

Prevalence and determinants of condom utilization among people living with HIV/AIDS in Egypt

I. Wahdan,¹ A. Wahdan,² M. El Gueneidy³ and I. Abd El Rahman⁴

معدل انتشار ومحددات استعمال العازل الذكري بين المعاشين لفيروس الإيدز في مصر
إيمان محمد حلمي وهدان، أشرف محمد حلمي وهدان، مرفت مصطفى الجنيدى، إيهاب أحمد عبد الرحمن

الخلاصة: يعتبر استخدام العازل الذكري من الوسائل الرئيسية للوقاية من العدوى بفيروس الإيدز، ولو أن هذا الاستخدام يتأثر بعوامل متعددة، وتهدف هذه الدراسة إلى التعرف على معدل انتشار العازل الذكري وعلى المحددات السلوكية والنفسية بين من يستعملونه في مصر. وقد استفاد الباحثون من مجموعات المناقشة لإعداد أداة للدراسة (مقابلة تستند إلى استبيان)، وتستهدف التعرف على المعارف والمواقف والمعتقدات حول استخدام العازل الذكري لدى 338 شخصاً ممن تأكدت إيجابيتهم لفيروس الإيدز ويراجعون بانتظام مراكز تقديم المشورة والاختبارات في 8 محافظات في مصر. واتضح للباحثين أن معدل استخدام العازل الذكري 45% في العلاقات الجنسية الشرعية، وأنها لا تتعدى 18.1% في العلاقات غير الشرعية. أما محدّدات استخدام العازل الذكري فكانت: نمط الشريك، والحالة المصلية لاختبار الشريك، وتناول الأدوية المضادة للفيروسات القهقرية، والمعتقدات والمواقف حول استعمال العازل الذكري وحول العدوى بفيروس الإيدز. وأظهرت الدراسة أن الحاجة ماسة لبذل جهود خاصة لإحراز تغيير في مواقف المعاشين لفيروس الإيدز من استخدام العازل الذكري.

ABSTRACT Condoms are an integral part of HIV/AIDS prevention, yet their use is affected by several factors. The purpose of this study was to determine the prevalence of condom use and the psychological and behavioural determinants among people living with HIV/AIDS in Egypt. Focus group discussions were used to develop the study tool (questionnaire interview) geared towards eliciting knowledge, attitudes and beliefs about condoms among 338 confirmed HIV-positive persons attending fixed voluntary counselling and testing centres in 8 governorates in Egypt. The prevalence of condom use was 45.0% in regular sexual relations and only 18.1% in casual relations. The determinants of condom use were: type of partner, serostatus of partner, antiretroviral intake, beliefs and attitudes towards condom use and to HIV infection. The study shows that special efforts need to be made to change the attitudes of people living with HIV/AIDS towards condom use.

Prévalence et déterminants de l'utilisation du préservatif chez les personnes vivant avec le VIH/sida en Égypte

RÉSUMÉ Si les préservatifs font partie intégrante de la prévention du VIH/sida, leur utilisation dépend toutefois de plusieurs facteurs. L'objectif de la présente étude était de déterminer la prévalence de l'utilisation du préservatif et les déterminants psychologiques et comportementaux de son utilisation chez des personnes vivant avec le VIH/sida en Égypte. Des discussions de groupes ciblées ont été organisées pour mettre au point l'instrument utilisé pour l'étude (entretien par questionnaire) visant à mettre en évidence les connaissances, les attitudes et les croyances relatives aux préservatifs chez 338 personnes au statut VIH confirmé qui consultent dans des centres de dépistage et de conseil volontaires fixes dans huit gouvernorats en Égypte. La prévalence de l'utilisation du préservatif était de 45,0 % dans les relations sexuelles avec un partenaire régulier mais seulement de 18,1 % dans les relations avec des partenaires occasionnels. Les déterminants de l'utilisation du préservatif étaient les suivants : le type de partenaire, le statut sérologique du partenaire, la prise d'antirétroviraux, les croyances et les attitudes concernant l'utilisation du préservatif et l'infection à VIH. L'étude démontre que

¹Department of Epidemiology; ²Department of Biostatistics, High Institute of Public Health; ³Department of Psychiatry and Mental Health Nursing, Faculty of Nursing, University of Alexandria, Alexandria, Egypt (Correspondence to I. Wahdan: imanwahdan@yahoo.com).

⁴National AIDS Programme Manager, Ministry of Health and Population, Cairo, Egypt.

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Introduction

Human immunodeficiency virus (HIV) transmission in several parts of the world is mainly through sexual contact. This is particularly true in sub-Saharan and North Africa [1,2]. It has been shown that condoms are an integral part of prevention of transmission of sexually transmitted infections (STIs) and HIV/AIDS, and correct use of them reduces the risk of HIV transmission by almost 100% [1,2]. Making condoms more accessible, lowering their cost, promoting their use extensively and helping to overcome social and personal obstacles that limit their use are some of the widely advocated strategies in the fight against the AIDS pandemic [3,4]. Nevertheless, condoms can have little impact in preventing HIV if people do not use them. There are contrasting reports on condom use among people living with HIV (PLHA) and among those using antiretroviral treatment [5,6]. The success of highly active antiretroviral therapy (HAART) in reducing the morbidity and mortality from HIV/AIDS has been widely documented [5,7]. Consequently many HIV-infected persons are now living longer, healthier and more productive lives. Yet such treatment may have unintended effects on sexual behaviour. Some studies suggest that since HAART became available, the prevalence of unprotected sex and the incidence of STIs including HIV have increased [6,8]. Initiation of HAART has been reported to be associated with increased sexual risk behaviour and decreased condom use [9]. Some other studies have reported lower high-risk sexual behaviour among HAART patients [10–12].

In spite of its importance, condom use is among the most difficult issues to address in designing prevention programmes. This is due to different social, cultural and personal factors [13]. In Egypt, Kabbash et al. in 2007 found that obstacles to condom use included

perceived lack of need, rejection by partners and hazards of condoms [14]. Identifying the determinants of condom use is important in developing effective HIV preventive interventions [2]. The literature indicates that beside HAART initiation, factors affecting condom use include a range of situational, interpersonal and structural factors such as knowledge about AIDS, behavioural intention, perceived susceptibility, perceived barriers, self-efficacy and demographic factors [15,16].

By far the most frequent mode of transmission of HIV in Egypt is through sexual contact. It is estimated that 76% of all those infected with HIV in Egypt contracted it through sexual intercourse with an infected person. Moreover, a substantial number of Egyptian HIV-infected women have contracted the infection from their HIV-positive spouses [17]. This raises the importance of studying condom use and the different psychosocial and behavioural determinants of condom use among HIV infected persons in Egypt. This study aimed to identify the determinants of condom use among a group of PLHA with the hope of identifying and addressing constraints on condom use in Egypt.

Methods

A cross-sectional design was used for the study, which was carried out in May and June 2012.

Study setting and sample

The study sample was selected from confirmed PLHA attending the fixed voluntary counselling and testing centres (VCT) in 8 governorates in Egypt (Cairo, Alexandria, Dakahlia, Sharqia, Qalioubia, Fayoum, Menya and Assiut). The total number of PLHA registered in these centres amounted to nearly 2400, with a male to female ratio of nearly 4:1. Using *Epi Info* and based on an estimated prevalence of 70%

of condom use among HIV-positive persons and a precision of 5% around the expected prevalence and using a 5% level of significance and an alpha error of 5%, the minimum required sample size amounted to 250 PLHA, with a minimum of 200 males and 50 females.

A random systematic sample of 374 PLHA was taken from all those recorded at the selected centres. The participants were randomly selected from a list of PLHA recorded at the selected centres. In order to respect confidentiality they were approached by their counsellors. During data collection 36 people did not want to continue the interview so the study was carried out on 338 PLHA.

Questionnaire development

The study tool (questionnaire interview) was developed based on the results of a preliminary qualitative study in the form of focus group discussions (FGD) conducted with a sample of HIV-positive persons (20 males and 14 females) attending VCT who agreed to attend a private meeting to discuss condom use. Discussions took place in 4 focus groups (2 for males and 2 for females) and participants were selected for each group based on similar age and educational background but from different centres to avoid knowing each other. Each group was led by one of the researchers using a discussion guide comprising open-ended questions to encourage a range of responses related to factors affecting utilization and non-utilization of condoms.

The ideas that emanated from the FGD in addition to literature reviews were analysed and used to develop a semi-structured questionnaire composed of 79 closed- and open-ended questions. It took 15–20 minutes to complete. It was geared towards eliciting information related to condom use and its determinants. It also included questions on knowledge about the condom and how to use it and on intentions, attitudes and beliefs towards condom use. It also included determinants

such as accessibility and availability of condoms and reasons for their use.

Data collection

The interviews were conducted in HIV/AIDS counselling centres by trained HIV/AIDS counsellors. An informed consent was taken from each participant before interviews were conducted. The purpose of the research, confidentiality of information, benefit of participation was explained to the participants. Anonymity and confidentiality were guaranteed and maintained. Ethical concepts of respect for truth and respect of people were considered.

Analysis

Descriptive statistics (numbers and percentages) were used for reporting and summarizing qualitative data. Minimum, maximum, arithmetic mean and standard deviation (SD) were used as measures of central tendency and dispersion respectively for normally distributed quantitative data. The chi-squared test was used to test the association between 2 qualitative variables or to detect difference between 2 or more proportions. The data were analysed using SPSS software, version 16.0. $P < 0.05$ level was used as the cut-off value for statistical significance.

Results

Sociodemographic characteristics of respondents

Table 1 shows the sociodemographic characteristics of the studied PLHA (253 males and 85 females). As regards the age distribution, the highest percentage (24.0%) were in the age group 30–< 35 years, followed 35–< 40 years (19.5%) and 45+ years (18.3%). The mean age was 36.7 years. As regards marital status, 21.0% were single, 53.0% married and the rest (26.0%) divorced, separated or widowed. The level of education of the studied PLHA showed a mixed group with 18.0% illiterate and

Table 1 Distribution of the study group living with HIV/AIDS according to sociodemographic characteristics, Egypt 2011 ($n = 338$)

| Sociodemographic characteristic | No. | % |
|---------------------------------|-----|------|
| Sex | | |
| Male | 253 | 74.9 |
| Female | 85 | 25.1 |
| Age (years) | | |
| < 25 | 26 | 7.7 |
| 25– | 47 | 13.9 |
| 30– | 81 | 24.0 |
| 35– | 66 | 19.5 |
| 40– | 56 | 16.6 |
| 45+ | 62 | 18.3 |
| Marital status | | |
| Married | 179 | 53.0 |
| Single | 71 | 21.0 |
| Divorced/separated or widowed | 88 | 26.0 |
| Educational level | | |
| Illiterate | 61 | 18.0 |
| Primary | 47 | 13.9 |
| Preparatory | 31 | 9.2 |
| Secondary | 107 | 31.7 |
| University and higher | 92 | 27.2 |
| Employment | | |
| Regularly employed | 86 | 25.5 |
| Irregular work | 66 | 19.5 |
| Private work | 42 | 12.4 |
| Do not work | 144 | 42.6 |
| Place of residence | | |
| Rural | 93 | 27.5 |
| Urban | 186 | 55.0 |
| Squatter | 59 | 17.5 |
| High-risk group | | |
| None | 188 | 55.6 |
| Men having sex with men | 70 | 20.7 |
| Commercial sex worker | 20 | 5.9 |
| IV drug user | 42 | 12.4 |
| More than 1 risk group | 18 | 5.3 |

IV = intravenous.

27.2% with university and postgraduate levels. The highest proportion of the studied PLHA had finished secondary education (31.7%). In terms of occupation, 42.6% of the respondents did not work and 19.5% did irregular work; only 25.4% had regular work and 12.4% were engaged in private sector work. More than half (55.0%) of the studied sample

lived in urban areas, 27.5% in rural areas and 17.5% in squatter areas.

When asked if they belonged to any of the most at-risk population groups, more than half of them (55.6%) denied being in any high-risk group. The remainder indicated that they were men who had sex with men (20.7%), commercial sex

workers (5.9%) or intravenous drug users (12.4%), while 5.3% belonged to more than 1 group.

Knowledge about condoms and training in their use

Apart from the 8 respondents who claimed they had not heard about condoms before, all the study population knew about and had seen condoms (Table 2). As many as 80.8% reported receiving formal training on condom use. The main sources of information and also training were the VCTs and the Egyptian National Programme for Prevention and Control of AIDS from which almost two-thirds of the PLHA had received information and been trained on condom use. Support groups, followed by friends, came next in importance, while the media including the Internet played a minor role in information (6.4%) and a minimal role in training on condom use.

Availability of condoms

All the study respondents except 21 (6.2%) agreed that condoms were available. The Egyptian national programme for prevention and control of AIDS and the VCTs were the main sources (42.0% and 16.7% respectively) (Table 3). Pharmacies appeared also to be a main source (37.5%). Other sources included civil societies and friends, who played a minor role as a source of

condoms. Asking those who were using condoms distributed by the national AIDS programme ($n = 239$) about their satisfaction with the condoms, more than half (53.0%) mentioned that they were good. Another 27.0% stated that they were not different than other condoms. Only 20.0% were not satisfied with them, mainly because of the logo on them. Other reasons were general to condoms such as decreasing pleasure and the size.

Condom use during the last 6 months

Table 4 shows respondents' use of condoms during the last 6 months when having sexual relations with regular partners and in casual sexual relations. The table shows that 242 persons had sexual relations with a regular partner and 149 had casual sexual relations during the last 6 months. It is clear that condoms were more frequently used in sexual relations with regular partners than in casual sexual relations. Those who reported using them 100% of the time were 45.0% in regular sexual partnerships but only 18.1% in casual sexual relations. The reverse was seen as regards non-use of condoms which amounted to 59.1% in casual partnership while it was only 25.6% in regular partnership. The difference was statistically significant ($\chi^2_4 = 48.13$, $P < 0.001$).

Intention of condom use during the next 6 months

Table 5 shows that 74.0% of the study population intended to use condoms during sexual relations with regular partners, which was similar to the proportion who actually used condoms during the last 6 months. As regards the intention to use condoms during casual sexual relations, 55.0% of the study population indicated this intention, which was slightly higher than reported use during the last 6 months. The proportion intending to use condoms in regular sexual relationships was significantly higher than in casual relations ($\chi^2_3 = 30.8$, $P < 0.001$).

When asked whether their intentions to use condoms would be influenced by knowledge about the serological status of the sexual partner in a casual relationship, Table 6 shows that 52.7% would decide to use a condom if the partner's serostatus was unknown, 48.2% if the partner was known to be seronegative and only 39.6% if the partner was known to be seropositive ($\chi^2_4 = 12.89$, $P = 0.012$).

Beliefs about the impact of regular condom use in casual sexual relationships

All the respondents were asked a set of specific questions on their beliefs about the positive and negative impacts of regular condom use in casual relationships. Table 7 shows that the majority of the study sample believed that condom

Table 2 Distribution of the study group living with HIV/AIDS by knowledge and training on condom use, Egypt 2011 ($n = 338$)

| Variable | Heard about condoms | | Trained on condom use | |
|---|-------------------------------|------|-------------------------------|------|
| | No. | % | No. | % |
| <i>Heard and trained about condoms</i> | ($n = 338$) | | ($n = 338$) | |
| Yes | 330 | 97.6 | 273 | 80.8 |
| No | 8 | 2.4 | 65 | 19.2 |
| <i>Source of information</i> | ($n = 330$) | | ($n = 273$) | |
| Counselling and voluntary testing centre | 121 | 36.7 | 107 | 31.7 |
| National AIDS programme | 107 | 32.4 | 101 | 27.0 |
| Support group | 60 | 18.2 | 60 | 22.0 |
| Friends/sex partners | 65 | 19.7 | 36 | 13.2 |
| Media and internet | 21 | 6.4 | 3 | 1.1 |
| Other | 7 | 2.1 | 2 | 0.7 |

Table 3 Distribution of the study group living with HIV/AIDS by sources of obtaining condoms, Egypt 2011 (n = 317)

| Source of condoms | No. | % |
|--|-----|------|
| National AIDS programme | 133 | 42.0 |
| Counselling and voluntary testing centre | 53 | 16.7 |
| Pharmacies | 119 | 37.5 |
| Civil societies | 13 | 4.1 |
| Friends/support groups | 10 | 3.2 |
| Other | 2 | 0.6 |

Multiple answers were allowed.

use would prevent transmission of the infection to their partner (83.4%), would protect them from acquiring STIs (82.2%) and from acquiring another HIV (79.0%) and would prevent guilt feelings afterwards (66.0%) and 55.9% that it allowed them to continue having sexual relations.

Answers of the study group to their beliefs about commonly mentioned negative aspects of condom use during every casual sexual relationship showed that 55.9% believed they decreased pleasure, prevented spontaneity (43.2%), interfered with the flow of

sexual relationships (46.2%), made a barrier to intimacy and love (38.2%), resulted in loss of confidence with the partner (33.4%) and resulted in erection problems (26.0%). A proportion, ranging between one-quarter and one-third, of the study group did not have specific beliefs about the commonly mentioned negative aspects in condom use in every casual sexual relationship.

Reasons for use or non-use of condoms

Respondents were asked why an HIV infected person used or did not use

condoms in sexual relations. Table 8 shows that the main reason stated for condom use was protection from infection (93.7%). Other reasons mentioned included fear from God, guilt feelings and psychological reasons. Reasons given for non-use of condoms included personal reasons and reasons related to the condom itself. The most common were classified as revenge ("Why was I infected? I should infect others the same way I was infected") and lack of conscience (55.0%) followed by the desire to get full pleasure (44.4%). Other reasons included ignorance (32.9%), psychological factors (20.5%) and partner refusal (7.3%). Unavailability of condoms was mentioned as a reason by another 7.3% of respondents.

Discussion

Condoms are the only means of prevention of HIV by sexual transmission for persons who practise sex. For PLHA who wish to continue their sexual behaviour, condom use can protect

Table 4 Distribution of the study group living with HIV/AIDS according to condom use during regular and casual sexual relationships in the last 6 months, Egypt 2011

| Frequency of use | Regular partner (n = 242) | | Casual partner (n = 149) | |
|------------------|------------------------------|------|-----------------------------|------|
| | No. | % | No. | % |
| Never | 62 | 25.6 | 88 | 59.1 |
| Rarely | 27 | 11.2 | 15 | 10.1 |
| Half the time | 32 | 13.2 | 15 | 10.1 |
| Most of the time | 12 | 5.0 | 4 | 2.7 |
| Always | 109 | 45.0 | 27 | 18.1 |

$\chi^2_4 = 48.13, P = 0.001.$

Rarely = 25% of the time; most of the time = 75% of the time.

Table 5 Distribution of the study group living with HIV/AIDS according to intention to use condoms in future regular and casual sexual relationships, Egypt 2011 (338)

| Intention to use | Regular partner | | Casual partner | |
|---------------------------|-----------------|------|----------------|------|
| | No. | % | No. | % |
| Yes | 250 | 74.0 | 186 | 55.0 |
| No | 62 | 18.3 | 91 | 26.9 |
| Not decided | 21 | 6.2 | 56 | 16.6 |
| Do not intend to have sex | 5 | 1.5 | 5 | 1.5 |

$\chi^2_4 = 12.89, P = 0.012.$

Table 6 Distribution of the study group living with HIV/AIDS about the influence of their knowledge about the serological status of the partner on condom use in a casual relationship, Egypt 2011 (n = 338)

| Influence on decision to use condom | Serological status of casual partner | | | | | |
|-------------------------------------|--------------------------------------|------|----------|------|---------|------|
| | Positive | | Negative | | Unknown | |
| | No. | % | No. | % | No. | % |
| Yes | 134 | 39.6 | 163 | 48.2 | 178 | 52.7 |
| No | 178 | 52.7 | 152 | 45.0 | 134 | 39.6 |
| Don't know | 26 | 7.7 | 23 | 6.8 | 26 | 7.7 |

them from reinfection with HIV or STIs and prevent them from infecting their partners [1,2]. Condom use is determined by several factors: social, economic, cultural and personal. Some factors may be related to general beliefs about condoms. In this regard, it is worth mentioning that the condom has been stigmatized in many countries and in Egypt its use for family planning had not been very successful. Yet limited studies have been geared towards finding reasons for this failure. It is thus important to study whether PLHA, who are the primary sufferers of the consequences of HIV infection, utilize condoms or not and what are the factors affecting condom use. This study was thus an attempt to determine condom use among PLHA in Egypt and related factors.

The results of this study showed that although PLHA knew about condoms and that the great majority of them had been trained on their use, in addition to the fact that condoms are easily available, yet the rate of utilization particularly on a regular basis was lower than expected especially in casual relationships. One of the possible factors behind this low utilization is the fact that the study population was taking antiretroviral therapy. This may be due to the belief that antiretroviral therapy results in decreased HIV viral load and accordingly the probability of transmitting infection decreases. This finding was noted in other studies, in which the prevalence of unprotected sex increased among PLHA receiving HAART [5–8].

It is noted, however, that reported use of condoms was significantly more

frequent during sexual relations with regular partners than in casual sexual relations. This study showed that intention to use condoms in the future was nearly the same as that of past and present use, which indicates the need for working with PLHA to change their attitudes towards greater use of condoms.

This study showed that one of the determinants of condom use was the serostatus of the partner, as the tendency to use condoms was greater with a partner with an unknown or a negative serostatus than with a seropositive partner for whom the decision to use condoms was lowest. This may be due to the belief that as long as both partners are positive there is no added risk and so no need to use condoms.

Table 7 Beliefs of the study group living with HIV/AIDS about the impact of condom use in a causal sexual relation, Egypt 2011 (n = 338)

| Belief | Yes | | No | | Don't know | |
|---|-----|------|-----|------|------------|------|
| | No. | % | No. | % | No. | % |
| Positive impacts | | | | | | |
| Prevents transmitting infection to partner | 282 | 83.4 | 14 | 4.1 | 42 | 12.4 |
| Protects you from STI | 278 | 82.2 | 17 | 5.0 | 43 | 12.7 |
| Protects from another HIV infection | 267 | 79.0 | 24 | 7.1 | 47 | 13.9 |
| Prevents guilt feeling afterwards | 223 | 66.0 | 38 | 11.2 | 77 | 22.8 |
| Allows you to continue sexual relationship | 201 | 59.5 | 53 | 15.7 | 84 | 24.9 |
| Negative impacts | | | | | | |
| Decreases pleasure | 189 | 55.9 | 59 | 17.5 | 90 | 26.6 |
| Prevents spontaneity | 146 | 43.2 | 75 | 22.2 | 117 | 34.6 |
| Interferes with the flow of sexual relationship | 156 | 46.2 | 80 | 23.7 | 102 | 30.2 |
| Makes a barrier to intimacy and love | 129 | 38.2 | 106 | 31.4 | 103 | 30.5 |
| Causes loss of confidence with partner | 113 | 33.4 | 123 | 36.4 | 102 | 30.2 |
| Results in erection problems | 88 | 26.0 | 135 | 39.9 | 115 | 34.0 |

STI = sexually transmitted infections.

Table 8 Reasons given by the study population for use and non-use of condoms by people living with HIV/AIDS, Egypt 2011

| Item | No. | % |
|--------------------------------------|-----|------|
| Reasons for use (n = 318) | | |
| Protection from infection | 298 | 93.7 |
| Fear of God | 14 | 4.4 |
| Guilt feelings | 8 | 2.5 |
| Psychological reasons | 14 | 4.4 |
| Reasons for non-use (n = 289) | | |
| Revenge and lack of conscience | 159 | 55.5 |
| To get full pleasure | 128 | 44.4 |
| Ignorance | 95 | 32.9 |
| Psychological factors | 59 | 20.5 |
| Partner refusal | 21 | 7.3 |
| Unavailability of condom | 21 | 7.3 |

As the use of condoms during casual sexual relationships was found to be modest, the study investigated the beliefs of the studied population of PLHA on the impact of condom use in casual sexual relationships. Although more than 80% of the respondents knew the value of condom use in preventing transmission and protecting against STIs, and two-thirds believed that it saved them from feeling guilty, yet they were not always using condoms in these relations because of factors including decreased pleasure and loss of confidence with the partner. Unavailability of condoms on the spot was

not mentioned except by a very small percentage of the respondents.

When asked an indirect question about why PLHA do not use condoms, one reason that emerged, according to more than half the respondents, was revenge, although this was not mentioned when they were speaking about themselves. This suggests that respondents were in denial about their motives or reluctant to admit to such an unethical reason. It means that it should be taken into consideration in programmes designed to change attitudes of PLHA with respect to condom use.

Finally, the responses of participants concerning "fear from God", and other items such as forbidding relations outside marriage, morality and compassion for others, suggest that the strong religious beliefs among the great majority of Egyptians could be used in the counselling of HIV-infected persons. The consultation organized by the World Health Organization Regional Office for the Eastern Mediterranean about the role of religion and ethics in the prevention and control of AIDS has highlighted the need to utilize religious teachings in making affected persons aware of their role in preventing spread of infection to others [18].

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