

F I N A L R E P O R T

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Comparative Study of the Efficacy of Educational Programs of the Army, Media and Non-Governmental Organisations in Preventing Sexually Transmitted Diseases and AIDS among Military Personnel

ABSTRACT

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Context. - Military personnel is exposed to high risk of sexually transmitted diseases /STDs/ and HIV infection. However the Bulgarian Army lacks enough information about the knowledge and behavior related to these diseases as well as information about the efficacy of the different educational programs aiming to improve STDs and HIV knowledge.

Objective. - To evaluate the knowledge about STDs and HIV, the risk behavior among military personnel and the efficacy of different educational programs aiming to improve STDs and HIV knowledge.

Methodology. - Questionnaires prior and after educational intervention were completed to asses the educational efficacy as well as the influence of educational intervention on risk behavior reduction.

Setting. - Central unit for recruits, one capital military unit, and Higher school for transport cadets were involved in the study within the period 1998-1999.

Participants.- The total number of soldiers involved in the different surveys was 4182.

Interventions. - Five types of intervention for improving STDs and HIV knowledge of military personnel were investigated - mass media education intervention /MMEI/, medical service education intervention /MSEI/, Non-Governmental organization education intervention /NGOEI/, peer education intervention /PEI/ and self education intervention /SEI/.

Results. - The basic sources of knowledge about STDs and HIV among military personnel have been newspapers, radio and TV and only insignificant part of knowledge was gained from army education. The sexual mode of transmission is known by 90%-95% of questioned participants but the number of incorrect answers is high - up to 22,3% - 38,5% of participants believe that a mere kiss could transmit HIV and 10,1% - 23,9% that one may get HIV from public toilets and baths. Between 47,0% to 78,2% of military personnel have been afraid of getting HIV infection. Only 18,0%- 35,2% report always using condoms, between 6% and 22,1% of the participants report having more than 3 sexual partners within the last 12 months, 2,8% - 7,7% admit intravenous drug use in the last year, 1,8% - 8,4% have had sexual experience with another male and 4,4% - 18,7% were examined or treated for STDs in the last 12 months. The most significant improvement in STDs and HIV knowledge was achieved among the military personnel educated by SEI followed by MSEI and NGOEI.

Conclusion. - The inadequate knowledge about STDs and HIV and the practice of high risk behavior among military personnel which were found out from this study pose a huge health danger. An aggressive prevention education must be initiated within the army in order to cope with the impending danger. The combination between SEI and NGOEI seems to be the most promising and feasible method to apply in the Bulgarian army.

The growing challenge of Human Immunodeficiency Virus and Other Sexually Transmitted Diseases in Developing Region of Eastern Europe

The end of 1998 and the termination of this century are characterised with steady growth of the HIV infection in many of the developing countries all over the world. According to recent evaluations of the JOINT NATIONS Program on HIV/AIDS /UNAIDS/ and the World Health Organisation /WHO/ within the last year the number of HIV infected people has risen up to 33.4 million which is an yearly growth of 10%. The epidemic rates go beyond control in many countries all over the world. Nowadays more than 95% of all HIV infected people live in the countries of the developing world. It has also been estimated that 95% of all death cases of AIDS are mainly young people from the developing countries in the peak of their fertile years. AIDS is a disease affecting the rate of child

survival, the duration of life, the burdened health systems, the increased number of orphans and the direct losses for the countries' economies. Consequently it becomes a threat for the development of the affected countries. The data are really frightening – there are 5.8 million newly infected people in 1998, 13.9 million have died and around 7 000 young people aged 10-24 all over the world get infected by HIV every day.

HIV pandemic consists of variety of epidemics spread in the different countries. They have different characteristics regarding the tendencies of HIV prevalence, the number of HIV infected people, the basic routes of its spreading, the risk groups, the health systems and the different possibilities for obtaining and redirecting resources to them. The sexual behaviour and the prevalence of the other sexually transmitted diseases are particularly important regarding different ways of HIV spreading. All of the observed differences must be equally analysed and evaluated so that the priorities and the basic tasks for the national programs for prevention and control of HIV infection to be correctly defined.

Until 1995 the Eastern European countries including the Asian countries from the former Soviet Union reported very few cases of HIV infection. Further to that the screening tests made not only to people from the risk groups /STD patients and drug users/ but also to blood donors and pregnant women showed a low level of the infection within that period. After the year 1995 however there has been observed a rapid spread of HIV infection among the intravenous drug users in many countries from that region /Ukraine, Belarus, Moldova and the Russian Federation/. By the end of 1997 there have been registered over 20 000 HIV cases among drug users from the same region. The evaluation of the World Health Organisation is that the total number of the HIV infection cases in the region has increased to 170 000 cases reported in 1997 /2/.

At the same time there has been a considerable increase of the classical cases of STDs observed in the region – a dangerous fact leading to fears about the quick sexual spread of HIV infection.

Between 1980 and 1991 in Eastern Europe the incidence of syphilis and gonorrhoea decreases: 2 cases of syphilis out of 100 000 and 20 cases of gonorrhoea out of 100 000. In 1990 however there is an enormous flood of reoccurring STDs. For instance in 1989 the notification rate of syphilis in Ukraine drastically increased: from 5 cases per 100 000 in 1990 to 170 cases per 100 000 in 1995.

We could easily find the explanation of this phenomenon in the rapid development of the sex industry, the increased number of homeless people and refugees in the big cities, the low level of diagnostic potentialities, the penal laws which limit the probability to find the clinical centres and the insufficient and inadequate treatment /3/. Regretfully most of the countries in that region face the same type of problems.

There are several factors which are thought to be related to HIV epidemics among drug users in that region: the increased market for drugs, their supply and demand as well as the migration and the growing local production. For instance it has been supposed that in Russia only the drug users outnumber 1 million. Most of the drug users administrate home-made opiates but recently the use of ephedrine and other synthetic drugs like heroin and cocaine has also increased. The risk of HIV infection depends on the ways of drug preparation and distribution. The wide spread needle and syringe exchange among all drug users is still threat number one all over the world. Here are described some other risk practises like: the use of human blood as a cleansing agent during the process of drug production and further the use of contaminated syringes in the distribution of the drugs.

In spite of the apparent quick spread of the HIV infection in that region, only a little is known not only about the actual state of the HIV spread among risk groups like sex workers but also about the extent of the prostitution in that region. Single observations demonstrate the vulnerability of the prostitutes imposed by the violence of their clients and the problem of agreeing on safe sex with them.

Further to that there are no systematic observations regarding the sexual transmission of HIV among men. It has been considered however that due to the existing social hostility, making sex in these communities has been pushed out and marginalised. Consequently that has lead to an increased risk behaviour and practise of unprotected sex or sex with many partners.

As regards the epidemiology of the sexually transmitted diseases in general and the HIV infection in particular, we have to note and remind some of their basic characteristics. First, these infections are typical of having long latent or incubation period before the first symptoms to appear. Second, it is the genetic structure of the agents of the STDs that makes it impossible to make vaccines against

them. Third and particularly important, all STDs are transmitted by means of behaviour - hidden and highly motivated and for that reason - extremely difficult to be changed /4/.

There is another danger that must be considered seriously in the countries of the region. Some hypotheses show that at the early stage of the epidemic, the HIV could have a very rapid sexual transmission. According to Jaquez and colleagues the level of HIV transmission is higher during the primary infection. After their model, the newly infected patients continue to be involved in a risk sexual behaviour and the biological factors /lack of antibodies and greater amount of viruses/ make these patients particularly dangerous. The model predicts that in the course of the primary infection the infectivity could be 100 to 1000 times higher than the infectivity during the asymptomatic period. The quick spread of HIV infection in the region coincides with the hard economic problems, the continuous negative growth of the gross domestic product, people's low purchasing capacity and the mass unemployment. All that consequently leads to higher criminality, minimal funds in the social and health area, lack of social adaptation and mass frustration.

Regretfully it must be pointed out that the prevention and control over STDs is not normally a basic priority in the health programs of the developing countries and partly of the Eastern European countries. Only after the knowledge that the sexual way is actually the primary mode of HIV transmission, there has become a reassessment of the importance of the prophylactics of those diseases and a re-estimation of the fight against them with certain additional resources.

Having in mind all this, we must be very cautious when evaluating the spread of HIV infection and the potentials of the health systems for control over AIDS and other sexually transmitted infections. Obviously both the society and the health authorities in the countries of that region have to put every effort in overcoming the dangerous spread of epidemics of HIV and the other sexually transmitted diseases within their own countries.

The contemporary priorities for exploring the HIV prophylactics in the developing countries include:

- assessment of the methods for preventing HIV transmission controlled by women, for instance - vaginal microbicides;
- development of practical strategies for improving the control over the sexually transmitted diseases and development of programs aiming to obtain sexual health among the adolescents;

- assessment of a feasible antiretrovirus regime for reducing the transmission of the virus from mother to child.

The priority of those countries is the close and strict adherence to the national programs for control over AIDS and the involvement of different political leaders together with all other social sectors including the private sector and the non-governmental organisations. All of them are united in the search of reasonable methods for adaptation and implementation of the comprehensive messages into the local social, cultural and religious standards. Priority in the preventive programs must be given to the activities for prevention of the sexual transmission - the most widespread way for HIV transmission. Having in mind the very limited resources that these countries have, the last but not the least important priority is to encourage the development of accessible and efficient antiretrovirus therapy /6,7,8/.

HIV/AIDS and sexually transmitted diseases in Bulgaria

At the end of 1985 the First National Program for prevention and control of AIDS was introduced in Bulgaria. As it could be expected the strategy of that program was mostly related to the totalitarian methods based mainly on force and restriction. The program was largely focused on the secondary prophylactics, the active search of the contact persons and the performance of a compulsory screening in the risk groups. The risk groups consist of prostitutes, homo/bisexuals, drug users, haemophiliacs and people between 16 and 65 who have been abroad for more than one month. This program reviews even the possibility for a mass screening of the whole population between 14 and 70 years of age.

Within the period 1985 - 1989 around 4 million people were tested for HIV antibodies applying either a compulsory screening or a voluntary testing . In 1989 around 400 000 people from the capital and some other resort cities were tested and only 4 HIV positive people were found. This gives a cost of around USD 100 000 for each carrier found.

At the same time there has not been created a system for pre- and post-test counselling and the educational system for HIV prevention and the limitation of the risk behaviour has been conducted inefficiently and inadequately. Messages were not targeted and contained rather medical information than health promoting information. Most of the posters, leaflets and video-clips inspire unreasonable fear.

The critical analysis of this negative experience is very important considering first the future avoidance of the manifested weaknesses and second the fact that in certain situations some of the elements of such programs from the past could be modified and applied again. For instance it is worth studying the experience from the successful eradication of the syphilis in China in 1950 and 1960 when 10% from the country's population suffered from syphilis and in some ethnic minorities the prevalence of the disease reached even 50% /12/.

At the beginning of 1990-ies in Bulgaria it becomes clear that the repressive measures and the lack of confidentiality forces people from the risk groups to hide and that postpones and delays their visit to the medical centre. The democratic changes made it possible to have an open discussion on the national strategy for HIV/AIDS prevention and control. It has been gradually accepted that it is necessary to change the forceful measures and focus on the voluntary involvement of the individuals, communities and the whole society in the efforts for establishing a primary prophylaxis of HIV infection. In 1992 a new National AIDS Program /NAP/ was developed. It included the following basic elements:

1. Primary prevention of HIV infection through health promotion
2. Non-discriminatory secondary prevention of HIV and STDs through voluntary confidential testing, pre- and post-test counselling and treatment of HIV/AIDS people
3. Reasonable epidemiological surveillance and planning of resources.

This program has been developed and controlled for implementation by specialists from WHO. That certainly makes it more efficient and operative. At the same time the realisation of the program faces numerous difficulties. Within the period 1992 - 1997 our country was suffering from a continuous

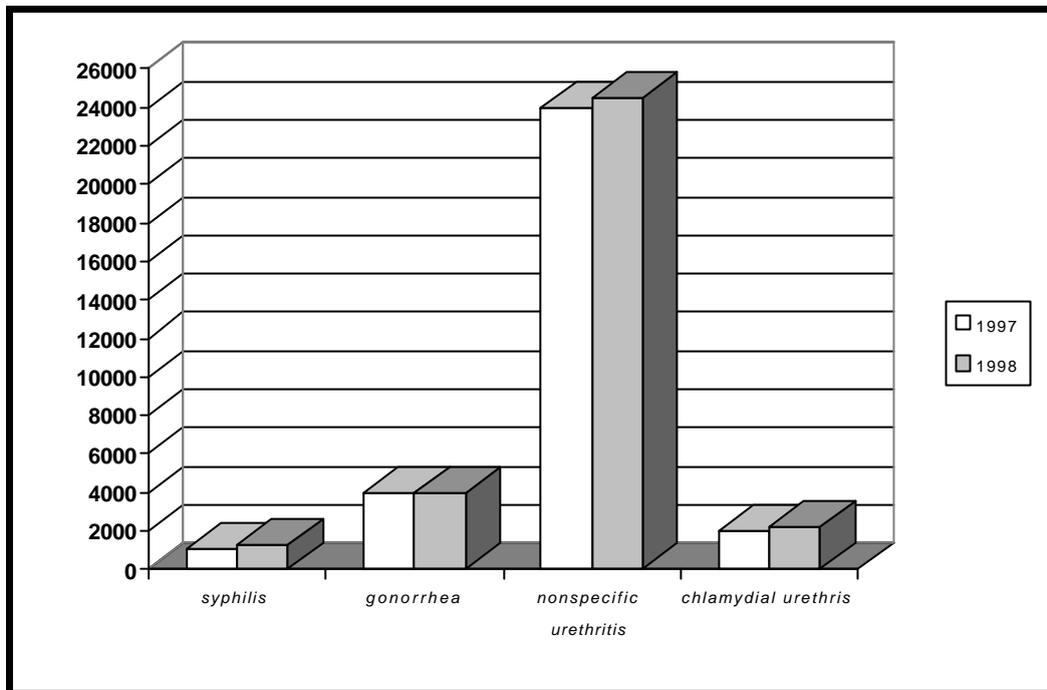
political uncertainty and fluctuations. The governments and relatively the governing body of the Ministry of Health used to change every year. For that reason the medical and all other state authorities were encountering a number of serious problems and so the HIV prophylactics was often neglected. The economic status of the country became worse and worse. There has been exhibited an unfavourable tendency regarding basic demographic indexes like birth-rate, death-rate and population growth /13/. Certainly those processes had adverse social reflections - unemployment, migration of the population, criminality, prostitution and drug use increased. On the other hand not all of the NAP tasks were adequately performed - for example despite its success the health education for prevention of risk behaviour in the schools could be significantly improved.

At the end of 1998 in Bulgaria there were 67 registered cases of AIDS and 252 cases of HIV positive. These figures are still low and we could expect that the optimisation and full implementation of NAP would prevent the occurrence of epidemics like the great new waves of AIDS epidemics reported in some countries in Southeast Asia and Ukraine. However the lack of regular screening tests within the risk groups lead to reasonable suspicions that the number of the infected people is several times higher than the registered. It is true that in Bulgaria there are serious problems in controlling the epidemics of STDs and in the efforts to limit the drug use.

In comparison to the West European Countries where the incidence of primary and secondary syphilis remains low - around 10 cases per 100 000 /14/ in the recent years in Bulgaria of the new syphilis cases is increasing dramatically - 1992 - 635 case; 1993 - 942 cases; 1994 - 1326 cases and they continue to increase with an yearly rate of around 10% /15/. Quite similar is the situation regarding the so called new sexually transmitted diseases - virus /herpes, papilloma, hepatitis B/, bacteriological /chlamidia, mycoplasma/, mycotic and parasitic for which there is no registration and control. In the recent years excluding gonorrhoea the number of all registered cases of STDs in our country are steadily increasing.

Figure 1

Sexually transmitted diseases in Bulgaria within the period 1997-1998



It seems that the change in the sexual behaviour as well as the primary prevention and disease control are determining this phenomenon in greater extent than the immunological status of the individuals or the pathogenic characteristics of the micro-organisms. The dermatologists themselves are worried by the apparent tendency and according to them the primary reason for this situation is the low level of life style in the country, the disregard of the health and sexual education of young people, the negative changes in the social moral and in the behaviour, the migration processes and the inefficient organisational structure for managing of the dermo/venerological care in the country.

The following major tendencies characterise the contemporary status of the drug spread in Bulgaria: It has been estimated that in the recent years there has been a continuous growth of the drugs spread within the country. According to expert analyses and some other studies there are approximately between 15 000 and 20 000 heroin drug users. It is very important to mention the relatively low

price of the heroin at the drug market in the country. The cocaine was introduced in Bulgaria between 1992 and 1993 and its use is still limited.

For the first time in 1993 there were 3 cases of HIV seropositive intravenous drug users registered. It has been supposed that the virus was transmitted by needle and syringe exchange. At present the number of HIV positive intravenous drug users is 15.

There is a very unfavourable tendency for lowering the start age for drug use /12-16 years/ /16/.

Despite the development of national and local plans for fight with the drug use, the creation of a net of centres for treatment and rehabilitation, the serious target education of school students and the number of educational activities organised by the mass media, specialists are convinced that in the next years the rate of drug use in the country will continue to increase.

HIV and STDs Prevention in the Military

The sexually transmitted diseases have always been a problem of basic importance for the military personnel all over the world. After the appearance of the fatal HIV infection and it became clear that the sexual route is the basic way for realising the horizontal transmission of the virus, the importance of the health policy, the surveillance and the prophylactic programs aiming to limit the HIV and STDs epidemics have significantly increased.

The military personnel is the population group within which there is a particular risk of STD occurrence. Studies within military personnel performed at different time and in different countries show that the infection rate for STDs is approximately 2 to 5 times higher than the infection rate among the relative civil populations in peace-time. During a war those indexes among the military could outnumber 100 times the level among the civil populations /17/.

There are numerous factors of the military environment that are considered influential for the growing risk of infecting the military with HIV and STDs. The age group of the militaries, which is usually between 18 and 25, and in some countries of Africa and Asia the soldiers are even younger, is the group with the highest risk of catching HIV and STDs. Usually the militaries spend a very long

period of time on duty in the army, away of their families and they often tend to seek ways to avoid stress and frustration. The military personnel, especially those who are sent to peace-keeping missions, have more money than the native people and for that reason they attract around them sex workers and drug distributors /17,18/.

The number of the sex workers is a key risk factor for infecting with HIV or other STDs. When having many promiscuous partners the chance for meeting a person infected with a STD is higher, especially if the partners are sexual workers who do not use condoms.

On the other hand the assets of the militaries /like youth energy, readiness to take risks, aggressiveness/ which are appreciated and encouraged by the commanders could become an important health problem when used in a socio-sexual situation /19/.

The higher risk of HIV and STDs infection among the military personnel is also influenced by the peculiarities of the relations and ethics which are acquired as part of the informal military culture and are deeply depending on the peer pressure. The desire to take risk could be of great importance during a war, but in social community it could induce an unnecessary risk behaviour like using a paid sex, making sex without condoms, etc. The aggressiveness could inspire the soldiers to pursue sex with many partners and feel like winners. Sometimes the feeling of prestige and power due to the belonging to the army could tempt soldiers to treat the civil people with force /18/. Some studies show that in some communities among the militaries there are normal proofs for catching STDs as a sign of manhood /17/.

A risk group form the military personnel, particularly vulnerable to STDs is that of young recruits /17/. The women who become increasingly engaged in many armies all over the world are also a specifically vulnerable subgroup due to the chance to get infected by a single intercourse and because of the frequent asymptomatic course of the STDs, which leads to a delayed diagnosis and difficult treatment /18,20/.

The participants in the peace-keeping missions of the UN could also be considered as a risk group /17/.

Because of the particular delicacy of the issue, the significance of the sexual relations between men in the army, notwithstanding whether they are bisexual or homosexual cases, rape cases, or “experimental” cases between heterosexuals, is not well defined and clarified /18/.

A risk period for STDs transmission is the time when conflicts appear and the number of the civics involved in a commercial sex becomes higher.

The influence of STDs and HIV infection among the army has always been clearly manifested. In the past during the First World , STDs were second only to influenza as a cause of lost of productivity in U.S. forces. Between 1929 and 1939, the average time lost from duty in recovery from a case of gonorrhoea was 38 to 50 days. Nowadays in many African countries there exists a concern that HIV infection could disgrace the readiness of the military forces. Some African countries are afraid that due to the high level of HIV prevalence the military contingent could not be assembled. At very high levels of HIV spread, the infection influences the social health in general. Theoretically it is possible /19/ that the feeling of weakness of the army forces in a certain country and the economic instability could lead to a political uncertainty and to threaten the national security. Because of the relation between the stability of the separate countries, this process could lead to an instability of whole regions.

HIV/AIDS among the army forces are a threat not only to the militaries, but also to their families and children due to the long asymptomatic phase of the infection. Surely the militaries who are infected with HIV are source of the infection for their sexual partners during an unprotected sex and for all other people who come into contact with their blood /during blood donation, using common needles, etc./

What should be the reaction of the medical authorities towards the threat of HIV infection and STDs among the military personnel? During the years the different countries have applied various measures against STDs. In the history of the USA we could define several periods of the development of the strategy for control of STDs. The first formal attempt of the U.S. army to put the soldiers off practising a risk behaviour which could lead to contracting a STD was in 1778 when a fine was imposed to every person with a diagnosed illness. That law is changed in 1884 and the new rules required the soldiers suffering from STDs to pay their full treatment and not to get paid for the time

they had been ill. Similar measures remained valid until 1944 when the Congress finally rejects all of them. At that time it became clear that measures of that kind help very little to reduce the incidence of STDs among the military personnel.

Another approach used during the First World War was the “scarlet letter” or the usage of shame. During that time order N 215 regulated a compulsory medical examination in search of occurred indications of STDs. The persons with a diagnosed illness were held in the army while the rest of the soldiers from their units were allowed to go home. The penalty approach turned out to be more effective. It was also used during the First world war. According to it the commanders were responsible for the occurred STD cases within their units. When this penalty was introduced for the first time the level of STDs in some observations have been cut in a half. When the commanders were responsible for the prophylactic measures it became clear that the medical follow-up of the contract persons, the regular examinations for spotting new cases and the suppression of prostitution were more successful. Despite some of its advantages and partial successes, that approach was repealed in 1954.

The failure of the penalty measures to control the rate of STDs in the USA gradually imposed the need of collaboration between the social sector and the military. The close co-operation among the U.S. Public Health Service, the State Health Departments and the Departments of War and Navy increased the efficacy of the efforts for control of STDs during the Second World War.

The treatment of STDs was revolutionised after the implementation of penicillin and the other antibiotics. In spite of the fact that the antibiotics are not the panacea against STDs due to the development of resistance in the micro-organisms and the hidden course of some of the sexually transmitted infections, the success of the antibiotics is obvious - the rate of STDs have dropped from 200 cases per 1000 strength during Civil War to 120 cases per 1000 strength in the Vietnam War.

The principles of the contemporary strategy for control of STDs in the U.S.A. include mainly the co-operation among the state, local, federal and military agencies, the medical follow-up of the contact persons, education, control of prostitution, modernisation of the therapeutic regimes and screening of people with one STD for other sexual diseases /21/. The rest of the countries form the civilised world have followed the same principles.

There are hopeful prospects that in spite of the higher risk of STDs and HIV among the army and the successive spread of the infections among the families and the society in general, the army could be considered as a very suitable group for education and prevention due to the existing good organisation and discipline in the military units. All over the world the commanders are highly motivated to look after their soldiers' health so the introduction of suitable educational programs for reducing the rate of risk behaviour could be very successful. Similar measures for prophylactics have been successfully implemented in countries like Botswana, Chilly, Philippines, Thailand, Zambia and in many other NATO countries /18/.

It has been commonly accepted that a basic program for control of HIV/AIDS in the army must include the following points:

1. Prevention of HIV infection through sexual transmission - a role of prevention education
2. Condom promotion and procurement.
3. Promoting STD care-seeking behaviour.
4. Counselling and voluntary testing.
5. Care support for those who are living with AIDS.
6. Prevention of transmission through blood.
7. Prevention of perinatal transmission.
8. Maintaining the strongest possible links with National AIDS Program /17/.

In spite of all that testing HIV virus in the army is a controversial issue. Some specialists consider that all of the militaries should be subjected to a regular test of that kind. The World Health Organisation however objects to the routine application of such measure regarding the problem with human rights, the low prophylactic value of the test and the big expenses that it would incur /22/. Practically it has been proved that the testing, the limitation of the boundaries and the isolation measures can not practically stop the spread of the virus. It seems more reasonable that the countries which dispose with a limited potential of resources to direct their funds and resources into the field of education in prevention, care, counselling as well as into organising voluntary selective testings. /17/.

There are only 5 countries in the world that perform regular testings for their militaries and only 2 countries which apply the tests to the new recruits only. After that the HIV positive militaries are discharged. The experience of the U.S.A. shows however that the introduction of these tests could reduce the number of HIV positive militaries in the army and could help in improving life expectancy and the quality of life of the found HIV positive people and of those who are in contact with them. This is achieved by observing prophylactic rules and a therapeutic regime. Probably the most recent successes of the combined antiretrovirus therapy would increase the number of the obligatory testing supporters.

Nowadays and in the near future the change of the risk behaviour regarding STDs and HIV infections appears to be the most effective method for control of those diseases. The reproductive rate of HIV R_0 is calculated by $R_0 = \beta \cdot c \cdot D$ formula where β represents the efficacy of the transmission, c - the number of partners and D - the duration of the infectiousness. β and c are indexes which could be altered by behavioristic changes, permanent use of condoms and reduction of the number of partners which would influence the reproductive rate of HIV within the population.. When R_0 falls below 1 the epidemic can not be sustained. /19/.

The factors that influence the behavioral changes are still under discussion but most probably they vary from one risk population to another and from one country to another depending on the different local peculiarities and the relevant moral and cultural values that have been historically imposed. It has been accepted that information, motivation and behavioural skills are the three elements which contribute to the successive movement from knowledge of the risk to the decision of behavioural change in every single person. Information is useful but taken on its own it does not always prove resultive. The soldier have to be motivated to make a correct health choice and that could be done in a decision supportive social environment.

A significant example for a successful behavioural change among the militaries for HIV protection was shown in the army of Thailand after the introduction of the behavioural intervention /23/. In the units where the intervention took place, before educating the soldiers, the peer educators were treated by medical staff and monks. After the end of the raining there were 13 new cases of HIV

infection in the control group in comparison to only one HIV positive in the experimental group, which is an impressive result.

In general, peer education system has been supported by many authors who consider it very suitable for young people and military personnel /17,18,20,21/ and its use will continue to spread. The system itself is actually a method by which the small group of peer representatives from one group of the population try hard to inform and influence the majority. Similar projects have been executed by young people and religious organisations as well as by educational institutions and NGOs. The key of the success of peer education in the prophylactics of the HIV infection is in the good tolerance of the young people who had not been able to understand the complicated medical terms used by the doctors during 1980-ies in their writings about the risk behaviour and the HIV preventive measures. Critics however point out that there are not any scientific facts proving the efficacy of this method.

Theoretically peer education is based on several behavioural theories. According to the Health belief model theory, people believe they are exposed to different healthy problems, they believe that the illness is accompanied by a severe suffering and that accepting the inconvenient prophylactic behaviour is much more profitable than the cost of rejecting it. According to Social learning theory people could increase their effectiveness by acquiring new information and skills for managing different situations. Each person acquires that knowledge by direct experience, indirectly by observing the actions of the persons he/she identifies with or by rehearsing the situational skills which only prove the positive self estimation. A popular theory is the Theory of the diffusion of the innovations according to which the new pieces of information, relationships beliefs and practices are diffusely spread among the society by a net of social relations /24/.

The mass media could be successfully used for disseminating information about prevention of HIV infection. In Thailand /25/ for example the television was used to spread education and prevention messages for reduction of risk behaviour. Together with the free distribution of 60 million condoms and the intensive education at school there was a significant reduction of the HIV infection rate in the army – from 3.7% in 1993 to 1.9% in 1997. A national survey of the sexual behaviour shows also an enormous decrease of the adultery sex and the commercial sex – from 22% in 1990 to 10% in

1997. A similar survey indicated an increase in the use of condoms when practising risk sex – from 61% in 1991 to 92.6% in 1995.

The Non-governmental organisations are successful not only in implementing preventive education /8/ among young people but also among military personnel /17,19/. This is encouraged by WHO due to the attraction of more and more social sectors in the fight against AIDS and the provision of financial and human resources, which is extremely important in countries with limited resources or in crisis. Their work will be successful and effective only if all of the activities comply with the national programs and to be periodically controlled and assessed for efficacy.

There are many tasks that must be considered when planning and implementing health programs and programs for risk reduction. The tasks are as follows:

- To assign realistic, specific, evaluative and feasible aims and tasks of the program
- To define the methods and activities for achieving the aims and the tasks.
- To define correctly the tasks and the responsibilities of the personnel
- To specify the population regarding the geographic location, risk behaviour, sex, sexual orientation and ethnic group. To provide proper language and style of the educational materials.
- To create a system for evaluation of the program fulfilment activities
- To conduct effective training courses with the staff responsible for the educational work /26/

According to C.W. Hendrix /19/ the necessary steps in planning behavioural interventions among military personnel are: to quantify the problem, to choose and identify the aims, to choose a strategy, to implement a support, to train the educators, to conduct the program and to assess the program.

HIV prevention and control in Bulgarian army

In 1987, soon after discovering the basic epidemiological characteristics of HIV infection and the advent of accessible diagnostic tests simultaneously with the implementation of a National Program for HIV/AIDS prevention and control, the Instructions for prevention and control was introduced in the army. The Instructions regulates the following:

1. Screening of donated blood – compulsory for all Blood Transfusion Units since 1987 until present.
2. Mandatory screening of the whole military personnel, including the new recruits. It is in power within the period 1987-1989 but after the democratic changes the screening becomes voluntary and anonymous.
3. In Bulgaria HIV infection is mainly transmitted by sexual intercourse. For that reason the rules particularly consider the prophylactics of the sexual way of transmitting the HIV infection and the other STDs. The Instructions requires regular educational activities with young soldiers related to the prophylactics of the HIV infection and the other STDs. According to the Instructions the activities last 2 hours per year and the medical service is obliged to prepare and work out the relevant educational materials and propaganda materials.

The Instructions have been updated many times and the procedures for blood transfusion have been improved, the number of risk donors have been reduced by the introduction of a special questionnaire for identifying them. The updating of the instruction is also involves the implementation of the mandatory testing of the volunteers participating in the peace keeping forces in which the country took place. Further to that different rules for treating and taking care of HIV infected patients were applied and the military hospitals initiated different activities for promoting STD care-seeking behaviour.

Surely there are some weaknesses and inadequate adherence to the instruction especially regarding the prevention education and condom promotion and procurement. This becomes clear from the 30% increase of the STD morbidity in the army during the last 5 years and the keeping of 2 to 4 times higher morbidity for the different STDs compared to the relevant civil population in the country. In 1994 during the first UN peace keeping operation of the Bulgarian army in Cambodia, 7 militaries were contracted HIV infection and despite the distribution of free condoms and the performed HIV education the level of the registered STDs cases within this period outreached 50% from the participating staff.

Until present there are no research papers and publications regarding the level of HIV/AIDS knowledge, the attitude and the disposition of the militaries as well as the risk behaviour in contracting STDs and HIV infections during the military service. There are still several vague sides of the problem like: soldiers' actual level of knowledge about STDs and HIV infection; the way this knowledge is transformed into behaviour; the size of population characterised with risk behaviour for infecting with HIV and STDs; the possibility to define subgroups with risk behaviour and the ways of improving HIV and STDs prevention by introducing new methods of education in army are points not yet clarified.

Purposes of the study

The analysis of the current status of the STDs and HIV infection in Bulgaria, the serious potential for their spread and the necessity for improving HIV prevention and control in the army by implementing

specific and locally operating educational programs complied with the recommendations of WHO and the National Program for HIV/AIDS prevention and control, allowed us to set and define the following purposes:

1. To inspect the knowledge about HIV/AIDS and STDs, the attitude and the related behaviour of the army soldiers.
2. To study the possibilities of mass media education among military personnel for preventing HIV and STDs infections.
3. To test the applicability of the performed by NGOs education of a military personnel for prevention of HIV and STDs infections.
4. To study the effectiveness of peer education program for preventing HIV and STDs infections among soldiers.
5. To evaluate the possibilities of an original self-education program for preventing HIV infection and STDs among soldiers which program has been motivated by giving an award – an army leave for the soldiers who have given correct answers.

Methods

Participants and schedule for performing the surveys

The total number of soldiers involved in the surveys was 4 182, comprising soldiers from several units within the country: Centre for Recruits in Pleven, Common Army Unit in Sofia and Higher School for Transport Cadets in Sofia. The age of the participants varied between 17 and 26. All of them participated voluntarily. Each survey has been conducted according to the following outline: completing the initial inquiry, performing different types of education for the different surveys and 2-3 weeks post education completion of the same inquiry for comparing the changes in the knowledge and attitude towards HIV infection and the other STDs.

The 5 surveys have been conducted as follows:

1. Mass media HIV/AIDS and STD education survey conducted in 1998/1999. At the beginning of 1998, 762 soldiers were inquired and at the same time started the publication of educational materials in the special army newspaper. This group represented militaries trained only by military doctors in unobserved conditions. A year later we inquired 433 soldiers from the same detachment. They were thought to have acquired additional knowledge about HIV/AIDS and STDs from the published newspaper materials.
2. There were 2 identical surveys that were performed in the Centre for Recruits in Pleven at the beginning of 1998 during a three-month' course for training of recruits. These surveys comprised 2000 soldiers divided in three groups according to the type of the education applied. The first group was trained by the medical service in the course of 2 hours under controlled conditions and materials provided by us. The second group was educated by the same method, including peer educators chosen by the sergeant staff. The third group was a control one. Peer educators were provided with additional educating materials and free condoms for distribution among the soldiers going on leave.
3. From April to May 1998 a survey for comparing the effectiveness of education in HIV/AIDS and STDs prevention was performed at the Higher School for transport cadets in Sofia. The 1000 participating cadets were divided into four groups, as follows: educated by the medical service of the school, educated by peer educators, educated by a NGO for two hours and a control group.
4. From February to April 1999 another survey was performed at the Centre for Recruits in Pleven. This survey covered 666 soldiers divided into two groups as follows: educated by the medical service of the centre and a group educated by a NGO for two hours.
5. From February to April 1999 the Centre for Recruits in Pleven trained 436 soldiers by applying a specific program for self-education motivated by awarding the soldiers with correct answers with a 3-day leave.

Behaviour interventions and supply activities

The preliminary studies showed that “Bulgarian Army” newspaper is the only newspaper really accessible for the common soldier due to its high circulation, low price and the special army supply. Regarding the mass media only the television has similar influence on the army. However there were limited possibilities to use television and the only television show for militaries was stopped in 1998. Since the beginning of 1998 until May 1999 every two weeks we used to work out a whole newspaper page with educational materials. The easy access and the high value of the educational materials in Internet we decided to refer and adapt them for the needs of our readers, so most of the published in the newspaper materials were mainly of that kind. There was also a special space left for questions and answers, for interviews with leading specialists and for news. The main topics, tackled in simple and thoroughly new for the readers way, were: the problems of spread and prevention of STDs and HIV infection, sex and alcohol, the drugs problem, the use of condoms, abstinence, etc.

In 1998 the army disposed of 800 000 free condoms for distribution among soldiers. Before distributing them a special letter sent to the different units regulated the correct distribution by the medical services and counselling in the units. The condom promotion activities in this case temporally coincided with the mass media campaign for HIV prevention and could be viewed as an element supporting the campaign. Apart from that 28 000 were selected for the needs of our project and during the performance of the peer education program.

The two behavioural interventions of NGO for HIV infection protection were conducted by different organisations. The first one has large experience in similar campaigns like “Health and social environment”. The second one was from Bulgarian Civil-Military Alliance to combat HIV and AIDS after consulting with us defined the contents of the health messages which had to be delivered to the militaries during the education.

Peer educators for the different interventions were selected among military persons of the higher commanding staff, but almost the same age as the soldiers, with good communication skills and personally respected by the soldiers. The participation of the peer educators in the program was completely voluntary. The peer educators themselves attended a 2-hour training course followed by

a discussion with a representative of the medical service who instructed them about the details of their work.

The self education program was worked out on a voluntary basis and its main point was that after the instructions all of the participants received specially prepared by us materials for self-education including the basic knowledge for prophylactics of STDs and HIV infection and 2 weeks after studying this material those soldiers who had correctly completed all of the questions from the non-anonymous questionnaire were given a 3-day leave.

Measures

The contents of the questionnaire were in conformity with the contents of similar questionnaires applied among the civil population - pupils, students, as well as with questionnaires popular in other countries. In addition to that there we included additional questions which were very interesting for the studies. Special attention was paid to the avoidance of the embarrassing questions. There were options for alternative answers which allowed us to achieve a maximum fairness during the completion of the questionnaires. For the purposes of the study the questionnaire were concentrated in several basic directions: demographic data, questions related to concrete knowledge about the ways of HIV and STDs infection and protection, questions related to the attitude towards these infections, questions on the risk behaviour /the number of sexual partners within the last 12 months, the condom use during the last sexual intercourse, occurrence of any STDs during the last year, sexual experience with a partner of the same sex, intravenous drug use during the last 12 months/, as well as questions related to intention for a behavioural change for protection form STDs.

Procedures

The soldiers were given to complete the anonymous questionnaires in suitable premises. They were thoroughly instructed in advance about the purposes of the program and were reminded about their voluntary participation. Apart from that there were brief instructions on the questionnaire forms. There was a representative of the medical service who was present during the completion of the questionnaires and clarified and answered to questions.

The study for the effectiveness of the self education program used non-anonymous questionnaires which excluded the questions about risk behaviour as well as other questions that could provoke embarrassment due to the breaking of confidentiality. The above named questionnaires as well as the keys to the questions were kept in a special way. The check of the correct answers was made by an assigned committee.

Data analyses

The data from the questionnaires was analysed by a sociological computer program. The differences in the compared groups were analysed by using Chi square χ^2 analysis and the level of statistical significance was identified by using the probability <0.05 .

The data used for comparing the level of sexually transmitted diseases in the country and in the army are taken from the National Centre for dermatological diseases and STDs.

Results

On the basis of all conducted surveys we ascertained that before the implementation of different behavioural interventions like mass media education intervention /MMEI/, medical service education

intervention /MSEI/, NGO education intervention /NGOEI/, peer education intervention /PEI/ and self education intervention /SEI/, the questioned soldiers had some preliminary knowledge on the essence of AIDS and the routes of HIV transmission. According to one of the surveys only 3% of the questioned report to have received the information about HIV/AIDS from the army; 62% have been informed by the radio, television and newspapers, 18,5% have learned something form their family and friends and 16.5% got some information form the duration at school.

In the rest of the surveys the militaries ranging from 35.7% to 58.8% before the education and from 41.6% to 84.5% after the duration report that they are satisfied with HIV and STDs prevention education in the army.

The sexual route of HIV transmission without using condoms is clear to 90%-95% of the questioned before the education in the different surveys. The transmission of the virus by applying intravenous drugs is known by 80.6%-96.1% of the same questioned group, while the vertical transmission from mother to child is known by 43.7%-78.2% of the tested population before the interventions. Less than 5% have given completely correct answers to all of the questions. The knowledge of the questioned people is quite incomplete and the number of incorrect answers is worryingly high. For example 22.3%-38.5% of the questioned believe that the virus AIDS could be transmitted by a mere kiss, between 10.1% to 23.9% think that the use of common public toilets, baths and swimming pools could lead to HIV infection.

Between 47.0% to 78.2% of the questioned from different surveys have been afraid of infecting with the HIV.

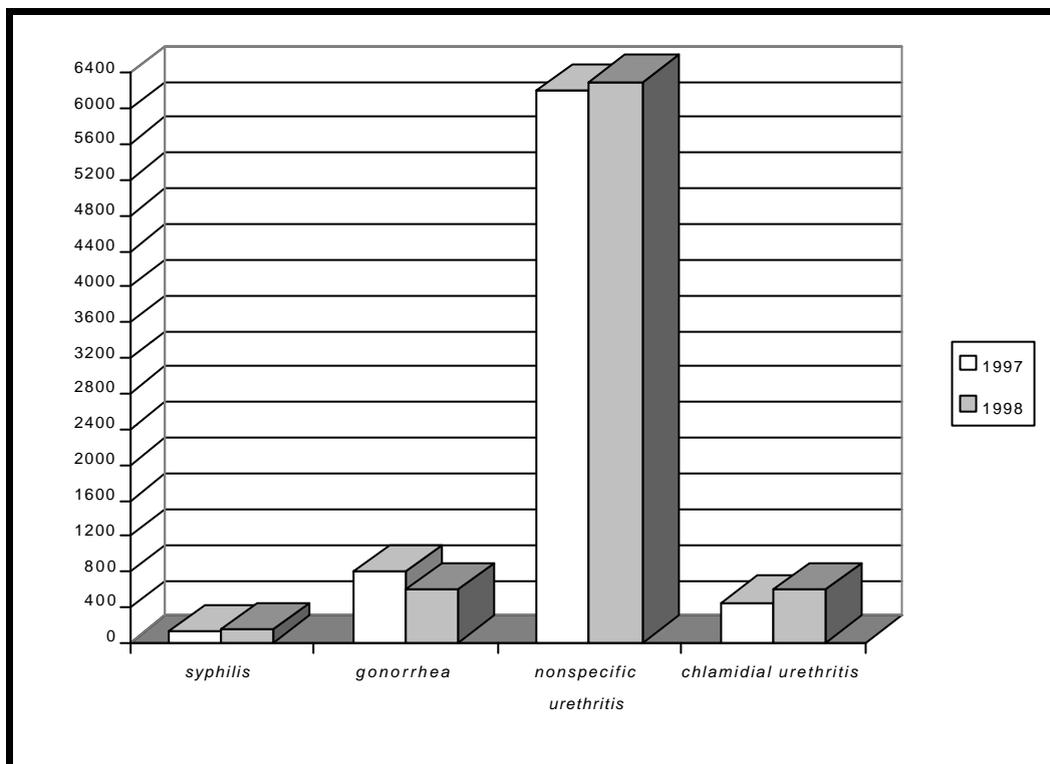
The knowledge of the questioned people was improved after the conduction of the different types of education, excluding MMEI where no effect from the education has been noticed and PEI where an improvement of the knowledge is has been noticed but the differences are not statistically significant /Tables1,2,3/. For that reason the table of PEI is not enclosed here.

The data from the mass media HIV and STD education survey /MMES/ conducted in 1998/1999 in one military units in Sofia, showed that the campaign for education introduced in the military press together with the simultaneous distribution of condoms and the consultations on STDs protection conducted in 1998 among the army personnel does not have any successful influence on the level of

knowledge about HIV/AIDS. The failure of this campaign is proved also by the data for the level of registered STD cases in the army which was used as an indirect index for the knowledge and the reduced risk behaviour /Figure 2./.

Figure 1 2

Sexually Transmitted Diseases in Bulgaria among military personnel within the period 1997-1998



The only decrease is observed in the level of gonorrhea, but it represents a small part of all STDs spread in the country. This fact is also related to its general reduction in the country and to the reduction of the pathogen circulation as well as to the presence of effective antibiotic therapy.

In general the most significant is the improvement of the level of knowledge of those educated in SEI. Second with nearly equal influence on the level of knowledge are MSEI and NGOEI while PEI

does not give a statistically significant improvement of the knowledge and MMEI can not in any way influence the health knowledge. Almost 10% from the SEI have given completely correct answers while in the other interventions this percent varies between 4% and 8%.

The percentage changes in the knowledge vary not only according to the type of the intervention but also according to the level of preliminary knowledge. The greatest changes are observed where that knowledge has been initially at a low level. For example NGOEI manages to reduce the double incorrect answers about the risk of transmitting HIV by using common public toilets, baths and pools.

The risk behaviour among the militaries is a focus of big interest concerning the planning of the education and the preventive measures. There were several questions related to the problem of risk behaviour that were included in the questionnaire. They are as follows: condom use during the last sexual intercourse, the use of preventive measures for HIV/AIDS and STDs prophylactics, the number of sexual partners during the last 12 months, the sexual experience with another man and the use of intravenous drugs during the last 12 months. The data from the answers show that during the last sexual contact a condom was used by 21.3%-41.4% of the questioned before the education and by 18.9%-48.1% of them after the education. Consequently there the differences between the prior and post intervention answers were not statistically significant. When questioned if they always use a condom, before the education between 30.5% and 31.7% give positive answers; after the education however a positive answer is given by 18%-35.2% of the questioned. Here the data ranges are also not statistically significant..

Between 6% and 22.1% of the participants in the surveys report having more than 3 sexual partners within the last 12 months. It has been very interesting to note that above 60% of the questioned in this group admit not using condoms regularly.

From 1.8% to 8.4% of the questioned report having sexual experience with another male partner. The use of intravenous drugs is reported by 2.8%-7.7% of the survey participants.

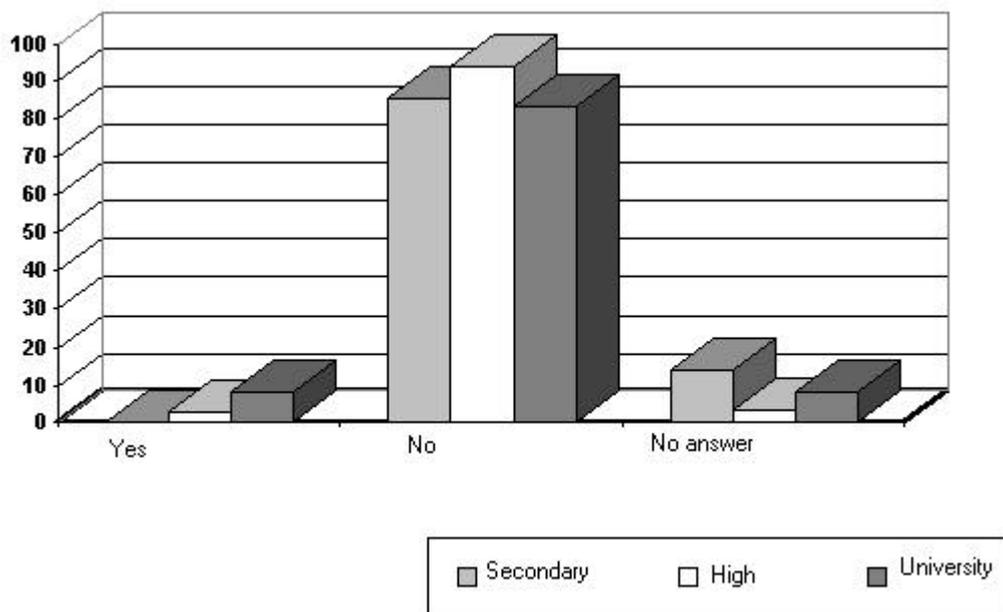
Between 4.4% and 18.7% of the questioned report having been examined and treated for STDs.

The comparison of the demographic parameters of the survey participants with risk behavior for HIV and STDs transmission indicated two risk groups: the group of the soldiers paying their service

in Sofia and living in Sofia according to the current system in the army, and the more interesting group - the group of soldiers with university education. It became clear that the people with higher education had used intravenous drugs more often, had had more sexual contacts with men /the data is statistically significant/ and more often had had 3 or more sexual partners during the last year /Figure 3,4 and 5/.

Figure 3

Relation between the level of education of the survey participants and the rate of intravenous drug use within the last 12 months



The differences are statistically significant

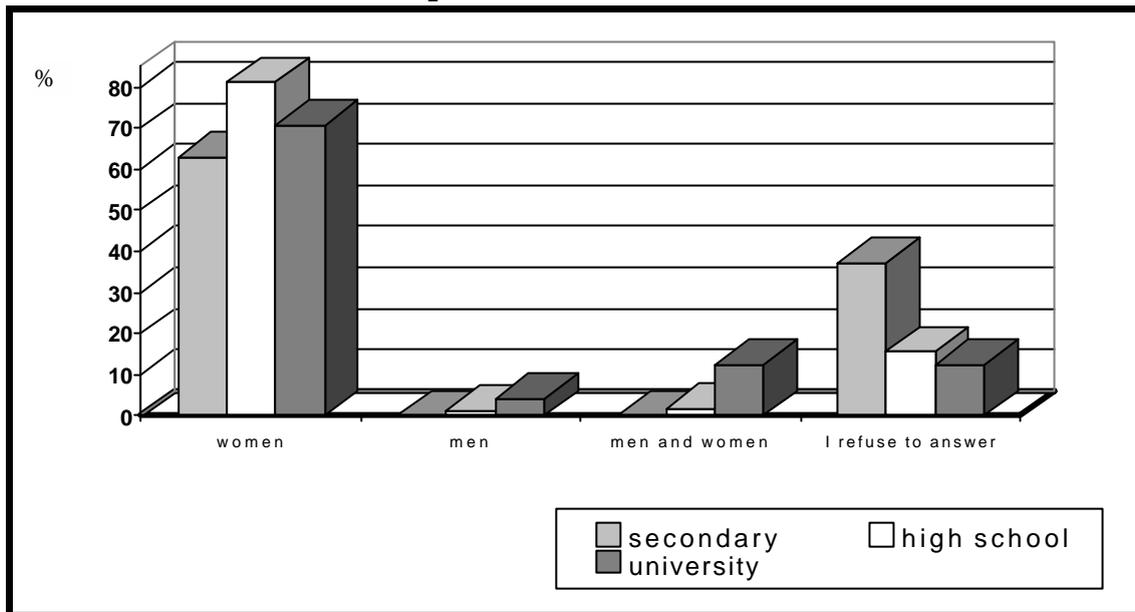
$df = 8$

$\chi^2 = 9.49$

$p < 0.05$

Figure 1 4

Relation between the level of education of the survey participants and the sexual experience with another male



The differences are statistically significant

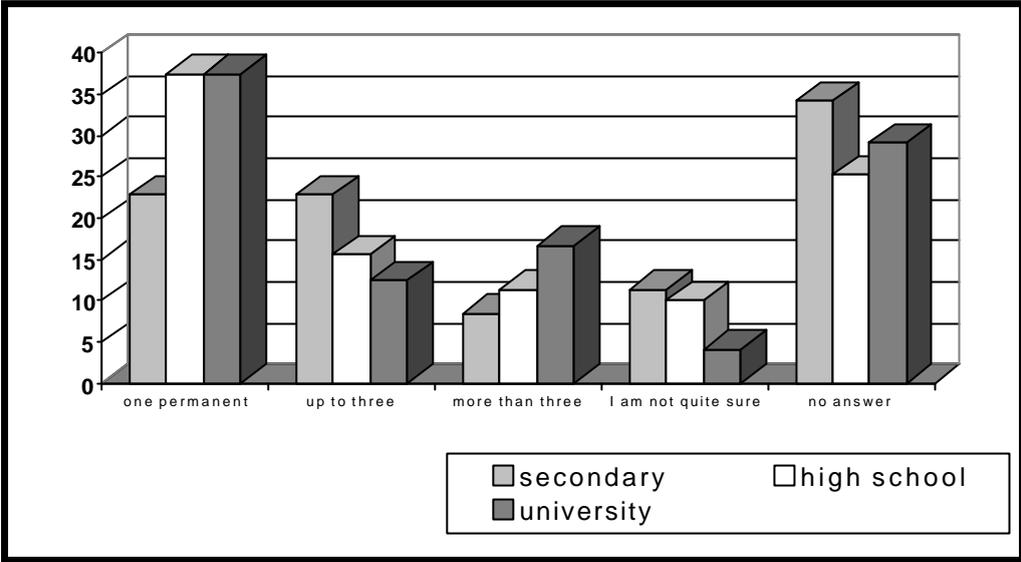
$df = 6$

$x^2 = 12.6$

$p < 0.05$

Figure 1 5

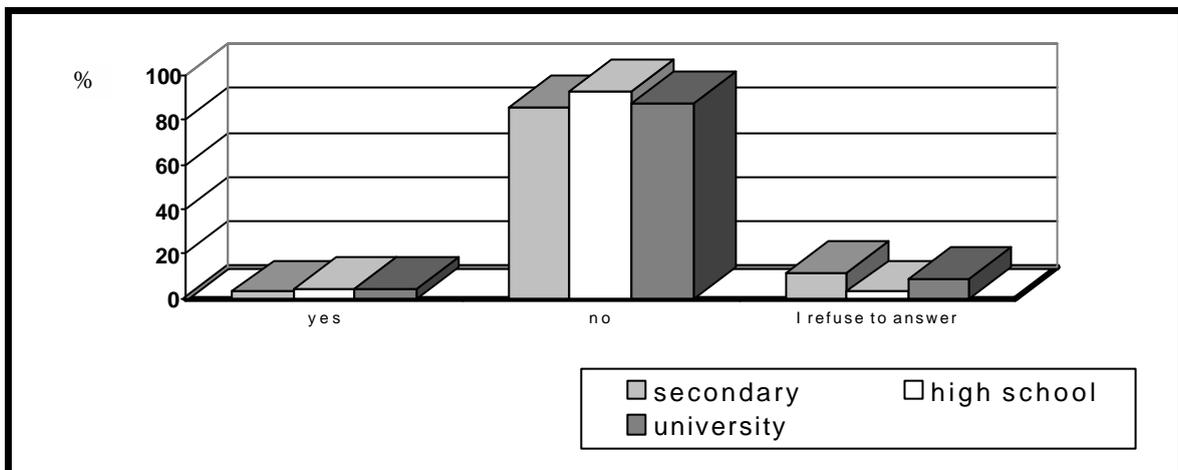
Relation between the level of education of the survey participants and the number of sexual partners within the last 12 months



At the same time those people obviously apply adequate preventive measures for the rate of the reported STD cases in this group is not higher than the rate reported in the group of people with lower education /Figure 6/

Figure 1 6

Relation between the level of education of the survey participants and the rate of sexually transmitted diseases within the last 12 months



Discussion

The results of our surveys in general and particularly the results of the 1998 survey where only 3% of the questioned reported having been educated in the army, indicate that apparently the HIV and STDs preventive education among soldiers has not been regularly applied according to the current army instruction. The results of other surveys are significantly better however it is still suspicious whether the Instructions has been adequately observed. It seems that similar problems reside in the other armies as well. In a survey performed in the U.S. army only 42% of the questioned reported having been educated at least for 1 hour during the last 12 months /27/. That data clearly manifests

the need not only of preparing and teaching new health manuals informing about HIV and STDs prevention but also the development of control system follow-up and assessment of its implementation.

The knowledge about HIV infection and the routes for its transmission which was found in the surveys prior the education could be compared with the knowledge of the Europeans from a corresponding age group. The data was established in 1995 by a EUROBAROMETER survey where between 90% and 96% of the questioned give precise answers regarding the routes of virus transmission and with the knowledge of Chinese servicemen /28/ between 76.7% to 89.5% of which give correct answers about the routes for virus transmission. The results of our survey could be also compared to results from national surveys among students in Bulgaria. The differences shown in the attitude towards the disease and while in the EUROBAROMETER survey only 14% of the young people are afraid of being infected, in our survey this percent varies between 47.0% to 79.4%.

The most worrying are the differences found out in the reporting of risk behavior of the questioned soldiers in Bulgaria and the people from the relevant age groups in the other countries. According to our results from the different surveys only 18.9%-48.1% have used a condom during the last sexual intercourse in comparison to 50.1%-70.5% of the American students /29/. Only 18.3%-35.1% of the questioned Bulgarian soldiers always use a condom in comparison to the 75% of the young Europeans who always apply preventive measures according to EUROBAROMETER survey. It seems that the specific military environment has similar influence in other armies as well. For instance /17/ informs that 42% of the military personnel during the last year of the survey report at least one highly risky episode regarding STDs. The survey indexes of risk behavior among the militaries are quite worrying having in mind the great number of people with more than 3 sexual partners during the last 12 months /8.0%-15.4%/ and the number of people using intravenous drugs /between 2.7% and 7.7%/. Those facts prove both the big potential of HIV and the other STDs infection transmission and the options for reducing the risk behavior among militaries. The philosophical issue of the influential boundaries of the education aiming to change the risk behavior

are valid only in the countries with higher level of knowledge about sexual infections prophylactics and the lower level of risk behavior popularity.

A very important epidemiological task is to identify the risk groups for a certain disease or the core group according to the current terminology. The epidemics of the STDs define the core group as a small group of people who are more active in the change of sexual partners, become infected more often and more often transmit the sexual disease to the other /30/. According to the mathematical models the control of the epidemic in the core group could significantly influence the whole epidemic manifestation of the STDs in the population. It was not very strange for us to find out that the soldiers paying their service in Sofia and most of them come from Sofia belong to the group with risk sexual behavior. It is easily explained by the fact that Sofia is a city with high STDs morbidity, the sex industry is very well developed and the drug use is widely spread.

All over the world the concentration of the risk groups in the big cities is also very high. It is more interesting to observe that the soldiers with university education also could be viewed as a risk group due to the reported higher rate of intravenous drug use and the higher number of sexual partners within the last 12 months. It is curious to note that in this group there are more people with sexual experience with another man and this could also be taken as a risk factor. A survey conducted among military personnel in Thailand indicates that 16.1% of the sexually active soldiers have had sexual contact with another man and this behavior is associated with some indicators of higher social-economic status /31/. That data should be considered in the context of a complete program for control of STDs and HIV infection in the army.

The results of the peer education intervention for improving the knowledge for STDs prevention obtained from our survey turned out to be worse than expected and worse than the results reported in other surveys /19/. The organization of the training of the educators /in our case they were mainly sergeants/ was focused mainly on the realistic approach where the training was conducted in a unified model in real conditions in which it will be used in the future i.e. in simplified conditions and very little financial support. Probably the insufficient effectiveness of this intervention in our surveys is due to insufficient qualification and selection of the educators as well as to the insufficient support of

the commanding staff because of the time consuming nature of these activities and the involvement of the lower personnel in it.

The mass media education intervention was not successful in its attempt to improve the level of knowledge about the sexually transmitted infections and their prevention among the military personnel who participated in our survey. One of the explanations for that is the change of the working conditions, where due to financial reasons since the middle of 1998 the circulation of the used newspaper was reduced and its distribution among the militaries became worse. In this way before the beginning of the intervention the newspaper was read mainly all of the militaries, but at the end of the survey it was read by less than half of them/ 32/ /Figure 7/.

Figure 1 7

***Military personnel questioned during a national survey:
Do you read “Bulgarian Army” newspaper?***



In spite of this failure we consider that the involvement of this newspaper in the educational campaign played an important role by increasing the understanding of the core of the problem by the higher officers and sergeants. It generally improved and widened the social support of the combat with HIV infection and the STDs. In the future however the involvement of the mass media in the interventions for educating military personnel must be coordinated in minute detail in order to ensure maximum number of militaries to have maximum access of the educational materials. In any case in the future program for HIV infection and STDs protection education of the military personnel we will increase the participation of the mass media.

There are numerous NGO in Bulgaria /above15/ which main activity is related to the combat with HIV/AIDS. The activity of most of them is directed towards specific groups of the population with risk behavior like: ethnic groups, drug users, prostitutes, etc. Considering the results obtained from the education, the involvement of two NGOs proved to be successful. The education itself was well accepted by the soldiers and the used methods of education accompanied by demonstrations and free discussions with external specialists turned out to be psychologically well tolerated by the soldiers. Anyway this activity should not be accepted without criticism because in Bulgaria the different NGOs have different type of funding so we have to be very cautious in their selection for a future collaboration.

The literature review gave us the chance to find an analogue of self education motivated by awarding the successful soldiers with an army leave. The idea itself came after the relative failure of the other educational initiatives and in the seek of effective model. The feasible outline came for one American Project /32/, developed in Connecticut, related to the education of drug users in AIDS prophylactic. This project used a system for financial tips for the educators in case the education proves successful. This system showed the best result in our surveys for improving the level of soldiers' knowledge about HIV and STDs prevention and turned out to be completely applicable in local conditions. That is why we do not see any obstacles for its future routine implementation in the education. In addition to that this system involves the completion of questionnaires and in this way it could be useful in the follow-up and the control of the education.

The results from our surveys on the effectiveness of the different systems for education of HIV and STDs prevention among the army, the obtained data about their effectiveness, the worrying facts about the risk behavior of the soldiers reported in the surveys, the analysis of the data from the STD surveillance indicating a considerable potential for HIV and STDs transmission among the militaries, all of the above named helped us to work out a draft for a change of the current Instructions for HIV infection prevention in the army. This draft also takes into consideration the experience of the other armies in the combat with HIV/AIDS as well as the recommendations of WHO experts. The key elements of the new Instructions are as follows:

- Optimization of the educational system by including methods for acquiring skills for proper use of condoms and for reduction the number of sexual partners. The suggested educational planning includes self education and NGO activities as soon as the soldiers enter the Centre for Recruits and an additional compulsory education after the allocation to the different units. The compulsory education is performed by the medical services and lasts 2 hours every year but the educators use educational manuals prepared by us. The military press is regulated support the realization of the preventive educational programs.
- Regulation of the engagement of civil representatives of the society /NGOs/ in the education. In this way we will provide additional social support, save military budget and intensify the intellectual potential valid in the field of soldiers' education.
- Regular provision of the soldiers with free condoms from different humanitarian donations or from charity events or selling the condoms at preferential prices with the presence of collaboration with the logistic services.
- Improvement of the counseling and voluntary testing system. The implementation of mandatory testing for HIV antibodies seems premature having in mind the low spread of the infection in the country and the fact that the voluntary blood donation is already related to compulsory blood testing and comprises a significant segment of the army population. However the existing compulsory testing of some of the contingents like the peace keeping military forces must be kept valid.

- The activities related to Promoting STD care seeking behavior have to be optimized at a hospital level and to be included as an element of the education in the different units especially when the activity is related with the distribution of condoms and acquiring skills for their proper use.
- Improving the system of surveillance of the STDs morbidity as an indicator of the effectiveness of the preventive programs in conditions of low spread of HIV infection and the development of system for evaluation, follow-up and control of the implementation of the preventive programs.
- Co-ordination of those activities with the commanding staff of different levels and with the tasks of the National AIDS program.

Basic conclusions

1. The conducted surveys indicate an insufficient effectiveness of the existing system for education of military personnel in HIV and STDs infections prevention. This is due to the low level of the military involvement in the system and to their knowledge about the routes for transmission and prophylactics.
2. There is a serious potential for sexual transmission of STDs and HIV infection based on the reported risk behavior by a considerable part of the soldiers. Only around 30% of them regularly use condoms in the epidemiological environment of continuous growth of sexually transmitted infections in the country during the last few years.
3. Our data shows mainly the need of urgent initiation of effective program for control of HIV and STDs for the army which must be supported by funding and the participation of the commanding staff in its implementation.
4. Our surveys found out some subgroups with risk behavior especially vulnerable to sexual infections. This completes the specific epidemiological characteristic of the STDs among

militaries in Bulgaria. That must be taken into consideration when developing and applying the prophylactic programs for education.

5. For the first time among militaries there has been introduced a successful and innovative system for self-education in STDs and HIV infection prevention. It involved the motivation of receiving a bonus – an army leave for all who have successfully finished the education. The success of this system is convincing and our intention is to include it in the general program for HIV infection and STDs prevention education of the soldiers.
6. The NGO education interventions in our program showed hopeful results and the future program for HIV infection and STDs prevention education of the soldiers must by all means include the participation of NGOs. They will help increase of the social perimeter attached to the combat for limitation of the spread of these infections and will attract additional funding and human resource.
7. The failure of the mass media educational intervention for improving the knowledge of the soldiers which our survey demonstrated can not be viewed as a complete flaw of that type of activity in the army. After the development of new program for distribution of knowledge about HIV infection and STDs prevention which will be used by the mass media we intend to deepen this activity and combining it with the other intervention to achieve a coherent effect.
8. The results of the peer education interventions conducted in the condition of our surveys were not very successful in the improvement of soldiers' knowledge about the prevention of HIV infection and STDs. Considering the complicated realization of this activity, the stage of the army reform development and the not yet specified structure and funding we will abstain from regulating its implementation.

Conclusion

Peter Piot, executive director of the Joint United Nations Program of HIV/AIDS points out that AIDS provide a new paradigm for the interaction between society, caregivers and public health

departments and affected communities. For that reason we believe that this paradigm is also challenging for the attitude and co-ordination between the militaries, the civil sector and the structures of the civil society. Finding the right way of interrelation between the militaries, NGOs and the mass media when completing a task of epidemiological priority, as well as the improvement of the education of the militaries in the field of HIV infection and STDs prophylactics depend on the concrete situation in every single country. Our hope is that our study has contributed to the scientific development in this field.

The contemporary method for control of sexually transmitted infections which key element is the reduction of risk behavior is based on effective and individualized for the different countries and risk groups educational systems which are in a constant process of improvement. Our surveys showed a quite hopeful and working combination of self-education, NGO education and medical service education interventions for improving the level of knowledge of the militaries and reduction of the risk behavior. The only thing left is to experiment how the new system works in practical conditions for the sake of the health and well being of the army and the whole nation.

Questionnaire of mass media HIV/AIDS education survey

Table 1

VARIABLE	VALUE	
1. Age	A/ up to 18 B/ between 18-20 C/ above 20	
2. Education	A/ secondary B/ high school C/ college/university	
3. Parents' qualification <ul style="list-style-type: none"> • mother: • father: 	A/ Secondary B/ High school C/ Graduate qualification A/ Secondary B/ High school C/ Graduate qualification	
4. Place of birth:	A/ The city of Sofia B/ Big/small city C/ Village	
5. The average monthly income of your family is:	A/ Below 100 000 leva B/ Between 100 000 and 250 000 leva C/ over 250 000 leva	

Attitude and knowledge about AIDS

QUESTION	ANSWER	
6. You have information about AIDS from:	A/ Education at school B/ Family and friends C/ Education in the army D/ Radio, television, newspapers	
7. AIDS is a contagious disease which is:	A/ Fatal B/ Serious but curable C/ Curable if diagnosed on time	Yes No Yes No Yes No
8. The period between being infected with the AIDS virus and getting ill with AIDS could be more than 10 years:	A/ Correct B/ Incorrect C/ Unable to define	
9. Keeping high temperature, sweating, unexplainable loss of weight, increased lymph nodes could be symptoms of AIDS disease:	A/ Correct B/ Incorrect C/ Unable to define	
10. The AIDS virus could be transmitted through a thong kiss:	A/ Correct B/ Incorrect C/ Unable to define	
11. Needle and syringe exchange while taking drugs could directly lead to transmission of the AIDS virus:	A/ Correct B/ Incorrect C/ Unable to define	

<p>12. How can you get infected with AIDS virus?</p>	<p>A/ By making love without using condoms</p> <p>B/ By blood donation when the blood has not been tested</p> <p>C/ By using common syringes or shaving necessities</p> <p>D/ By using common cutlery</p> <p>E/ By using public toilets, baths, swimming pools, etc.</p> <p>F/ By handshaking, friendly kiss</p> <p>G/ In childbirth when an infected mother transmits the virus to the baby</p>	<p>Yes</p> <p>No</p> <p>Yes</p> <p>No</p> <p>Yes</p> <p>No</p> <p>Yes</p> <p>No</p> <p>Yes</p> <p>No</p> <p>Yes</p> <p>No</p>
<p>13. Do you think someone could get infected with the AIDS virus in one of the following ways:</p>	<p>A/ By using common cutlery with someone infected with AIDS virus</p> <p>B/ In a swimming pool</p> <p>C/ By using a public toilet</p> <p>D/ By intravenous application of drugs</p> <p>E/ By tattooing</p> <p>F/ When bitten by bloodsucking insects /like mosquitoes, flies, etc/</p> <p>G/ By wearing clothes or sleeping in the bed of infected people</p>	<p>Yes</p> <p>No</p> <p>Yes</p> <p>No</p> <p>Yes</p> <p>No</p> <p>Yes</p> <p>No</p> <p>Yes</p> <p>No</p> <p>Yes</p> <p>No</p>
<p>14. Can our personal behavior protect us from catching AIDS?</p>		<p>Yes</p> <p>No</p>

15. Are you afraid of getting infected with AIDS?		Yes No
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Risk behavior and intention to change

16. Did you have any sexual contacts during the last three months before your army service?	A/ Yes B/ No C/ I refuse to answer	
17. How many sexual partners did you have during the last twelve months?	A/ One permanent partner B/ Up to three C/ More than three D/ I am not sure E/ I refuse to answer	
18. During the last twelve months you had sexual contacts with:	A/ Women only B/ Men only C/ Both women and men D/ I refuse to answer	
19. The last time you had sexual contact, did you use a condom?	A/ Yes B/ No C/ I refuse to answer	
20. Did you use any intravenous drugs during the last 12 months?	A/ Yes B/ No C/ I refuse to answer	
21. Did you suffer from any sexually transmitted disease during the last year?	A/ Yes B/ No C/ I refuse to answer	

22. Do you take any preventive measures against AIDS and other sexually transmitted diseases?	A/ I use condoms during every sexual contact B/ I sometimes use condoms C/ I try to have only one, permanent partner D/ I do not use any preventive measures E/ I use other measures /describe them/	
23. Do you intend changing your behaviour after the education so that you can protect yourself from catching AIDS and other sexually transmitted disease?	Yes No	
24. Do you think that the education in the army about AIDS and the other sexually transmitted disease has been successful?	Yes No	
25. Do you read “Bulgarian Army” newspaper?	Regularly Rarely Never	
26. Have you read any health articles about prophylactics of AIDS and other sexually transmitted disease published in “Bulgarian Army” newspaper?	Yes No	

* The data differences are statistically significant

Questionnaire of HIV/AIDS self education survey

Table 2

VARIABLE	VALUE	
1. Age	A/ up to 18 B/ between 18-20 C/ above 20	
2. Education	A/ secondary B/ high school C/ college/university	
3. Parents' Education		
<ul style="list-style-type: none"> • mother: • father: 	A/ secondary B/ high school C/ graduate qualification A/ secondary B/ high school C/graduate qualification	
4. Place of birth:	A/ the city of Sofia B/ big/small city C/ village	

Knowledge about AIDS

5. You have information about AIDS from:	A/ Education at school B/ Family and friends C/ Education in the army D/ Radio, television, newspapers	
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6. AIDS is a contagious disease which is:	A/ Fatal B/ Serious but curable C/ Curable if diagnosed on time	Y I Y I Y I
7. The period between being infected with the AIDS virus and getting ill with AIDS could be more than 10 years:	A/ Correct B/ Incorrect C/ Unable to define	
8. Keeping high temperature, sweating, unexplainable loss of weight, increased lymph nodes could be symptoms of AIDS disease:	A/ Correct B/ Incorrect C/ Unable to define	
9. The AIDS virus could be transmitted through a thong kiss:	A/ Correct B/ Incorrect C/ Unable to define	
10. Needle and syringe exchange while taking drugs could directly lead to transmission of the AIDS virus:	A/ Correct B/ Incorrect C/ Unable to define	
11. If you have only one sexual partner, you will not get infected with AIDS virus	A/ Correct B/ Incorrect C/ Unable to define	
12. The big number of sexual partners does not increase the risk of getting infected with the AIDS virus	A/ Correct B/ Incorrect C/ Unable to define	

<p>13. How can you get infected with AIDS virus?</p>	<p>A/ By sexual intercourse without using condoms</p> <p>B/ By blood donation when the blood has not been tested</p> <p>C/ By using common syringes or shaving necessities</p> <p>D/ By using common cutlery</p> <p>E/ By using public toilets, baths, swimming pools, etc.</p> <p>F/ By handshaking, friendly kiss</p> <p>G/ In childbirth when an infected mother transmits the virus to the baby</p>	<p>Y</p> <p>1</p> <p>Y</p> <p>1</p> <p>Y</p> <p>1</p> <p>Y</p> <p>1</p> <p>Y</p> <p>1</p> <p>Y</p> <p>1</p>
<p>14. Do you think someone could get infected with the AIDS virus in one of the following ways:</p>	<p>A/ By using common cutlery with someone infected with AIDS virus</p> <p>B/ In a swimming pool</p> <p>C/ By using a public toilet</p> <p>D/ By intravenous application of drugs</p> <p>E/ By tattooing</p> <p>F/ When bitten by bloodsucking insects /like mosquitoes, flies, etc/</p> <p>G/ By wearing clothes or sleeping in the bed of infected people</p>	<p>Y</p> <p>1</p> <p>Y</p> <p>1</p> <p>Y</p> <p>1</p> <p>Y</p> <p>1</p> <p>Y</p> <p>1</p>

15. If you want to protect yourself from getting with AIDS, which of the following measures do you have to apply:	A/ To abstain from any sexual contacts	Y
		1
	B/ To avoid casual sexual contacts	Y
		1
	C/To reduce the number of sexual partners	Y
	D/ To always use condoms	1
		Y
	E/ To get washed after every sexual contact	1
	F/ To avoid any kind of injections	Y
		1
	G/ To avoid contact with objects for common use /like door handles, public toilets, handles and seats in the public transport, etc./	Y
		1
		Y
		1

Attitudes and intention to change

16. Can our personal behavior protect us from catching AIDS?	Yes	
	No	
17. Are you afraid of getting infected with AIDS?	Yes	
	No	
18. Do you intend changing your behaviour after the education so that you can protect yourself from catching AIDS and other sexually transmitted disease?	Yes	
	No	
19. Do you think that the education in the army about AIDS and the other sexually transmitted disease has been successful?	Yes	
	No	

* The data differences are statistically significant

Questionnaire of: Comprehension between medical service and NGO education survey

Table 3

QUESTION		ANSWER		MSE	
				Before ed.	After ed.
Number of people				456	426
				%	%
1. Age	A/ Up to 18			6.2	6.2
	B/ Between 18-20			87.1	87.2
	C/ Above 20			6.7	6.6
2. Education	A/ Secondary			7.7	7.9
	B/ High school			87.1	86.7
	C/ College/university			5.2	5.3

3. Parents' Qualification	• mother:	A/ Secondary	12.0	12.0
		B/ High school	63.2	63.1
		C/ Graduate qualification	24.8	24.9
	• father:	A/ Secondary	13.8	13.7
		B/ High school	61.7	61.6
		C/ Graduate qualification	24.5	24.7
4. Place of birth:	A/ The city of Sofia	17.0	17.5	
	B/ Big/small city	76.5	76.0	
	C/ Village	6.5	6.6	
5. The average monthly income of your family is:	A/ Below 100 000 leva	42.1	42.1	
	B/ Between 100 000 and 250 000 leva	44.1	44.2	
	C/ Over 250 000 leva	13.8	13.7	

Attitudes and knowledge about AIDS

6. You have information about AIDS from:	A/ Education at school		25.4	27.4
	B/ Family and friends		27.5	32.9
	C/ Education in the army		2.3	4.6
	D/ Radio, television, newspapers		45.0	35.2
7. AIDS is a contagious disease which is:	A/ Fatal	Yes	84.6*	96.2*
		No		
	B/ Serious but curable	Yes	6.9*	1.4*
		No		
	C/ Curable if diagnosed on time	Yes	8.5*	2.4*
		No		
8. The period between being infected with the AIDS virus and getting ill with AIDS could be more than 10 years:	A/ Correct		44.4*	68.8*
	B/ Incorrect		13.3	11.4
	C/ Unable to define		42.2*	19.9*

9. Keeping high temperature, sweating, unexplainable loss of weight, increased lymph nodes could be symptoms of AIDS disease?	A/ Correct		36.7*	53.7*
	B/ Incorrect		9.8	7.4
	C/ Unable to define		53.6*	39.0*
10. The AIDS virus could be transmitted through a thong kiss:	A/ Correct		34.1*	28.5*
	B/ Incorrect		39.9*	48.1*
	C/ Unable to define		17.6*	31.6*
11. Needle and syringe exchange while taking drugs could directly lead to transmission of the AIDS virus:	A/ Correct		80.6	85.9
	B/ Incorrect		3.6	5.4
	C/ Unable to define		15.8*	8.7*
12. How can you get infected with AIDS virus?	A/ By making love without using condoms	Yes	93.6	95.8
		No		
	B/ By blood donation when the blood has not been tested	Yes	39.44*	29.0*
		No		
	C/ By using common syringes or shaving necessities	Yes	69.5*	79.6*
		No		
	D/ By using common cutlery	Yes	28.9	25.9
		No		
	E/ By using public toilets, baths, swimming pools, etc.	Yes	24.0*	14.0*
		No		
	F/ By handshaking, friendly kiss	Yes	20.9*	14.3*
		No		
G/ In childbirth when an infected mother transmits the virus to the baby	Yes	61.6	66.0	
	No			

13. Do you think someone could get infected with the AIDS virus in one of the following ways:	A/ By using common cutlery with someone infected with AIDS virus	Yes	41.1*	36.0*
		No		
	B/ In a swimming pool	Yes	27.0	21.7
		No		
	C/ By using a public toilet	Yes	30.1*	19.5*
		No		
	D/ By intravenous application of drugs	Yes	68.6*	74.6*
		No		
	E/ By tattooing	Yes	64.5*	72.5*
		No		
	F/ When bitten by bloodsucking insects /like mosquitoes, flies, etc/	Yes	14.5*	4.6*
		No		
	G/ By wearing clothes or sleeping in the bed of infected people	Yes	26.3*	20.0*
		No		
14. Can our personal behavior protect us from catching AIDS?	Yes		79.6*	90.8*
	No			
15. Are you afraid of getting infected with AIDS?	Yes		72.3*	77.7*
	No			

Risk behavior and intention to change

16. Did you have any sexual contacts during the last three months before your army service?	A/ Yes		63.1	63.1
	B/ No		18.5	18.5
	C/ I refuse to answer		18.4	18.4

17. How many sexual partners did you have during the last twelve months?	A/ One permanent partner		36.1*	54.7*
	B/ Up to three		15.9*	9.7*
	C/ More than three		11.9*	8.0*
	D/ I am not sure		10.1	8.5
	E/ I refuse to answer		26.0*	19.1*
18. During the last twelve months you had sexual contacts with:	A/ Women only		79.3*	85.9*
	B/ Men only		1.4	1.7
	C/ Both women and men		2.3	1.2
	D/ I refuse to answer		17.1	11.2
19. The last time you had sexual contact, did you use a condom?	A/ Yes		38.0*	48.1*
	B/ No		45.4*	38.0*
	C/ I refuse to answer		16.6	14.0
20. Did you use any intravenous drugs during the last 12 months?	A/ Yes		3.1	4.3
	B/ No		92.4	90.6
	C/ I refuse to answer		4.5	5.1
21. Did you suffer from any sexually transmitted disease during the last year?	A/ Yes		4.5	4.8
	B/ No		91.8	89.2
	C/ I refuse to answer		3.8*	6.0*
22. Do you take any preventive measures against AIDS and other sexually transmitted diseases?	A/ I use condoms during every sexual contact		31.7	35.2
	B/ I sometimes use condoms		25.2	25.9
	C/ I try to have only one, permanent partner		33.0	30.1
	D/ I do not use any preventive measures		7.2	7.0
	E/ I use other measures /describe them/		3.0*	1.9*
23. Do you intend changing your behaviour after the education so that you can protect yourself from catching AIDS and other sexually transmitted disease?	Yes		76.1*	83.1*
	No			

24. Do you think that the education in the army about AIDS and the other sexually transmitted disease has been successful?		Yes No	35.7*	41.6*
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* The data differences are statistically significant

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