

Letter to the Editor

Healthcare students and workers' knowledge about epidemiology and symptoms of chikungunya fever in two cities of Colombia

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Chikungunya virus (CHIKV) is an arthropod-borne virus transmitted to humans primarily by *Aedes aegypti*, also known for being the dengue virus vector [1]. As it is well known, recently CHIKV has become very important due to the increase of cases all over the world, and the report of cases in places where it has not been described yet, as has been in the Americas [2]. It is possible that the incidence of CHIKV infection may be actually higher than believed, possibly because the disease is frequently misdiagnosed as dengue fever, due to their clinical and epidemiological similarities, as well lack of availability of specific diagnostic tests in areas where before 2014 disease was not present [3,4].

In this epidemiological scenario, assessing knowledge and perceptions in healthcare students and workers about epidemiology, symptoms and transmission of CHIKV in two different cities of Colombia would be highly relevant, particularly because before 2014 no information about CHIKV was managed in this healthcare setting.

An observational, descriptive, cross-sectional study was made with people who attended the symposium "What we should know about chikungunya fever virus?" (organized by the Coffee-Triangle region chapter of the Colombian Association of Infectious Diseases and the Universidad Tecnológica de Pereira) held in October 2014 in two cities of Colombia: Pereira, Risaralda (Andean region, located at 1,411 m.a.s.l.) and Cartagena, Bolívar (Caribbean sea coastal region, located at 2 m.a.s.l.).

Attendees who agreed to be part of the research (convenience sample), filled out a questionnaire about basic knowledge about the epidemiology, symptoms and prevention of disease (five questions), before and after the event. Chi-square test ($p < 0.05$), using SPSS v.19, was used to compare significance of differences between proportion of correct answer before and after the event, as well to compare before answers and after answers between the two city groups.

A total of 439 tests were applied (186 in Pereira, 99 before and 87 after the educative intervention; and 253 in Cartagena, 107 before and 143 after). Most of the participants were medical students ($> 80\%$), but there were also professionals and students of other health-related professions. In Pereira, we found a higher degree of knowledge before the intervention, 97%, 91.9% and 91.9% of correct answers for questions 1, 4 and 5 (which dealt with transmission, symptoms and prevention), these had lower percentages (92.5%, 86.9% and 84.1% respectively) in Cartagena (Table 1). In both cities there was an increase in the proportion of correct answers after the intervention. In Pereira we observed significant increase in questions 2 and 3 (from 39.4% to 81.6% and 46.5% to 87.4%, $p < 0.0001$) (Table 1). In Cartagena we recorded significant improvement in questions 1 to 4 ($p < 0.05$) (Table 1).

When comparing both cities, Pereira had overall better results, but there were only significant differences for question 2 (Table 1).

Although its limitations, to the best of our knowledge this is the first study to measure the level of knowledge about transmission, epidemiology and symptoms of chikungunya fever in healthcare students and workers (HCSW) [1-5].

Until first week of 2015, Colombia has reported 114,648 cases of chikungunya [6]. Colombia is one of the countries where specific test for diagnosis of CHIKV (ELISA, RT-PCR and viral isolation), are only available at the capital city of Bogota (then all samples should be sent there). Cartagena has the highest number of chikungunya cases in Colombia (6,520 cases, 682.5 cases/100000pop., up to November 10, 2014) [7]. For the first week of 2015, Cartagena have reported a cumulative number of 12,359 cases [6]. Therefore, it would be expected to find a better level of knowledge in Cartagena than Pereira (5 cases, 1.07 cases/100000pop., up to November 10, 2014) [7]. For the first week of 2015,

Pereira have reported a cumulative number of 13 cases [6]. However, the last city had overall better pre-test results than Cartagena, particularly in questions dealing with transmission, symptoms and prevention. Nevertheless, both cities improved knowledge regard transmission after intervention (> 97%). A study in Emilia-Romagna resident population (Italy, with a CHIKV outbreak in 2007), 61% answered correctly to that question [5]. This highlights the importance of information campaigns about CHIKV during outbreaks [2], such as is ongoing in Colombia and the Americas region.

Performing studies focused on quantifying and reinforcing knowledge in HCSW with higher prevalence of cases of chikungunya is important for disease outbreak preparedness. Knowledge about the vector involved in the transmission plays an important role in prevention. Finally, symptomatology recognition by the community leads to timely admission to health centers for optimal disease management.

Table 1. Results of questions about knowledge about transmission, epidemiology and symptoms of chikungunya fever in two cities of Colombia

Questions	Cities											
	Pereira				p	Cartagena				p	Pereira versus Cartagena	
	Pre n	Pre %	Post n	Post %		Pre n	Pre %	Post n	Post %		Pre p	Post p
<i>1. Chikungunya fever is a disease transmitted by (answer: mosquito bite)</i>												
Correct	96	97.0	85	97.7	0.8835	99	92.5	144	98.6	0.0327	0.2678	0.9946
Incorrect	3	3.0	2	2.3		8	7.5	2	1.4			
Total	99	100.0	87	100.0		107	100.0	146	100.0			
<i>2. Regard symptoms, which proportion of patients present them? (answer: 72-95%)</i>												
Correct	39	39.4	71	81.6	<0.0001	34	31.8	95	65.1	<0.0001	0.3191	0.0108
Incorrect	60	60.6	16	18.4		73	68.2	51	34.9			
Total	99	100.0	87	100.0		107	100.0	146	100.0			
<i>3. Usual incubation period is (answer: 3-7 days)</i>												
Correct	46	46.5	76	87.4	<0.0001	57	53.3	112	76.7	0.0002	0.4028	0.0689
Incorrect	53	53.5	11	12.6		50	46.7	34	23.3			
Total	99	100.0	87	100.0		107	100.0	146	100.0			
<i>4. More frequent symptoms are (answer: polyarthralgia and fever)</i>												
Correct	91	91.9	86	98.9	0.0635	93	86.9	144	98.6	0.0004	0.3493	0.6482
Incorrect	8	8.1	1	1.1		14	13.1	2	1.4			
Total	99	100.0	87	100.0		107	100.0	146	100.0			
<i>5. In order to prevent disease spread in communities, is necessary to (answer: to reduce mosquito bite exposure)</i>												
Correct	91	91.9	81	93.1	0.9785	90	84.1	135	92.5	0.0538	0.1334	0.9368
Incorrect	8	8.1	6	6.9		17	15.9	11	7.5			
Total	99	100.0	87	100.0		107	100.0	146	100.0			

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