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Research Article

Preliminary Knowledge, Attitudes, and Practice of Students: Zika Virus and Maternal Health

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Abstract

Purpose

To assess student Zika virus knowledge, attitudes, and practice related to maternal health. In 2007 widespread human infection from the Zika virus became more widespread. As a result there has been increased public health concern worldwide. The Zika virus is associated with health problems and also economic losses.

Design, setting and subjects

A preliminary survey of Zika knowledge, attitudes, and practice was administered to a convenience sample of college students.

Measures

A twenty-four question survey was modified from the World Health Organization.

Analysis

Descriptive statistics were used.

Results

Sixty-one (61) students completed the survey. The majority of respondents were female (85.7%, n=43), mean age of 27 years. No student responses were 100% accurate for signs/symptoms of Zika but most students could identify the majority of the symptoms. Over half (63.6%, n=21) supported access to abortions. The majority supported testing all pregnant women for Zika (75.0%, n=36), the development of a vaccine (89.4%, n=42) and most would get a Zika vaccine (68.1%, n=32).

Conclusion

In an era of abundant information, the lack of consistent Zika health knowledge among students further highlights the importance of accurate and timely health information to improve maternal and child health.

Keywords: Health communication; Health promotion; Health protective behavior; International health; Maternal and child health

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Introduction

The Zika virus was first discovered in the Zika forest area of Uganda in 1947 in a sentinel rhesus monkey. In Nigeria in 1954 there were about a dozen reports of human infections. However it wasn't until 2007 that widespread human infection from the Zika virus became more widespread, moving from the small island of Yap to French Polynesia, to the millions infected in South America [1]. As a result there has been an increased public health concern worldwide [2-5]. The virus is transmitted by a mosquito vector and is transmitted through blood, from mother to fetus and sexual intercourse [6,7]. Common symptoms frequently reported are fever, rash, joint pain, red eyes, muscle pain and headache and an infected person can be contagious for three to twelve days. Additionally the two main health risks associated with Zika are Guillain-Barre Syndrome, which affects the nervous system and microcephaly, a birth defect that causes inadequate development or growth of the brain revealed upon birth. Zika symptoms commonly present for one week duration, showing similarities to infections like dengue and chikungunya [1,7,8].

The Zika virus is associated with health problems and also economic losses. In 2016, the World Bank projected that Zika-related economic losses in Latin America alone would reach $3.5 million [2]. Despite the health and economic burden of Zika, an online poll reported 77% of the general population in the United States public was "not very worried" about Zika virus. Additionally, epidemiological reports of Zika infection in the United States reported inequalities in low-income regions [1].

Due to the perceived lack of concern among the general population, there remains an increased interest in understanding Zika knowledge, attitudes, and practice in relation to public health communication [1]. Although Zika has been headline news in national and international settings, little research has been done to understand the knowledge and attitudes for this issue. One study which examined Zika and vaccine interest concluded more than half of university students surveyed were interested in a Zika vaccine, but further research evaluating Zika attitudes is critical [9]. These findings supported an interest for a Zika vaccine, but did not investigate health attitudes related to Zika. The objective of this study was to assess student knowledge, attitudes, and practice related to Zika.

Methods

Study design

This preliminary survey was nested in a larger investigation involving Zika knowledge and the media [10] and used similar methodology as a previous study which examined Ebola perceptions [11]. The survey was administered to a convenience sample of health profession and communication college students using the online Qualitrics® data collection software. The online survey was open for eight weeks during the spring 2017 semester. Participants were recruited via email invitations in health profession and communication courses. Consent was obtained before the survey began and it was self-administered through the online software. Participants could complete the survey on both mobile and desktop devices. This study was approved by a university Institutional Review Board.

Measures

The survey included twenty-four questions including demographic and Zika-related questions. Demographic questions were used to describe the population characteristics (i.e., gender, age, family income). Questions about student Zika knowledge, attitudes, and practice were included from the World Health Organization's Zika survey [12]. Example questions include: (a) If a pregnant woman has Zika, what are the risks she faces (check all that apply), (b) If a pregnant woman has Zika, what are the risks for the fetus/baby (check all that apply) and (c) Why should a woman avoid getting pregnant because of Zika (check all risks).

Data analysis

All data were analyzed using IBM SPSS statistics version 19. Descriptive statistics were used to describe the population and responses to Zika questions.

Results

Sixty-one (61) students completed the survey. The majority of respondents were female (85.7%, n=43) with a mean age of 27 (SD=10.11). The highest percentage of respondents reported parental income between $20,000-59,999 (44%, n=21) and reported educational status as 4th year college student (53%, n=26),) and 3rd year college student (18%, n=9). None of the participants were pregnant at the time of the survey (Table 1).

Zika knowledge

Seventy one percent (71.1%, n=37) of the study participants reported there is no cure for Zika. No student responses were 100% accurate for signs/symptoms of Zika. The majority of participants (84.3%, n=43) correctly identified Zika mosquito transmission, 60.8% (n=31) indicated Zika is transmitted congenitally from mother-child, 51.0% (n=26) reported Zika to be transmitted through sexual contact and 51.0% (n=26) of the study participants self-reported Zika is transmitted through blood transfusion. Participants incorrectly identified Zika transmission through the air (13.7%, n=7) and kissing/sneezing (13.7%, n=7).

When participant's knowledge about the symptoms of Zika was assessed, 94.1% (n=48) correctly identified fever, 76.5% (n=39) joint pain, 64.7% (n=33) muscle pain, 56.9% (n=29) headache and 51.0% (n=26) red eyes. Just under half of participants (49.0%, n=25) incorrectly identified stomach pain and loss of appetite as a symptom of Zika and 31.4% (n=16) incorrectly identified cough/sore throat as a symptom.

	n	(%)
Sex (n=59)*		
Male	6	12.24
Female	43	87.76
Age (n=43)*		
Maximum	64	
Mean	27.19	
Standard deviation	9.99	
Variance	99.87	
Parents/caregivers annual income range (n=48)*		
Below $20,000	16	33.33
$20,000-59,999	21	43.75
$60,000-$89,999	5	10.42
$90,000 or more	6	12.5
Year in college (n=49)*		
Year 1	1	2.04
Year 2	4	8.16
Year 3	9	18.37
Year 4	26	53.06
Graduate school	9	18.37

Table 1: Participant characteristics (N=61).

*Not all participants reported demographics

Zika attitudes and practice

The majority of respondents (63.6%, n=21) supported access to safe, legal abortions for women who are infected with Zika during pregnancy. Less than half reported taking action to prevent unintended pregnancy since hearing about Zika (41.9%, n=13). The majority supported testing all pregnant women for Zika (75.0%, n=36). The majority also supported the development of a vaccine, at any cost, to protect against Zika (89.4%, n=42), and most would get a Zika vaccine immediately if it was available (68.1%, n=32).

Discussion

Survey respondents reported a higher-level of education than average in the United States, yet reported marginal knowledge of Zika symptoms and transmission. The gap between expected and actual Zika knowledge among a higher educated and mostly health-related college student population highlights the importance of accurate information disseminated in a timely and effective manner [13]. The student respondents had easy access to high-quality and reliable health information, yet still reported gaps in Zika health knowledge. The gap between expected and actual Zika knowledge likely grows as income and education levels decrease further emphasizing the importance of systematic health dissemination [1,14]. The lack of consistent Zika health knowledge among students further highlights the importance of accurate and timely health information. The health education community needs to improve health information dissemination strategies, specifically regarding health epidemics, which require rapid action and health behavior changes from the general population

[15]. Broader public health programs to support knowledge dissemination could include an emphasis on mobile health technologies (e.g., cellular phone educational programs) [16] and train the trainer models using lay health workers [17].

Over half of respondents (64%) reported supporting access to safe, legal abortions, yet almost all (89%) supported screening all pregnant women for Zika virus. The varying levels of support between public health surveillance and Zika treatment options could be attributed to a number of population characteristics including religious affiliations and political ideologies of the setting. Interestingly, despite a large proportion of support for a Zika vaccine, fewer respondents reported the desire to actually receive the vaccine once developed (89% versus 68%). Reported differences could be due to stages of life differences and desire to have children. Neither question was included in the survey and is a limitation of the findings.

This study fills an important gap in describing Zika knowledge, attitudes, and practice among college students who may be some of the first to desire a Zika vaccine, however, the study is not without limitations. The small sample size from college students is not representative of the community, region or country and results should be interpreted as such. Response bias may have been present as respondents were students and may have answered questions from a more socially acceptable standpoint. This preliminary survey has not been tested with larger sample sizes and responses could be subject to high variability. Finally, the online format may have discouraged some participants from completing the study for a variety of reasons including accessibility and confidentiality.

Conclusion

In an era of abundant information that is rapidly available through social media and other online sources, the lack of consistent Zika health knowledge among students further highlights the importance of accurate and timely health information. The health education community populations to support population-level behavior changes. Strategies for the future should include increased participation on social media sites to improve the quality of health-related information available online. There should also be an increased focus on improving health communication mediums and strategies among vulnerable populations to reduce health disparities. Broader public health programs to support knowledge dissemination should include emerging technologies and strategies such as mobile health and train the trainer models.

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