

KNOWLEDGE ABOUT SEXUALLY TRANSMITTED DISEASES
AMONG THE YOUTH IN BOSNIA AND HERZEGOVINAAzra HADŽIMEHMEDOVIĆ¹, Adem BALIĆ², Devleta BALIĆ², Selma MURATOVIĆ¹© by Acta Medica Saliniana
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Background: Sexually transmitted diseases (STDs) are most widespread infectious diseases transmitted by any type of sexual contact**Aim:** The aim of the study is to assess the general level of knowledge, as well as the factors that determine relevant differences in the study population.**Patients and methods:** In the period 2007-2009, 5000 students both sexes were questioned aged 19-24 in four largest university cities in Bosnia and Herzegovina: Sarajevo, Tuzla, Mostar, and Banja Luka. The subjects were regular students of different universities, different years of study and study departments with different places of residence. The survey was voluntary and anonymous.**Results:** The survey included 2,128 (42.60%) male students and 2,872 (57.40%) female students. Insufficient knowledge about STDs was registered among 47, 0% of the surveyed students in Bosnia and Herzegovina. The female students showed significantly better knowledge about STDs ($p < 0.001$) than the male students and this knowledge was not conditioned by their place of residence. The students in Bosnia and Herzegovina or 95.6% of them ($N = 4,782$) reported sex as a way of transmitting sexually transmitted diseases, the female students showing significantly better knowledge than the male students ($p < 0.001$). The knowledge of the means of transmitting STDs depends on the place of residence ($p = 0.004$); the students living in dormitories (5.93%) showed less knowledge ($p = 0.004$) than those who pay the rent for their accommodation 3.6%.**Conclusion:** Interviewed students in Bosnia and Herzegovina have insufficient knowledge about STDs and it is not conditioned by the place of residence but shown that female students have significantly better knowledge than male students.**Keywords:** youth, students, sexually transmitted diseases

INTRODUCTION

Sexually transmitted diseases (STDs) are most widespread infectious diseases transmitted by any type of sexual contact (1). These diseases include more than 30 different conditions, among which the most common ones are gonorrhea, chlamydial infection, trichomoniasis, human immunodeficiency virus (HIV) infection syphilis, trichomoniasis, chancroid, genital herpes, genital warts and hepatitis B (2). Three STDs caused by Human Papillomavirus, Trichomonas vaginalis and Chlamydia trachomatis make 88% of all the STDs at the age of 15-24 (3). The World Health Organization (WHO) estimates that at least one third of the 333 million new cases each year of curable sexually transmitted infections (STIs) occur among people under 25 years of age (4). Sexually transmitted diseases (STDs) are a major health problem affecting mostly young people in developing, but also in developed countries (5-10).

Untreated or poorly treated STIs are associated with a lot of complications. In males, gonorrhea as well as chlamydia trachomatis infection cause epididymitis which can result in infertility in the future. This may lead to urinary retention and possibly chronic renal failure if not properly managed. For the females, pelvic inflammatory disease, dyspareunia, infertility, chronic pelvic pain, increased risk of ectopic pregnancy, abortions, stillbirths, and perinatal and neonatal morbidities can occur jeopardizing their future reproductive competences (11).

Many studies have demonstrated that the knowledge about the cultural, sociological and demographic context is extremely important in the field of STDs prevention (5,12-14). This is important for the design and the success of Public Health programs in the field of STDs prevention because they determine youth's behavior (12)

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Different STD prevention concepts in different countries focus on different STDs (5). A constructed knowledge, education and behavior space model shows interesting associations between active STD knowledge and the sex education provided by both media and professionals (5).

The aim of the study is to assess the general level of knowledge, as well as the factors that determine relevant differences in the study population.

PATIENTS AND METHODS

In a prospective study with a sample of 5.000 students aged 19-24 years of both sexes, an anonymous survey on the knowledge about STDs in Bosnia and Herzegovina from 2007 to 2009 was conducted. The study was conducted among the students in four largest university cities in BiH with five universities (University of Sarajevo, University of Tuzla, University of Banja Luka, and two Universities of Mostar). The total sample consisted of 2.872 female and 2,128 male persons, aged from 19 to 24 years, full time students at different universities, different years of study and study departments, different places of residence. A Questionnaire was designed specifically for this study, which had been created for the purpose of PhD thesis at the Medical Faculty in Tuzla and later adapted to our research.

The prospective study used a questionnaire (attached), which consisted of 42 questions (23 questions were open-ended, and 19 with clearly defined response). The first part of the questionnaire was related to the personal data of subjects (university, faculty, year of study, age and place of birth, sex, location and type of residence). The second part of the questionnaire was the data on knowledge of sexually transmitted diseases.

The questions related to the knowledge about STDs were given the following scores: knowledge about one or no STDs (insufficient) was given 0 points; knowledge about two to three STDs (weak) was given 1 point; more than three STDs (satisfactory) was given 2 points.

The survey was voluntary and anonymous. The survey was conducted among the students of various faculties (Natural sciences, Technical sciences, Economics, Social sciences, Art, Medicine). The faculties were randomly selected. The survey included 1,000 students at each university (University in Sarajevo, University in Tuzla, University in Banjaluka, and two Universities in Mostar).

The sample included all female and male students present at the classes at the time of conducting a survey, who gave their consent to the participation in the research. The survey was conducted by student volunteers previously educated on the type and method of the survey. They gave a brief presentation on the type and content of the questionnaire along with the directions on how to fill it in. The filling in of the questionnaire lasted 15 to 20 minutes. Prior to this, all the participants were orally informed on the purpose, main aim and procedures of the research, data privacy and participant identity protection as well as the potential risks. The survey was anonymous and conducted in accordance to the authorization granted by the universities that participated in the research. The subjects gave their oral consent for the participation in the research and were able to abandon the procedure at any point during questionnaire filling up.

Standard methods of descriptive and inferential statistics were used. While testing the statistical hypotheses, the significance level $p < 0.05$ was used. The programs Microsoft Office Excel and Arcus QuickStat biomedical were used for the statistical data processing.

RESULTS

In the sample of 5.000 subjects, 2,128 (42.60 %) were male students and 2.872 (57.40%) were female students. As regards knowledge about sexually transmitted diseases, students with insufficient knowledge of 47.0% (N=2.353), with weak 40.60% (N=2028) and satisfactory knowledge had only 12.4% (N=619) of them (Figure 1).

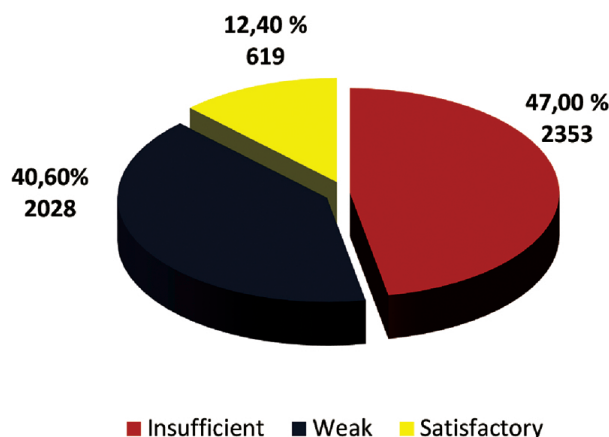
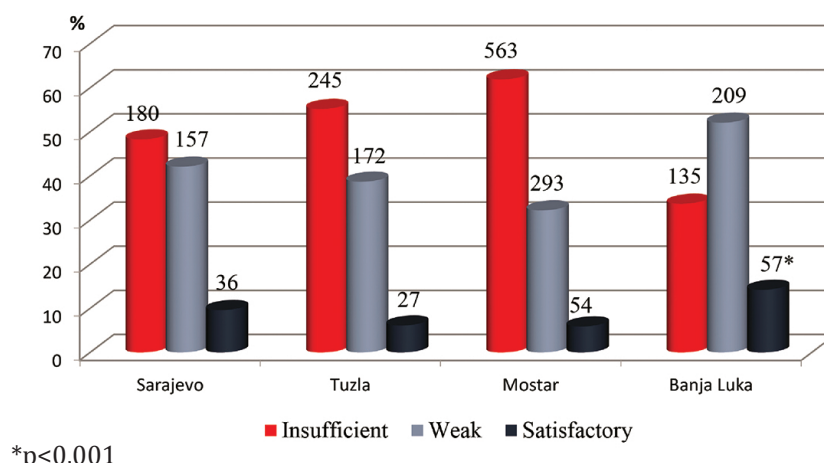


Figure 1. Knowledge about sexually transmitted diseases among the students in BiH

Male students have insufficient knowledge about STDs in the range from 61.9% (N=563) in Universities of Mostar to 33.7% (N=135) in University of Banja Luka,

while satisfactory knowledge is showed in the range from 14.2% (N=57) in University of Banja Luka to 5.9% (N=54) in Universities of Mostar (Figure 2).

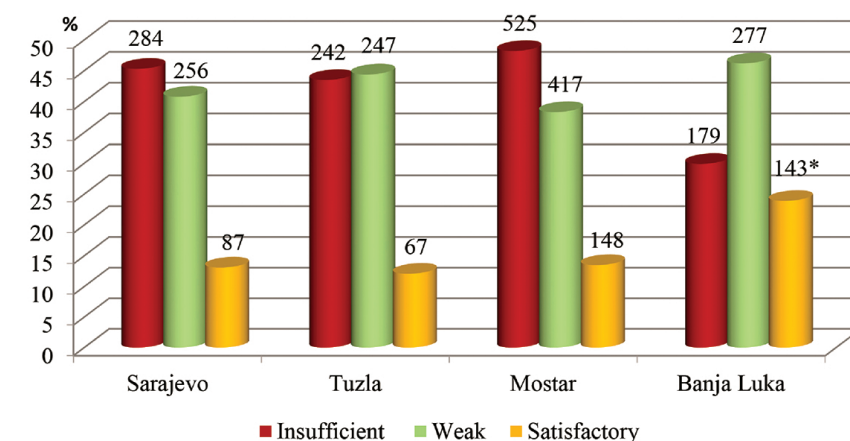


*p<0,001

Figure 2. Knowledge of SDSs among male by universities in BiH

Female students have insufficient knowledge about STDs in the range from 48.2% (N=525) in Universities of Mostar to 29.9% (N=179) in University of Banja

Luka, while satisfactory knowledge is showed in the range from 23.9% (N=143) in University of Banja Luka to 12.1% (N=67) in University of Tuzla (Figure 3).



*p<0,001

Figure 3. Knowledge of STDs among female students by universities in BiH

In BiH, the proportion of male students who had insufficient knowledge about STDs significantly higher

than the proportion of girls (p<0.001) (Table 1).

Table 1. Knowledge of STDs among students by cities in BiH

City	Male students						Female students					
	Insufficient		Weak		Satisfactory		Insufficient		Weak		Satisfactory	
	N	%	N	%	N	%	N	%	N	%	N	%
Sarajevo	180	3,60	157	3,10	36	0,70	284	5,70	256	5,10	87	1,70
Tuzla	245	4,90	172	3,40	27	0,50	242	4,80	247	4,90	67	1,30
Mostar	563	11,3	293	5,90	54	1,00	525	10,5	417	8,30	148	2,90
Banja Luka	135	13,50	209	20,90	57	5,70	179	17,90	277	27,70	143	14,30
BiH	1123	22,5	831	16,60	174	3,50	1230	24,60	1197	23,90	445	8,90*

* p<0,001

The knowledge of STDs does not depend on the place of residence. Students in Bosnia and Herzegovina, 95,6 % of them (N = 4,782) reported sexual intercourse as a way of transmitting sexually transmitted diseases, and 4.4 % (N = 218) students stated different transmission

(touch or kiss) (Figure 4). In terms of the knowledge of the means of transmitting STDs, the female students showed significantly better knowledge than the male subjects ($p < 0.001$) (Figure 4).

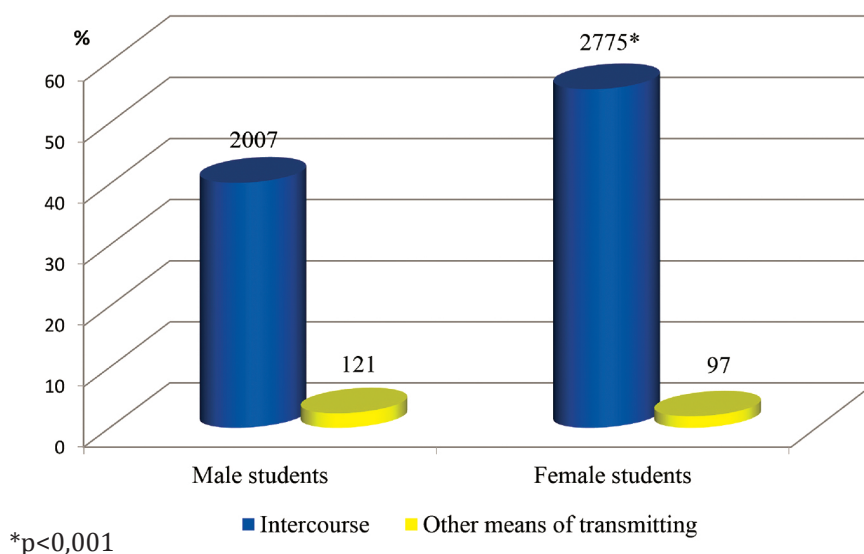


Figure 4. Knowledge of the means of transmitting STDs among students in BiH

The knowledge of the means of transmitting STDs depends on the place of residence ($p = 0.004$); the subjects living in dormitories (5.93%) showed less knowledge ($p = 0.004$) than those who pay the rent for their accommodation 3.6%.

DISCUSSION

The results of our research indicated that almost a half of the surveyed students in Bosnia and Herzegovina has an insufficient knowledge about STDs with the female students surveyed showing somewhat better knowledge than the male students. On the other hand, a high level of knowledge about the means of STD transmission is rather positive since only 4% of the youth opted for a touch or kiss while identifying the means of transmission. The female students showed significantly better knowledge ($p < 0.001$) about the sexual means of transmitting STDs than the male students. When compared to the previous study conducted in 2003 among the high school students in the Tuzla Canton, with only 5% of female and 2% of male subjects that showed good knowledge (16), the data obtained in this study (8.4% of the female subjects and 3.2% of the male subjects) indicate a slight increase in the knowledge about STDs.

The situation is somewhat similar with the youth population in the region. Hence, Stanković (2007) states that every second girl in Serbia knows about syphilis and gonorrhea, while every sixth girl know about Chlamydia, HSV and HPV infections. Also, the study conducted in Belgrade indicates that 99.5% of adolescents know about AIDS, but only 41.8% of them know that the people having an STD are with a higher risk of acquiring AIDS (18). On the other hand, 26.7%

of female adolescents in Belgrade know about only two STDs, 13.7% know one, 2.3% do not know any, while only every tenth girl (9.7%) know about more than three STDs (19). Klavs et al. in Slovenia report that 47.7% of male subjects and 40.6% of female subjects have solid knowledge of STDs (20).

Better knowledge about STDs for female subjects when compared to male subjects was reported in some larger studies in the United States and Europe but in some developing countries as well (9, 21-24). Some other studies and researches report different results ranging from a high level of knowledge about HIV infection, especially about the means of virus transmitting and protection (25, 26, 27) to the inadequate knowledge of STDs and the means of their transmission (13, 28-34). The transformation of STDs into a large global issue has been recognized all over the world, which is why many publications and studies emphasize the need for every country to work on the introduction and implementation of the system of education and prevention (35-37). Also, adolescents and the youth up to the age of 24 are regarded as the target population that needs to be influenced through various programs aimed at timely recognizing risky sexual behavior, health disorders and risks of STDs (37, 38). Although it has a low incidence of STDs (15) and is in a group of countries with a low prevalence of acquiring AIDS (less than 0.1%), BiH needs to develop programs aimed at the protection against STDs and their consequences.

The fact that all STDs are not reported comes as a huge problem in Bosnia nad Herzegovina as well as the lack of the system for regular check-up examinations and monitoring of these diseases. However, when compared to the global situation, Bosnia and Herzegovina has so far seen as the country with a low prevalence of HIV

and AIDS although there are still many factors that may contribute to the occurrence of these diseases and the epidemic at any time.

CONCLUSION

Interviewed students in Bosnia and Herzegovina have insufficient knowledge about STDs and it is not conditioned by the place of residence but shown that female students have significantly better knowledge than male students.

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