28,9 | |
| No | 138 | 71,1 | |
| 49. Self-assessed STI (index structure) | n=61 | | 29,935; 5; <0,001 |
| Gonorrhea | | | |
| Genital herpes | | | |
| Human papillomavirus | | | |
| Syphilis | | | |
| Viral hepatitis B | | | |
| Other | | | |
| 50. Who would you refer to in case of an STI doubt | n=150 | | 136,467; 4; <0,001 |
| A family doctor | 36 | 24,0 | |
| A private practice doctor | 83 | 55,3 | |
| I would seek advice at a pharmacy | 18 | 12,0 | |
| Use medications I have in my house | 6 | 4,0 | |
| Other | 7 | 4,7 | |
| 51. Have you visited an STI specialist in the last year | n=199 | | 6,156; 1; 0,013 |
| Yes | 117 | 58,8 | |
| No | 82 | 41,2 | |

3. Knowledge of HIV/STI and risk assessment, SW

| 52. HIV infection can be significantly reduced with correct use of condoms | 2012 | | χ^2; df; P |
|--|--------------|-------------|-----------------------------------|
| | n=199 | % | |
| Yes | 198 | 99,5 | 195,020; 1; <0,001 |
| No | 1 | 0,5 | |
| I do not know | | | |
| 53. A healthy-looking person can be HIV-infected | n=199 | | 212,060; 2; <0,001 |
| Yes | 163 | 81,9 | |
| No | 13 | 6,5 | |
| I do not know | 23 | 11,6 | |
| 54. It is possible to get HIV-infected by using cutlery previously used by an HIV-infected person | n=199 | | 133,668; 2; <0,001 |
| Yes | 23 | 11,6 | |
| No | 143 | 71,9 | |
| I do not know | 33 | 16,6 | |
| 55. It is possible to get HIV-infected using a shared needle | n=199 | | 314,362; 2; <0,001 |
| Yes | 184 | 92,5 | |
| No | 1 | 0,5 | |
| I do not know | 14 | 7,0 | |
| 56. A pregnant woman, if she is HIV positive, can transfer the infection onto her child | n=199 | | 202,382; 2; <0,001 |
| Yes | 160 | 80,4 | |
| No | 8 | 4,0 | |
| I do not know | 31 | 15,6 | |
| 57. It is possible to get an STI from oral sex | n=199 | | 133,668; 2; <0,001 |
| Yes | 143 | 71,9 | |
| No | 33 | 16,6 | |
| I do not know | 23 | 11,6 | |
| 58. The risk of HIV transmission is reduced if non-HIV infected sexual partners are mutually faithful | n=199 | | 132,915; 2; <0,001 |
| Yes | 143 | 71,9 | |
| No | 28 | 14,1 | |
| I do not know | 28 | 14,1 | |
| 59. It is possible to get HIV-infested from a mosquito bite | n=199 | | 80,271; 2; <0,001 |
| Yes | 28 | 14,1 | |
| No | 125 | 62,8 | |
| I do not know | 46 | 23,1 | |
| 60. Self- assessed risk of HIV infection | n=199 | | 63,372; 3; <0,001 |
| There is no risk | 25 | 12,6 | |
| There is a small risk | 62 | 31,2 | |
| There is a moderate risk | 90 | 45,2 | |
| There is a big risk | 22 | 11,1 | |

4. Testing for HIV and other sexually transmitted infections, SW

| 64. Do you know where you can get tested for HIV | 2012 | | X²; df; P |
|--|--------------|-------------|------------------------------|
| | n=199 | % | |
| Yes | 169 | 84,9 | 97,090; 1; <0,001 |
| No | 30 | 15,1 | |
| 65. Name a place where it is possible to get tested for HIV | n=169 | | 159,060; 5; <0,001 |
| Infectious disease clinic (VCCT) | 118 | 69,8 | |
| NGO counselling | 74 | 43,8 | |
| Institute of public health (VCCT) | 16 | 9,5 | |
| Private laboratory | 23 | 13,6 | |
| Institute/division of transfusional medicine | 20 | 11,8 | |
| | | | |
| 61. Have you ever been tested for HIV | n=199 | | 70,442; 2; <0,001 |
| Yes, once | 56 | 28,1 | |
| Yes, several times | 24 | 12,1 | |
| No | 119 | 59,8 | |
| 62. Have you been tested for HIV in the last 12 months | n=81 | | 18,778; 1; <0,001 |
| Yes | 21 | 25,9 | |
| No | 60 | 74,1 | |
| 63. Have you been tested for HIV in the last 12 months and know the test result (index structure) | n=21 | | 6,259; 1; 0,012 |
| Yes | 20 | 95,2 | |
| No | 1 | 4,8 | |
| 63.a Have you been tested for HIV in the past 12 months and know the test result (indicator) | n=199 | | |
| Yes | 20 | 10,1 | |
| No | 179 | 89,9 | |
| 64. Do you want to get tested for HIV, hepatitis B, hepatitis C and syphilis now | n=199 | | |
| Yes | 199 | 100,0 | |
| No | 0 | 0 | |
| 65. Reasons for lack of want for getting tested | n=0 | | |
| - | | | |
| 66. Interviewing with informed consent | n=199 | | |
| Yes | 199 | 100,0 | |
| No | 0 | 0 | |
| 67. Blood sample taken with informed consent | n=199 | | |
| Yes | 199 | 100,0 | |
| No | 0 | 0 | |
| 68. Test results | n=199 | | |
| HIV reactive | 1 | 0,5 | |
| HCV reactive | 8 | 4,0 | |
| HBV positive | 1 | 0,5 | |
| Syphilis reactive | 0 | 0 | |

Annex II: SW, Chosen indicators, trend (95% C.I.)

| Questions | 2008.godina n=146 | n/N | 2010. n=154 | n/N | 2012. n=199 | n/N |
|--|----------------------|---------|-----------------|---------|-----------------|---------|
| Age | 28,9(27,8-30,1) | 146 | 28,3(27,3-29,4) | 154 | 27,7(26,9-28,6) | 199 |
| Town (%) | 88,4(82,7-93,3) | 129/144 | 90,2(85,2-94,8) | 138/153 | 89,4(| 178/199 |
| B&H Citizenship (%) | 95,9(92,8-99,2) | 138/144 | 94,2(90,2-97,8) | 145/154 | 95,5(92,6-98,4) | 190/199 |
| Employed (%) | 14,4(8,7-20,1) | 21/146 | 9,1(4,6-13,6) | 14/154 | 17,6(12,7-23,3) | 35/199 |
| Student (%) | 15,7(10,-21,9) | 23/146 | 7,8(3,7-12,3) | 12/154 | 9,5(5,8-14,2) | 19/199 |
| Married (%) | 9,0(4,3-13,7) | 13/145 | 12,4(6,9-17,1) | 19/153 | 11,6(7,5-16,5) | 23/199 |
| Age at first sexual intercourse | 17,3(17,0-17,7) | 146 | 16,3(16,0-16,6) | 154 | 16,5(16,2-16,7) | 199 |
| Age at first paid sexual intercou | 23,3(22,4-24,2) | 145 | 21,2(20,5-21,9) | 154 | 21,0(20,4-21,6) | 199 |
| Length of service as an SW/years | 4,4(3,8-4,9) | 146 | 6,7(6,0-7,4) | 154 | 6,1(5,4-6,7) | 199 |
| Number of clients/per week | 5,7(5,0-6,4) | 144 | 4,7(4,1-5,2) | 118 | 3,2(2,8-3,6) | 174 |
| % SW – used a condom during last: | | | | | | |
| - oral sex | 36,2(27,9-44,5) | 47/130 | 51,1(42,6-59,6) | 68/133 | 46,2(39,0-53,4) | 86/186 |
| - anal | 58,2(46,4-70,0) | 39/67 | 82,5(73,1-91,1) | 52/63 | 66,1(57,3-74,9) | 74/112 |
| - vaginal | 75,7(68,7-82,7) | 109/144 | 87,7(82,2-93,2) | 121/138 | 87,6(83,0-92,2) | 169/193 |
| Used a condom during last sexual intercourse with a client (%) | - | - | 35,9(28,3-43,5) | 55/153 | 36,7(30,0-43,3) | 73/199 |
| - every time | | | 1,3(0,0-3,1) | 2/153 | 2,5(0,3-4,7) | 5/199 |
| - never | | | | | | |
| Uses a condom (%) because: | | | | | | |
| - want it herself | 75,3(68,0-82,0) | 110/146 | 59,6(51,8-67,4) | 90/151 | 80,8(72,8-87,2) | 118/146 |
| - a client demands it | 28,8(21,6-36,4) | 42/146 | 39,1(31,2-46,8) | 59/151 | 39,0(26,3-51,7) | 57/146 |
| Gets condom: | | | | | | |
| - buys it herself | - | - | 59,6(51,8-67,4) | 90/151 | 40,2(33,3-47,1) | 78/194 |
| - through NGOs | | | 15,9(10,2-21,8) | 24/151 | 42,8(35,8-49,8) | 83/194 |
| Finds clients (%): | | | | | | |
| - by herself | 53,8(45,7-61,9) | 78/145 | 22,2(15,6-28,8) | 34/153 | 21,1(15,4-26,8) | 42/199 |
| - through arranged channel | 47,3(39,2-55,4) | 69/145 | 43,8(35,9-51,7) | 67/153 | 47,7(41,1-54,9) | 95/199 |
| Sexual intercourse under the influence of: | | | | | | |
| - alcohol | 94,9(91,2-98,6) | 130/137 | 88,7(83,7) | 134/151 | 87,9(83,4-92,4) | 175/199 |
| - drugs | 35,6(26,4-44,8) | 37/103 | 49,7(41,7-57,7) | 74/149 | 36,7(30,0-43,4) | 73/199 |
| Ever used drugs: | 33,6(25,6-41,6) | 45/134 | 53,3(45,3-61,3) | 80/150 | 46,2(39,2-53,2) | 90/195 |
| Out of them those injecting it (%) | 28,8(15,6-42,0= | 13/45 | 26,6(16,9-36,3) | 21/79 | 7,1(1,6-12,6) | 6/85 |
| Experience of serving sentence in prison (%) | - | - | 5,2(1,7-8,7) | 8/153 | 4,5(1,6-7,4) | 9/199 |
| Ever had an STI (%) | 20,0(13,3-26,7) | 27/135 | 26,5(19,4-33,6) | 39/147 | 28,9(22,6-35,2) | 56/199 |
| Correctly answered all the questions on HIV transmission | - | - | 23,4(16,7-30,1) | 36/154 | 28,1(21,9-34,3) | 56/199 |
| Self-assessment of HIV risk- answer The risk is big (%) | 19,2(12,6-25,4) | 28/146 | 11,7(6,6-16,8) | 18/154 | 11,1(6,7-15,3) | 22/199 |
| Tested for HIV in the last 12 months | 28,8(21,5-36,1) | 42/146 | 49,4(41,5-57,3) | 76/154 | 25,9(16,4-35,4) | 21/81 |
| Ever been tested for HIV | | | | | | |
| - Yes, once | 19,2(12,8-25,6) | 28/146 | 28,6(21,5-35,7) | 44/154 | 28,1(21,9-34,3) | 56/199 |
| - Yes, several times | 9,6(4,8-14,4) | 14/146 | 20,8(14,4-27,2) | 32/154 | 12,1(7,6-16,6) | 24/199 |
| - No | 71,2(63,9-78,5) | 104/146 | 50,6(42,7-58,5) | 78/154 | 59,8(53,0-66,6) | 119/199 |

Annex III: SW, Chosen indicators in relation to previous researches

| Variables | 2008. | | 2010. | | 2012. | | χ^2; df; P |
|--|--------------|----------|--------------|----------|--------------|----------|-----------------------------------|
| Used condom during last oral sexual intercourse with a client | n=130 | % | n=133 | % | n=186 | % | 6,239; 2; 0,044 |
| Yes | 47 | 36,2 | 68 | 51,1 | 86 | 46,2 | |
| No | 83 | 63,8 | 65 | 48,9 | 100 | 53,8 | |
| Used condom during last vaginal intercourse with a client | n=144 | | n=138 | | n=193 | | 10,607; 2; 0,005 |
| Yes | 109 | 75,7 | 121 | 87,7 | 169 | 87,6 | |
| No | 35 | 24,3 | 17 | 12,3 | 24 | 12,4 | |
| Used condom during last anal intercourse with a client | n=67 | | n=63 | | n=112 | | 9,288; 2; 0,009 |
| Yes | 39 | 58,2 | 52 | 82,5 | 74 | 66,1 | |
| No | 28 | 41,8 | 11 | 17,5 | 38 | 33,9 | |
| Knowledge og HIV transmission | | | n=154 | | n=199 | | 0,790; 1; 0,374 |
| Interviewees with all correct answers | | | 36 | 23,4 | 56 | 28,1 | |
| Other interviewees | | | 118 | 76,6 | 143 | 71,9 | |
| Ever been tested for HIV | n=146 | | n=154 | | n=199 | | 16,260; 4; 0,002 |
| Yes, once | 28 | 19,2 | 44 | 28,6 | 56 | 28,1 | |
| Yes, several times | 14 | 9,6 | 32 | 20,8 | 24 | 12,1 | |
| No | 104 | 71,2 | 78 | 50,6 | 119 | 59,8 | |
| Tested for HIV in the last 12 months | n=146 | | n=154 | | n=81 | | 18,650; 2; 0,001 |
| Yes | 42 | 28,8 | 76 | 49,4 | 21 | 25,9 | |
| No | 104 | 71,2 | 78 | 50,6 | 60 | 74,1 | |
| Tested for HIV in the last 12 months and know the test result | n=146 | | n=154 | | n=199 | | 1,459; 2; 0,482 |
| Yes | 20 | 13,7 | 21 | 13,6 | 20 | 10,1 | |
| No | 126 | 86,3 | 133 | 86,4 | 179 | 89,9 | |
| Blood sample | n=138 | | n=150 | | n=199 | | 7,991; 6; 0,153 |
| HIV reactive | 0 | 0 | 0 | 0 | 1 | 0,5 | |
| HCV reactive | 6 | 4,3 | 10 | 6,7 | 8 | 4,0 | |
| HBV positive | 2 | 1,4 | 1 | 0,7 | 1 | 0,5 | |
| Syphilis reactive | 4 | 2,9 | 6 | 4,0 | 0 | 0 | |

Annex IV: SW, Chosen indicators – age group 18 - 24

| Questions | 2012. n=70 | n/N |
|---|-----------------|-------|
| Age | 22,1(21,7-22,5) | 70 |
| Town (%) | 85,7(77,5-93,3) | 60/70 |
| B&H Citizenship (%) | 92,9(86,9-98,9) | 65/70 |
| Employed (%): | 2,9(0,0-6,8) | 2/70 |
| Student (%) | 20,0(10,6-29,4) | 14/70 |
| Married (%) | 2,9(0,0-6,8) | 2/70 |
| Age at first sexual intercourse | 16,2(7,6-24,8) | 70 |
| Age at first paid sexual intercourse | 18,7(9,6-27,8) | 70 |
| Length of service as an SW/years | 3,3(0,0-7,5) | 70 |
| Number of clients/ per week | 3,2(0,0-7,5) | 64 |
| % SW – used condom during last: | | |
| - Oral sex with a client | 46,2(34,1-58,3) | 30/65 |
| - Anal sex with a client | 50,0(33,2-66,8) | 17/34 |
| - Vaginal sex with a client | 80,0(70,6-89,4) | 56/70 |
| Used a condom during a sexual intercourse with a client (%): | | |
| - never | 3,0(0,0-7,1) | 2/66 |
| - every time | 40,9(29,0-52,8) | 27/66 |
| Uses a condom (%) because: | | |
| - wants it herself | 61,8(50,3-73,3) | 42/68 |
| - a client demands it | 30,9(19,9-41,9) | 21/68 |
| Gets a condom: | | |
| - buys it herself | 38,2(26,7-49,7) | 26/68 |
| - through NGOs | 50,0(38,1-61,9) | 34/68 |
| Finds clients (%): | | |
| - herself | 21,4(11,8-31,0) | 15/70 |
| - through arranged channels | 45,7(34,0-57,4) | 32/70 |
| Sexual intercourse under the influence of: | | |
| - alcohol | 87,1(79,2-95,0) | 61/70 |
| - drugs | 42,9(31,3-54,5) | 30/70 |
| Ever used drugs: | 51,4(39,7-63,1) | 36/70 |
| Out of them those who injected it(%) | 8,8(0,0-18,3) | 3/34 |
| Experience of serving a sentence in prison (%) | 4,3(0,0-9,1) | 3/70 |
| Had an STI (%) | 17,4(8,5-26,3) | 12/69 |
| Correctly answered all the questions on HIV transmission | 35,7(24,5-46,9) | 25/70 |
| Self-assessment of HIV risk - answer The risk is big (%) | 11,4(4,0-18,8) | 8/70 |
| Ever been tested for HIV | | |
| - Yes, once | 31,4(20,5-42,3) | 22/70 |
| - Yes, several times | 10,0(3,0-17,0) | 7/70 |
| - No | 58,6(47,1-70,1) | 41/70 |
| Out of those who have been tested for HIV, those tested in the last 12 months | 34,5(17,2-51,8) | 10/29 |
| Tested in the last 12 months and knows the test result (%) | 31,0(14,2-47,8) | 9/29 |
| - calculated on the total sample < 24 years of age | 12,9 | 9/70 |
| HIV prevalence | 1,4(0,0-4,2) | 1/70 |
| HCV prevalence | 4,3(0,0-9,1) | 3/70 |
| HBV prevalence | - | 0/70 |
| Syphilis prevalence | - | 0/70 |

Annex V: SW; Answers of interviewees according to local of the sample

| Questions | Answer | Interviewees according to place of research (N=199) | | | | | | χ^2 test; df; P |
|---|--------------------------------|---|-----------------------|----------------|------------------|----------------|---------------|--------------------------------|
| | | Bijeljina n=33 | Banja Luka n=47 | Mostar n=28 | Sarajevo n=50 | Zenica n=28 | Ukupno 186 | |
| Used a condom during last oral sex with a client | Yes | 8 4,0% | 17 8,5% | 12 6,0% | 34 17,1% | 15 7,5% | 86 46,3% | 29,345;8; <0,001 |
| | No | 25 12,6% | 30 15,1% | 16 8,0% | 16 8,0% | 13 6,5% | 100 50,2% | |
| | Yes, according to location (%) | 24,2 | 36,1 | 42,8 | 68,0 | 53,5 | | |
| Used a condom during last vaginal sex with a client | n | 33 | 51 | 29 | 50 | 30 | 193 | 15,225; 4; 0,004 |
| | Yes | 29 14,6% | 38 19,1% | 26 13,1% | 50 25,1% | 26 13,1% | 169 87,6% | |
| | No | 4 2,0% | 13 6,5% | 3 1,5% | 0 0,0% | 4 2,0% | 24 12,1% | |
| Yes, according to location (%) | 87,8 | 74,5 | 89,3 | 100 | 86,6 | | | |
| Used a condom during last anal sex with a client | n | 23 | 24 | 10 | 36 | 19 | 112 | 11,780; 4; 0,019 |
| | Yes | 14 7,0% | 15 7,5% | 5 2,5% | 31 16,6% | 9 4,5% | 74 66,1% | |
| | No | 9 4,5% | 9 4,5% | 5 2,5% | 5 2,5% | 10 5,0% | 38 19,1% | |
| Yes, according to location (%) | 60,8 | 62,5 | 50,0 | 86,1 | 47,3 | | | |
| Knowledge (interviewees correctly answered all the questions) | n | 34 | 55 | 30 | 50 | 30 | 199 | 1,837; 4; 0,766 |
| | Yes | 11 5,5% | 12 6,0% | 10 5,0% | 14 7,0% | 9 4,5% | 56 28,1% | |
| | No | 23 11,6% | 43 21,6% | 20 10,1% | 36 18,1% | 21 10,6% | 143 71,8% | |
| Yes, according to location (%) | 32,3 | 21,8 | 33,3 | 28,0 | 30,0 | | | |
| Ever been tested for HIV | n | 34 | 55 | 30 | 50 | 30 | 199 | 10,452; 8; 0,235 |
| | Yes, once | 14 7,0% | 12 6,0% | 6 3,0% | 12 6,0% | 12 6,0% | 56 28,1% | |
| | Yes, several times | 4 2,0% | 6 3,0% | 5 2,5% | 4 2,0% | 5 2,5% | 24 12,1% | |
| | No | 16 8,0% | 37 18,6% | 19 9,5% | 34 17,1% | 13 6,5% | 119 59,8% | |
| Yes, according to location (%) | 52,9 | 32,7 | 36,6 | 32,0 | 56,6 | | | |
| Tested for HIV in the last year | n | 18 | 19 | 11 | 16 | 17 | 81 | 14,722; 4; 0,005 |
| | Yes | 1 0,5% | 9 4,5% | 4 2,0% | 1 0,5% | 6 3,0% | 21 10,5% | |
| | No | 17 8,5% | 10 5,0% | 7 3,5% | 15 7,5% | 11 5,5% | 60 30,1% | |
| Yes, according to location (%) | 5,5 | 47,3 | 36,3 | 6,2 | 35,2 | | | |
| Tested in the last 12 months and knows the test result | n | 34 | 55 | 30 | 50 | 30 | 199 | 11,379; 4; 0,023 |
| | Yes | 1 0,5% | 9 4,5% | 4 2,0% | 1 0,5% | 5 2,5% | 20 10,1% | |
| | No | 33 16,6% | 46 23,1% | 26 13,1% | 49 24,6% | 25 12,6% | 179 89,9% | |
| Yes, according to location (%) | 2,9 | 16,4 | 13,3 | 2,0 | 16,7 | 10,0 | | |

The results of serological analysis – by location, SW

| Variables | | Interviewees according to place of research (N=199) | | | | | | χ^2 test; df; P |
|-------------------------------|--------------|---|-----------------------|----------------|------------------|----------------|---------------|---------------------------------|
| HIV | n | Bijeljina n=34 | Banja Luka n=55 | Mostar n=30 | Sarajevo n=50 | Zenica n=30 | Ukupno 199 | 3,813; 4; 0,432 |
| | Reactive | 0 0,0% | 0 0,0% | 1 0,5% | 0 0,0% | 0 0,0% | 1 0,5% | |
| | Non-reactive | 34 17,1% | 55 27,6% | 29 14,6% | 50 25,1% | 30 15,1% | 198 99,5% | |
| Yes, according to location(%) | | | | 3,3 | | | | |
| HCV | n | 34 | 55 | 30 | 50 | 30 | 199 | 24,503; 4, <0,001 |
| | Reactive | 0 0,0% | 1 0,5% | 7 3,5% | 0 0,0% | 0 0,0% | 8 4,0% | |
| | Non-reactive | 34 17,1% | 54 27,1% | 23 11,6% | 50 25,1% | 30 15,1% | 191 96,0% | |
| Yes, according to location(%) | | | 1,8 | 23,3 | | | | |
| HBV | n | 34 | 55 | 30 | 50 | 30 | 199 | 3,813; 4; 0,432 |
| | Reactive | 0 0,0% | 0 0,0% | 0 0,0% | 0 0,0% | 1 3,3% | 1 0,5% | |
| | Non-reactive | 34 17,1% | 55 27,6% | 30 15,1% | 50 25,1% | 29 14,6% | 198 99,5% | |
| Yes, according to location(%) | | | | | | 3,3 | | |
| Syphilis | n | 34 | 55 | 30 | 50 | 30 | 199 | |
| | Reactive | 0 0,0% | 0 0,0% | 0 0,0% | 0 0,0% | 0 0,0% | 0 0,0% | |
| | Non-reactive | 34 17,1% | 55 27,6% | 30 15,1% | 50 25,1% | 30 15,1% | 199 100% | |

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