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ORIGINAL ARTICLE

Arab dentists' refusal to treat HIV positive patients: a survey of recently graduated dentists from three Arab dental schools

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ABSTRACT

Objective: To assess intended refusal of recent graduates from three Arab dental schools to treat HIV + patients and factors associated with this intention.

Materials and methods: In 2015, convenience samples of recent dental graduates were included from Libya, Egypt and the United Arab Emirates. Participants responded to a questionnaire assessing personal background, knowledge of oral manifestations and fluids transmitting HIV, perceived adequacy of training and self-efficacy to manage blood exposures, attitude to risk of infection, moral beliefs and willingness to treat HIV + patients. Logistic regression assessed factors associated with intended refusal to treat HIV + patients.

Results: The overall response rate was 552/710 (77.8%), mean age = 23.7 years with 41.8% males. The mean (SD) scores for knowledge of oral manifestations and fluids transmitting HIV were 5.5 (1.3)/8 and 4.2 (1.7)/7. The mean (SD) scores for attitude to risk of infection and moral beliefs were 2.9 (1.0)/4 and 2 (0.9)/3, respectively. One-third of respondents indicated intention to refuse treating HIV + patients. Knowledge of body fluids transmitting HIV and moral beliefs were associated with lower odds of refusing to treat HIV + patients (OR = 0.86 and 0.38) whereas attitude indicating greater concern for risk of infection was associated with higher odds (OR = 1.54).

Conclusions: One third of dentists from three Arab dental schools indicated they would refuse to treat HIV + patients. Adequate knowledge and moral beliefs reflecting professional ethics were associated with lower odds of refusal counterbalancing the association with attitude indicating increased concern for risk of infection with implications for dentist education and training.

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Introduction

Although the global incidence of Human Immunodeficiency Virus (HIV) infection has declined over recent years, the epidemic is rapidly growing in the Middle East and North Africa where it is estimated that there is approximately half million persons with HIV [1]. This increase has been partly attributed to modernization and cultural changes coupled with social inequalities, political unrest and a widespread state of denial and negative attitude towards HIV-positive (HIV+) individuals. HIV infection may be the most stigmatized medical condition in the Arab world [2]. Efforts to minimize such negative attitudes and stigma have been recognized as essential for HIV control [3].

In oral health care settings, the occurrence and expression of negative attitudes to HIV + individuals can be a significant barrier for access to care and epidemic control [4]. Previous accounts of HIV + patients revealed experiences of unwillingness to treat and discrimination from their dentists [5]. In addition, surveys of dentists and dental students indicated that a considerable proportion would not treat HIV + patients [6–8], in spite of the ethical responsibility to do so. Better access to dental care may depend on dentists' attitude towards HIV + patients and their willingness to treat them [9]. The attitudes of these professionals can be changed and developed whether in dental schools or after graduation [10].

Willingness means readiness to engage in specific behaviour under given circumstances. It involves pre-contemplation of this behaviour and its consequences [11]. It is a construct of intention which, according to the theory of reasoned behaviour, is the single best predictor of actual behaviour [12]. This theory proposes that attitudes, perceived norms and perceptions of self-efficacy control intentions and hence actions. Understanding these factors and to what extent they control the intentions and actual behaviours is necessary to develop appropriate strategies to promote favourable behaviours [12]. The aim of this study was to assess the refusal of recently graduated dentists from three Arab dental schools to treat HIV + patients and to investigate the association of their intended behaviour with their knowledge, attitudes, social norms and perceived self-efficacy in controlling infection spread.

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Materials and methods

A cross sectional survey was conducted between September and December 2015. The study protocol was approved by the Research Committee in the College of Dentistry, University of Dammam (EA2014041) and the study was conducted in full accordance with the World Medical Association Declaration of Helsinki. Formal permissions were obtained from the local authorities in the study sites. Consent was implied when a completed questionnaire was returned.

The study sample included newly qualified dentists (within 24 months of graduation) who were listed for clinical placement in three dental schools; Benghazi; Libya, Alexandria; Egypt, and Ajman; United Arab Emirates (UAE). Libya has 12 dental schools with an average of 200 graduates per year. Benghazi is the 2nd largest school in the country and it trains 400 newly qualified dentists as interns per year. Egypt has 16 dental schools with an average of 250 graduates per year. Alexandria dental school is the 2nd largest in the country and the yearly 250 interns getting their certificates from Alexandria University have to spend at least one month of their yearlong training in the clinics of the school. UAE has eight dental schools and Ajman dental school graduates and trains 50 interns yearly. These schools were conveniently selected by the investigators due to the feasibility of data collection facilitated by the presence of personal contacts.

The questionnaire was based on a previous survey conducted among UK dentists [13], which was modified to fit the newly graduated dentists in the present study. The questionnaire was pretested for clarity, face and content validity before commencing the study. It included questions about respondents' age, gender and parents' education. The questionnaire comprised close-ended questions to explore knowledge of HIV oral manifestations and body fluids transmitting the virus, whether the respondents received adequate training to control infection in clinics and if they were confident about managing blood exposures. They were also asked to state their attitude, on a three-point Likert scale (Agree, Disagree and Undecided) towards HIV + patients and their intended willingness/refusal to treat these patients. The questionnaire was anonymous and self-administered. It was in English and included Arabic translation to overcome potential language barriers in different locations.

Dental graduates affiliated with each school were listed and their locations (either in the schools' clinics or related sites) were identified. They were visited by the site investigator who verbally explained the study purpose and invited them to participate, providing a copy of the questionnaire to which they responded on their own. The filled forms were collected on the following day. The procedure was repeated one month later so that absent/non-responding participants can be included.

Data were collected and entered into an Excel file. SPSS Version 22.0 (IBM Corp., Armonk, NY) was used for statistical analysis. Descriptive statistics were used to characterize the study sample and summarize responses to the questions. We developed scores for participants' correct answers in relation to knowledge of HIV oral manifestation and fluids transmitting the virus (correct answer = 1, wrong answer = 0). Scores for attitude towards risk of HIV transmission and moral beliefs concerning dealing with HIV + patients were developed by assigning one point to each attitude statement indicating increased risk of HIV transmission and positive moral beliefs respectively after reverse coding negatively phrased statements. The internal consistency of these scores was checked using Cronbach's alpha. Binary logistic regression models were fitted to investigate the association between the outcome (intention to refuse to treat HIV + patients) and independent factors after adjusting for the effect of dental school/location. The independent factors were personal background, perceived adequacy of training and perceived self-efficacy in addition to the two knowledge scores, attitude to risk of infection transmission and moral beliefs scores. Univariate models were created separately followed by multivariate analyses including all factors.

Results

The number of fresh graduates training in Benghazi, Alexandria and Ajman universities was 350, 280 and 80, respectively. Of those, 342, 144 and 66 responded (97.7%, 51.4% and 82.5%) with an overall response rate of 552/710 (77.8%). Most respondents were females (58.2%), with an overall mean (SD) age = 23.7 (0.8). Their parents' education indicated varying backgrounds with only 35.2% of fathers and 37% of mothers being university-educated (Table 1).

There was a variation in the percentage of respondents correctly identifying oral manifestations of HIV infection (73.2% for Kaposi sarcoma to 28.8% for acute ulcerative gingivitis) and Cronbach's alpha of these items = 0.65. The score for knowledge of manifestations ranged from 2 to 8 with mean (SD) = 5.5 (1.3). Most respondents identified blood, vaginal secretions and semen as transmitting HIV (97.5%, 82% and 71.4%) whereas only 38.8% correctly identified

Table 1. Description of recently graduated dentists participating in the study from Libya, Egypt and United Arab Emirates (2015) ($n = 552$).

Variable	*N* (%)
Site	
Benghazi	342 (62)
Alexandria	144 (26.1)
Ajman	66 (12)
Response rate	
Benghazi	342/350 (97.7)
Alexandria	144/280 (51.4)
Ajman	66/80 (82.5)
Gender	
Male	231 (41.8)
Female	321 (58.2)
Age	
Range	20–25
Mean (SD)	23.7 (0.8)
Father education	
Illiterate/primary	126 (33.9)
Middle/high school	115 (30.9)
University and higher	131 (35.2)
Mother education	
Illiterate/primary	111 (25.2)
Middle/high school	166 (37.7)
University and higher	163 (37)

Total number of respondents varies due to item non-response.

breast milk with Cronbach's alpha = 0.63. The score of knowledge of transmitting fluids ranged from 0 to 7 with mean (SD) = 4.2 (1.7) (Figure 1).

A small portion of respondents correctly disagreed that they were at high risk of HIV infection and that HIV transmission in the clinic was very likely (15.3% and 11%). Most respondents agreed to the priority of self-protection (95.1%) while fewer respondents expressed personal worry about their occupational exposure to HIV infection (60.3%). A greater percentage agreed that they were ethically responsible to treat HIV + patients than those agreeing that dentists have the right to refuse treating them (88% and 29%) with Cronbach's alpha of attitude to risk and moral belief items = 0.61 and 0.62. The score of risk attitude had minimum and maximum values = 0 and 4 with mean (SD) = 2.9 (1.0) and the moral beliefs score ranged from zero to 3 with mean (SD) = 2.0 (0.9) (Table 2).

The greatest percentage of respondents indicated that the training they received to control exposure to blood-borne pathogens was inadequate and that they were not sure of their ability to manage these exposures (40.7% and 43.2%, Figure 2). Most respondents indicated that they were not sure of their willingness to treat HIV + patients (52.1%) with 29.9% indicating they would refuse to treat these patients (Figure 2). Perceived adequacy of training and self-efficacy to manage blood exposures were positively and significantly associated with each other (chi square = 176.56, $p < .0001$).

Regression analysis showed that male dentists were significantly more likely than female dentists to refuse treating HIV patients (odds ratio in univariate regression = 1.83, Table 3). This factor, however, lost significance in multivariate regression. Parental education was not significantly associated with refusing to treat HIV + patients. Knowledge of the oral manifestations of HIV was not associated with intention to refuse treatment (odds ratio in multivariate regression = 0.99) and neither was perceived adequacy of training (odds ratio = 0.61). Knowledge of body fluids transmitting the virus was significantly associated with lower odds of refusing to treat HIV + patients (odds ratio = 0.86, 95% confidence interval = 0.74, 0.99). Attitude indicating increased concern for risk of HIV infection in the clinic was significantly associated with higher odds of refusing to treat HIV + patients (odds ratio = 1.54) whereas better moral

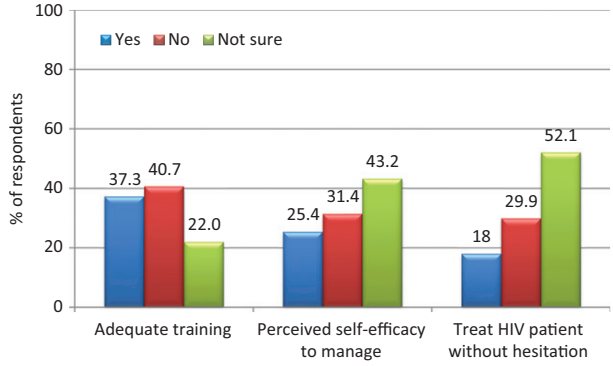

Figure 2. Perceived adequacy of training, self-efficacy to manage blood exposures and willingness to treat HIV + patients.

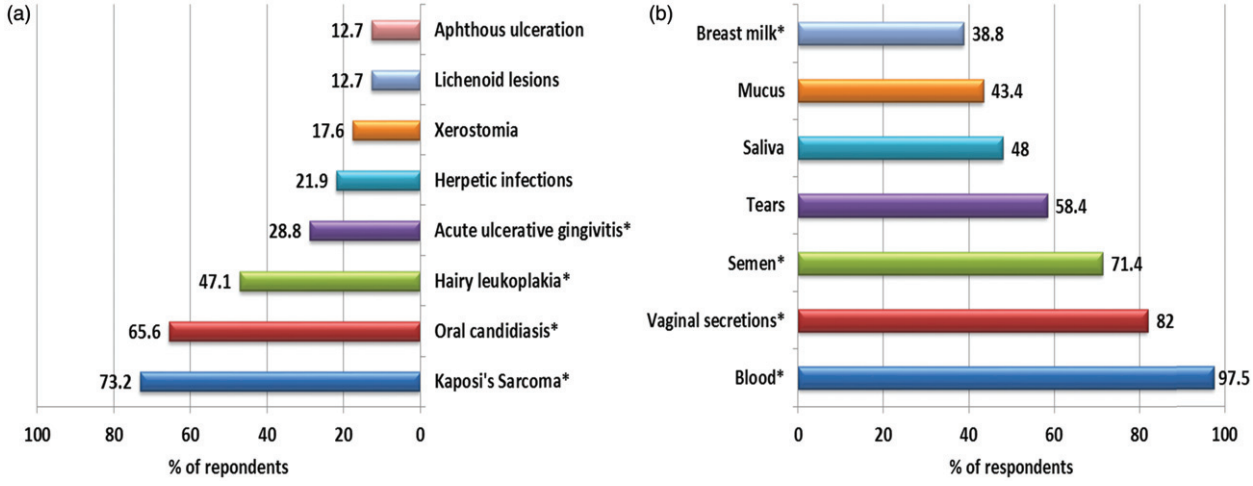

Figure 1. Percentage of subjects correctly identifying (a) oral manifestations of HIV infection, Score out of 8; range: 2-8, mean (SD): 5.5 (1.3) and (b) body fluids transmitting the virus (*correct answer, Score out of 7; range: 0-7, mean (SD): 4.2 (1.7)).

Table 2. Attitude to risk of HIV infection in dental clinics and moral beliefs towards HIV + patients.

Statement	Agree	Disagree	Undecided
1. I am at significant risk of HIV infection[a]	418 (76.3)	84 (15.3)	46 (8.4)
2. HIV transmission in dental clinics is very likely[a]	446 (81.5)	60 (11)	41 (7.5)
3. HBV is more infectious and poses a greater hazard to non-vaccinated dentist than HIV[a]	418 (76.1)	60 (10.9)	71 (12.9)
4. I am worried about occupational exposure to HIV infection[a]	331 (60.3)	158 (28.8)	60 (10.9)
5. The protection of dental workers from occupational exposure to HIV is a high priority for me[b]	523 (95.1)	17 (3.1)	10 (1.8)
6. Dentists have an ethical responsibility to provide dental care to HIV positive persons[b]	483 (88)	32 (5.8)	34 (6.2)
7. Dentists should have the right to refuse treating HIV + persons[b]	159 (29)	289 (52.6)	101 (18.4)

Total number of respondents per item varies due to item non-response.
[a]Score of attitude to risk of infection out of 4, range: 0–4, mean (SD): 2.9 (1.0).
[b]Moral beliefs score out of 3, range: 0–3, mean (SD): 2.0 (0.9).

Table 3. Factors associated with refusing to treat HIV positive patients.

	Logistic regression OR (95% CI)	
Factors	Univariate	Multivariate
Gender		
Male vs female	1.83 (1.26, 2.64)*	1.53 (0.84, 2.78)
Father education		
Illiterate/primary education vs university and higher	0.91 (0.53, 1.56)	1.27 (0.48, 3.37)
Middle/high school vs university and higher	1.21 (0.71, 2.07)	1.41 (0.66, 2.99)
Mother education		
Illiterate/primary education vs university and higher	0.73 (0.42, 1.25)	0.52 (0.20, 1.39)
Middle/high school vs university and higher	0.96 (0.60, 1.53)	0.75 (0.36, 1.55)
Score for knowledge of oral manifestations of HIV infection	0.98 (0.85, 1.12)	0.99 (0.80, 1.21)
Score for knowledge of body fluids transmitting HIV	0.96 (0.86, 1.07)	0.86 (0.74, 0.99)*
Perceived adequacy of training		
Yes vs no/not sure	1.11 (0.76, 1.62)	0.61 (0.29, 1.27)
Score for attitude towards risk of HIV infection	0.90 (0.76, 1.08)	1.54 (1.09, 2.17)*
Score for moral beliefs	0.57 (0.46, 0.71)*	0.38 (0.27, 0.55)*
Perceived self-efficacy to manage blood exposures in clinic		
Yes vs no/not sure	1.01 (0.65, 1.58)	0.94 (0.35, 2.57)

OR: odds ratio; CI: confidence interval.
Adjusting for the effect of country/dental school (p value in univariate regression = .50, in multivariate regression = .99).
Percent correctly classified by multivariate model = 72.1%.
*Statistically significant at $p \leq .05$.

beliefs were significantly associated with lower odds of refusal intention (odds ratio = 0.38). Perceived self-efficacy of managing blood exposures was not significantly associated with indicating refusal (odds ratio = 0.94).

Discussion

The present study assessed the intention to refuse treatment of HIV + patients and associated factors among recently graduated dentists from three Arab dental schools. It shows that a relatively low proportion of dental graduates (18%) was certain that they would treat HIV + patients whereas 30% would refuse to treat them. Our regression analysis showed this outcome to be associated with dentists' moral beliefs, social norms and attitudes to diseases risk but not with their perceived self-efficacy in applying infection control measures. It also suggested that knowledge and moral beliefs may counterbalance the attitude to risk of infection and reduce the chances that dentists refuse to treat HIV + patients.

A previous study [14] concluded that low education among participants from Lesotho was significantly associated with a stigmatizing attitude towards HIV patients. Research also showed that health professionals, being part of society, may be affected by the prejudices around them against people with HIV [15]. Our results agree with these findings since two-thirds of the responding dentists in our study had parents who were not university educated and were, possibly because of this, more likely to have prejudices against HIV + patients. The other third, although seemingly of higher social status, still shared the same negative attitude towards HIV + patients. This supports the claim that Arab societies generally have negative attitudes towards HIV + patients regardless of social background [2] since intention to refuse treatment was not related to social characteristics such as parents' education. It would be useful to apply qualitative research techniques in future studies to explore factors which shape and influence dentists' attitude towards HIV + patients.

Around 30% indicated they would refuse to treat HIV + patients. This is a much higher percentage than that reported in studies conducted among Italian dentists [16] and dental hygienists [17] (5% and 6%) and Thai dentists [18] (20.4%). Studies conducted among dentists/dental students and health care personnel in general in the Middle East showed a high percentage of refusing to treat HIV + patients. In an Iranian study [19], only 1% of dental students had positive attitude towards treating HIV + patients. In a Jordanian study [20], 46% of dental practices refused to provide any care to HIV infected persons. One-third of Kuwaiti dental students reported that they would refuse to treat AIDS patients [21]. In a recent study, 40.5% of Saudi doctors indicated that, if they were given the choice, they would not work with HIV + patients [22].

Our findings partly agree with two studies conducted among dental students from New England [23] and Croatia [24] where knowledge was negatively and significantly associated with lack of willingness to treat HIV + patients. Our study showed that attitude towards risk of infection had a stronger association with indicating refusal to treat HIV + patients than knowledge of oral manifestations of HIV infection and the body fluids transmitting it. These results of the present study are similar to those of a study conducted among Italian dentists [16] where the odds of refusing to treat HIV + patients increased when the dentists felt morally justified to do that (odds ratio = 2.24) and had mild level of fear of treating these patients (odds ratio = 4.52). Similarly, an Indian study assessing dentists' and dental students' attitudes towards HIV + patients concluded that, even in the presence of adequate knowledge and well equipped facilities, professional attitude needed to improve through developing the sense of ethical obligation [25]. This critical role of ethics training was reported in a much older study among Canadian dentists in 1999 [26].

On the other hand, our study does not support the assumption that dentists would be less likely to refuse treating an HIV + patient if they felt able to manage blood exposures. This may partly be explained by the Extended Parallel Process Model which indicates that intention to behave is based on perception of threat and efficacy. The interplay of

these two either pushes the individual to adopt a certain behaviour if the perception of efficacy outweighs that of threat or not adopt the behaviour if the threat outweighs the efficacy as seen in our results [27].

Several Arab countries are faced with a thriving HIV infection problem and emerging socio-political changes. This may increase the demand for the dental work force in one region to address the health needs in another area. Our findings give an insight about a sector of young dentists in three Arab countries and need to be considered while planning interventions that may be implemented in different regions. The factors that were significantly associated with the outcome, moral beliefs and attitudes, can be modified through training programs specifically targeting these issues whether before graduation or as continuing education. Our study and future studies can ensure better preparation of the increasingly mobile dental workforce worldwide and in Arab countries so that dentists can address the needs of HIV + patients [28]. This may benefit from further studies assessing HIV prevention and management curricula in dental schools, particularly the use of highly active antiretroviral therapy (HAART) and associated changes in HIV manifestations and decreased risk of HIV transmission and mortality. However, in spite of the increase in HAART coverage in the Middle East and North Africa region, this coverage remains low and it failed to address the increased incidence rate of HIV in the region [1]. Our study indicates that much still needs to be done in terms of providing future dentists with the appropriate knowledge, attitude and skills to confidently manage HIV + patients. Dental curricula should focus on the prevention, diagnosis and management of HIV in dental settings and dentists' role as part of the health care team managing HIV + patients.

Our study had some limitations. We used convenience sampling and do not claim that the dentists included in our study were nationally representative. Some samples were small such as in the UAE. In the other two countries, subjects were recruited from one school each and were thus not geographically representative. It can be argued, however, that our samples represented a sector of newly graduating dentists practicing in these three Arab countries with different social and dental training backgrounds. The non-statistical sampling was a limitation that will need to be addressed in future studies through larger and more geographically representative samples. Another limitation was using self-reporting to assess the study outcome; intended willingness/refusal to treat. This might have over-estimated good practices since subjects were more likely to positively portray themselves to create a good impression [29]. If this is taken into consideration, the proportion of dentists refusing to treat HIV + patients would be even higher than the level reported in our study.

Conclusions

We surveyed a group of dental graduates from three Arab countries. Their refusal to treat HIV + patients was found to be high and seemed to be influenced by their moral beliefs as well as attitude regarding risk of HIV infection. Further research is needed to develop appropriate interventions to enhance the quality of care of HIV + patients and support broader social and cultural efforts to manage the HIV epidemic in the region.

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