



Awareness of HIV/AIDS and other sexually transmitted infections among the Montenegrin seafarers

Svest o HIV/AIDS i drugim infekcijama prenosivim seksualnim putem među crnogorskim pomorcima

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Abstract

Background/Aim. Human immunodeficiency virus (HIV) continues to be a major global public health issue having claimed more than 35 million lives so far. Seafarers belong to a group of migrant workers whose working and living conditions are confined for a long time. Their way of life put them at a high risk of HIV infection and other sexually transmitted infections (STIs). The aim of this study was to assess the level of knowledge about HIV and other STIs among Montenegrin sailors. **Methods.** A research was carried out from October 2014 to April 2015 as a cross-sectional study. The research included 543 examinees. A research instrument was a particularly structured closed-type questionnaire created by the Joint United Nations Programme on HIV/acquired immune deficiency syndrome (AIDS) (UNAIDS) and used in international and national researches. For data analysis, we used the SPSS for Windows 20.0. **Results.** The result that only 42.9% of the examinees knew that HIV and STI transmission could be pre-

vented by a proper and frequent use of condoms was alarming. More than a third of the examinees (38.9%) were aware of the fact that HIV could be transmitted by having sexual intercourse with a person who looked healthy, while 25.6% of them thought that HIV could not be transmitted in this way. Considering the level of education, there was a statistically significant difference related to the awareness of HIV transmission by sharing a meal with a person was HIV positive ($p = 0.001$). There was also found a statistically significant difference related to the awareness of the examinees about HIV transmission by using public toilets ($p = 0.004$). **Conclusion.** The results of this research showed that beside the fact that awareness level of HIV and STIs among the sailors was heightened in comparison to 2008, the level of awareness is still not satisfactory.

Key words: hiv infections; attitude to health; humans; military personnel; surveys and questionnaires.

Apstrakt

Uvod/Cilj. Virus humane imunodeficijencije (HIV) i dalje je jedan od najvažnijih problema javnog zdravstva i do sada je odneo više od 35 miliona života. Pomorci spadaju u grupu radnika migranata čiji su radni i životni uslovi skućeni na duže vreme. Način života koji vode stavlja pomorce u visok rizik od infekcije prouzrokovane HIV-om i drugim seksualno prenosivim infekcijama. Cilj rada bio je procena nivoa znanja o HIV-u i drugim polno prenosivim infekcijama među pomorcima u Crnoj Gori. **Metode.** Istraživanje je sprovedeno od oktobra 2014. do aprila 2015. godine kao studija preseka i obuhvatalo je 543 ispitanika. Instrument istraživanja bio je posebno strukturisan upitnik zatvorenog tipa, kreiran prema programu Ujedinjenih nacija za HIV/sindrom stečene imunodeficijencije (AIDS) (UNAIDS) koji se kori-

stio u međunarodnim i domaćim istraživanjima. Za statističku obradu podataka korišćen je SPSS 20.0. **Rezultati.** Rezultati ukazuju na to da je samo 42,9% ispitanika znalo da se od HIV-a i drugih polno prenosivih infekcija može zaštititi pravilnom i redovnom upotrebom kondoma. Više od jedne trećine ispitanika (38,9%) nije znalo da se HIV može preneti seksualnim odnosom sa osobom koja izgleda zdravo, dok je 25,6% smatralo da se HIV ne može preneti na taj način. S obzirom na stepen obrazovanja, statistički značajna razlika utvrđena je u odnosu na znanje o prenošenju HIV-a deljenjem obroka sa osobom koja je inficirana HIV-om ($p = 0.001$). Statistički značajna razlika utvrđena je i informisanost ispitanika u odnosu na prenošenju HIV-a korišćenjem javnih toaleta ($p = 0.004$). **Zaključak.** Rezultati ovog istraživanja pokazali su da i pored toga što je unapređen nivo znanja pomoraca u Crnoj Gori o HIV in-

fekciji i drugim polno prenosivim bolestima u odnosu na 2008. godinu, sedam godina kasnije znanje pomoraca još uvek nije na zadovoljavajućem nivou.

Ključne reči:

hiv; stav prema zdravlju; ljudi; kadar, vojni; ankete i upitnici.

Introduction

Human immunodeficiency virus (HIV) continues to be a major global public health issue having claimed more than 35 million lives so far¹. Strategic plans for responding to HIV/acquired immune deficiency syndrome (AIDS) at the global level recognized a greater vulnerability of some population groups in transmitting this and other sexually transmitted infections (STIs)². Prevention programs focused on specific populations still remain the best approach to combating the HIV/AIDS pandemic²⁻⁴.

The World Health Organization (WHO) estimates that in 2014 there were 35.3 million people in the world who lived with HIV infection¹. The largest number of HIV/AIDS infections and the increasing trend in the number of the infected people was recorded in Sub-Saharan African countries. In Europe, North America and Australia, the number of the infected does not show a pronounced upward trend and the infection was kept mainly within so-called „risk groups” which include migrant workers, too. The “Risk groups” cause such status due to economic and social circumstances and their proneness to behaviour and habits which may result in HIV infection¹.

Seafarers belong to a group of migrant workers whose working and living conditions are confined for a long time⁵. Their way of life put them at a high risk of HIV infection and other STIs^{5,6}. The sense of isolation and solitude caused by separation from family, friends and homeland and a high degree of routinization of everyday tasks and hierarchical organization of work on board also increase sensitivity of this population⁷. According to the data of the Maritime Union in Montenegro, there are around five thousand people who identify themselves as professional sailors⁸.

According to the data of the National HIV/AIDS Registry, participation of seafarers in the total incidence of HIV infections in Montenegro ranged from 16% in 2008⁹ to 9% in 2014^{10,11}.

Epidemiological data and the results of researches that have been conducted in recent years among the sailors in Montenegro¹¹⁻¹³, have contributed to the national strategic response to HIV/AIDS in Montenegro since 2005 when the first strategy for the fight against HIV/AIDS was adopted in Montenegro till the last one for the period from 2015–2020; special emphasis is placed on prevention of HIV and other STIs among seafarers¹⁴⁻¹⁶.

Initial studies that examined the association of labour migration and seafarers with HIV infection were carried out in the countries where seafaring is a traditional profession (Croatia, Germany, Turkey, etc.)¹⁷⁻¹⁹.

The results of the studies^{7,12,13,18-20}, available in foreign and domestic professional literature, unambiguously showed a lack of information of seafarers about HIV and

other STIs, and indicated the need for continued public health interventions with the goal to prevent the spread of HIV and other STIs among this population.

The aim of this research was to assess the level of awareness, attitudes and behaviour about HIV/AIDS and other STIs among seafarers in Montenegro.

Methods

The survey was conducted from October 2014 to April 2015 as a cross-sectional study. For the selection of examinees, a two-stage proportional stratified sample was used. Sample frame was a list of all mariners boarding agencies, mariners educational institutions, marinerstraining centres and health care institutions in which seafarers perform mandatory health checks. The examinees were randomly selected from each agency proportionally to the number of seafarers available at the time of the survey (periods between two sailings). The criteria for the examinees to be included in the study were: not to be younger than 18 years old, to have an on board experience as seafarers at least one month, and to have no more than two years gap from the last navigation.

The research preceded the approval of the Centre for Training of Seafarers (BMV) from Bar. The methodology and study design was approved by the Ethics Committee of Faculty of Medicine, University of Priština/Kosovska Mitrovica, Serbia in accordance with the established procedure after which the research began.

The survey included the seafarers from all coastal municipalities as well as those coming from other municipalities in Montenegro and neighbouring countries in order to load on ships.

The estimated number of seafarers in Montenegro was 5,000. The survey included 543 examinees who represented slightly more than 10% of this population.

Prior to entering the research, all subjects were informed in detail about the study, the research aims and the method of collecting the necessary data. It was explained to them that the questionnaires guaranteed confidentiality by encrypting the data. Participation in the survey was voluntary and the examinees could give up at any time.

The survey instrument was a specifically structured questionnaire created by the Joint United Nations Programme on HIV/AIDS (UNAIDS) and used in the international and domestic research²¹. A survey instrument consisting of 40 multi-part questions included the following: sociodemographic characteristics, knowledge of HIV/AIDS and STIs, attitudes towards HIV/AIDS and STIs, condom use behaviour and health-seeking behaviour. The participants in the study were offered three options in responding: “Yes”, “No” and “I don’t know”.

The results were analyzed by descriptive and inferential statistics. For the data analysis, we used the SPSS for Win-

dows 20.0. In determining a statistically significant differences between the different variables, we used non-parametric χ^2 test. The value of $p < 0.005$ was considered to be statistically significant.

Results

The study included 543 seafarers aged 18 to 65 years. The youngest participant was 18 and the oldest one was 65 and the average age was 37.3 ± 11.6 (Table 1).

Table 1
Social demographic characteristics of examinees

Parameters	Examinees (n = 593) n (%)
Gender	
male	501 (92.3)
female	42 (7.7)
Age (years)	
18–27	135 (24.9)
28–37	159 (29.3)
38–47	121 (22.3)
48–57	110 (20.3)
58 and more	18 (3.3)
Education	
primary	29 (5.3)
secondary	197 (36.3)
college or university	317 (58.4)
Marital status	
married	237 (43.6)
single	263 (48.3)
widowed or divorced	43 (8.1)
Rank	
officers	196 (36.1)
interns	30 (5.5)
crew members	173 (31.9)
ship crew (cooks, waiters, stewards, etc.)	120 (22.1)
students	12 (2.2)
other	12 (2.2)

The women were engaged mostly as “white staff” (food servers, maids, waitresses, hostesses, entertainers, beauticians and hairdressers). The majority of the examinees were from Bar (33.5%), but also there were the examinees from Ulcinj (15.3%), Budva (12.4%), Kotor (9.5%), Tivat (8.7%) and Herceg Novi (8.5%). There was 9.5% of the examinees residing in the continental part of Montenegro (Cetinje, Nikšić, Podgorica) while 2.6% of the examinees were residing outside of Montenegro. Over 85% of the examinees lived in a town while the rest of them lived in a village.

The minimal number of years spent on voyages is 1 year and a maximum 47 years. The average number of years spent on voyages is 12.4 ± 9.9 . When asked about the length of absence from home, 541 sailors answered that question. The sailors are usually absent from home for a period of 3–6 months (54.2%). Eighty-one (15%) sailors were absent from

home less than 3 months, 150 (27.7%) for a period of 7–10 months and 17 (3.1%) for more than 10 months.

Media were dominant information sources (63.1%), as shown in Table 2.

Table 2
Distribution of the examinees in relation to the source of information on HIV/AIDS and other sexually transmitted infections

Source of information	Examinees n (%)
Media	343 (63.1)
Family	35 (6.4)
School/college	41 (7.6)
Ship	65 (12.0)
HIV counselling service	20 (3.7)
From friends	32 (5.9)
Other	7 (1.3)
Total	543 (100.0)

HIV – human immunodeficiency virus; AIDS – acquired immune deficiency syndrome.

Slightly less than a half of the examinees, 255 (47.0%), knew that there was a counselling office for HIV/AIDS and STIs in their city. The research showed that more than two-thirds (71.8%) of the examinees had no sexual education or any form of education on sexually transmitted infections.

Slightly more than two-thirds (72%) of examinees knew that HIV could not be transmitted by a mosquito bite, while 67.4% of them knew that HIV could not be transmitted by sharing a meal with a HIV positive person. Slightly more than a third (35.5%) of the examinees knew that HIV could be transmitted by unprotected sexual intercourse with a person who looked healthy, 17.9% of them thought that HIV could be transmitted using a public toilet, 44% knew that HIV could be transmitted from an infected mother to a baby while 39.6% knew that HIV was transmitted by the used needles and syringes (Table 3).

Table 4 shows the knowledge of seafarers on the ways HIV was transmitted and the age group, education level and occupation.

Considering the age groups, there was no statistically significant difference related to the awareness of the ways in which HIV could be transmitted. Considering the level of education, a statistically significant difference existed regarding the knowledge about HIV transmission by sharing a meal with a person who was HIV-positive ($\chi^2 = 17.602$, $df = 4$, $p = 0.001$). The examinees who finished primary school only, showed a lower level of awareness. A statistically significant difference was noted in awareness of the examinees of HIV transmission by using public toilets ($\chi^2 = 15.206$, $df = 4$, $p = 0.004$).

Considering the profession of the mariners, there was a very important statistical difference regarding awareness that HIV could be transmitted through a sexual intercourse with a person who looked healthy ($\chi^2 = 39.393$, $df = 10$, $p = 0.000$). Lower level of awareness was perceived among the officers,

slightly more than one-fifth (26.5%) knew that this was a way of HIV transmission, while the highest level of awareness was showed by students.

When it comes to ways of protection against the HIV and STIs, the mariners did not have sufficient information on protection against HIV and other STIs. Slightly less than a half (42.9%) of the examinees thought that a proper usage of

condoms prevented the infection; slightly more than a third (38.3%) thought that they could protect themselves by having sexual intercourse with one uninfected and faithful partner. Abstinence, as a way of protection, was chosen by 35.5%, while only one-fifth of the examinees were familiar with vaccine against certain STIs (Table 5).

Table 3

Questions and answers of the respondents regarding the HIV transmission

Ways of HIV transmission	Yes	No	I don't know	Total
	n (%)	n (%)	n (%)	n (%)
Sting of mosquito	83 (15.3)	391 (72.0)	69 (12.7)	543 (100.0)
Sharing food with HIV-positive person	99 (18.2)	366 (67.4)	78 (14.2)	543 (100.0)
Sexual intercourse with a person who looks healthy	193 (35.5)	139 (25.6)	211 (38.9)	543 (100.0)
Usage of public toilets	97 (17.9)	363 (66.9)	83 (15.1)	543 (100.0)
Usage of a glass that HIV-positive person have previously used	138 (25.4)	290 (53.4)	115 (21.2)	543 (100.0)
From infected mother to a child (during the pregnancy, labour and breastfeeding)	239 (44.0)	20 (3.7)	284 (52.3)	543 (100.0)
Usage of needles and syringe that have previously been used	215 (39.6)	15 (2.8)	313 (57.6)	543 (100.0)

HIV – human immunodeficiency virus

Table 4

The knowledge of seafarers in relation to the age group, education level and occupation

Ways of HIV transmission	Age groups	Educational level	Rank
Sting of mosquito	$\chi^2 = 13.488$ df = 8 $p = 0.96$	$\chi^2 = 11.342$ df = 4 $p = 0.023$	$\chi^2 = 19.251$ df = 10 $p = 0.037$
Sharing food with HIV positive person	$\chi^2 = 14.356$ df = 8 $p = 0.073$	$\chi^2 = 17.602$ df = 4 $p = 0.001$	$\chi^2 = 12.812$ df = 10 $p = 0.234$
Sexual intercourse with a person who looks healthy	$\chi^2 = 36.434$ df = 8 $p = 0.000$	$\chi^2 = 9.756$ df = 4 $p = 0.045$	$\chi^2 = 39.393$ df = 10 $p = 0.000$
Usage of public toilets	$\chi^2 = 17.765$ df = 8 $p = 0.023$	$\chi^2 = 15.206$ df = 4 $p = 0.004$	$\chi^2 = 8.844$ df = 10 $p = 0.547$
Usage of a glass that HIV positive person have previously used	$\chi^2 = 15.313$ df = 8 $p = 0.053$	$\chi^2 = 7.114$ df = 4 $p = 0.130$	$\chi^2 = 21.078$ df = 10 $p = 0.021$
From infected mother to a child (during the pregnancy, labour and breastfeeding)	$\chi^2 = 19.845$ df = 8 $p = 0.011$	$\chi^2 = 7.114$ df = 4 $p = 0.130$	$\chi^2 = 25.986$ df = 10 $p = 0.004$

HIV – human immunodeficiency virus

Table 5

Protection against HIV and STIs

Made of protection	Yes	No	I don't know	Total
	n (%)	n (%)	n (%)	n (%)
Proper usage of condoms	233 (42.9)	40 (7.4)	270 (49.7)	543 (100.0)
Having sexual intercourse with one uninfected and loyal partner	208 (38.3)	69 (12.7)	266 (49.0)	543 (100.0)
Avoiding sexual intercourse (abstinence)	193 (35.5)	122 (22.5)	228 (42.0)	543 (100.0)
Vaccination against STIs	139 (25.6)	286 (52.7)	115 (21.2)	543 (100.0)

HIV – human immunodeficiency virus; STIs – sexually transmitted infections.

Next, we investigated the respondents' knowledge about protection against HIV and STIs. There was a statistical significance in terms of the frequent presence of proper usage of condoms and having sexual intercourse with one uninfected and loyal partner ($\chi^2 = 25.321$, $df = 10$, $p = 0.005$).

The sailors also showed a different level of knowledge concerning the existence of vaccines against certain STIs ($\chi^2 = 27.853$, $df = 10$, $p = 0.002$).

Discussion

The examinees participated in research between two sailings. The average age of the examinees was 37.3 ± 11.6 which correlated with the age of the examinees in the previously conducted research in Montenegro¹¹.

The length of service among the sailors was about one to 47 years with the average of 12.4 ± 9.8 years. Our research showed that the sailors were mostly absent for 3 to 6 months (54.2%). Data on the length of separation from the family are highly important because the longer the sailor is absent from home the greater the possibility is to have risky sexual intercourse with random partners or with commercial sex workers which is directly connected with HIV transmission. Similar results were obtained in research conducted among Montenegrin sailors in 2008¹² and 2013¹³.

The results showed that the largest number of the examinees learnt about HIV and STIs from the media (63.1%). The percentage of the examinees who got information via media is slightly lower in relation to the results of previous research in Montenegro. The reason for this is the great availability of information about HIV and other STIs on ship (12%). The access to prevention of HIV transmission among the sailors, which was applied by nongovernmental department/sector in Montenegro through consultation and distribution of educational material (leaflets and brochures) before boarding, set up the constant availability of information and possibility of education for those who did not have sailor counselling. Similar results of the most common ways of getting information on HIV and other STIs were obtained in the research conducted among Turkish sailors in 2007. The majority of the sailors who participated in this research got information about HIV via media (68%)¹⁹. A research that was conducted 2011 in Italy about the perception of the risk and sexual behaviour of the sailors provided data that showed that the sailors mostly got information about HIV from medical workers²².

This research showed that only 7.6% of the examinees got information about HIV from their family. This can be explained by traditionalism that is very common in this area^{4, 8, 20}.

The most common fallacy is the belief that HIV can be transmitted by a sting of a mosquito, by sharing food with infected person or by using public toilets. The results of this research showed that more than two-thirds of the examinees denied making the most common mistake in HIV transmission. The results showed that the examinees were better informed about the most common mistakes than the ones in the previously conducted research in Montenegro^{12, 13}.

What is alarming is the fact that more than a third of the examinees (38.9%) were aware of the fact that HIV could be transmitted by having sexual intercourse with a person who looked healthy while 25.6% of them thought that HIV could not be transmitted in this way, which is consistent with the data from other studies^{4, 13, 22}. The result that only 42.9% of the examinees knew that HIV and STIs transmission can be prevented by proper and frequent usage of condoms is very alarming, but that is almost more than double when compared to the results of the research conducted in Montenegro in 2013. Only 25.6% of the examinees showed insufficient knowledge¹³.

Only 38.3% of the examinees thought that they could protect themselves from HIV and STIs by having sexual intercourse with one uninfected and loyal partner. A little bit more than a third of the examinees (35.5%) knew that they could protect themselves from HIV and STIs by avoiding sexual intercourse (abstinence). The examinees showed insufficient knowledge on vaccination, namely, 52.7% of them knew that vaccination could not protect them from HIV and similar results were obtained in a research in Croatia²³ and Italy²² as well as in the previously conducted research in Montenegro^{12, 13}.

Only 8.5% of the examinees perceived a personal risk of being infected by HIV as an important reason for a change in behaviour. Similar results were obtained in a research conducted among the sailors in Croatia in 2006⁵, while almost a half of the examinees of research conducted in Turkey in 2007¹⁹ thought that they were at a risk of being infected by HIV.

The majority of the above mentioned researches conducted not only among sailors but other populations that involve mobility and migrations with insufficient awareness of STIs and unavailability of the protection resources (condoms), showed a higher level of vulnerability to HIV of this population in comparison to those who had better living conditions^{24, 25}.

Out of the total number of the examinees who participated in this research, 22.3% of them were tested on HIV, 8.1% on hepatitis B and only 6.8% on hepatitis C. The examinees mainly decided to get tested on some of the STIs because they were obliged by the employer (36.9%). This fact points out that when sailors decide to get tested, this distorts the basic concept of HIV testing. The sailors decide to get tested because they are under the pressure by a growing number of foreign campaigns which is direct violation of the human rights and basic principle of testing on HIV being voluntary and confidential testing. More than a half of the examinees confirmed that they knew where they could be tested on HIV with maintained confidentiality and for free. This is the result of numerous promotion campaigns for voluntary and confidential testing on HIV that has been conducted in recent years in Montenegro.

Conclusion

The results of this research showed that beside the fact that awareness level about HIV and STIs among the sailors

was heightened in comparison to 2008, the level of awareness is still not satisfactory.

Due to increasing popularity of this profession among young people, it is necessary to establish an education program involving both sailors and managers.

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