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Knowledge, Attitude, Behavior, and Practice of the UNIFIL Peacekeepers on Human Immunodeficiency Virus

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1. Introduction

1.1 Global scenario of Human Immunodeficiency Virus (HIV) and sexually transmitted diseases

Since the first report in June 1981, the Human Immunodeficiency Virus (HIV) continues to be a serious health, social, economic and even security challenge to both leaders and populations at large (CDC, 1981). About 7000 new HIV infections occur per day, and according to the UN declaration on AIDS, in June 2011, prevention remains the corner stone of all responses to the epidemic (worldstats.htm, June 2011). Despite reports of a marked progress in stabilizing the overall growth at the global level, about 27% increase in the number of people living with HIV (PLWHIV) was recorded in ten years, 26.2 million in 1999 to 33.3 million in 2009 (UNAIDS, 2010).

It is well established that the HIV epidemic patterns vary between and within countries. They are mostly linked to paid sex, drug use, and sex between men. Countries in Eastern Europe and Central Asia reported high rates of HIV transmission in networks of injecting drug users (IDUs) and their sexual partners. In such countries, PLWHIV had almost tripled since 2000, leading to the largest regional increase (UNAIDS, 2010). In addition, the total numbers of PLWHIV in North America and Western and Central Europe kept increasing from 2001, by a rate of 30%, to reach 2.3 million in 2009. Unprotected sex between men continues to dominate the patterns of HIV transmission in these regions. Men outnumber women among PLWHIV; women comprised about 26% in North America and 29% in Western and Central Europe in 2009 (Ebrahim et al., 2005; The Well Project STD, 2009; UNAIDS, 2010).

On the other hand, sexually transmitted diseases (STDs), more than 30 different types, represent a major global health threat to all sexually active individuals including army personnel (WHO-STI, 2007; De Waal, 2010). The world statistics about STDs showed an overall worldwide increase in the rates over the years among people aged 25 years or younger from an estimate of 333 million in 1997 to 340 million in 1999 new cases (Adib et al.,

2002). These infections have predominantly increased among young people and are correlated with a marked increase in sexual promiscuity in the past 30 years.

However, racial, ethnic and regional disparities persist. The complications of these diseases underscore their burden and impact on society. Consequences of undiagnosed and untreated STD's include adverse pregnancy, infertility, cancers of the reproductive tract, and increased likelihood of HIV acquisition and transmission (Gaydos et al. 2000; WHO-STI, 2007). Multiple studies have also demonstrated that HIV epidemic has become intimately associated with the increased transmission of other STD's, both biologically and behaviorally (STDstatisticsworldwide, 2011; Lazenby, 2011). The gravity of the situation necessitated the international health agencies to establish the month of April 2011 as the STD awareness month. It aimed to promote STD testing among young people and encouraged them to talk to their partners, health care providers, and parents about STD prevention (Bolan, 2011).

1.2 HIV/AIDS and sexually transmitted infections in the Middle East and North Africa region

Despite a fair amount of progress on understanding HIV and STDs epidemiology globally, knowledge of the epidemic continues to be very limited in the Middle East and North Africa (MENA) region. It has already reached all corners of the region and IDUs, men who have sex with men (MSM), and female sex workers (FSW), are documented to exist in all MENA countries (Abu-Raddad et al., 2010).

There is an increase in the numbers of PLWHIV from 2001 (180,000) to 2008 (310,000) and to 2009 (460,000) with a doubling of the average incidence from 0.1% in 2001 to 0.2% in 2009. In addition, 26,000 young people in the MENA region acquired HIV in 2009 (UNAIDS & WHO Report, 2008; UNAIDS, 2010)

Other reports showed that the prevalence of HIV in the MENA region has witnessed an increase and heterosexual transmission accounted for 80% of the cumulative total number of reported AIDS cases, while the use of non-sterile needles among injecting drug users accounted for 10%. On the other hand, transmission through blood and blood products decreased from 12% in 1993 to 0.4% in 2003 (Kim, 2002; UNAIDS & WHO Report, 2008).

Moreover, for the MENA region, an increase in STDs can be expected as provision of education and services to both young men and women are inadequate. Studies have shown moderate to high incidence rates of males engaging in sex before marriage, starting very early in adolescence, and in extramarital sex, with data indicating rates of 56.6% and 20.8%, respectively (Tawilah et al., 2002). Furthermore, other data sources showed moderate to high frequency for commercial sex work at 47.2%; moderate prevalence for men who have sex with men at 18.9%; and a close frequency for injecting drug users at 22.6% (Abu Raddad et al., 2010).

1.3 HIV/AIDS and STDs in Lebanon

In Lebanon, the number of reported HIV and AIDS cases has been steadily increasing since 1984, when the first AIDS case in the country was reported (Mokhbat et al., 1985). While the first cases of HIV/AIDS were diagnosed among emigrant Lebanese men visiting or

returning home, recent data indicated that local transmission and spread of the disease were increasing and becoming a significant mode of disease acquisition, accounting for almost 29% of the HIV/AIDS cases in the country. By 2010, a cumulative number of 1,354 cases were reported to the National AIDS Program (NAP), with 83 new cases diagnosed and reported in 2009. About half of the newly reported cases were in the AIDS stage, which highlighted the late diagnosis of the disease in Lebanon and, hence, the need to encourage early detection, and to promote early testing. It is also noteworthy that women constituted around 11% of the reported cumulative cases and 37 per cent of the newly reported cases in 2009, which indicated an increasing incidence of HIV/AIDS among the Lebanese women population (NAP website, 2011).

Sexual relations remain the major mode of HIV transmission in Lebanon, accounting for 76.3 per cent, with heterosexual and homosexual relations accounting for 64.4% and 19.35%, respectively. Although testing of transfused blood for HIV has been mandatory since the 1980s, 6.4% of the HIV/AIDS cases have resulted from blood transfusion, which might be related to transfusions received prior to the implementation of universal blood screening. Other modes of HIV transmission in Lebanon included intravenous drug use, accounting for 6%, and mother-to-child transmission, accounting for 2%. It is noteworthy that an increasing trend of newly reported infections was noticed among the young population aged between 15 and 29 years, compared to a horizontal trend in other age groups (NAP website, 2011).

Concerning STDs, several published and unpublished reports on STDs in Lebanon were identified and reviewed; however, the overall approach is still fragmented and not comprehensive. Some reports showed that the rate of self-reported STDs was 11.5% in 2004, with only 35% of them seeking medical treatment (Kahhaleh et al., 2009). A cross-sectional study of 118,230 endocervical swabs from Lebanese women attending clinics and hospitals in five districts of Lebanon, over a five-year period 2002-2005, showed: (a) a rise in frequencies of abnormal Pap tests by 12.2%, (b) a 6.7-fold increase of the diagnosis of atypical squamous cells of undetermined significance (ASCUS), and (c) an increase of bacterial vaginitis by 1.4% (Karam et al., 2005).

1.3.1 Knowledge, attitudes, beliefs and practices of the Lebanese youth regarding HIV/AIDS and STDs

In Lebanon, several knowledge, attitude, beliefs and practices (KABP) studies regarding HIV/AIDS including STDs have been conducted among different groups. Such studies targeted the general population, the Lebanese Army, the Military Academy, the out of school youth, as well as, school students among others. They showed various levels of deficiencies in knowledge about modes of transmission and of prevention along with a wide range of misconceptions and risky sexual practices (Jurjus & Tohme, 2008). In this chapter, only one selected study pertaining to out-of-school youth groups, in the region of the United Nations Interim Forces in Lebanon (UNIFIL) will be highlighted.

This study conducted by Jurjus and Watfa in the South, in the aftermath of the July 2006 war, revealed that 30% of the targeted youth were unaware of HIV or AIDS, with higher proportions among girls than boys. Few knew that persons living with HIV/AIDS can

look healthy and are therefore difficult to identify by just their physical appearance. Over half of the respondents could list at least two modes of transmission, including blood and sexual relations with commercial sex workers. On the other hand, high rates of misconceptions about transmission were revealed. Very few had an adequate knowledge about prevention measures, with the majority stressing cleanliness and testing of blood as important preventive measures, while only some mentioned condoms or abstinence. It is to be noted that peer pressure was a major driver for sexual activities. Young girls were at a higher risk, being in a disadvantaged situation as they perceived sex as doing whatever their partner wanted. They were unequipped with skills to negotiate condom use or refuse coerced sex. Moreover, girls in that region showed signs of depression, anxiety and lack of security. On the other hand, a majority of 60%, mainly boys, engaged in casual sex at a very early age and as many as 40% believed that anal sex was a safe practice (Jurjus & Watfa, 2008).

1.4 STDs, HIV and the army

STDs have continuously posed a significant health and security threat, and an important challenge, to military personnel throughout history (Gaydos et al., 2000). Several reports have been published regarding outbreaks of sexually transmitted diseases in armies. Such outbreaks were devastating and sometimes were determining factors for the gain or loss of a war, in particular, before the discovery of antibiotics in the nineteen forties (Emerson, 1997).

The first well recorded outbreak of STDs among the military occurred among French troops, besieging Naples, in 1494, and killing more than 5 million people across Europe (Oriel, 1994). Another serious situation occurred at the siege of Nuremberg, between 1632 and 1648; there were about 40,000 soldiers in the Bavarian Armies compared 140,000 prostitutes and camp followers. This increase in transactional sex in the armies has led a French general to say that prostitutes “killed ten times as many men as enemy fire” (Greenberg, 1972).

In the USA, medical records from the revolutionary war indicate that STDs had a remarkable impact in term of lost person-days among members of the Continental Army. In 1776, venereal shancres, genital ulcers and gonorrhea were described by the Swedish physician Van Swieten in a book on STDs “Published, for Use of Military and Naval Surgeons in America” (Kampeier, 1982; Rasnake, 2005). During World Wars I and II the high rates of syphilis among draftees led to deferral of a large number of military personnel. However, there was a decreasing prevalence of 4.5% in 1942 due to the Penicillin therapy. On the other hand, during the Korean War in Southeast Asia, there was a surge in gonorrhea rates, they accounted for 75% of all STDs diagnosed. The rates reached as high as 500 cases per thousand person-years (py). Moreover, in 1965, troops in Vietnam were experiencing more than 300 cases of gonorrhea per 1000 py, and in Thailand 500 cases per 1000 py (Gilbert and Greenberg, 1967). In 2008, data from 21 African military forces showed that HIV prevalence was elevated compared to the general population (Ba et al., 2008).

War and deployment of army personnel, especially in foreign countries, as peacekeepers or otherwise have put soldiers at risk for contracting STDs, mostly gonorrhea, syphilis and

HIV. Today gonorrhea and syphilis are curable diseases, they rarely cause significant morbidity or lost duty time. HIV, however, represents a grave threat to infected army members and is being aggravated by the likelihood of HIV/STDs co-infection (Ebrahim et al., 2005; Lazenby, 2011).

HIV, first reported in 1981, is being considered as a significant threat to armies. In 1984, the first recognized military HIV case was recognized in a US Army recruit. He was diagnosed and died 18 months later. In 1985, in the USA, a policy was formulated whereby all recruits were tested upon entry into military service. Personnel testing positive, and were already on active duty, were retained but prohibited from overseas assignments and deployments. The army rate declined from 0.43 sera conversion per 1000 per year (py) in 1985 to 0.08 per 1000 py in 1999 and currently stands about 0.08 per 1000 py. Contact with commercial sex workers was identified as a common risk factor among certain army groups. Actually, the global movement of army personnel broadens the variety of HIV strains to which service members are exposed; from Thailand, Iraq, Afghanistan, Kenya, Uganda, and other countries. Several studies emphasized the importance of “bridge population” in the spread of such infectious diseases (Rasnake et al., 2005; kershaw, 2008; De Wall, 2010; UNAIDS, 2010).

Two remarkable events have impacted the history of STD; the use of Penicillin in the mid forties and the reporting of HIV/AIDS in the early eighties. Experts in the field divided the history of STDs in the military into five periods. The first included the period of European Sieges and American Revolution up to 1909, the beginning of the twentieth century. It was a time when STDs were deplored and affected people stigmatized. The second period goes from 1909 to 1945. During this period, scientific knowledge and palliative treatment have flourished but not enough to cure STDs. It was not until the third period began in 1945, when the use of penicillin provided cure and other approaches to control STDs were questioned. However, the reporting of HIV in the early 1980s opened a new fourth era. During this period, new and old STDs coming from bacteria, viruses, parasites and others were relatively easily detected and screened. After the nineties, a modern era started with the advent of diagnostic molecular techniques allowing less invasive or noninvasive screening of new recruits for asymptomatic STDs and HIV and the use of new generations of drugs for cure and therapy (Gaydos et al., 2000; Rasnake et al., 2005).

Recent data show that HIV and STDs prevalences among armed forces are complex and highly variable, sometimes comparable and most of the times significantly elevated compared to the general population (Bazergan 2006; Ba et al., 2008). Actually, the prevalence differentials within armies, among armies and between armies and the civilian population depend upon multiple factors, including the demographic composition of armed forces, alcohol and drug use, local versus foreign military deployments, ethos, military policy regarding HIV and STDs in general, and availability and effectiveness of health services and prevention programs. In some cases, the behavior of young, sexually active soldiers may be governed mostly by peer pressure. In some other cases, soldiers are inducted into hyper-masculine cultures that reward risk taking, in which sex is considered a sign of virility or a compensation for the lack of emotions of professional military life (Shuper et al., 2009; Baliunas et al., 2010; UNAIDS, 2010). Moreover, soldiers deployed in foreign countries are often well paid, sometimes lonely and bored. They may attract surrounding civilian populations as well as sex workers, a situation that could lead to higher levels of transactional sex (Family Health International, 2005; Baliunas et al., 2010; UNAIDS, 2010).

Through the years, data show that STDs and HIV rates continue to rise dramatically in the military. In 2006, comparative studies of sexual behavior in Europe and the USA have shown that military personnel, both career and conscripted soldiers, have a much higher risk of HIV infection than groups of equivalent age and sex in the civilian population. Armed forces in other parts of the world like Angola, India and Uganda reflect the same phenomenon. A 1995 estimate of HIV in Zimbabwe, for instance, place the infection rate for army personnel at three to four times higher than that for the civilian population (Bazergan, 2006; European Center, 2009; UNAIDS, 2010).

The history of STDs and HIV in the military has largely focused on infection acquired by men while deployed. However, the expanding role of women in the military service added a new variable to this equation, the impact of which will be known only with time. HIV and STDs affect both men and women, but in many cases, the health problems they cause can be more severe for women. In this regard, a number of UN resolutions have addressed this topic and included gender sensitive issues in their policies (UN, 2000 resolution 1325; WHO & Global Coalition on Women and AIDS, 2004; UNFPA-Fact sheet, 2009).

1.5 HIV as a global security issue

At the turn of the millennium, the United Nations Security Council felt the global gravity of HIV/AIDS and considered it as a major public health issue and a potential threat to international peace and security (Barnett & Prins, 2006). They were partly driven by fears of high disease burdens and the attrition of military human resources. There was also a specific concern with peacekeeping, emphasizing the threats posed by HIV and AIDS to peacekeepers and peacekeeping operations, and the fear that peacekeepers might become vectors to HIV transmission (Barnett & Prins, 2006; Kershaw R, 2008). As a result, the Security Council affirmed its commitment by the resolution 1308 adopted in the year 2000, and reaffirmed a stronger commitment at multiple occasions, and most recently in 2011 by unanimously adopting the 1960 resolution encouraging more the inclusion of HIV prevention, treatment, care and support, as an integral part of peace-keeping mandates. They conceived the UN troops as part of prevention and care rather than vectors of HIV and STD transmission to civilians, especially that such troops are being involved in community based programs and interventions (Sing & Banerjee, 2006; UNAIDS Global Report, 2010; UNDP, 2010).

The consecutive commitments were adopted in response to a surge in peacekeeping, and an increase in numbers of unstable locations which have required a significantly increased deployment of peacekeepers around the world. In 2000, the number of peacekeepers worldwide was 37,000, but by 2011, there were 98,837 international peacekeepers. This increase has been matched by a growing number of countries contributing troops, up to 115 countries. Among these, some countries have HIV prevalence higher than 1% in the general population. Consequently, the percentage of international uniformed personnel reported to be living with HIV varied between missions and was in the range of 1.0% to 2.4%. Available data from selected countries indicate that the HIV prevalence varied from a low of 0.6% among recruits in Vietnam to 10.1% for recruits in Equatorial Guinea (Whiteside et al., 2006; Bing et al., 2008; Lowicki-Zucca et al., 2009; UNAIDS Global Report, 2010).

A 2007 survey of 48,116 peacekeeping personnel in three missions found that, from August 2001 to June 2007, 25 peacekeepers from the three missions had died from AIDS-related causes, and 105 had been repatriated for HIV-related reasons. Most of these repatriations were from two troop-contributing countries that did not practice pre-deployment HIV testing; only 3 were women (UNAIDS, 2011).

Nowadays, it is well known that the HIV prevalence within the uniformed services is related to a range of factors and increases with age, time in service, the maturity of the epidemic, the repertoires of violence, and the policies and activities of the command (AIDS, Security and Conflict Initiative, 2011). Surveys are planned or underway in 22 countries, they should help provide a more complete picture of the HIV epidemic among military populations by the end of 2011 (United States Department of Defense HIV/AIDS Prevention Program, 2011).

This chapter comes at a time when the global AIDS response is at a crossroads. It has been 30 years since the AIDS epidemic was first reported, and 10 years since the United Nations Security Council adopted the resolution 1308 on HIV/AIDS. Since then, significant progress has been made in providing access to HIV prevention, treatment, care and support services for all sections of society, and more so for peacekeepers and other uniformed services personnel. This chapter reviewed briefly the status of HIV and STDs in the army, in general, and UN forces, in particular. It also reported the results of a KAP survey targeting the UNIFIL in Lebanon regarding HIV, STDs, and gender sensitive issues.

2. Methods

2.1 Instrument

The study took place between 2007 and 2008 after approval of the institutional research board of the Lebanese Health Society. The instrument was a self-administered anonymous locally developed questionnaire, available in three languages, (English, French and Arabic), and distributed to six contingents. It consisted of seven sections and a total of 53 questions. It was modified and several sensitive questions, pertaining to sexual practices and STDs, although very relevant, were omitted after recommendations from the UNIFIL chief medical officer, the UNIFIL medical planning officer, and the medical officers within the selected contingents. The final questionnaire included the following seven sections:

Section one collected socio-demographic data (age, gender, nationality, marital status, educational level and military rank) as well as information on deployment history. Section two addressed, through a mixture of open-ended and closed ended questions, the general knowledge of the respondents regarding HIV/AIDS, prevention and transmission methods, the attitudes towards people living with HIV, and their perception of their own risk to catching HIV. Section three assessed the use of condoms, inquired about the availability and previous exposure to female condoms. Section four measured the frequency and amount of alcohol drinking and its association with engaging in sexual relations under influence. Section five assessed the health seeking behavior of UNIFIL forces in case of a suspected STD as well as previous history and attitude towards testing for HIV, and receiving counseling. Section six assessed the knowledge of UNIFIL members about the local population, the status women, and about problems faced by UNIFIL members when communicating with women. Section seven asked about the preferred sources of

information on STDs including HIV, and inquired about the trust of UNIFIL members in Peer Leaders. This section also asked about previous training on HIV/AIDS before deployment and knowledge or hearing about the UNSCR 1308 and 1325.

2.2 Target population and sample size

The target population consisted of countries being able to speak English, French or Arabic as identified following a consultation with UNIFIL commanders. The sample size was calculated using a probability sample proportional to the total number of selected troops and based on their age, gender, and rank distribution. A total sample size of 200 individuals was targeted. It represented 8.5% of the total number of troops included in the study (N=2335). The questionnaires were randomly distributed by the medical components of each battalion and were handed back, two weeks after distribution for cleaning and data entry.

2.3 Data analysis

Frequency distributions were performed for all the variables and mean and standard deviations (\pm SD) were computed for age. Significant findings by nationality were also highlighted, where appropriate, and chi-square tests were used to report associations between categorical variables such as frequency of alcohol drinking and frequency of engaging in sexual relations under influence. The statistical package for social sciences (SPSS) v.16 was used for data entry and analysis. A p-value <0.05 was considered statistically significant.

3. Results

3.1 Peacekeepers profile

A total of 200 members of the UNIFIL peacekeepers proportionately distributed among six battalions from 5 different countries were selected for the study. The overall response rate was 94% with wide disparities between the battalions.

Table 1 depicts the general socio-demographic characteristics of the respondents. The mean age of the respondents was 28.4 ± 7 , ranging between 19 and 51 years old. The majority (60.3%) were young adults aged between 20 and 30 years old. Men constituted almost 77.84% of the study sample. The sample size was proportionately distributed along the different nationalities and battalions with the (As) constituting half of the sampled respondents and the other nationalities having a close distribution about 13%, with a 7% for the (Es), it is connected to their low response rate. Almost half of the respondents were single while more than one third (36%) were married, and the rest being either divorced, widowed or living with a partner. Overall, 16.3% had some kind of university education including military academy, however, rates varied between 3.6% among the (Bs) and 35.6% among the (Es) with the rest having prevalence rates of university education close to the overall percentage. Almost 40% of the respondents did not complete their high school education with the highest rates being among the (Bs) (85.6%) and the lowest among the (Es) (0%).

Characteristic	Number (n=189)	Percentage
Gender		
Men	147	77.8
Women	28	14.8
Unspecified	14	7.4
Age		
mean ± SD	28.4± 7	
19-24	59	31.2
25-29	55	29.1
30-40	42	22.2
41-51	13	6.9
unspecified	20	10.6
Nationality		
A	96	50.8
B	28	14.8
C	25	13.2
D	23	12.2
E	14	7.4
Unspecified	3	1.6
Marital Status		
Single	92	48.7
Married	69	36.5
Divorced	12	6.3
Widowed	1	0.5
Unspecified	15	7.9
Educational Level		
Incomplete high school	67	36.6
Completed high school	48	26.2
Specialty education (vocational or technical school)	38	20.8
Military academy	9	4.9
Incomplete university	13	7.1
University & higher	8	4.3
Military Rank		
Soldier	111	59.4
Non-commissioned officer	28	15.0
Warrant officer	31	16.6
Officer	15	8.0
Unspecified	2	1.1

* Sometimes numbers do not add up to 189 because of missing responses

Table 1. General socio-demographic characteristics of UNIFIL respondents.

All military ranks were represented based on a proportionate distribution with soldiers constituting 60% of the respondents, non-commissioned officers (15%), warrant officers (16.6%), and the rest were just officers.

The majority of the respondents (70%) have been present in Lebanon for one to three months and more than half will be staying in Lebanon for more than four months. Almost 20% of the respondents were previously deployed on a United Nations Peacekeeping mission overseas with 60% of them having served in at least one mission (Table 2).

Characteristic	Number	Percentage
Presence in Lebanon		
Less than one month	38	20.5
One to three months	127	68.6
Four to six months	12	6.5
More than six months	8	4.3
Duration of stay		
Less than one month	4	2.1
One to three months	80	42.6
Four to six months	103	54.8
More than six months	1	.5
Previous UN deployment overseas		
Yes	37	19.7
Number of missions		
One	22	59.5
Two	8	21.6
Three	5	13.5
≥ Four	2	5.4

* Sometimes numbers do not add up to 189 because of missing responses.

Table 2. Deployment history in Lebanon and overseas.

3.2 Knowledge about HIV/ AIDS

The survey measured levels of knowledge through a series of open-ended (unprompted) questions and close-ended questions (yes, no, don't know) to asses knowledge on prevention and transmission methods as well as misconceptions regarding transmission of HIV. Based on the close-ended questions (Table 3), the majority (88.9%) of the respondents knew that AIDS is caused by a virus. However, half of them did not know that AIDS and HIV represent different stages of the disease. More than 80% agreed that condoms and staying faithful to one uninfected partner can protect from HIV infection, and almost 90% approved that using non-sterile needles might transmit HIV. Nevertheless, 47.6% did not know that HIV could be transmitted by an infected mother to her baby during breastfeeding. Regarding knowledge about HIV cases in Lebanon, the vast majority (70.1%) had no idea about the status of HIV/ AIDS in the country.

	Yes	No	Don't know
AIDS is caused by a virus	88.9	4.8	6.3
HIV and AIDS are the same thing	50.8	41.2	8.0
Lebanon is known for not having reported/ registered any HIV infection	4.8	25.1	70.1
It is possible to protect yourself from HIV infection by using condoms during sexual contacts	82.4	10.7	7.0
People can get an HIV-infection by using non-sterile needles for injections	89.9	7.4	2.6
HIV-infected woman can pass on the virus to her newborn baby during breastfeeding	52.4	29.1	18.5
An HIV-infected UNIFIL soldier can be legally dismissed from the military service	33.2	31.0	35.8
Staying with one faithful partner who is not infected is one of the ways to prevent HIV infection	83.4	11.8	4.8
Do you think there is a cure for HIV/ AIDS?	8.5	79.3	12.2
Can you tell whether a person is infected with HIV by just looking at him/ her?	4.8	88.3	6.9

Correct answers are written in blue while noteworthy incorrect answers are written in red.

Table 3. Knowledge of HIV/ AIDS (%).

In addition, almost all the respondents did not have a clear idea about the legal procedures followed if a person is known to be infected with HIV among peacekeeping forces as only 31% knew that an infected UNIFIL soldier cannot be legally dismissed from the military service (Table, 3). The majority, 79.3%, knew that HIV/AIDS cannot be cured; and about 12% incorrectly answered the question regarding the ability to recognize a person living with HIV from his/her appearance. Furthermore, participants were asked whether they believe that women are at a higher risk of exposure to HIV infection compared to men. Only a minority of the respondents (16.1%) knew that women are at increased risk for becoming infected with HIV and few (6/189) could mention the correct reasons behind the increased vulnerability of women including physiological reasons, rape, and inability of women to negotiate condom use.

In unprompted questions, 72%, 39%, and 24% of the respondents, respectively, stated condoms, abstinence and staying faithful to one partner as modes of prevention from HIV (Fig. 1). Using sterile needles and avoiding drug use was mentioned by 33% of the respondents while avoiding contact with blood products and transfusions was identified as a prevention measure by only 24% of the respondents. Only 32.8% of the respondents correctly listed three prevention measures while 39.7% knew only two prevention measures, and 11.1% did not know any prevention measure from HIV (Fig. 2).

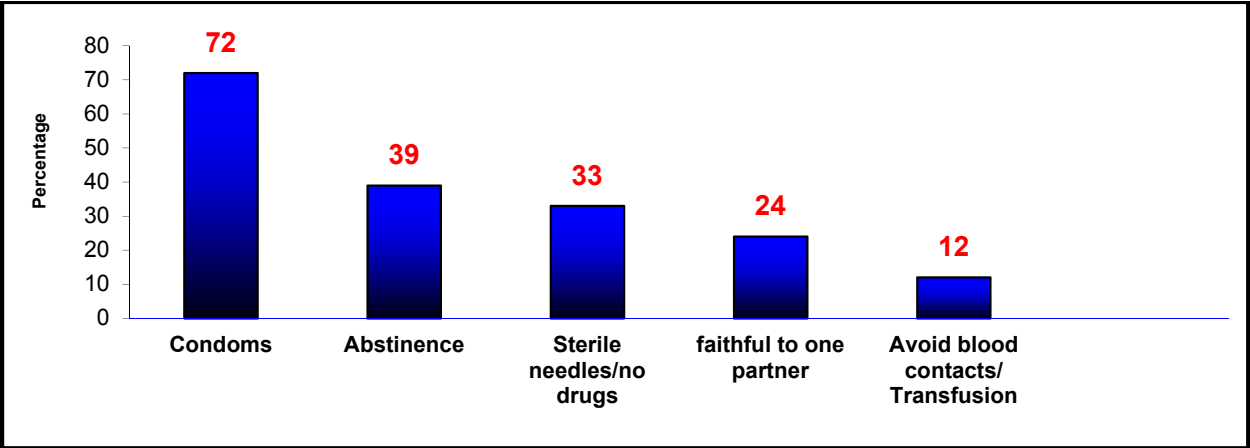


Fig. 1. Prevention methods from HIV/AIDS as listed by respondents (%).

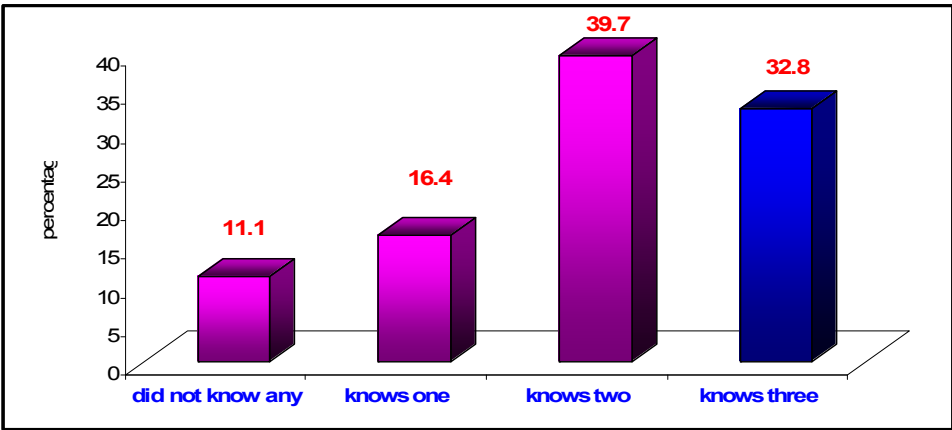


Fig. 2. Distribution of the total number of correct prevention measures listed (%).

Concerning modes of transmission, as depicted in Fig. 3, the vast majority (91%) listed unprotected sexual relations, while 62.2% mentioned infected blood and 57.5% use of non-sterile needles as modes of transmission. It is noteworthy that only 7.4% listed mother to child as a means of transmission.

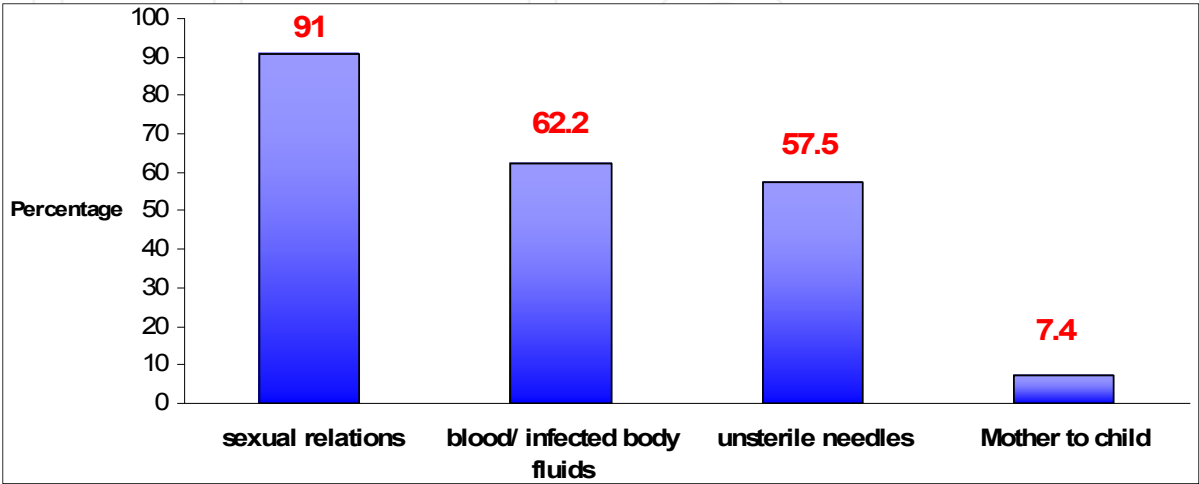


Fig. 3. Transmission methods of HIV as listed by the respondents (%).

Overall, only 48.1% of the respondents correctly listed three transmission methods while 31.7% and 7.4% knew two or one transmission method, respectively, and 12.7% of the respondents did not recognize any transmission method.

Concerning the misconceptions regarding HIV/AIDS transmission, a high prevalence was noticed among the respondents (Table 4). More than one third believed that mosquitoes and drinking contaminated water could transmit HIV; almost one fourth thought that HIV could be transmitted by sharing food or use of public toilets, and 15.3% assumed that HIV could be transmitted by sharing plates and dishes with an infected person. In addition, a common belief was that frequent testing of oneself and partner for HIV is a way of prevention which denotes the false perception that testing is a solution and highlights the fact that many do not know that the HIV test is negative for the first 6 weeks after the infection although the person is highly infective at this stage.

In brief, a comprehensive knowledge of HIV/AIDS was assumed to be present when all the following criteria were met: (a) Having at least 5 correct answers on the closed-ended questions, (b) Correctly stating three prevention measures against HIV, and (c) Rejecting four misconceptions regarding HIV transmission.

	Yes/ Don't know	No
One can get an HIV infection when bitten by mosquito	35.9	64.2
People can get an HIV-infection by sharing plates and dishes with an HIV-infected person	15.3	84.7
You can protect yourself from HIV-infection by avoiding public toilets	24.4	75.7
People can protect themselves from HIV-infection by avoiding sharing food with a person who has HIV	23.3	76.7
People can protect themselves from HIV-infection by avoiding drinking contaminated water	36.7	63.3

Table 4. Misconceptions regarding HIV/ AIDS transmission (%).

In total, 61% of the respondents had a comprehensive knowledge about HIV/AIDS. However, rates significantly varied between nationalities as the (Cs) had the highest rates of knowledge (92%), while only 39.3% of the (Bs) had good knowledge. Concerning other nationalities, rates of good comprehensive knowledge were 69.6%, 58.3% and 57.1% for the (Ds), (As) and (Es), respectively.

3.3 Attitudes towards people living with HIV

Almost 40% of the respondents believed that persons living with HIV should be allowed to keep their work in the UNIFIL, while 32% did not believe so, and almost 20% did not know what would be the appropriate decision. Significant variations in the attitudes towards people living with HIV were noted between nationalities (p<0.001). The (Bs) had the least favorable attitudes as 85.7% of them believed that an HIV infected UNIFIL member should not be allowed to continue his/her work, while 74% and 70% of the (Ds) and (As), respectively reported that a UNIFIL member living with HIV should be allowed to keep his/her work. The (Es) and the (Cs) who had a positive attitude towards UNIFIL members

living with HIV reached 57% and 32%, respectively. In addition, more than two thirds of the respondents (72%) reported that persons living with HIV should reveal their disease status with (Es), (Ds) and (Cs) having the highest rates ranging between 83% and 93%. On the other hand, almost half (46.6%) of the (Bs) agreed that people can keep their infection secret compared to an overall rate of 12.4% reported by the total sample.

3.4 Risk perception

About half of the respondents (44.6%) considered themselves to be at no risk of acquiring HIV (Fig. 4), while almost one third classified themselves to be at low risk, and almost 15% considered themselves to have a moderate or high risk of acquiring HIV.

Risk perception significantly ($p<0.001$) varied by nationality with two thirds (65.2%) of the (Ds) and more than half (57.1%) of the (Es) perceiving themselves at no risk, and low risk, respectively. On the other hand, 72% of the (Cs) tended to classify themselves at risk for acquiring HIV and almost one third of the (As, Bs and Es) considered themselves at high risk of catching HIV.

The majority of the (Ds) and (Es) reported that UNIFIL members are at no risk for HIV infection which agrees with the distribution of self-perception of risk reported. Similarly, the (Cs) and (Bs) had almost the same rates of perceived risk of UNIFIL members and self-perceived risk towards HIV infection with (Cs) reporting the highest risk (72%) (Fig. 5).

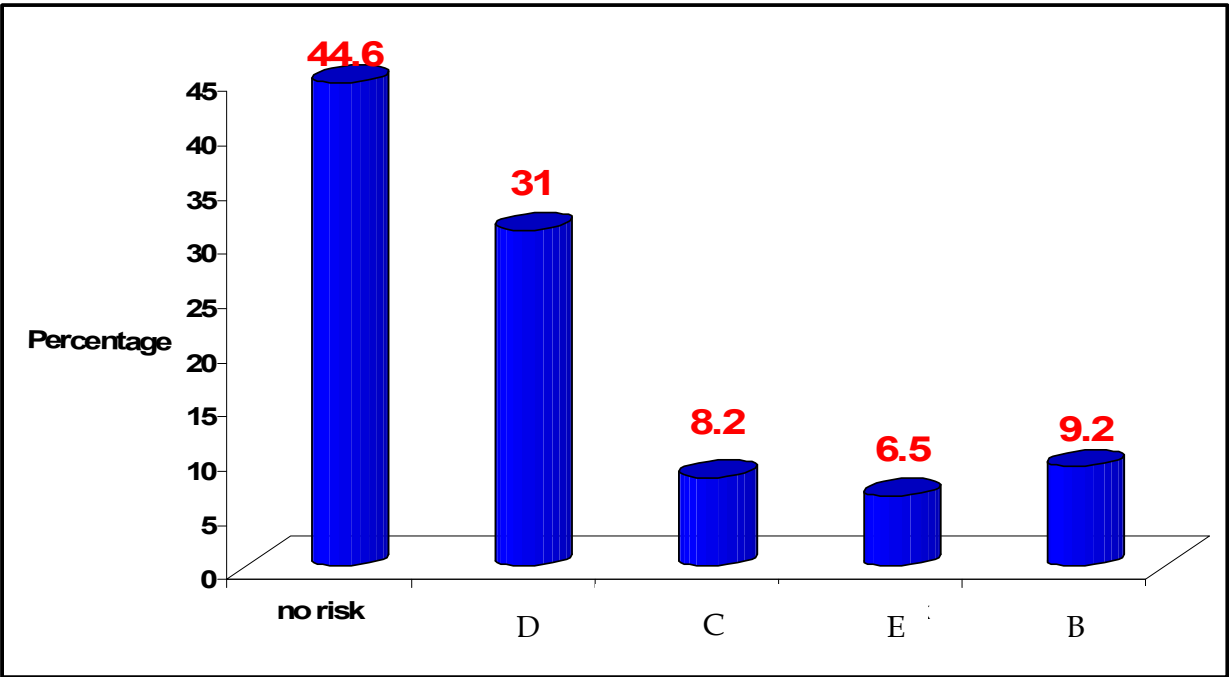


Fig. 4. Self-perception of risk of acquiring HIV among all respondents.

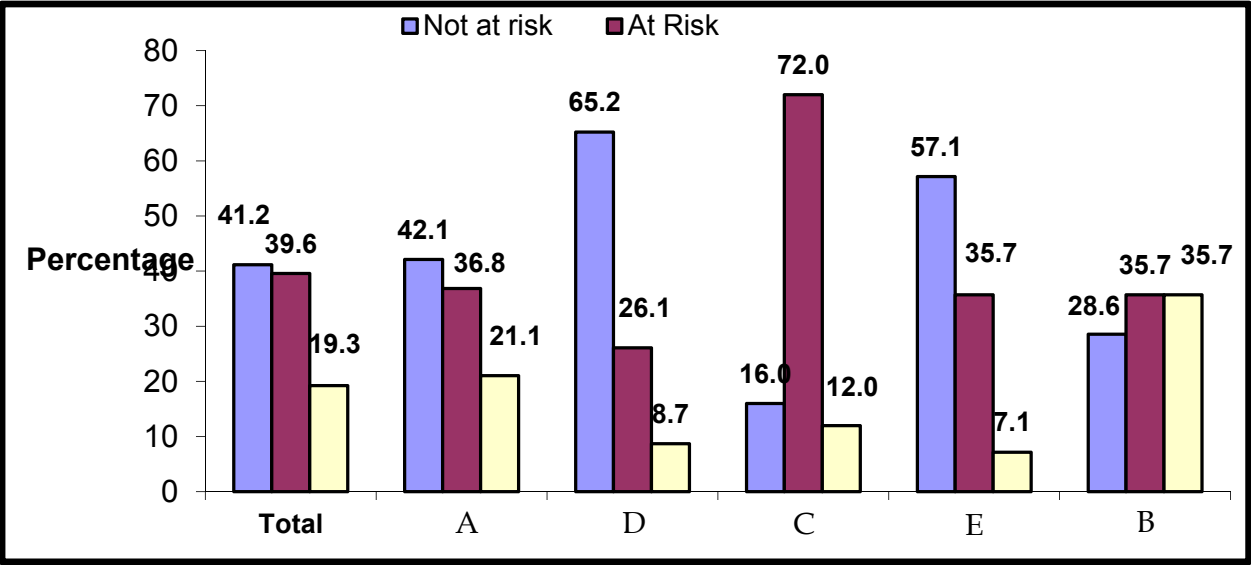


Fig. 5. Perceived risk of UNIFIL towards HIV infection on the total sample by nationality.

3.5 Condom use

More than half of the respondents (53%) did not consistently use condoms with casual sex partners. This fact denotes a high-risk behavior and a risk of HIV or other STDs. The partner respected the choice of condom use among 74% of the respondents. Among those who used condoms, reasons for using condoms included prevention of all STDs (86.4%), prevention of pregnancy (58.3%), and prevention of HIV specifically (53.4%). On the other hand, the reasons for not using condoms included; not being necessary (28%), dislike condoms (20%), unavailability and partner objection (15% each), and faithfulness (13%) of partner. A significant and gradual association was found between having a good comprehensive knowledge about HIV/AIDS and consistently using condoms with non-regular partners.

In fact, those who always used condoms had a prevalence rate of comprehensive knowledge on HIV/AIDS 1.6 times higher than that of those who never use condoms with casual sexual partners (68.7% vs. 43.6%). However, this trend was not consistent across all nationalities as it was only present among the (Bs), the (As), and the (Ds).

Use of condoms with non-regular partners varied significantly by nationality ($p<0.05$) as revealed in Fig. 6. The (Ds) had the highest rates of consistent condom use (71%), followed by the (As) (56%). However, the (Cs), (Bs), and (Es) reported the highest rates on inconsistent condom use (78%, 64% and 60%, respectively). The main reason for not using condoms among the (Cs) and (Bs) are “dislike”, while believing that it is “unnecessary” was the most common reason reported by the Es (47%).

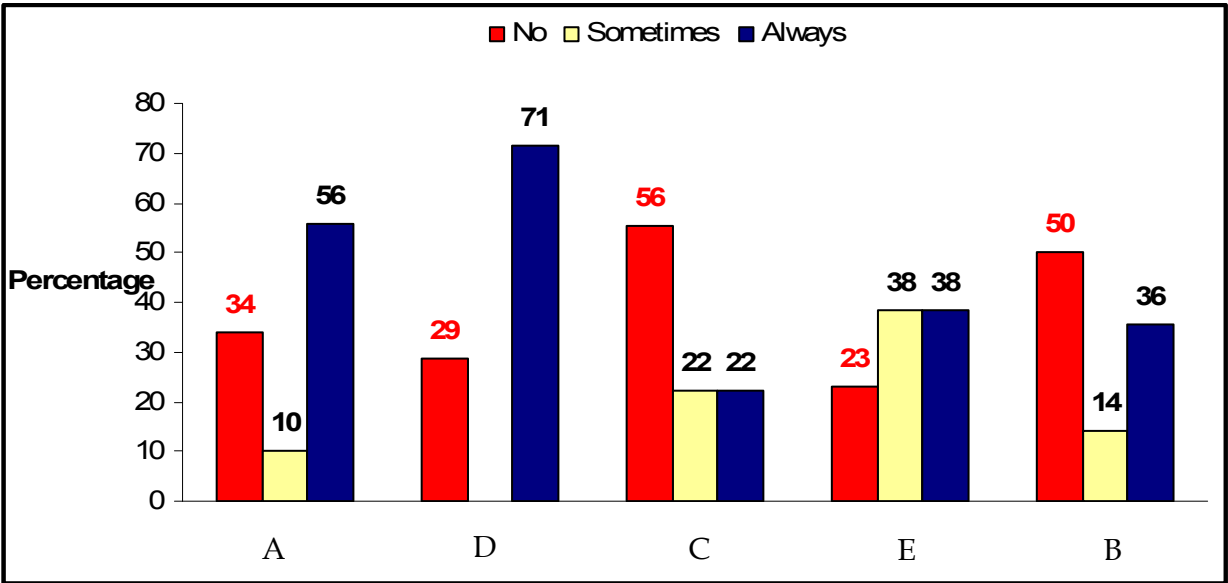


Fig. 6. Condom use with non-regular partners by nationality.

Although condom use was inconsistent, the majority (84%) of the respondents knew the location, as where to get condoms. The (Bs) had the lowest knowledge on the location of condoms as only 60% of the (Bs) respondents knew where to obtain condoms. Only 38% of the total respondents have ever seen a female condom with the highest rates reported by the (Ds) (70%), and the (As) (49%), and while the lowest rates by the (Bs) (3.6%), followed by the (Es) (14.3%), and the (Cs) (24%). Furthermore, only 16% of the study participants have ever been distributed female condoms, almost the number of women participants.

3.6 Alcohol and sexual relations

The majority of the study respondents drank alcohol with the exception of the (Bs), for religious reasons. More than one third of the study participants drank alcohol on a regular basis (weekly or daily). The (Cs) and (Es) had the highest rates of alcohol consumption as 71% and 57%, respectively; they drank alcohol at least on a weekly basis. In addition, more than half (56.5%) of the study participants reported engaging in sexual relations under alcohol influence; always 7%, on holidays 23% or rarely 26.3% (Fig. 7).

The (Cs) and (Es) had the highest rates of engaging in sexual relations under alcohol influence (Fig. 8) while the (Ds) reported the lowest rates of sexual relations under influence. It is worth noting that a significant correlation ($r=0.591$, $p<0.01$), and an increasing association were found between the amount/frequency of drinking alcohol and frequency of practicing sexual relations under alcohol influence, as 76% of those who always practice sex under influence, drink alcohol on a weekly or daily basis.

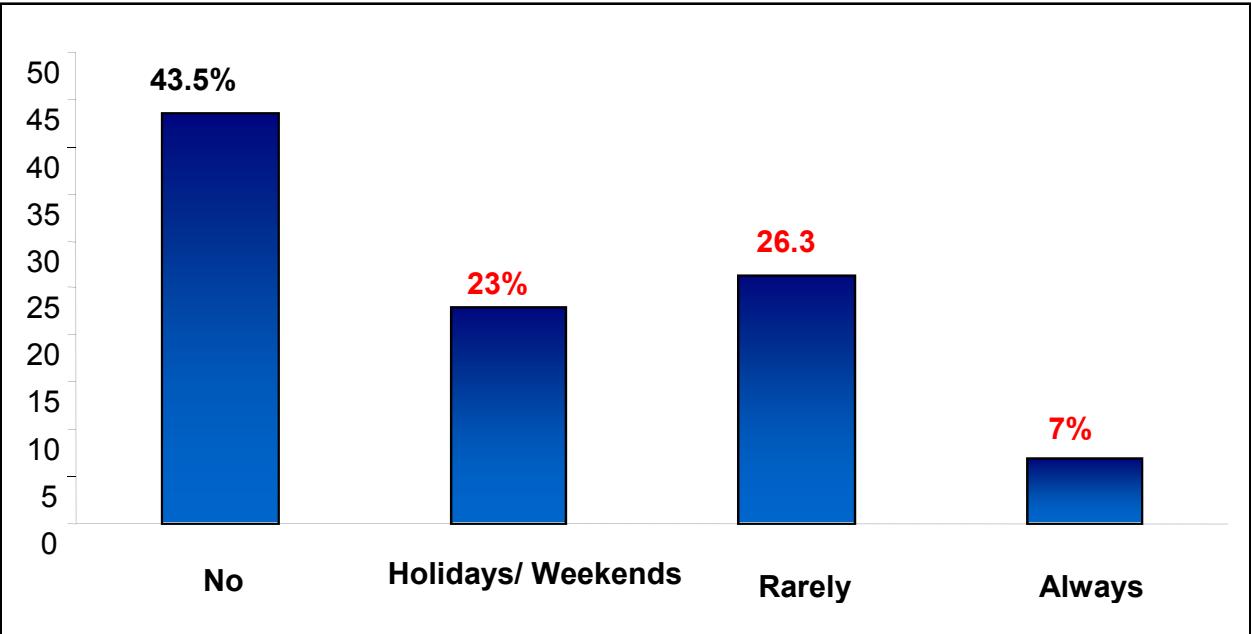


Fig. 7. Overall rates of sexual relations under alcohol influence (5) (%).

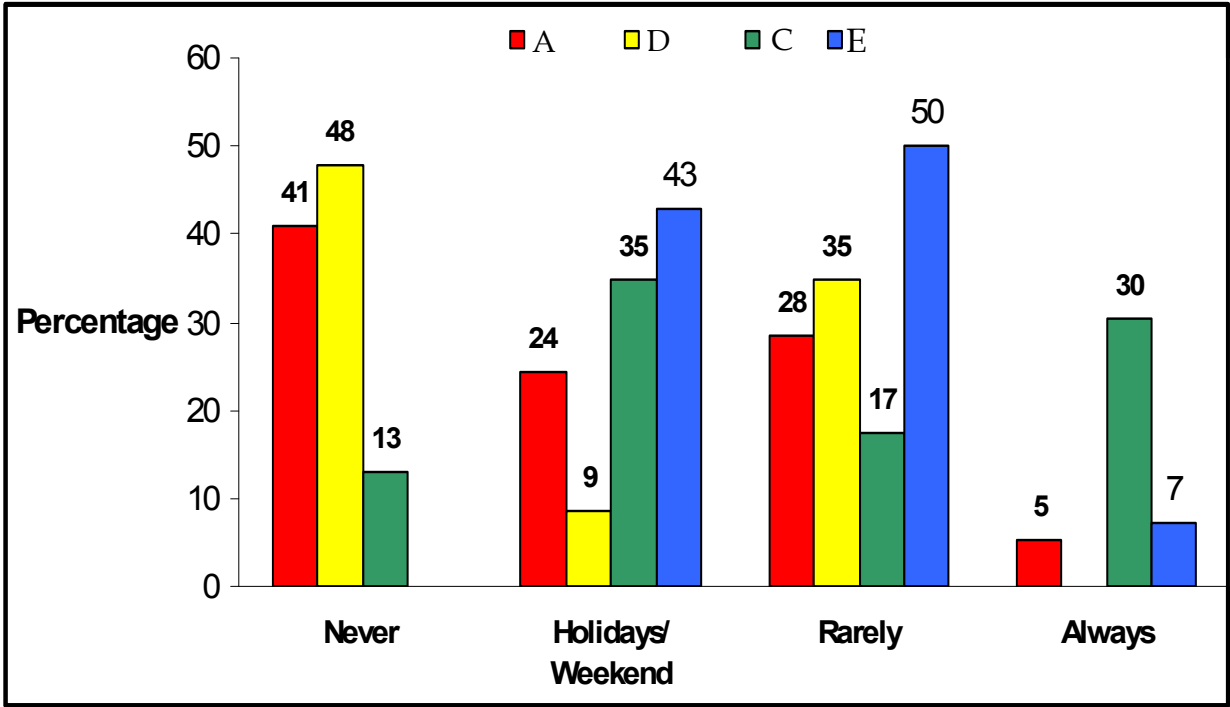


Fig. 8. Rates of sexual behavior under alcohol influence by nationality.

The vast majority of UNIFIL members (83.2%) would seek medical care in the UNIFIL clinic in case of a suspected STD (Table 5). The (Es) and the (Cs) had the highest appropriate health seeking behavior as more than 95% of them would consult a medical doctor in the battalion. Asking a colleague was considered an appropriate measure by a small but significant percentage of the respondents ranging from 0% to 14.3%.

This particular point highlights the importance of the availability of peer leaders among the soldiers in order to direct their friends for medical treatment. It is noteworthy that the (Bs) had the least appropriate health seeking behavior in case of a suspected STD as almost 11% would not seek any help or consultations, 14.3% would ask a colleague, and 75% would consult a health care professional.

	Total	A	D	E	C	B
Health seeking behaviour in case of suspected STD						
Nothing	3.8%	4.2%	0%	0%	0%	10.7%
Ask a colleague	8.6%	10.5%	4.3%	0%	4.2%	14.3%
Seek medical care	83.2%	82.1%	86.9%	100%	95.8%	75.0%
Other	4.3%	3.2%	8.8%	0%	0%	0%
Previous HIV testing (%yes)	49.5%	55.3%	65.2%	64.3%	40.0%	17.9%
Counselling during previous HIV test						
No	47.8%	38.5%	73.3%	66.7%	60.0%	20.0%
Yes, before the test	26.1%	30.8%	13.3%	0%	40.0%	40.0%
Yes, after the test	3.3%	1.9%	0%	22.2%	0%	0%
Yes, both before and after the test	22.8%	28.8%	13.3%	11.1%	0%	40.0%
Interested in counselling in this mission (% yes)	87.1%	92.6%	90.9%	100.0%	60.0%	82.1%
Interested in HIV test in this mission (% yes)	38.2%	37.2%	34.8%	71.4%	40.0%	28.6%

Table 5. Health seeking behaviour, counselling and testing for HIV by nationality.

Almost half of the respondents (49.5%) have been previously tested for HIV as depicted in Table 5, and the majority was tested within the past three years. The highest percentage of people tested was reported by the (Es) (64.3%) while the lowest was listed by the (Bs) (17.9%). Among those who had been tested for HIV, the majority (47.8%) did not receive any form of counseling either before or after the test, especially among the (Ds), (Es) and (Cs) respondents. Among the (A) respondents, 32/52 HIV tested individuals had some forms of counseling while 4/5 of (Bs) tested received counseling. It is notable that (Ds) had the highest rates of lack of counseling before or after an HIV test, while this test is mandatory for all individuals before deployment. Hence, there is a need to incorporate voluntary counseling and confidential testing (VCCT) as recommended by the UNAIDS, instead of only mandatory HIV testing (UNAIDS, 2010).

Almost 90% of respondents would be interested to go for counselling in case of suspected HIV infection, and 38.2% would be interested to have an HIV test done. The (Es) were the most interested in having an HIV test (71%), while the (Bs) were the least interested (28.6%). The main reasons for not going to counselling were fear that the counselling is not confidential (32.6%), fear to be discriminated, and afraid to hear the result (10.5% each). In addition, the lack of interest in having an HIV test was also due to the low perception of risk to catching HIV as 86% of those who are not interested to be tested in this mission reported that they do not consider themselves to be at risk.

3.8 Information sources on HIV/AIDS

There were wide disparities, ranging from 46.4% (B) to 84% (C), in reported levels of pre-deployment training on HIV/AIDS among the different nationalities. Overall, almost two thirds (65.2%) of the respondents had received some kind of information on HIV/AIDS before deployment. The majority of this information was provided by the battalion medical staff (62.5%) followed by peer educators (11.7%), and UN medical staff (6.7%). Other sources were either schools or special teams designated to give information on HIV/AIDS. However, the majority of the respondents (more than 90%) have never heard of the resolution 1308 on the need to incorporate HIV/AIDS training among peacekeeping forces. Those who did hear about this resolution reported reading about them during military training (7/189), in the media (11/189), or through self-study (2/189).

Currently, 76.4% of all the respondents would trust a trained peer for HIV/STD information (Table 6). Trust in peer leaders varied by country ranging between 92.3% with the (Es) and 71.4% with the (Bs). The other contingents had a trust rate close to the overall rate ranging between 72.8% and 81.8%. The main reasons for not trusting peer leaders was the misconception that they are not credible (43.2%). As for the best preferred sources of information on STDs including HIV, medical doctors were the preferred source for the majority of the contingents, followed by awareness materials including brochures, pamphlets, and cards, among others. This finding goes in hand with the trend that medical doctors are respected, trusted and considered to have the most credible knowledge on the disease which makes them the best source of information on any health issue. Peer educators are considered as good sources of information for almost one third of the (Cs) and 28% of the (Bs) and 23% of the (Es). However, the (As) had the least interest in peer educators for HIV information.

	Average	A	D	E	C	B
Trusts a Trained Peer Leader						
% Yes	76.4%	72.8%	81.8%	92.3%	80.0%	71.4%
Best sources of information on STIs						
Military medical doctors	71.7%	81.7%	69.6%	84.6%	56.0%	46.4%
Peer educators	16.3%	7.5%	17.4%	23.1%	32.0%	28.6%
Awareness material (Brochures, pamphlets)	36.4%	33.3%	34.8%	53.8%	56.0%	25.0%
Workshops	18.0%	18.5%	8.7%	0%	8.0%	42.9%

Table 6. Preferred sources of information on HIV/AIDS by nationality.

3.9 Gender and culturally sensitive issues

The majority of the respondents (87.6%) never heard of the UNSCR 1325 on the role of women in peace and security. The media and military training were the main sources of information on this resolution among those who heard about it. On the other hand, 28% of the respondents claimed to know the role of women in the local population; however, few could actually specify this role. Most of the respondents perceived the local women to be submissive to men and responsible mainly for the care of her children and family. Few of the respondents (13.5%) had been previously involved in a development intervention involving women. The (Cs) had the highest rates of involvement (40%) while the (Ds)

reported the lowest rate (4.5%). Only 4/25 individuals who were involved in development interventions with women had communication problems with them. The main stated problem was the inability of women in the local population to talk to male soldiers due to cultural constraints.

Furthermore, almost 72% of the respondents were interested to learn more about the local population with the (Cs) and (Es) displaying the highest interest (88% and 86%, respectively) while the (Bs) had the lowest interest (57.1%) in knowing more about the culture, traditions or habits of the local population. The (As) and (Ds) had rates of interest, close to the overall rate. The majority of the (As) and the (Es) had been previously informed on the way to approach the local population (88.4% and 85.7%, respectively). In other contingents, almost 78% of the respondents had been told how to approach the local population.

4. Discussion

4.1 Knowledge gap

Despite the fact that pre-deployment training on HIV/AIDS was relatively high, knowledge about HIV/AIDS was incomplete as only a third of the respondents could correctly list three prevention methods against HIV. In addition, there were high rates of misconceptions noted regarding HIV/AIDS transmission across all nationalities. Mother to child transmission was not known to the majority of the respondents, and the majority did not know that breastfeeding could transmit HIV. Another significant finding was the relatively high percentage of respondents who thought that there is a cure for HIV especially among the (Es) (43%). This gap in knowledge, in spite of previous training, illustrates a problem with the retention of information which has negative consequences on sexual behavior. It also highlights the need to consistently repeat information on HIV/AIDS during deployment. Peer leaders could be of significant value for this purpose as they will be reaching all age groups and genders. This is in line with what UNAIDS advocates for promoting peer Leadership within the uniformed services as a key measure to ensure ongoing awareness and sensitization that will impact, in the long term, on individual risk behaviors (UNAIDS, 2011).

Another interesting finding was that two thirds of the respondents did not know that women were vulnerable and at a high risk of exposure to HIV due to several physiological (e.g. higher concentration of the virus were in sperm, larger surface area of the genitals in women), social (e.g. rape, coercive sex, inability to negotiate condom use), and economical reasons (e.g. commercial sex workers). This fact requires to be highlighted for both men and women in future awareness campaigns.

Moreover, only few of the respondents (31%) knew that a UNIFIL soldier living with HIV could not be legally dismissed from his/her work. This denoted the importance of addressing the legal aspects towards people living with HIV among UNIFIL forces especially when providing pre-deployment training or screening. In general the attitudes towards people living with HIV among the UNIFIL were negative especially among the (Bs) whereby 85% of them believed that a person living with HIV should be dismissed from the UNIFIL. More sensitization and information for the soldiers on the topic of HIV could possibly change their negative attitudes. Furthermore, it is noteworthy that the majority of the respondents did not know about the situation and the prevalence of HIV/AIDS in Lebanon. This was important to underscore a common belief that Lebanon does not have a

high HIV prevalence and hence, many soldiers would tend to engage in unprotected sexual relations. For this purpose, all soldiers deployed need to be informed on the situation and prevalence of certain diseases including STDs and HIV/AIDS in Lebanon.

4.2 Risky behavior

Although several respondents considered themselves to be at risk for HIV infection, these same respondents did not take any preventive measures to decrease this risk. For example, the (Cs) had the highest perception of being at risk to catch HIV, however, despite this awareness, they had the highest rates of inconsistent condom use with casual sexual partners, and the highest rates of engaging in sexual relations under alcohol influence. Moreover, condom use was highly inconsistent. In addition, the relation between alcohol and engaging in sexual relations under influence was another important problem. Alcohol not only increases sexual arousal but it also leads to forgetting to use condoms, or inappropriately using condoms as a result of breaking. Furthermore, alcohol was served, in general, in places where sex workers were usually available, which increased the risk of catching HIV (UNAIDS, 2010).

Despite the high risk sexual behavior, the majority reported a good health seeking behavior as 83.2% would seek help from the UNIFIL clinic in case they suspect a STD. Asking a colleague was another option which also denoted the importance of having well informed peer leaders among the soldiers to direct them to seek medical care in case of STD suspicion.

4.3 HIV testing and counseling

The study highlighted inconsistent implementation of testing policies (mandatory versus voluntary) within battalions and insufficient levels of counseling accompanying testing across all groups. There was a risk that in some cases a peacekeeper may assume that he/she has been tested as part of his/her pre-deployment medical and is HIV-negative, when in fact he/she has not undergone a test and may be positive. Counseling should be considered crucial so that individuals understand the relevance of the test result, and how to maintain an HIV-negative status, or look after themselves and their families, if the result were positive. Counseling both before and after a test should accompany all pre-deployment testing, and be carried out by contributing countries to peacekeeping operations.

The survey found significant levels (90%) of individuals who would be interested to go for counseling in this mission if available. Moreover, more than one third of the respondents would be interested to be tested for HIV in this mission, with significant variations by nationality as 71% of the (Es) would like to be tested. Therefore, availability of VCCT centers is needed in certain battalions where high risk behavior prevails.

4.4 Limitations of the study

There were a few limitations in this survey that needed to be addressed. First, the study findings could not be generalized to all UNIFIL forces in Lebanon as it only included few battalions which speak English, French or Arabic. Secondly, the questionnaire itself had several limitations due to deletion of some relevant questions by the UNIFIL project coordination team. It would have been of help to have information on the sexual practices of UNIFIL soldiers in Lebanon, similar to studies that were implemented in other countries

(Bazergan, 2006; Bing et al., 2008). Having such information would give a better understanding of the situation. Thirdly, questions related to STDs and their symptoms were also deleted by the UNIFIL. Such information could have also helped in assessing the risk of the respondents towards HIV, as STDs facilitate the transmission of HIV, and indicate that the person is engaging in high risk sexual behavior.

5. Conclusion

This survey, despite its limitations, depicted areas of weaknesses and gaps to manage, as well as elements of strength to build on. The results could constitute a basis to develop strategies and activities in line of the UN mandates regarding HIV/AIDS, STDs and gender sensitive issues. STDs are rooted in history and AIDS is clearly a long-wave pandemic with impacts taking various forms and unfolding over generations. However different groups and different countries are affected differently, including the military. It is very important to “know your epidemic” as declared by UNAIDS 2008, but it is equally important to know the social, economic, and political contexts. They can influence the direction of the HIV epidemic, which is based on individual behaviors. Taking the appropriate policy decisions is crucial to design and adopt the relevant strategies within a highly sensitive establishment like the military (Barnett & Prins, 2006).

Such strategies are becoming more crucial in light of the limited information on Lebanon concerning these health issues, and the expanding involvement of the UNIFIL forces in the life and development of the Lebanese. They are being conceived not only as peacekeepers but also as social actors in the development of the region through social interventions and projects in almost every village of the South. They deal frequently with locals; use their shops, their swimming pools among other things (Jurjus & Watfa, 2008).

In order to make resolutions and commitments realities, more efforts should be deployed. This is becoming of great importance in light of the increasing demand for peacekeeping forces worldwide reaching up to 15 missions from more than 115 countries with various HIV prevalence rates. In this context, the institution of mandatory pre-deployment HIV testing and STDs screening as well as health education activities, and counseling services, might constitute an essential basis for an effective prevention program. Such efforts and commitment to confront the HIV and STD spread, and the unfolding of their impact in terms of human lives lost, in the devastation of families, classes, civil societies, social organizations, business structures, and armed forces. The implementation of such a comprehensive approach should include gender sensitive issues, because of the increasing role of women in the military. Women are more likely to contract an STD than men. Without government policies and support for women’s property rights, education, livelihoods, and access to healthcare, unsafe transactional sex can become one of the few alternatives for survival (Klot & Nguyen, 2009).

It is now well established that military personnel, both men and women, especially when deployed for extended periods, are among the most vulnerable populations to STDs and HIV. The resulting rates would go up to 2-5 times higher, maybe more than the civilian population. Such harsh realities need to be appropriately tackled with a complete package involving pre and post-deployment programs:

1. STD and HIV prevention programs should be conducted on a regular basis: before, during, and after deployment to reinforce health promoting behaviors and enhance the knowledge of HIV/AIDS prevention and transmission.
2. Educational programs should focus on changing perception of military personnel of risk for HIV/AIDS.
3. There should be policies covering the regular supply and distribution of male and female condoms. Condom promotion activities should be adapted to local, social, economic, and cultural sensitivities of the country.
4. Efforts should be made to ensure that STD symptoms are widely known and appropriately managed.
5. Pre and post-test counseling sites and services should be improved with high level assurance of confidentiality and job security.
6. More behavioral and biological studies are needed to determine prevalence of HIV/STDs in the UNIFIL and the military in general.
7. Further studies are needed to review the length of time military personnel are required to spend during peace keeping, so that healthy sexual and marital relationships can be promoted.

In brief, the interplay between sex work, injecting drug use and sex between men is accelerating the spread of HIV and HIV/STD co-infections in armies. Evaluations of the various programs implemented should be periodic and the ultimate aim should be to transform the peacekeepers into prevention actors rather than being transmission vectors (AIDS, Security and Conflict Initiative, 2009). In post-conflict countries with low HIV prevalence, like Lebanon, monitoring HIV-related behavior of military personnel could constitute an early warning signal to forecast the spread of the epidemic.

The HIV/AIDS pandemic needs to be under more control. The evolving landscape of demographic crises and conflicts throughout the world has reshaped the challenges and underscored the need to reinvigorate international commitments to achieve universal access to HIV/STD prevention, treatment, care and support for peacekeepers, their families and the communities they serve.

Ultimately, the goal is to provide a multidisciplinary framework that integrates the social science and biomedical paradigm, and acknowledges the potential for bidirectional interplay for effective control of these diseases, prevent their sequelae, and limit their costs to society.

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Sexually transmitted infections (STIs) are infections that are spread primarily through person to person sexual contact. There are more than 30 different sexually transmissible bacteria, viruses and parasites. STIs lead to high morbidity and complications. This book entitled as Sexually Transmitted Infections is not a text book but provides useful information for general reference work for physicians, researchers and students interested in the subject. Each chapter is abundant in tips useful to general readers as well. It also includes the Introductory chapter providing an overview with special emphasis on syndromic approach to the management of STIs in clinical setting.

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