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## Knowledge of Undergraduate Medical and Non-Medical Students about HIV/AIDS Prevention and Control (II)

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### Abstract

**Background & Objectives:** To assess the knowledge of undergraduate medical and non-medical students about the prevention and control of HIV/AIDS and to determine the effect of the curriculum applied in the colleges of medicine regarding HIV/AIDS on the level of knowledge of medical students compared with that of non-medical.

**Methods:** Questionnaire survey using structured, self-administered questionnaire consisted of 29 closed-ended questions, concerning the knowledge of prevention and control of HIV/AIDS was distributed to 400 undergraduate students from Colleges of Medicine, Science and Arts in Al-Mustansirya University during the period from the 1<sup>st</sup> of October 2004 through May 2005.

**Results:** The study showed that 95.5% of medical and 83.5% of non-medical students had good and 3% of medical and 15.5% of non-medical students had fair knowledge scores regarding HIV prevention. While 87.5% of medical and 56% of non-medical students had good and 10.5% of medical and 36.5% of non-medical students had fair knowledge scores regarding HIV/AIDS control.

**Conclusion:** Generally, students showed good knowledge about the prevention and control of HIV/AIDS, and the level of medical students' knowledge was higher than that of non-medical, however some gaps in their knowledge still exist and ignorance of some basic facts related to HIV prevention were reported.

**Keywords:** Knowledge, students, HIV/AIDS prevention and control.

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### **Introduction:**

The Acquired Immune Deficiency Syndrome (AIDS) is the expression of a spectrum of disorders caused by cellular and humeral immune dysfunction resulting from infection by Human Immunodeficiency Virus (HIV). Since AIDS was recognized as distinct new disease entity in 1981, over 50 million individuals worldwide have been infected by HIV, of those more than 90% in developing world<sup>[1]</sup>.

Today some 37.8 million people are living with HIV which killed 2.9 million in 2003 and over 20 million since the first cases of AIDS were identified in 1981<sup>[2]</sup>. The prevalence of HIV infection in Iraq is low and the cumulative number of reported cases since the first cases of the infection were recognized in the country in 1986 to the year 2005 is only 260 cases, this was mainly due to the prevailing religious, social, and cultural values in addition to the applied strategies for prevention and control<sup>[3]</sup>.

Because of the serious impact of HIV/AIDS upon people and societies, all effective means should be used to combat this disease and limit its spread, but in absence of a protective vaccine and curative treatment till now, public health education is still the best mean of combating the disease, and it remains the key for AIDS prevention and control. An important starting point for designing proper prevention tools is to know how much people know

about HIV/AIDS especially among educated persons and those who may be in contact with infected individuals and patients with AIDS. The level of knowledge on HIV/AIDS is important in eradicating the disease.

College students represent a dynamic and highly educated group in the society, and they are expected to play a crucial role in limiting the spread of HIV/AIDS and promoting the health education about HIV/AIDS in the country, so this study aimed to assess their knowledge about preventive and control measures of HIV/AIDS.

### **Subjects and Methods:**

A structured, self-administered questionnaire consisted of 29 closed-ended questions, concerning the knowledge of prevention and control of HIV/AIDS was distributed to 400 undergraduate students from Colleges of Medicine, Science and Arts in Al-Mustansirya University. The students recruited were 200 medical students and 200 non-medical students. The questionnaire was adapted according to the WHO Research Package: Knowledge, Attitudes, Beliefs and Practices on AIDS, 1990<sup>[4]</sup>, and the United Nations Children's Fund (UNICEF) 1999: KABP Survey for adult men and women target groups (5) and other survey questionnaires used in the similar studies. It was modified to suite the Iraqi culture and norms, reviewed and evaluated by expert's specialists from

the Ministries of Health and Higher Education and Scientific Research. All the statements in the questionnaire were translated into Arabic .The clarity and time needed to complete the questionnaire was assured by a pilot study comprising of 20 students from College of Arts. So as a result the average time needed to complete it was estimated to be approximately 20 minutes. Some modifications then made on the questionnaire and final version of it had been distributed to study groups. The students required to respond with (Yes) and (No).Scores were assigned for each response and a total score of [29] was adopted, and the scores of each student were calculated on the basis of a score [1] for the correct responses and (0) for the incorrect responses. Knowledge scores are then categorized according to above and below the median of the total scores in to Poor ( $\leq 14$ ), Fair [15-22] and Good (23 or more) knowledge scores. The collected data was analyzed statistically with Statistical Package for Social Sciences (SPSS) version (11.5) programme. P value equal to or less than 0.05 was considered significant.

**Results:**

Among the 400 students recruited in this study, 218 (54.5 %) were females and 182 (45.5%) were

males. The mean age of the whole cohort was  $22.5 \pm 0.91$  years (range 20-25 years).Regarding HIV/AIDS prevention; there was a strong agreement among medical (97.5%) and non medical (98.5%) student that HIV/AIDS can be a voided. No vaccine existed for either HIV or AIDS is a fact appreciated by medical more than non medical students (88% vs. 62%). More than 85% of both medical and non medical students indicated that we can reduce our risk of becoming infected by HIV by legal sexual relations. The fact that HIV infected mother can reduce the risk of HIV transmission to her fetus by taking antiretroviral drugs , was recognized by less than half of medical and non medical students (48% and 47.5% respectively) (Table 1).

Regarding HIV testing, more than 80% of medical and non medical students indicated that HIV/AIDS contacts should be tested for HIV and more than 90% of them indicated that all travelers entering the country, Injectable drug addicts, organ, tissue and cell donors, blood and its products should be tested for HIV. The indication of HIV testing for health care workers as Dentists, Surgeons, Nurses and laboratory workers was appreciated by medical more than non medical students (95% vs. 70.5%) Table 2.

**Table 1: Distribution of students according to their knowledge about HIV / AIDS prevention:**

Statements	Correct Response			
	Medical		Non - Medical	
	No.	%	No.	%
Can HIV / AIDS be avoided?	195	97.5	197	98.5
Is there a vaccine to prevent HIV /AIDS?	176	88	124	62
We can reduce the risk of HIV infection by :				
- Having a good diet.	127	63.5	101	50.5
- Legal Sexual relations.	184	92	171	85.5
Can HIV infected mother reduce the risk of HIV transmission to her fetus?	96	48	95	47.5
What can HIV infected mother do to reduce the risk of HIV transmission to her healthy baby:				
- She takes medication.	99	49.5	79	39.5
- She gives her baby a vaccine.	139	69.5	45	22.5
- She stops breast feeding.	117	58.5	135	67.5

**Table 2: Distribution of students according to their knowledge about the indication of HIV testing:**

Group	Correct Response			
	Medical		Non – Medical	
	No.	%	No.	%
HIV / AIDS patient contacts	161	80.5	166	83
Food - Service workers	113	56.5	123	61
All travelers entering the country	194	97	180	90
Dentists, Surgeons ,Nurses and lab-workers	190	95	141	70.5
Hair dressers and barbers	38	19	115	57.5
Blood and its products	196	98	190	95
Organ , tissue and cell donors	194	97	187	93
Injectable drug addicts	195	97.5	181	90.5

Regarding the best and effective means to limit the spread of HIV /AIDS among people more than 97% of medical and non medical students agreed that the reinforcement of religious values and moral behaviors with public and school health education are the best and effective means to combat the disease and limit its spread among people. While only 20.5% of medical and 8% of non medical students agreed that isolating HIV/AIDS patients from others is unnecessary mean in combating the disease (Table 3). Regarding HIV/AIDS control,

many reasons that explain why HIV/AIDS is difficult to control till now, 90% of medical and 81% of non medical students indicated that the absence of protective vaccine is one of these reasons , 91.5% of medical and 92% of non medical students agreed that the absence of a curative treatment is another reason. The direct linkage of the disease to human life style and behavior was considered another reason by 89% of medical and 87% of non medical students (Table 4).

**Table 3: Distribution of students according to their knowledge about the effective means to limit HIV / AIDS spread:**

Statements	Correct Response			
	Medical		Non - Medical	
	No.	%	No.	%
By isolating HIV /AIDS patients from others	41	20.5	16	8
By reinforcement of religious values and moral behaviors	195	97.5	198	99
By public and school health education	194	97	199	99.5

**Table 4: Distribution of students according to their knowledge about the reasons that HIV / AIDS are difficult to control:**

Statements	Correct Response			
	Medical		Non - Medical	
	No.	%	No.	%
<b>Because we do not know the causative agent</b>	158	79	104	52
<b>Because we do not know its modes of transmission</b>	163	81.5	116	58
<b>Because there is no protective vaccine</b>	180	90	162	81
<b>Because there is no curative treatment</b>	183	91.5	184	92
<b>Because of its direct linkage to human lifestyle and behaviors</b>	178	89	174	87

Regarding HIV/AIDS treatment, there are number of drugs that interrupt viral replication but do not cure HIV infection or AIDS. This fact was recognized by medical more than non medical students (92% vs. 48%). These drugs are used to treat HIV- related opportunistic infections; this was appreciated by 95.5% of medical and 93% of non medical students. As result, these drugs will postpone AIDS manifestation and death, again this fact was appreciated by medical more than non medical students (84.5% vs. 70%) (Table 5)

Regarding the sources of information about HIV/ AIDS, among medical students, medical

professional's sources ranked first as a source of information (85%) followed by electronic media as radio and TV (73%) then printed media as news papers and magazines (65%). Among non medical students electronic media ranked first as a source of information (79.5%) followed by printed media (64%) then medical professionals (50%) (Table 6). According to knowledge scores, there was significant association between knowledge scores and category of students regarding HIV/AIDS prevention ( $X^2=18.701$ ;  $P=0.0001$ ) and control ( $X^2=48.964$ ;  $P=0.0001$ ) (Table 5).

**Table 5: Distribution of students according to their knowledge about the HIV / AIDS treatment:**

Statements	Correct Response			
	Medical		Non – Medical	
	No.	%	No.	%
<b>To cure HIV / AIDS</b>	184	92	96	48
<b>To treat HIV - related opportunistic infections</b>	191	95.5	186	93
<b>To postpone AIDS manifestation and death</b>	169	84.5	140	70
<b>To reduce the risk of HIV transmission for those accidentally exposed to HIV.</b>	148	74	171	85.5

**Table 6: Distribution of students according to their sources of information about HIV / AIDS: \***

Sources	Medical		Non - Medical	
	No.	%	No.	%
Family	68	34	59	29.5
Friends	66	33	61	30.5
News papers, Magazines	131	65.5	128	64
Radio, TV	146	73	159	79.5
Professionals	170	85	100	50
Others	74		63	31.5

\* More than one answer possible.

**Table 5: Distribution of students according to their knowledge Scores:**

Knowledge Scores		Category of Students				X <sup>2</sup> ; P
		Medical		Non-Medical		
		NO	%	NO	%	
Prevention	GOOD	191	95.5	167	83.5	18.701; 0.0001*
	FAIR	6	3	31	15.5	
	POOR	3	1.5	2	1	
Control	GOOD	175	87.5	112	56	48.964; 0.0001*
	FAIR	21	10.5	73	36.5	
	POOR	4	2	15	7.5	

\*Significant  $p \leq 0.05$

**Discussion:**

**HIV/AIDS prevention:**

Education, counseling and behavioral modification are the cornerstone of any prevention strategy [6]. This study sought to test the student's knowledge about HIV/AIDS preventive measures, where most of them were aware that HIV/ AIDS can be avoided, and this is consistent with the results of the study carried out in Sultanate of Oman where 92.4 % of medical and non medical students thought that HIV/AIDS is preventable disease [7]. In spite of that, 12% of medical and 38% of non medical students believed that a vaccine is now available against HIV/AIDS, and 36.5% of medical and 49.5% of non medical students thought

that we can reduce our risk of becoming infected with HIV by having a good diet. The risk of HIV transmission from infected mother to her fetus can be reduced from 25% to less than 10% when antiviral drugs are given to HIV infected mother and her newborn baby and when infected mother avoid breast feeding [12]. This fact was not recognized as a preventive measure by more than 50% of students, and the role of avoiding breast feeding in the protection of healthy infants were also not recognized by 41.5% of medical and 32.5% of non medical students. These finding were close to that of the study which was carried out in Saudi Arabia among paramedical students, where 55 % of males and 57.8% of females did not know

how can infected mother protect her healthy infant, 34.9% of males and 22.4% of females thought there is no mean for infected mother to protect her baby. While only 3.4% of males and 10.4% of females were aware that HIV infected mother can protect her healthy baby by avoiding breast feeding<sup>[8]</sup>.

#### **HIV testing:**

It is important that persons at risk for HIV infection undergo serologic testing. Testing should not be confined to individuals at highest risk (e.g. Injectable drug users), but should be strongly recommended for all sexually active persons with any risk (1). The majority of students recruited in this study correctly specified the groups that should be tested for HIV, however still 43.5% of medical and 39% of non medical students thought that food-service workers should have HIV test. Similarly, 81% of medical and 42.5% of non medical students thought that hair dressers and barbers should have HIV test, and there is about 30% of non medical students who did not specify health care workers as Dentists, Surgeons, Nurses and laboratory personnel a risk groups for HIV infection and should be tested.

#### **Limiting HIV/AIDS spread:**

It has been argued that Islamic culture and guidance and religious culture in general is the main factor in limiting the spread of the AIDS epidemic in Middle East and North Africa (MENA), because Islam prohibits sexual activities outside marriage and prohibits addicting drugs and alcohol<sup>[9]</sup>. This study revealed that most of students were aware about the role of religious values and health education in limiting the spread of HIV/AIDS among people. However, in spite of the fact that isolation of HIV positive individuals is unnecessary, ineffective and unjustified<sup>[10]</sup>, still there were about 80% of medical and more than 90% of non medical students who thought that we can limit HIV /AIDS spread by isolating infected individuals from other people.

#### **HIV/AIDS control:**

The study sought to determine student's views on the obstacles facing HIV/AIDS control programmes. The majority of them were aware that absence of a protective vaccine and curative treatment for HIV/AIDS, and the direct linkage of the disease to human life style and behavior are the main reasons that HIV /AIDS is difficult to control till now. However, 21% of medical and 48% of non medical students believed that AIDS is difficult to control because we don't know its causative agent and about 20% of medical and more than 40% of non medical students thought that we do not know its modes of transmission and more than 10% of students in both groups do not consider the linkage

of disease to human life style and behavior a reason that it is difficult to control.

#### **HIV/AIDS treatment:**

The majority of students in this study were aware that the aim of using drugs in the treatment of HIV/AIDS is to treat opportunistic infections accompanying AIDS and to postpone AIDS manifestation and death. However, still more than 50% of non medical students thought that HIV/AIDS can be cured by using these drugs; there was 26% of medical and 15% of non medical students who did not appreciate the role of antiviral drugs in reducing the risk of HIV transmission to those who accidentally exposed to HIV.

#### **Sources of information about HIV/AIDS:**

Information and education are vital in the fight against HIV/AIDS. All available evidence indicate that lack of knowledge increase the vulnerability and susceptibility of the individuals to contracting the disease. In this regards identification of sources is important as this provide crucial data on the best means of information dissemination and on the underutilized sources of information. The latter is an area which needs to be addressed if public education on HIV/AIDS is to be more effective<sup>[11]</sup>. In this study, it was clear that medical professionals, electronic media and print media were the main sources of information identified by the students. Similar study in Iraq showed that 71.7% of dental students depended on University text books as a source of information and 53.8% on the broadcast and TV and 34.4% on newspapers and magazines<sup>[12]</sup>, and other study in Syria, 75% of dental students ranked radio and TV first and 65.5% for newspapers and magazines as sources of information<sup>[13]</sup>.

#### **Conclusion:**

Generally, the students showed good knowledge about the prevention and control of HIV/AIDS, and the level of knowledge of medical students was significantly higher than non-medical, which reflect the effect of the curriculum applied in colleges of medicine regarding HIV/AIDS, however some gaps in their knowledge still exist and ignorance of some basic facts related to the prevention of HIV as that related to the vertical transmission of HIV, the role of breast feeding in the prevention of HIV transmission, the availability of vaccine for HIV or AIDS, the indications for HIV testing, the role of antiretroviral drugs in the treatment of HIV/AIDS ,and the effective means in limiting the spread of HIV/AIDS were observed .

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