**“Exploring knowledge and attitude regarding Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome among Cairo University medical students”**

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***Authors’ contributions***

*This work was carried out in collaboration between authors. Author NAL contribute to*

*design the study. Author MAS contribute to acquisition of data , revising the manuscript and results . Author SFS did the data analysis, interpretation of data and final writing the manuscript. All of them prepared the final report for publishing.*

**Running title:**

“Knowledge and attitudes about HIV/AIDS”

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| **Abstract**: Introduction: Although Egypt is considered to be in the low epidemic stage of HIV infection yet the disease is considered as a threat; being a disease that affects young adults. Medical students need to have appropriate knowledge and attitudes about HIV and AIDS as they will play a key role in prevention of spread of the disease and care of people with AIDS. The aim of the study was to explore the knowledge and attitudes of medical students about HIV/AIDS.Methods: A cross-sectional study was carried out in Faculty of Medicine, Cairo University. A sample of 665 (N=665) fourth year medical students agreed to participate in the study. Data were collected using an anonymous self administered questionnaire. Descriptive and inferential statistics were employed for the data analysis using SPSS version18. Results: Overall students had good knowledge about HIV and AIDS as well as a positive attitude towards AIDS people. Regarding knowledge about modes of transmission; overall the knowledge about route of transmission of HIV was high. The percent knowledge score was 72.1± 9.3, the median was 73.2, while the inter-quartile range was 65.9 -78.1. A few items however presented contradictory results from the overall score of the knowledge scale. Participants who reported a willingness to care for people with AIDS were significantly more knowledgeable and held more positive attitudes towards people with AIDS , while about half of the sample denied their willingness to live in the same community with AIDS patients. The primary sources of information for the participants were; their faculty (94%), and internet (44%). Conclusion: Medical curriculum programmes need to be restructured to ensure that students gain the necessary accurate knowledge and appropriate attitudes about HIV and AIDS. **Key words:** HIV, AIDS, knowledge, attitudes, sexual behavior, medical students. |

**Introduction:**

Stigma and discrimination remain a major challenge hampering the effective delivery of key services; as treatment of people living with HIV. As reported by a study conducted by ESPSRH, UNAIDS, UNICEF, 2004; almost 30% of surveyed people living with HIV prefer not to attend to a healthcare facility in fear of being stigmatized or rejected (1).

Stigma and discrimination are daily realities for people living with HIV and for people belonging to groups particularly vulnerable to HIV infection. Members of these groups are already stigmatized and are more likely to face more discrimination than others when diagnosed with HIV, including refusal to provide services (2).

Half of PLHIV would prefer not to disclose their status. Shockingly, 71.3% of healthcare providers’ reports they would refuse treating PLHIV (3).

Thus, medical students through their education and clinical training should acquire knowledge that will change their attitudes and influence their behaviors both in the prevention of transmission of the virus, and positive attitudes for effective caring for these patients. With the continuing increase in the incidence of HIV and AIDS medical staff require current knowledge and skills to ensure that they are able to provide high quality and effective care to people living with HIV and AIDS (4, 5).

In the current AIDS pandemics, equipping health professional students with adequate knowledge and positive attitude is necessary to produce graduates who can deliver appropriate intervention to patients infected with HIV or who have developed AIDS (6).

There are many factors related to negative PLHIV related attitudes, such as a low

Knowledge level and fear of the possibility of becoming infected (7).

At present, most of the studies published on this topic are concerned with testing attitudes, knowledge and behavior of health personnel in order to plan educational interventions (8, 9).

The current study aimed to explore the knowledge and attitude of medical students regarding HIV/AIDS, believing that proper comprehension about the previously mentioned disease paves a way for better attitude and consequently better services provided by medical staff for HIV/AIDS patients.

**Subjects and methods:**

The study is a cross-sectional study conducted during the scholastic year 2013-2014 in Faculty of medicine, Cairo University.

Fourth year medical students were approached, were a total of 665 students participated in the study.

A structured questionnaire was used to assess knowledge and attitude of medical students regarding HIV infection, AIDS disease, and PLHIV and risk groups.

The questionnaire was self – administered in presence of the researcher in a classroom setting. Clarification was given as needed. Before data collection began, students were briefed about the technical terminologies used in the questionnaire and were given guidance on how to fill out the form.

The participants were asked about modes of transmission, risky groups, risk reduction methods ,their attitudes and their willingness for providing health care services for the HIV/AIDS patients.

Tools were revised by experts for validity and were pretested.

**Statistical analysis:**

Data were entered into a spreadsheet and exported to Statistical Package for the Social Science (SPSS) for Windows, version 18.0 software (SPSS Inc., Illinois, USA) for analysis. Descriptive statistics were used to describe demographic characteristics and knowledge and attitudes about HIV/AIDS. Numbers and percentages were used to present categorical data. Mean (standard deviation, SD) was used for normally distributed continuous data, and median (interquartile range,IQR) for non-normal continuous data.

**Ethical considerations:**

Ethical and administrative approvals were taken from the head of the public health department and ethical committee where the study was conducted. Verbal consents were obtained from all participating students. All participants were informed about the content of the questionnaire and aim of the study, and were assured of confidentiality of their data. Study participation was anonymous and voluntary.

**Results:**

**Descriptive data:**

A total of 665 fourth year medical students participated in the present study. Of the respondents 53.1% were males and 46.9% were females. The mean age of the participants was 20.6±0.9 years. The significant level of p value was determined at p< 0.05

**Knowledge and attitudes about HIV/AIDS:**

As illustrated in table 1 the majority of participants (93.7%) mentioned the faculty of medicine as the main source of information about HIV and AIDS, followed by the internet sources.

When asked about the difference between HIV and AIDS more than two thirds of the students wrongly responded that there is no difference between the terms HIV and AIDS.

Regarding knowledge about modes of transmission; overall the knowledge about route of transmission of HIV was high. The percent knowledge score was 72.1±9.3, the median was 73.2, while the inter-quartile range was 65.9 -78.1.

**As illustrated in table 2,** 99.4% of respondents knew that HIV can be transmitted through sexual intercourse. The majority of students were also aware that HIV can be transmitted through sharing needles or syringes.

However, there was confusion about some routes of transmission. For example, only 69.5% of the participants correctly answered that ‘‘insect bite’’ does not spread HIV. Nearly one fifth of respondents did not know if HIV infection can be transmitted through table utensils or not. Only two third of the respondents correctly answered that HIV can be transmitted from mother to child.

**Table 3** also summarizes the knowledge of the students about prevention of HIV. A satisfactorily high level of knowledge was reported by students when they were asked questions such as: Can HIV be prevented by not sharing needle or syringe? Does using condoms during sexual intercourse protect against HIV infection? Can HIV be prevented by raising awareness about HIV and AIDS?Surveillance for renal dialysis centers, blood clinics, venereal diseases is essential for prevention?

 However, in response to the question whether ‘‘HIV can be transmitted by sharing table utensils or sharing toilets? ’’ Only (63.9%) and 59.8% replied ‘‘no ’’.

Overall, respondents had a mean 72.1 ± 9.3 (± 9 SD) score of knowledge. Accordingly, 64.8% were classified as having an excellent level of knowledge (equal to or more than 85% correct answers).

When asked about their knowledge about services for prevention and control of HIV and AIDS; 57.9% answered that they don’t know whether there is a separate program at the Ministry of Health for HIV and AIDS prevention and control. More than two thirds didn’t know the phone number of the AIDS hotline and quarter of the participants reported that they don’t know any of the organizations specialized in HIV and AIDS.

***Attitude of students regarding HIV and AIDS:***

As illustrated in ***table 4***; students exhibited positive attitudes towards their willingness to provide medical care for HIV patients. However, less than half of the students reported their willingness to live in the same community with HIV/AIDS patients. While they showed positive responses on issues as performing surgery or conducting labor to an HIV patient. The majority didn’t agree that PLHIV should be isolated or not allowed to attend schools.

The percent attitude scores was (67.7± 15.8) , 15.2% had poor attitude ,35.9% had good attitude and 48.9% had excellent attitude towards PLHIV and also towards considering HIV/AIDS as a problem that worth care in Egypt. About 39% were classified as having negative attitude towards PLHIV because they scored less than the mean.

**Relations of knowledge & attitude scores with age & sex**:

Age and sex variables showed no significant difference in relation to knowledge and attitude percent score as the P value was (0.79 and 0.48) consecutively.

**Associations of knowledge with attitudes:**

Binary logistic regression reports that level of knowledge significantly contributed to level of attitudes as shown in **Table 5**.Knowledge % score showed significant difference with attitude % score, where the P value was (< 0.001).

**Discussion:**

The study aimed at studying the knowledge and attitude of medical students regarding HIV/AIDS patients.

The current study showed that the research participants had correct knowledge about most modes of transmission of HIV infection, while more than half of them correctly stated that sharing table utensils and toilets are not a mode of transmission. Some wrong concepts were detected regarding some modes of transmission as “insect bite” and “mother to child transmission”.

# This goes in accordance with a study conducted in Finland among university students; where the majority of students were familiar with HIV and AIDS, including its mode of transmission. (10)

# Many studies conducted in some African countries as Nigeria have confirmed that undergraduates have high level of awareness about STIs and HIV/AIDS.

# (11, 12, and 13).

# Regarding the attitude of the students towards HIV/AIDS patients, most of the participants expressed their willingness to provide medical care for medical students. Similar results were stated by a study conducted in Malasyia, 2013 among clinical dental students, in Malaya University where most students (mean

# =3.76) believed that it is the moral duty for a dentist to treat an HIV/HBV patient. (14)

On the contrary, less than half of the studied students expressed their willingness to live in the same community with HIV/AIDS patients. This may express conflicting attitudes of the students towards HIV/AIDS patients and that their willingness to deal with HIV/AIDS patients evolves from their sense of duty rather than personal feelings (15).

# Age and sex variables showed no significant difference in relation to knowledge and attitude percent score. Contradictory to a study conducted among Chinese college students; that indicated an inconsistent level of AIDS knowledge among students, with a significant gender and grade difference (15).

# The current study showed positive significant difference in the attitude percent score with the level of knowledge of the research participants. A finding that goes in accordance with a study conducted in China ,where effectiveness of a school-based AIDS education program among rural students in HIV high epidemic area of China was evaluated and revealed that communication and education about HIV/AIDS had a positive impact on the attitude towards HIV/AIDS(16).

**Conclusion:**

General speaking medical students had very good knowledge regarding the modes of transmission and preventive measures of HIV infection. The attitude towards HIV/AIDS patients is greatly influenced by the level of knowledge.

Thus it is concluded that health education about HIV/AIDS will positively influence the awareness and attitude of HIV prevention and care of HIV patients among medical students, therefore, a systematic and long-term program to improve awareness about HIV/AIDS is recommended among medical students.

**Limitations:**

The study was carried out in a school environment involving medical students, thereby making the research participants very selective. Any generalization of the results of this study must be made with caution. More so, HIV/AIDS are sensitive topics that many young people may be shy to talk about openly.

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**Tables:**

**Table 1:** ***Sources of information about HIV and AIDS:***

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Yes** | **No** | **I do not know** |
|   | **N** | **%** | **N** | **%** | **N** | **%** |
| **Source of your information**  |   |   |   |   |   |   |
| TV | 256 | 38.5 | 409 | 61.5 | 0 | 0.0 |
| Internet  | 295 | 44.4 | 370 | 55.6 | 0 | 0.0 |
| Radio  | 31 | 4.7 | 634 | 95.3 | 0 | 0.0 |
| Your faculty | 623 | 93.7 | 42 | 6.3 | 0 | 0.0 |
| Others | 83 | 12.5 | 582 | 87.5 | 0 | 0.0 |

(more than one answer was given by the students)

**Table 2: *Knowledge regarding transmission HIV/AIDS (N: 665)***

|  |
| --- |
| Questions with correct response Number (%) reporting the correct responses |
| People can get HIV infection from  |  n |  % |      |
|  Unprotected sexual intercourse(yes) | 661 | 99.4 |
| Infected syringes and instruments(yes) | 653 | 98.2 |  |
|  Receiving infected blood(yes) | 639 | 96.1 |
| Needle stick (yes) | 560 | 84.2 |
| Breast feeding(yes) | 447 | 67.2 |
| Mother to child during pregnancy(yes) | 606 | 91.1 |
| Insect bites(no) | 462 | 69.5 |
| Sharing food with an infected person(no) | 580 | 87.2 |
| Swimming pools(no) | 539 | 81.1 |
| Sharing table utensils(no) | 474 | 71.3 |
| Shaking hands(no) | 605 | 91.0 |

**Table 3: Prevention methods:**

|  |  |
| --- | --- |
| Questions with correct responses  | Number (%) reporting the Correct answer  |
|  | No  | % |
| Prevention methods |   |   |
| HIV /AIDS patient should cover his wounds if any. | 575 | 86.5 |
| Use sterile syringes.  | 649 | 97.6 |
| Use condoms. | 587 | 88.3 |
| Not sharing table utensils with others. | 425 | 63.9 |
| Not sharing toilets | 398 | 59.8 |
| Surveillance for renal dialysis centers , blood clinics, venereal diseases is essential for prevention | 632 | 95.0 |

**Table 4: Attitudes towards people living with HIV/AIDS (N: 665)**

|  |  |
| --- | --- |
| **Questions with positive responses**  | **Number % reporting the specified responses** |
|  | **N** | **%** |
| **Do you think HIV/AIDS is a problem that worth care in Egypt(yes)** | 525 | 78.9 |
| **Are you willing to live in the same community with an HIV/AIDS patient (yes)** | 324 | 48.7 |
| **Are you willing to provide medical care for an HIV/AIDS patient (yes)** | 548 | 82.4 |
| **Are you willing to work with an HIV/AIDS patient(yes)** | 418 | 62.9 |
| **Do you think that**  |  |  |
| People with HIV/ AIDS should be isolated (no)  | 433 | 65.1 |
| Children with HIV/AIDS shouldn’t attend school (no) | 471 | 70.8 |
| HIV/AIDS patients should be punished ( no) | 616 | 92.6 |
| An HIV/AIDS patient is an immoral person(NO) | 579 | 87.1 |
| **If you are responsible for providing medical care to HIV/AIDS patient would you be keen to know the mode of transmission (yes)** | 458 | 68.9 |
| **Would this make a difference in your attitude(no)** | 282 | 42.4 |
| **Do you think that this disease is a punishment that the patient deserves(no)** | 535 | 80.5 |
| **Would you accept to perform a surgery(yes)** | 356 | 53.5 |
| **Would you accept to conducting labor for an HIV/AIDS patient(yes)** | 377 | 56.7 |
| **Do you accept to work for advocating for the human rights for HIV/AIDS patients(yes)**  | 524 | 78.8 |
| **Would you recommend an increase in the budget allocated for HIV prevention and control (yes)** | 586 | 88.1 |

**Table 5: Associations of knowledge with attitudes:**

|  |  |  |
| --- | --- | --- |
|  | **Knowledge % score** | **Attitude % score** |
| **Attitude % score** | **r= 0.175, P <0.001** |  |
| Age | r= -0.021, P=0.594 | r= -0.001, P=0.971 |
| Sex |  |  |
| Male | 72.1 ± 9.5 | 67.3 ± 16.1 |
| Female | 72.1 ± 9.1 | 68.2 ± 15.5 |
| P value | 0.97 | 0.48 |