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ASSESSMENT OF THE LEVEL OF AWARENESS FOR ZIKA VIRUS IN NORTH AND WEST OF SAUDI ARABIA

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INTRODUCTION

Zika virus was known after the scientists carried a routine surveillance for yellow fever in the Zika forest at Uganda where they isolated Zika virus from a monkey (1947).[1] and thereafter discovered in human in Uganda (1964).[2] Zika virus (ZIKV) is an emerging *arbovirus* of the *Flaviviridae* family; it contains a positive, single-stranded genomic RNA where it replicates in the cellular cytoplasm.[2-5] It is a mosquito-borne disease transmitted by Aedes mosquitoes, especially by the *Aedes aegypti* species.[1, 3-5, 7, 8] in America epidemics with both *Aedes aegypti* and *Aedes albopictus*.[3] *Aedes aegypti* mosquitoes are commonly found in tropical and sub-tropical regions around the world. These mosquito vectors typically breed in domestic water-holding containers; they are daytime biters and feed both indoors and outdoors near dwellings.[7] The risk of sexual transmission of Zika virus is thought to be low, but male-to-female sexual transmission has been reported,[4, 7] Other transmission modes are still under investigation.[8] The first large outbreak of disease caused by Zika infection was reported from the Island of Yap (Federated States of Micronesia) in 2007. During a 2013- 14 outbreak in French Polynesia. In South America, the first reports of locally transmitted infection came from Brazil in 2015. By 2016, local transmission of Zika infection had been reported from more than 20 countries and territories in the Americas and an outbreak numbering thousands of cases was under way in Cabo Verde, western Africa.[1,2] Outbreaks linked with neurological disorders including Guillain-Barré syndrome and microcephaly across the Pacific region and the Americas.[1, 6] In Asia Zika virus strains (from Cambodia, Malaysia and Thailand) and in Africa (from Nigeria,

Senegal, and Uganda) where two geographically distinct lineages of the virus, African and Asian, are identified (1). Epidemiological studies point to a widespread distribution of ZIKV in the northern half of the African continent, as well as in many countries in Southeast Asia, including Malaysia, India, the Philippines, Thailand, Vietnam, Indonesia, and Pakistan.[2, 6] Central and South America, Caribbean and Mexico.[5, 6, 9] The estimated incubation period of the disease is up to 14 days.[4] or typically 3-12 days.[7] Up to 80% of infections are asymptomatic (3 and 14). Main symptoms are fever, skin rash. Other symptoms may appear like diarrhea or vomiting, dehydration and joint pain, rapidly followed by death.[1] in addition to conjunctivitis.[2] myalgia and headache.[1, 3, 5, 6, 8] and retro-orbital pain; pruritus.[4, 7] In pregnant women symptoms and signs of clinical illness include two or more of the following: fever; rash; arthralgia/arthritis; conjunctivitis; myalgia; headache; retro-orbital pain; pruritus where infection may be associated with fetal microcephaly and other congenital anomalies.[4, 6] There are no reports at this time of infants becoming infected through breastfeeding (8). Guillain-Barré syndrome reported in patients following suspected Zika virus infection, but relationship to Zika virus infection is not known.[1, 5, 7] These symptoms normally last for 2-7 days.[6, 8] or acute symptoms typically resolve within 4-7 days.[7] There is no specific antiviral treatment available.[3-5, 7, 8] Treatment is generally supportive and can include rest, fluids and use of analgesics and antipyretics.[7] There is no vaccine to prevent Zika virus infections.[3-5, 8] The best form of prevention is protection against mosquito bites.[3, 8] Increase awareness among health professionals who provide prenatal care of the possible association of Zika virus and microcephaly and adapt prenatal monitoring in accordance with the exposure to the vector. Advise all travellers to affected areas to take individual protective measures to prevent mosquito bites in addition a pregnant woman should visit health care providers.[3-5, 7, 8]

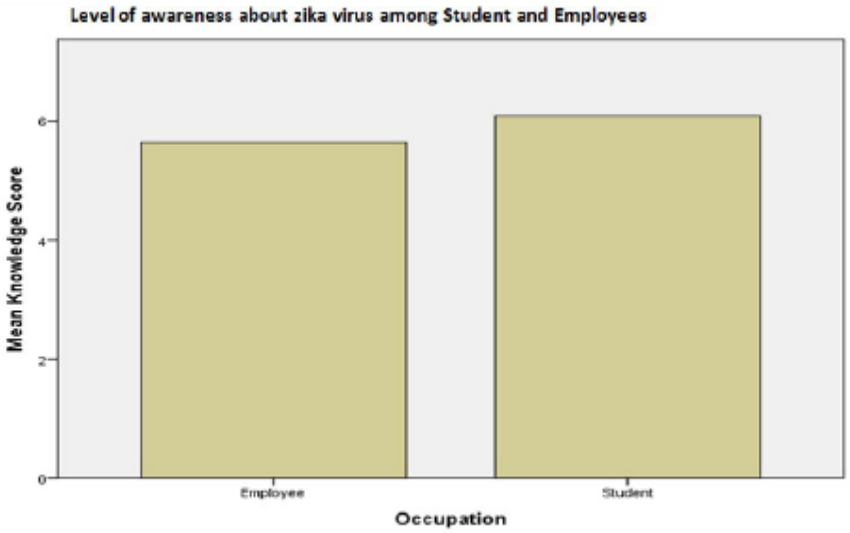
The main objectives of the study are to promote the general awareness and knowledge of the public about the disease and to implement strict health precautions. Therefore, this study aimed to assess the level of awareness, perception and behavior of a Saudi population from northern and western areas towards Zika virus infections and to determine the extent to which their perception for the disease may contribute to booster the efforts of the Saudi health authorities to combat the disease. Data from this study would serve as a baseline for future awareness campaigns.

MATERIALS AND METHODS

About 1489 questionnaires were distributed to members of the community in North and Western regions of KSA. Seven hundreds of these questionnaires were from Western area of KSA while 789 were from the North of KSA. The questionnaires contained general knowledge information about Zika virus disease, symptoms, treatment and prevention measures. The questionnaires were distributed among students and employee (policemen, teachers, dentists, nurses, businessmen, mangers and engineers) Data from the questionnaire were statistically analyzed using SPSS v20 (13). Student ttest was used to compare means between two groups while ANOVA was used to compare means between more than two groups. Data are expressed as mean ± standard error of mean. A p value less than 0.05 is considered to be significant.

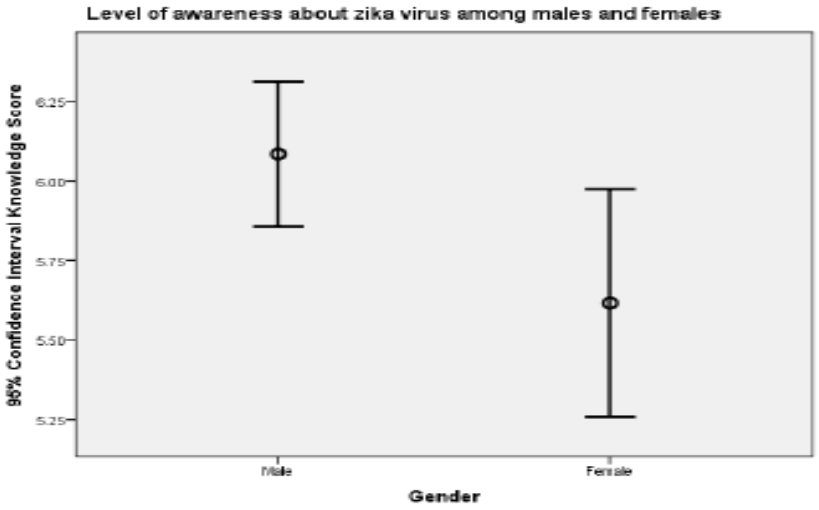
RESULTS

The results of level of awareness and general knowledge for zika virus among the students group and employees showed the students to have a higher level of awareness about zika virus (6.09±0.118; n= 901) compared to employees (5.64±0.174; n= 588) $p < 0.05$.



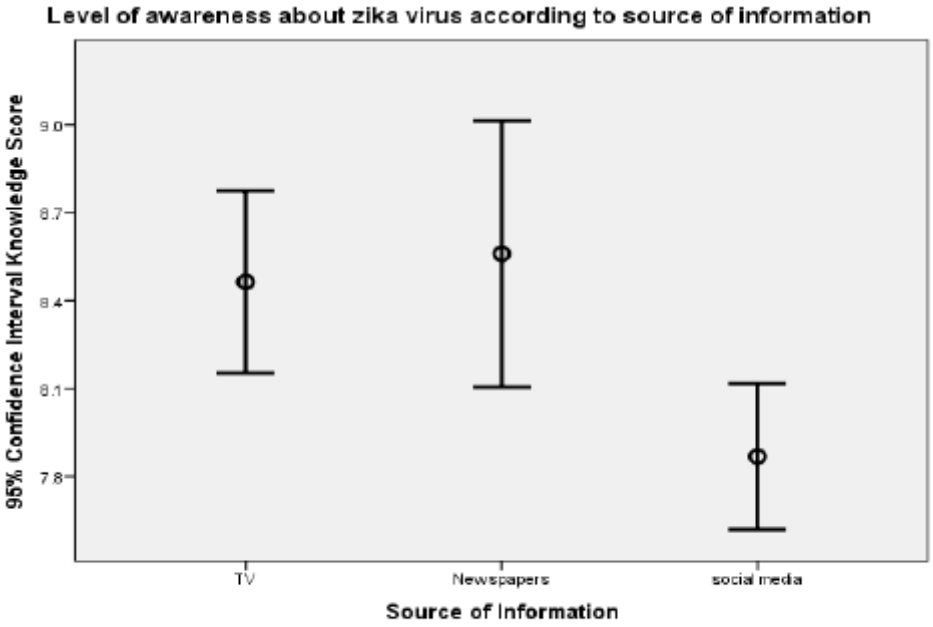
Students have a higher level of awareness about zika virus (6.09+-0.118; n = 901) compared with employees (5.64+-0.174; n = 588) p < 0.05.

The level of awareness for general knowledge information according to gender showed males to have a higher level of awareness about zika virus (6.08±0.116; n= 944) compared to females (5.62±0.182; n= 545) $p < 0.05$.



Males have a higher level of awareness about zika virus (6.08+-0.116; n = 944) compared with females (5.62+-0.182; n = 545) $p < 0.05$.

Regarding the source of information for Zika virus the level of awareness for social media (7.87±0.127; n= 467) is found to be significantly less than level of information from TV (8.46±0.158; n= 311) or Newspapers (8.56±0.229; n= 118).



Level of awareness about zika virus in those who take their information from social media (7.87+-0.127; n = 467) is significantly less than those who took their information from TV (8.46+-0.158; n = 311) or newspapers (8.56+-.0.229 n = 118

DISCUSSION

The Kingdom has not yet recorded any case of Zika infection, but should be careful and take the necessary measures. This study used a questionnaire to assess the general knowledge for Zika virus in North and Western areas of KSA. The data analysis for questionnaire results

showed that the students' knowledge about the disease is higher than other employee sector that means we should consider this during the implementation of the study results in awareness campaigns for the disease. The number of questionnaires distributed among the employee were low compared to students, so we did a summation of the employee during the analysis.

The level of awareness of females was found to be less compared to males, indicating that there is a high perception among the males compared to females towards the general knowledge for the disease.

An important issue during the study that we put into consideration was the source of information, where we investigated the correct information for Zika virus. Here we found a big sector of population got their information from the social media where a lot of incorrect information were circulated. While the sources from TV or Newspapers are always seem to be the correct information. So awareness for population towards the sources of information.

The awareness and perception for Zika virus infection general knowledge should be put under the control of the authorities at KSA. Campaigns about the disease aetiology Zika virus.[3-5,7,8] which are commonly found in tropical and sub-tropical regions around the world.[7] including KSA, where the vector *Aedes* (Stegomyia) *aegypti* was collected from almost all the locations at Jeddah and other towns.[10], The presence of the vector raises the possibility of presence of disease in KSA and this augment the application of awareness and raise the care of consideration of the study. Special care should be towards the pregnant women due to the increase of possibility of mirocephly.[3-5, 7, 8] Also the Sexual transmission and awareness of the travellers to the epidemic areas should be included among the campaigns.[4, 7] where the disease was exist in Asia, Africa and South America.[1, 2, 5, 6] The disease has no treatment or vaccine and this should give rise to increase of the perception towards the control measures like control of mosquitoes rather than treatment.[3-5, 7, 8]

CONCLUSION AND RECOMMENDATIONS

- There should be general awareness and knowledge of the public about the disease.
- Implement of strict health precautions regarding the disease.
- The results are efforts for the Saudi health authorities to combat Zika virus.
- Data from this study could serve as a baseline for future awareness campaigns to combat Zika virus disease.

- Increase awareness of clinicians about the evolution of the Zika virus epidemic and the affected areas so that they can include Zika virus infection in their
differential diagnosis for travellers from epidemic areas.

- - Increase awareness among obstetricians, paediatricians and neurologists in the KSA that Zika virus infections should be investigated for patients presenting with congenital central nervous system malformations, microcephaly and Guillain– Barré syndrome.

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