HIV/AIDS awareness among Iraqi medical and dental students

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Abstract

Objectives: The present study investigated the awareness of HIV/AIDS among medical and dental students in four provinces of Iraq, a country with low HIV/AIDS frequency. Materials and Methods: In the present study, the target population was all Iraqi medical and dental students who were in 3rd and 4th year of their education. Out of 15 medicine and 10 dentistry faculties in Iraq, 4 medical and dental faculties were randomly selected. All the students under them were invited to participate in the study (600 students) and 526 responses were received from them. We distributed the questionnaires to students during their obligatory lectures in the academic year 2012–2013. Data collection was done with a self-administered questionnaire containing knowledge and attitude questions (11 questions for each part) in addition to some demographic questions. Results: A total of 526 questionnaires were received (from 319 medical students and 207 dental students). Knowledge of about half of the medical students (54%) was at an intermediate level and of 27.1% students was at a good level; more than half of the dental students (68.2%) had an intermediate level and 10.5% had a good level of knowledge. The level of attitude of medical students was 14.7% at an intermediate level and of dentistry students was 21.4% at an intermediate level. Attitude of none of the students was at good level. Knowledge and attitude scores were not significantly associated with age, gender, or marital status. However, medical students had better knowledge and attitude toward HIV/AIDS, compared to dental students. Conclusions: Some coefficients exist in knowledge and attitude of Iraqi medical and dental students toward HIV/AIDS. Results indicate that more emphasis should be placed on educating dental and medical students about HIV and other blood-borne infections.

Key words: Awareness, control, education, HIV/AIDS, student

INTRODUCTION

The medical staff, in particular doctors and dentists who are directly in contact with the body fluids of patients, are at an increased risk of HIV/AIDS.¹ However, patients could be at risk of HIV transmission from the clinician too. The well-known example is the story of Dr. Acer with his patients that happened in 1993, in which because of his neglect, six patients were infected with HIV.²

In general, majority of the healthcare workers (HCW) believe that treatment of this category of patients is a

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part of duty of care. So, all HCW intentionally or unintentionally are exposed to HIV infection and they should know how to protect themselves and their patients from infection transmission. Also, doctors and dentists are the cornerstone of health education in the community and they play a very important role in educating the community about the disease and how to prevent it.

There are two types of patients with HIV infection. They are either not aware of their own infection or do not want to tell the doctor or dentist for different reasons, but mainly because of the stigma attached to this type of infection. Consequently, the frontline HCW including dentists are under ongoing risk of contamination. Therefore, thorough knowledge and professional attitude toward HIV infection control among HCW is critical and without it, they are exposing themselves and patients to this revolting disease transmitted.

Following the standard infection control protocols and guidelines seems to be the answer to stop contamination. Nevertheless, despite all the measures taken to prevent infection transmission among HCW and patients, they are still at high risk of contamination. This has been confirmed in some studies.

Researchers from South Africa, Brazil, Jordan, and India have reported about the knowledge and attitudes of dental students toward HIV/AIDS; all the results showed good knowledge of students, but their attitude with the persons who are infected with HIV is bad.

Assessment of the knowledge and attitudes of medical and dental students toward HIV and AIDS-afflicted patients is extremely essential to determine the efficiency of the education and the opportunities offered to students by the colleges, in order to know about this disease and the appropriate way to deal with these devastated patients.

Preventing the spread of HIV in conservative communities such as Middle Eastern communities requires a comprehensive strategy that includes effective, sustained health education and health promotion programs at both community and health professional levels. The goal of these programs is to reduce the risk of individuals becoming infected with HIV or, if already infected, they need more education to overcome the community stigma to reduce infecting others.

Because Iraq is a country with actually low HIV/AIDS frequency, there is no such study or data available in this field. So, we conducted a large cross-sectional based study among Iraqi medical and dental students in the 3rd and 4th year of their undergraduate studies to know their attitude toward HIV-positive/AIDS patients. In this study, we evaluated the level of knowledge and attitude and the desire to treat the high-risk patients.

**MATERIALS AND METHODS**

The target population in the present study consisted of all Iraqi medical and dental students who were in 3rd and 4th year of their education. Out of 15 medicine and 10 dentistry faculties who were registered by the Iraqi Ministry of Higher Education and had more than 3 years of work experience, 4 medical and dental faculties were randomly selected. All the 3rd and 4th year students of the selected faculties were invited to study (600 students) and 526 responses were received out of them. We distributed the questionnaires to students during their obligatory lectures in the academic year 2012/2013 after obtaining approval of the dean and professors from each of the colleges we visited during the research work. The students did not take more than half an hour to fill up the questionnaires that were distributed to them in their lectures. Participation in the study was voluntary and this was mentioned on the top of all the questionnaires; so, the received questionnaires indicated their acceptance to be included in the study.

Data collection was done with a self-administered questionnaire containing knowledge and attitude questions (11 questions for each part) in addition to some demographic questions. The questionnaire was same as the one used in a study by Patil et al. and in a previous study with modifications, and validity of the questionnaire was confirmed by similar studies. The entrants had the choices of correct and incorrect answers for the knowledge questions. There were five correct answers out of 11 questions (correct choice in the questionnaire) and the remaining answers were wrong (incorrect choice in the questionnaire). The score assigned for every correct answer was 1 and for every incorrect answer was 0; the maximum score for each section was 11 and the minimum score was 0. Also, a student who did not respond to the questions (in this section) was considered as not knowing the correct answer; therefore, we assigned 0 per question that had not been answered. In case of attitude, the response of the entrants was evaluated on a five-point Likert scale using the choices of strongly...
disagree, disagree, neutral, agree, and strongly agree. The score assigned for every answer ranged from 0 to 4, respectively; the maximum score for each section was 44 and the minimum score was 0.

The total scores of knowledge and attitude sections had been calculated for each entrant upon 100. We graded the participant based on scores as follows: Intermediate with a score of 51–75 and good with a score of 76–100, following the study of Patil et al.\(^{10}\)

**Statistical analysis**

For comparing knowledge and attitude scores between study groups, considering other potentially effective variables, we performed simple and multiple linear regression analyses. \(P\) values less than 0.05 were considered statistically significant.

**RESULTS**

We received 526 questionnaires (319 from medical students and 207 from dental students). The knowledge of medical students revealed the following: About 54.8% \((n = 190)\) had intermediate level (defined as a score of 51–75) and 27.1% \((n = 94)\) had a good level (defined as a score of 76–100). Among dentistry students, about 68.2% \((n = 150)\) had intermediate level of knowledge and 10.5% \((n = 20)\) had a good level [Table 1]. The level of attitude of medical students was 14.7% \((n = 51)\) which was intermediate, and that of dentistry students was 21.4% \((n = 47)\) which was also intermediate [Table 2]. None of them occupied the “good” attitude category. Knowledge and attitude were not affected by age, gender, and marital status [Tables 3 and 4], but there was a statistically significant difference between medical and dental students in different directions, which means medical students had a higher level of knowledge, but lower level of attitude \((65.5 ± 17.3 vs. 60.4 ± 14.6, P < 0.001 and 37.9 ± 11.3 vs. 40.2 ± 12.9, P = 0.03, respectively)\).

**DISCUSSION**

The purpose of this study was to find the awareness among Iraqi medical and dental students, and we found that knowledge and especially attitude toward HIV-positive patients were not at a good level among them. It is important for medical and dental learning programs to emphasize on controlling blood-borne infections, especially HIV infection, because of the known high risk involved for both patients and the healthcare provider.

Recently studies were conducted in Kuwait and Jordan on the same study groups\(^{8,18}\) and showed good knowledge and attitude of HIV in Kuwait and Sri lanka compared to that in Jordan.\(^{8,18}\) The knowledge part of the questionnaire that was used in Iraq and Jordan\(^{8,10}\) was more specific than the one used in Kuwait and Sri lanka.\(^{18}\)

The questionnaire that was used in Kuwait and Sri lanka had the following sections in the knowledge part: A. the virus (HIV) and the disease (AIDS); B. potential routes of transmission; C. oral lesions associated with HIV; and D. risk groups and HIV transmission in the dental setting.\(^{18}\) The questionnaire that was used in Jordan had the following sections in the knowledge part: A. evaluation of teaching; B. academic knowledge of HIV and AIDS; C. knowledge of lesions and conditions associated with HIV; and D. view on the potential transmission route of HIV.\(^{8}\) They used similar topics, but the questions that were asked in Jordan were more specific.

The attitude part of the questionnaire that was used in Jordan had only one question and this could not give

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**Table 1: The percentage of the correct answers to the knowledge questions**

| The questions of Knowledge Section                                                                 | Medical students | Dental students | Total        |
|---------------------------------------------------------------------------------------------------|------------------|----------------|-------------|
| HIV infection can spread by touching, kissing, sharing food and drinks                           | 111 (0.35)       | 132 (0.64)     | 243 (0.46)  |
| Saliva can be a vehicle for transmission of HIV infection                                        | 227 (0.73)       | 169 (0.82)     | 396 (0.76)  |
| HIV/AIDS patients can be identified by physical appearance                                       | 91 (0.29)        | 65 (0.33)      | 156 (0.31)  |
| Needle-stick injury can transmit the HIV virus                                                   | 317 (0.99)       | 206 (1)        | 523 (0.99)  |
| Aerosols from hand piece can be a vehicle for transmission of HIV infection                     | 86 (0.28)        | 163 (0.79)     | 249 (0.49)  |
| ELISA/TRIDOT tests are the screening tests for HIV infection                                     | 241 (0.82)       | 149 (0.78)     | 390 (0.8)   |
| The western blot test is a confirmatory test for HIV infection                                  | 120 (0.6)        | 106 (0.61)     | 226 (0.6)   |
| Medical and paramedical staff are more prone to HIV infection                                   | 271 (0.86)       | 192 (0.94)     | 463 (0.89)  |
| Treatment of HIV/AIDS patients requires special dental clinics                                  | 227 (0.73)       | 184 (0.89)     | 411 (0.8)   |
| HIV/AIDS patients can be suspected from oral manifestations                                     | 213 (0.7)        | 172 (0.84)     | 385 (0.75)  |
| A negative ELISA test rules out HIV infection                                                  | 48 (0.16)        | 87 (0.46)      | 135 (0.27)  |

HIV=Human immunodeficiency virus; AIDS=Acquired immunodeficiency syndrome; ELISA=Enzyme-linked immunosorbent assay; TRIDOT=“TRI-DOT=TRI- DOT test is a visual, rapid, sensitive and accurate immunoassay for the differential detection of HIV-1 and HIV-2 antibodies (IgG) in human serum or plasma using HIV-1 and HIV-2 Antigens immobilized on an immunofiltration membrane”
The attitude part of the questionnaire used in Kuwait and Sri Lanka had 13 questions, and these questions have some similarity with the questions that we used in Iraq.\textsuperscript{[9,18]}

The year of study of the participants was effective on their knowledge level to see how long past on the last obligatory lectures about HIV/AIDS transmission and infection.\textsuperscript{[19]} We could see significant differences between pre- and pro-test values of students’ knowledge toward HIV.\textsuperscript{[19,20]}

Other studies showed that if we improve the level of knowledge of the student, we can also change their sexual behavior and that of their families.\textsuperscript{[19]}

The possible limitation of our study is that the questionnaire was in English, despite the fact medical and dental students in Iraq are good in English; the Arabic questionnaire could have given slightly different results. However, we suggest that future work should study the influence of other factors that may be affecting students’ attitude toward patients with HIV, which were not studied here, such as social economy, income, having children or not, education of parents, and the area of residency. Also, we encourage the researchers to conduct this study among other healthcare provider groups such as nurses, laboratories, and dental assistants.

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**Conflicts of interest**

There are no conflicts of interest.

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**Table 2: The percentage of appropriate attitude (agree and strongly agree) toward HIV/AIDS**

| The questions of attitude section                                                                 | Medicine students | Dental students | Total |
|-------------------------------------------------------------------------------------------------|------------------|----------------|-------|
| It is my moral responsibility to treat HIV/AIDS patients                                       | 253 (0.81)       | 127 (0.63)     | 380 (0.74) |
| One can safely treat HIV/AIDS patients                                                          | 114 (0.36)       | 68 (0.33)      | 182 (0.35) |
| I will be treating HIV/AIDS patients for elective treatment                                     | 136 (0.44)       | 102 (0.5)      | 238 (0.46) |
| Risk of HIV infection is high, hence special precautions have to be followed to treat HIV/AIDS patients | 236 (0.78)       | 171 (0.85)     | 407 (0.81) |
| Patients with HIV infection can lead a normal life                                             | 84 (0.27)        | 57 (0.28)      | 141 (0.27) |
| The status of HIV infection of a patient should be disclosed to all the family members of the patient | 167 (0.55)       | 127 (0.63)     | 294 (0.58) |
| I will deliver emergency care to HIV/AIDS patients if the need arises                          | 221 (0.71)       | 146 (0.71)     | 367 (0.71) |
| All patients treated in dental clinic should be considered potentially infectious               | 201 (0.65)       | 156 (0.76)     | 357 (0.69) |
| If I come to know that my friend or my spouse has HIV infection, I will end the relationship    | 70 (0.22)        | 61 (0.3)       | 131 (0.25) |
| If my colleague or assistant is HIV infected, I will stop working with him/her                 | 77 (0.24)        | 102 (0.5)      | 179 (0.34) |
| Dentists with HIV/AIDS should not be allowed to practice                                       | 210 (0.66)       | 138 (0.67)     | 348 (0.66) |

HIV=Human immunodeficiency virus; AIDS=Acquired immunodeficiency syndrome

**Table 3: The results of multiple regression analysis of knowledge**

| Model | Regression coefficients | Std. error | P value |
|-------|-------------------------|------------|---------|
| Gender | −0.827 | 1.395 | 0.553 |
| Marital status | 2.300 | 2.277 | 0.313 |
| Age | 0.399 | 0.341 | 0.242 |
| Student | −6.720 | 1.368 | 0.000 |

**Table 4: The results of multiple regression analysis of attitude**

| Model | Regression coefficients | Std. error | P value |
|-------|-------------------------|------------|---------|
| Gender | 0.520 | 1.116 | 0.642 |
| Marital status | 1.549 | 1.822 | 0.396 |
| Age | −0.409 | 0.273 | 0.134 |
| Student | 2.022 | 1.095 | 0.066 |
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