Zika virus disease knowledge among the future health-care providers of the United Arab Emirates

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ABSTRACT

Zika virus (ZIKV) disease has become a major public health concern. Although there are no reported cases of ZIKV disease in the United Arab Emirates (UAE), there is a potential risk of transmission due to large expatriate population and high influx of international travelers. This cross-sectional study was conducted to assess the knowledge of ZIKV disease among the students of a medical and health sciences university in the UAE. Their knowledge of ZIKV disease was assessed using a specially designed, pretested, and validated questionnaire. Of the 500 respondents included in the final analysis, 314 (62.8%) respondents presented with poor knowledge of ZIKV disease. The mean knowledge score of the study population was 10.48 ± 2.48 out of a maximum of 17. Gender, college and year of study, nationality and attendance in lecture/conference/workshop on Zika were significantly associated with the level of knowledge. The males possessed significantly ($P = 0.046$) better knowledge as compared to the females. Students of medical college had significantly ($P = 0.005$) better knowledge as compared to students of other colleges. The level of knowledge improved significantly ($P = 0.026$) as the year of study progressed. There is a need for medical and paramedical students to update their knowledge of ZIKV disease as they are the future health-care providers who will be responsible for creating awareness about such outbreaks and their preventive measures.

Key words: Health-care providers, knowledge, United Arab Emirates, Zika virus disease

INTRODUCTION

As per the latest World Health Organization (WHO) situation report on Zika, there are 84 countries, territories or subnational areas with evidence of vector-borne Zika virus (ZIKV) transmission.[1] Although the WHO has ended the Public Health Emergency of International Concern on ZIKV the global risk assessment remains unchanged.[2] There is a drop in the number of ZIKV disease cases but there is a need for the countries worldwide[3] to be vigilant toward this epidemic and associated complications.

ZIKV disease is a mosquito-borne infection which is usually mild but because of its associated serious complications such as microcephaly and Guillain–Barre disease,[4] it poses a significant threat. The United Arab Emirates (UAE) has a high influx of international travelers, and additionally, it has a large expatriate population[5] coming from regions where other flavivirus infections have been reported. This increases the potential risk of transmission of ZIKV disease in the region.

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The WHO recommends enhanced public awareness and engagement, better reporting, use of vector control, and personal protective measures. Well-informed future health-care providers can play a crucial role in spreading awareness regarding such diseases.

A number of recent studies have been published evaluating the awareness regarding ZIKV disease in different populations, but there are very few studies on the awareness of ZIKV disease among medical and health sciences university students. The paucity in research data on awareness of ZIKV disease in the UAE has led to this study.

**METHODS**

**Study design**

This cross-sectional study was carried out to assess the ZIKV disease knowledge of students of RAK Medical and Health Sciences University, UAE.

**Study population**

Students of medical, pharmacy, dental, and nursing colleges of the university were considered for the study. Only those respondents who were available for data collection and who gave written informed consent were included in the study.

**Sample size**

A convenience sampling technique was used for sample size. Five hundred fifty-eight students agreed to participate in the study and signed the informed consent form.

**Study instrument**

A specially designed, pretested, and validated questionnaire was used to record responses of the students. The questions of knowledge domain were based on knowledge, attitudes, and practices resource pack of WHO. The content validity of the questionnaire was determined by a panel of experts. The questionnaire was pretested on 30 students before the conduct of the study. This field testing of the questionnaire yielded a Cronbach’s alpha reliability score of 0.80, indicating high-internal reliability.

**Research variables**

**Response variable**

To assess knowledge regarding ZIKV disease, knowledge domain of questionnaire was divided into 6 parts consisting of 17 questions. For each question, “I know” response was scored one, and “I don’t know” was scored as zero, for a total possible score of 0–17, with higher scores indicating better knowledge.

**Explanatory variables**

The demographic domain of questionnaire consisted of seven questions pertaining to age, gender, nationality, marital status, college of study, year of study, attending any recent lecture, conference, or training workshop related to ZIKV disease.

**Data analysis**

The level of knowledge was analyzed as a two-category variable: “good” or “poor” (on the basis of 70% cutoff point). The association of demographic characteristics of study respondents with the level of knowledge was assessed using the Pearson \( \chi^2 \). \( P < 0.05 \) was considered to be statistically significant. Data were analyzed using SPSS 22.0 for Windows (SPSS Inc., Chicago, IL, USA).

**Ethical consideration**

The study was approved by RAK Medical and Health Sciences University Research and Ethics Committee.

**RESULTS**

**Sociodemographic characteristics**

Out of the total 558 study respondents, 58 were excluded from the analysis as the questionnaires returned by them were incomplete. Data from 500 study respondents were analyzed. The sociodemographic characteristics of the respondents are shown in Table 1.

**Knowledge of Zika virus disease**

The mean knowledge score of the study population was 10.48 ± 2.48 out of a maximum of 17. The mean knowledge score of medical students was the highest (11.25 ± 2.30) followed by pharmacy, dental, and nursing students [Figure 1].

Out of the 500 study participants, 314 (62.8%) participants presented with poor knowledge of ZIKV disease whereas only 186 (37.2%) possessed good knowledge of the disease. Majority of respondents knew about prevention (78.2%) and transmission (62.2%) of ZIKV disease. Three hundred
seventy-seven (75.4%) of respondents knew that ZIKV disease is transmitted by mosquito bite. Furthermore, 321 (64.2%) respondents recognized that ZIKV can be passed by a pregnant woman to her fetus during pregnancy. Majority of study participants (84.2%) acknowledged the fact that they should avoid travel to places where ZIKV outbreaks are going on.

Table 2 and Figure 2 represent the knowledge of study respondents on different aspects of ZIKV disease.

The association of sociodemographic characteristics and level of knowledge is presented in Table 3. Gender, college and year of study, nationality, and attendance in lecture/conference/workshop on Zika were significantly associated with the level of knowledge. The males possessed significantly ($P = 0.046$) better knowledge regarding ZIKV disease as compared to the females. Students of medical college had significantly ($P = 0.005$) better knowledge of the disease as compared to students of other colleges. The level of knowledge regarding ZIKV disease improved significantly ($P = 0.026$) as the year of study progressed.

**DISCUSSION**

The present study was undertaken to assess the level of knowledge regarding ZIKV disease – a new emerging infectious disease in students of a medical and health sciences university in the UAE. Medical and health sciences students are the future health-care providers and their understanding of this potentially serious disease is very important. UAE has a high influx of international travelers, and there is a potential risk of transmission of ZIKV disease. Public awareness about this disease is warranted, and well-informed health-care providers play a very crucial role in spreading awareness regarding such diseases.

Our results revealed that the majority of the participants presented with poor overall knowledge of ZIKV disease. These results are in line with recent studies conducted in different populations; medical students in Saudi,[14] health-care workers in Indonesia,[8] and dental practitioners in India.[7] In contrast, a study conducted in India among dental students[13] reported that the majority of the participants good possessed knowledge about ZIKV disease.

The poor knowledge of our study respondents can be attributed to the fact that ZIKV disease is a recent phenomenon and still not been included in the medical and health sciences curriculum.

We reported that the mean knowledge score of the medical students was the highest followed by the pharmacy, dental, and nursing students. The mean knowledge score of the study population was 10.48 ± 2.48. This result is in line with a study conducted in a dental institute in India[13] where the mean knowledge score of the participants was 11.73 ± 4.158.
Majority of the participants (75.4%) were aware of the fact that the ZIKV disease is transmitted by mosquito bite. Similar findings were reported by studies conducted among mixed population of students and faculty in the Middle East.
Table 3: Association of sociodemographic characteristics and level of knowledge

| Variable                        | n   | Good knowledge (%) | Poor knowledge (%) | P     |
|---------------------------------|-----|--------------------|--------------------|-------|
| **Age (%)**                     |     |                    |                    |       |
| 18-19                           | 500 | 48.1               | 51.9               | 0.114 |
| 20-21                           |     |                    |                    |       |
| 22-23                           |     |                    |                    |       |
| 24-25                           |     |                    |                    |       |
| >25                             |     |                    |                    |       |
| **Gender (%)**                  |     |                    |                    |       |
| Male                            | 500 | 40.7               | 59.3               | 0.046 |
| Female                          |     |                    |                    |       |
| **College (%)**                 |     |                    |                    |       |
| Pharmacy                        | 500 | 29.3               | 70.7               | 0.005 |
| Medical                         |     |                    |                    |       |
| Dental                          |     |                    |                    |       |
| Nursing                         |     |                    |                    |       |
| **Year of study (%)**           |     |                    |                    |       |
| Year 1                          | 500 | 31.6               | 68.4               | 0.026 |
| Year 2                          |     |                    |                    |       |
| Year 3                          |     |                    |                    |       |
| Year 4                          |     |                    |                    |       |
| Year 5                          |     |                    |                    |       |
| **Nationality (%)**             |     |                    |                    |       |
| Syrian                          | 500 | 40.3               | 59.7               | 0.048 |
| Iraqi                           |     |                    |                    |       |
| Emirati                         |     |                    |                    |       |
| Egyptian                        |     |                    |                    |       |
| Irani                           |     |                    |                    |       |
| Yemeni                          |     |                    |                    |       |
| Others                          |     |                    |                    |       |
| **Attended lecture/conference/workshop on Zika (%)** | | | | |
| Yes                             | 500 | 85.6               | 14.4               | <0.001|
| No                              | 44.2| 55.8               |                    |       |

Statistically significant values are in bold.

Our findings revealed that half of the participants had knowledge regarding ZIKV disease signs and symptoms which is slightly higher than reported by a study among medical students of a Saudi university\(^{[14]}\) (41.8%) but lower than the studies conducted in India\(^{[7,13]}\).

In our study, males possessed significantly better knowledge of the disease as compared to females. Similar findings were reported in the study conducted in a Middle East country.\(^{[10]}\) Singh et al. reported contrasting results where females had a better awareness of the disease as compared to males.\(^{[13]}\)

Our study demonstrated that the level of knowledge regarding ZIKV disease improved significantly as the year of study progressed. This can be attributed to the fact that as year of study advances students get more exposure and become more aware of new emerging disorders.

The main strength of the study is that it takes up knowledge assessment of a potentially serious emerging viral disease of the future health-care providers of UAE. Another strength of the study is the high-response rate of the survey (89%). An important strength of the study is its multiethnic sample. The present study has some limitations also. A selection bias may have been there due to the cross-sectional nature of the study and random sampling. Another limitation is that it may not be the only representative of the students studying in UAE. The level of knowledge may vary with universities.

**CONCLUSION**

Overall, the study participants presented with poor knowledge of ZIKV disease – new potentially serious mosquito-borne disease. Although there are no reported cases of ZIKV disease in the UAE, there is a potential risk of transmission due to high influx of international travelers. There is a need for the medical and paramedical students to update their knowledge of ZIKV disease as they are the future health-care providers who will be responsible for creating awareness about such outbreaks and their preventive measures.

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**Conflicts of interest**

There are no conflicts of interest.
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