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SELF-ASSESSMENT OF THE RISK OF SEXUALLY TRANSMITTED DISEASES

SAMOPROCENA RIZIKA ZA DOBIJANJE POLNO PRENOSIVIH BOLESTI

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Summary

Introduction. Sexually transmitted diseases can be prevented, but it is necessary to know how the infection is transmitted and be aware of the possibility of infection that will lead to change in behavior. Regular testing for sexually transmitted infections is also of crucial importance to prevent its further spread and the development of complications of the infection. The aim of this study was to examine the incidence of risky behaviors in the population of men who have sex with men, their self-assessment of the risk of sexually transmitted diseases, as well as the incidence of testing for these infections. **Material and Methods.** The study was conducted in the territory of the City of Novi Sad in the population of 185 men who have sex with men. The research method was an anonymous online survey that respondents filled out on a voluntary basis, with previously provided information about the research. **Results.** Of the total number of respondents, 39% claimed that they had unprotected sex with at least one partner in the previous year. Among the respondents who had unprotected sex in the past year, only 12% believe that they are at high risk of sexually transmitted diseases, and 42% of them have not been tested for sexually transmitted diseases in the past year. **Conclusion.** In conclusion, a large number of untested people practice risky sex and have a poor perception of the risk of sexually transmitted diseases. The common reason for not getting tested is fear or lack of information about testing.

Key words: Sexually Transmitted Diseases; Self-Assessment; Risk Assessment; HIV; HIV Testing; Sexual Behavior; Health Risk Behaviors

Introduction

According to the latest data, about 3,300 people in Serbia are positive for human immunodeficiency virus (HIV), while there are 37,700,000 people with HIV in the world [1, 2]. In order to prevent further growth in the incidence of HIV, it is important to inform the population about the ways the virus is transmitted, its clinical manifestations, as well as various testing options. As far as HIV is concerned, humans are the only reservoir of infection, and the sources of infection are body fluids: blood, semen, vaginal secretions, and breast milk. The HIV infec-

Sažetak

Uvod. Polno prenosive infekcije se mogu sprečiti, ali je potrebno znanje o načinu prenošenja infekcije, kao i svest o mogućnosti infekcije, koji će dovesti do promene ponašanja. Od ključnog je značaja i redovno testiranje na polno prenosive infekcije zbog sprečavanja daljeg širenja infekcije, kao i sprečavanja razvoja komplikacija infekcije kod pojedinaca. Cilj ovog rada bio je da se ispita učestalost rizičnog ponašanja u populaciji muškaraca koji imaju seks sa muškarcima, njihova samoprocena rizika od dobijanja polno prenosivih infekcija, kao i učestalost testiranja ispitanika na ove infekcije. **Materijal i metode.** Istraživanje je sprovedeno na teritoriji grada Novog Sada u okviru populacije muškaraca koji imaju seks sa muškarcima na uzorku od 185 ispitanika. Metod istraživanja je bila anonimna onlajn anketa koju su ispitanici popunjavali na dobrovoljnoj bazi, uz prethodno dat tekst o informacijama u vezi sa istraživanjem. **Rezultati.** Od ukupnog broja ispitanika, 39% je navelo da je imalo nezaštićene seksualne odnose sa najmanje jednim partnerom tokom prethodne godine. U okviru grupe ispitanika koji su imali nezaštićene seksualne odnose u poslednjih godinu dana, samo 12% smatra da je u visokom riziku za dobijanje seksualno prenosivih bolesti, a 42% njih se nije testiralo na polno prenosive bolesti u poslednjih godinu dana. **Zaključak.** U zaključku veliki broj netestiranih praktikuje rizične seksualne odnose i ima lošu percepciju o riziku za dobijanje polno prenosivih bolesti. Razlog netestiranja je često strah ili nedovoljna informisanost o testiranju.

Ključne reči: polno prenosive bolesti; samoprocena; procena rizika; HIV; testiranje na HIV; seksualno ponašanje; ponašanje rizično po zdravlje

tion is transmitted sexually, parenterally (blood) and vertically. The sexual route of transmission is the most common and the receptive anal intercourse is considered to be the most risky for virus transmission [3]. Other sexually transmitted diseases (STDs) that often accompany HIV are hepatitis B, hepatitis C and syphilis [4]. Early diagnosis of infection is crucial for the further course of the disease, so in that context, self-assessment of the risk of infection is important, so that the individual is aware of the need for testing. Risk perception of infection is an assessment of the individual's own risk of STDs. One assesses the risk based on their own opinion

Abbreviations

MSM	– men who have sex with men
HIV	– human immunodeficiency virus
STDs	– sexually transmitted diseases
PrEP	– pre-exposure prophylaxis
cART	– combination antiretroviral therapy

about how much they were at risk of infection. It can be a strong motivating factor for reducing risk behaviors, increasing the number of tested, and thus reducing the risk of infection. Testing for STDs is done for epidemiological and clinical reasons. Epidemiological reasons include possible exposure to HIV, such as unprotected sexual intercourse, intravenous drug use, as well as contact with an infected person or blood by medical staff. Clinical reasons for testing imply testing due to the presence of symptoms. In addition to diagnosis as a measure to prevent the spread of STDs, for their early detection and adequate treatment, one should also think about preventing infection in general. Fortunately, today there are a number of measures that individuals can take to prevent the spread of STDs. Condoms are the best way to prevent STDs, but a great number of people still engage in risky sexual behavior despite the risk of infection. This raises the question of whether the problem is the lack of information about the protection during sexual intercourse and STDs in general, or the behavior of individuals with adequate knowledge of STDs. For this reason, education on preventive measures should be conducted so that they are accepted and adequately implemented.

Due to the fact that classical preventive measures did not give adequate results in slowing down the growing trend of HIV, there was a need to improve prevention with new methods. One of them is pre-exposure prophylaxis (PrEP) with antiretroviral drugs. It includes a combination of two drugs, tenofovir disoproxil fumarate and emtricitabine, which can be used daily or as needed. The World Health Organization recommends PrEP to people who are at significant risk of HIV infection, and this includes the population of men who have sex with men (MSM). According to the conducted studies, the safety and effectiveness of PrEP is over 90%, which gives it a significant place in the prevention of HIV infection. The HIV testing is necessary before starting to use PrEP. This is important because there is a possibility of developing resistance if the person is already HIV positive. Despite prophylaxis, it is necessary to continue regular testing, because early detection of the disease is important in preventing the spread of infection and a better outcome of treatment with early application of adequate therapy [5]. In addition to PrEP, which reduces the risk of infection, there is a very effective post-exposure procedure. Namely, the use of antiretroviral drugs early enough after exposure to HIV can reduce the risk of infection by more than 80% [6].

Thanks to the existence of combination antiretroviral therapy (cART), the idea of HIV as a chronic disease has emerged. Chronic HIV infection

destroys the immune system and thus creates a basis for the development of a large number of other diseases, especially those found in the acquired immunodeficiency syndrome (AIDS) stage. Therefore, the emphasis should be placed on early detection of HIV infection, regular testing and other modalities of prevention [7].

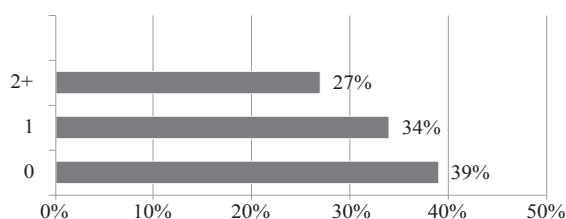
The goals of this research were to determine the incidence of risky behavior in the population of MSM, the level of risk perception of STDs in MSM, and to determine the frequency of testing for STDs in relation to risky behavior in the population of MSM.

Material and Methods

The study was conducted in the territory of the City of Novi Sad in the population of 185 MSM. The research method was an anonymous online survey posted on www.gayromeo.com. The surveyed population were all persons who were active on the site during the survey and wanted to complete an anonymous online survey. The participants were contacted via personal message with a request to participate in the study. Out of the total number of respondents, 30 surveys were filled out incorrectly, and 155 respondents were included as the final sample. The survey consisted of 12 questions with multiple-choice answers. The questions about the age, level of education, number of sexual partners, use of protection in relationships, and finally risk perception of STDs. The next set of questions were related to STD testing in terms of frequency, reasons for and against testing, and the place of testing. The basic method in data processing was the method of descriptive statistics in Excel, as a tool for calculation, tabular and graphical presentation.

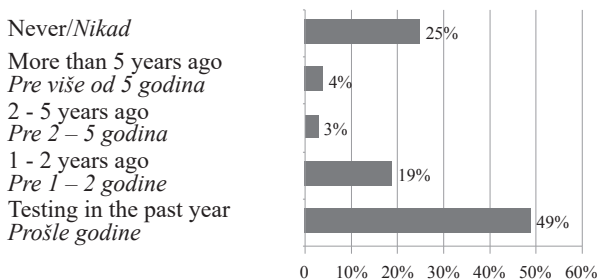
Results

The total number of completed surveys was 185, of which 30 were incorrectly or incompletely filled out, and for that reason the research included 155 surveys for statistical analysis. A total of 155 men participated in the survey, most of whom were aged between 25 and 34 years, to be exact 68 of them (44%). None of the respondents were aged between 55 - 64 years, but 1% of the respondents were over 65. Also, the level of education of the respondents



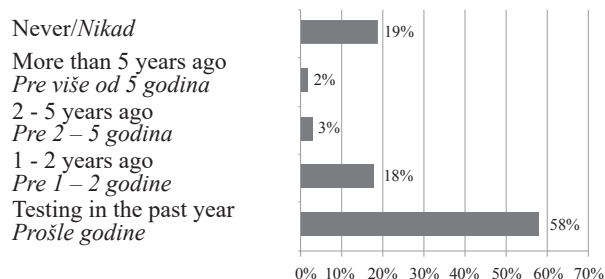
Graph 1. The number of sexual partners with whom the sex was unprotected (in the past year)

Grafikon 1. Broj seksualnih partnera sa kojima je odnos bio bez zaštite (u poslednjih godinu dana)



Graph 2. Time of testing for STDs in the whole sample
Grafikon 2. Vreme testiranja na polno prenosive bolesti u celom ispitivanom uzorku

was analyzed and as many as 108 (70%) have attained university education, while only 1% have attained only primary education. The risky behavior of the respondents was further analyzed. Of 155 respondents, 104 (67%) answered that they had more than five partners in the past five years, while 30 (19%) respondents had 2 - 4 partners, and 21 had 0 - 1 (14%) partners in the past five years. The next question also referred to the risk factors, but in terms of unprotected sex. Interestingly, almost two-thirds of respondents (61%) had unprotected sex in the past year, and half of them with more than two partners in that period (**Graph 1**). Regarding the time of testing for STDs, the frequency of testing in the whole sample indicates that the percentage of tested subjects in the previous year is 49%, and the percentage of respondents who have never been tested is 25%. **Graph 2** presents data related to testing periods in the whole sample. Furthermore, we analyzed the number of persons tested for STDs in the group of respondents who had unprotected sex in the past year (94 respondents). Only 58% of the respondents from this group were tested for STDs, and as many as 19% from this group have never been tested. **Graph 3** shows that as many as one fifth of the respondents



Graph 3. Time of testing for STDs in the group of respondents who engaged in risky behavior

Grafikon 3. Vreme testiranja na polno prenosive infekcije u grupi ispitanika koji su naveli rizično ponašanje

have never been tested for STD's, although they practiced unprotected sex. Most of the respondents were tested in the past year. A total of 80 (52%) respondents answered that they had sex with several partners in the same period. The problem is that out of 80 respondents who had sex with several partners in the same period, 58 had sex without a condom. Therefore, the risk of spreading sexually transmitted infections among these subjects increases significantly. Out of 155 respondents, only 20 (13%) answered that they had sex with new partners without condoms, while 135 (87%) answered that they use condoms when starting sexual relations with a new partner. The issue with this question is that the respondents were asked about their first intercourse with a new partner, which does not mean that they did not later decide to have unprotected sex. Although the percentage of persons practicing unprotected sex with new partners is low, 80% had multiple partners at the same time, 70% had unprotected sex in the past year, and 90% had more than 5 sexual partners in the past 5 years. Respondents were asked to assess their own risk of STDs and 84 (54%) answered that there was no risk, 58 (38%) answered that the risk was

Table 1. Reasons for getting tested for STDs

Tabela 1. Razlozi testiranja na polno prenosive bolesti

Statement/Izjava	Number of respondents/Broj ispitanika	
	No./Br.	%
Because of traveling abroad or because of getting insurance <i>Zbog putovanja u inostranstvo ili zbog dobijanja osiguranja</i>	8	4%
As part of a routine check-up for STDs <i>Kao deo rutinske provere na polno prenosive bolesti</i>	63	29%
As part of a routine health check/ <i>Kao deo rutinske provere zdravlja</i>	57	27%
I want to stop using a condom in a relationship <i>Želim da prestanem da koristim kondom u vezi</i>	13	6%
I was afraid of my own risk and/or risk of my partner <i>Plašio sam se sopstvenog rizika i/ili rizika za partnera</i>	27	13%
The doctor recommended that I get tested/ <i>Doktor mi je preporučio da se testiram</i>	7	3%
Due to risky sexual behavior (sex without a condom) <i>Zbog rizičnog seksualnog ponašanja (seksualni odnos bez kondoma)</i>	33	15%
Other/ <i>Ostalo</i>	6	3%

Legenda: STDs - polno prenosive bolesti

Table 2. Reasons why respondents did not get tested
Tabela 2. Razlozi zbog kojih se ispitanici nisu testirali

Statement/Izjava	Number of respondents/Broj ispitanika	
	No./Br.	%
I am afraid to take the test/ <i>Imam strah od testiranja</i>	13	15%
There was no need, I always use a condom <i>Nije bilo potrebe uvek koristim kondom</i>	18	21%
I don't like dealing with the health care system <i>Ne volim da imam dodira sa zdravstvenim sistemom</i>	2	2%
I am afraid of being stigmatized and discriminated <i>Plašim se stigme, diskriminacije</i>	6	7%
I have a fear of needles and getting blood drawn <i>Imam strah od igala i vađenja krvi</i>	5	6%
I fear of the test results/ <i>Plašim se rezultata</i>	11	13%
I am afraid of being seen getting tested by someone I know <i>Plašim se da me neko poznat ne vidi da se testiram</i>	11	13%
I didn't know where to get tested/ <i>Nisam znao gde da se testiram</i>	11	13%
I am not sure if I need to pay for it/ <i>Nisam siguran da li se plaća</i>	5	6%
I am afraid of the legal consequences if I am HIV+ <i>Plašim se pravnih posledica ukoliko dobijem rezultat da sam HIV +</i>	2	2%
I don't have enough knowledge and information about the importance of HIV testing <i>Nemam dovoljno znanja i informacija o značaju potrebe testiranja na HIV</i>	1	1%
Other/ <i>Ostalo</i>	2	2%

Legenda: HIV - virus humane imunodeficijencije

Table 3. Places where the examinees got tested for STDs
Tabela 3. Mesto testiranja na polno prenosive bolesti

Statement/Izjava	Number of respondents/Broj ispitanika	
	No./Br.	%
Private laboratories/ <i>Privatne laboratorije</i>	31	27%
In a hospital/ <i>U bolnici</i>	9	8%
Institute of Public Health/ <i>Institut za javno zdravlje</i>	59	51%
Institute for Student Health Care/ <i>Zavod za zdravstvenu zaštitu studenata</i>	3	2%
Free of charge testing offered by non-governmental organizations <i>Deo akcija nevladinih organizacija</i>	6	5%
Elsewhere/ <i>Negde drugde</i>	8	7%

medium, while only 13 (8%) answered that there was a high risk of STDs. It is also important to perform a risk assessment analysis for those who had unprotected sex in the past year. Of 94 men, 47 (50%) believe the risk is low or non-existent, 36 (38%) think they are at medium risk of STDs, and only 11 (12%) think they are at high risk of getting STDs. It is extremely interesting and important that half of the respondents who have unprotected sex believe that they are not at risk of STDs. This is certainly a sign of a very poor risk perception of half of the respondents who are at real risk of STDs.

We were further interested in the reasons for getting tested for STDs. The greatest number, i.e. 63 respondents, answered that they get tested as part of a routine STD test, which speaks in favor of the fact that a certain number of respondents are aware of the risk. It is interesting that only 15% of respondents get tested because

they are aware of their risky behavior and almost the same percentage because they have to (because of a visa, for example). Other results are shown as a percentage in **Table 1**. The research also examined the reasons why the respondents were not tested. Most of the respondents answered that there was no need for testing. About a fifth of respondents do not get tested for fear of testing, positive results, or being recognized. All results are shown in **Table 2**. As for the place of getting tested for STDs, most of the respondents, i.e. 59 of them, named the Institute of Public Health. Other results are shown as a percentage in **Table 3**.

Discussion

Risk perception of the risk of STDs is primarily related to knowledge about the existence of risk, and then to the perception of one's own behavior

that may lead to infection. The importance of self-assessment of the risk of STDs is extremely important for early detection of infection and timely treatment. If not treated in time, all STDs may lead to permanent consequences and serious health damage. On the other hand, the importance of STD risk perception is important for STD prophylaxis. People who are aware of the risks are more likely to use protective measures. In the case of HIV infection, there is also a possibility of PrEP, which has proven to be a very effective method of prevention. The survey we conducted dealt with the assessment of risky behavior, and determining the awareness of risky behavior. Finally, we wanted to determine whether awareness of risky behavior encouraged respondents to get tested for STDs. This is extremely important, because without awareness of the risk, the person is less likely to get tested. If a person does not have a perception of risky behavior, they are less likely to get tested and find out their status, i.e. they may further spread the infection.

In this survey, most men were in the age group between 25 and 34, which is logical considering that this is an online survey, i.e. people who use internet were selected. The number of partners mentioned by the respondents is relatively high, so we can assume that the respondents gave an honest answer, and 67% of respondents answered that they had more than 5 partners in the past 5 years. It is a worrying fact that 61% of those surveyed answered they had unprotected sex with at least one partner in the past year. This is a relatively high percentage, but according to the literature, it is not an unusual result. According to a research in China, the percentage of people who had unprotected sex in the last year was also high and amounted to 51% [8], while a research conducted in the United States showed a trend of declined use of condom in the past few years, as well as an increase in new HIV cases in the younger population, because they are not aware that the absence of symptoms does not mean the absence of infection [9]. There is also an increase in the number of sexual partners, and this is a problem because of the great number of unprotected sexual intercourses and poses a risk of STDs. In our survey, 61% of respondents said they had engaged in unprotected sex in the past year. Of the total sample, 13% claimed they had sex with a new partner without a condom. If we analyze only this group of respondents, 80% of them claimed they had multiple partners at the same time, 70% had risky sexual intercourse in the past year, and 90% had more than 5 partners in the same period. We come to the conclusion that, although this number is small, it is still significant due to the number of partners and the lack of protection against STDs. According to a survey conducted in the Netherlands in the population of MSM who have never been tested for STDs, 36% had unprotected sex with at least one person of unknown HIV status in the past year [10]. When it comes to risk perception for HIV and other STDs, of 61% of respondents who had unprotected sex in the past year, only 12% believe that they are

at high risk of STDs, and 50% believe that the risk is low or non-existent. Perception of risk of infection is a key to testing, and in the study, 54% of the total sample rated their risk of STDs as low or non-existent. In the group of respondents who had risky sex in the past year, a statistical analysis of those tested for STDs was performed, and it was concluded that 58% had been tested for STDs in the past year, which means that 42% of respondents who were at risk had not been tested. Of the total sample, 49% of respondents were tested for STDs in the last year, and as many as 25% of them have never been tested before. These results support the results of a survey in Germany where 35% of respondents had never been tested, and of those who had unprotected sex in the past year, almost 50% had not been tested in the same period [11]. Comparing the results, we found that 50% of respondents who had unprotected sex in the past year assessed their risk as low or non-existent. This means that a large number of respondents who practice unprotected sex have a poor perception of their own risk. According to a study conducted in the United States by the Center of Disease Control as part of the National HIV Behavioral Curvature System project, one third of HIV-positive participants in the project did not know they were infected with the virus and claimed that they had unprotected sex recently [12]. This again supports the fact that every risky sex carries the risk of infection and testing is very important to prevent further spread of the infection due to the unknown HIV status.

Reasons for testing were also examined, and most examinees answered that routine health screening or routine testing for STDs were the reasons. Only 21% of respondents answered that they were tested because of risky behavior, and the research shows that 61% of respondents had unprotected sex in the past year, which again supports the poor perception of risk by those who engage in risky sexual behavior. The same results were obtained in a study in the United Kingdom, where most respondents answered that they were tested for routine control, preoperative, etc., and a very small number were tested because they were advised by a doctor [13]. Most of the tests were done at the Institute of Public Health, which may indicate that there is a lack of information about free, anonymous HIV testing outside health institutions. When it comes to the reason why the respondents did not get tested, the highest percentage answered that they always use a condom and therefore believe that there is no need for testing, and the second reason was fear of testing. This was confirmed by a research in China, where fear of testing, stigma and discrimination was found to be an important factor in low STDs testing [14]. Testing for STDs provides early treatment and a better treatment outcome; however, in order to prevent infection, education on prophylactic measures of protection against STDs is needed. In addition to classic preventive measures, awareness of prophylactic measures, such as PrEP and post-exposure prophylaxis should be raised, as they have proven to be effective in a large percentage.

All the information, as well as free testing, can be obtained from non-governmental organizations such as the "Crvena Linija", where people can get tested anonymously without fear of stigma or discrimination, which was noted as the reason for not getting tested by a great percentage of respondents. Reducing risky behavior, as well as more frequent testing for STDs is extremely important for the health of individuals, and thus for the health of the entire population, because it allows early diagnosis of infection and prevention of its further spread. That is why it is crucial to raise awareness about risky behavior, preventive measures, and importance of regular testing and early detection of the disease.

Conclusion

The research showed that 54% of respondents assessed their risk of sexually transmitted diseases as low or non-existent. We also concluded that in the population of men who have sex with men there are a great number of those who engage in risky sex without protection and 61% of them claimed that they had unprotected sex in the past year. The study also showed that the risk assessment for sexually transmitted diseases is poor, since 50% of examinees who reported

risky behavior claimed that the risk of infection is low or non-existent. The worrying fact is that 58% of respondents who reported risky behavior had never been tested for sexually transmitted diseases. Sexually transmitted diseases are spread due to the smaller number of individuals who get tested, because a great number do not use protection during sexual intercourse. Also, the research showed that most of the untested men were not tested due to fear of results, the test itself, lack of anonymity, and lack of information about testing. Of the total number of examinees, 78% answered that they were tested at the Institute of Public Health and private laboratories, meaning that the awareness of safe anonymous testing should be raised. In conclusion, there is a need to raise awareness about the risks, improve knowledge about sexually transmitted diseases, their transmission, ways of protection, and all this should be done using posters, brochures, through the media, education in schools and many other ways. Risk groups such as men who have sex with men should also get informed about places where they can be tested, anonymously, without fear of stigma and discrimination in order to prevent further spread of infection, promote risk awareness, because prevention and early diagnosis are key to preventing the spread of sexually transmitted diseases.

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