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Cross-Sectional Study among Healthcare Professionals in Bobo-Dioulasso and its Surroundings on Knowledge and Practices Related to Dengue and Chikungunya

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Abstract

Background: Chikungunya and dengue represent a significant public health challenge in tropical and subtropical regions. Their symptoms are often mistaken for those of malaria, leading to diagnostic errors. In Burkina Faso, recent outbreaks, 2023, have been reported. Control efforts rely on prevention, early diagnosis, and proper management by healthcare workers. However, gaps in their knowledge, attitudes, and practices can hinder effective case management. A study in Bobo-Dioulasso assesses these knowledge, attitudes, and practices to improve response strategies and guide public health policies.

Methods: A cross-sectional study was conducted in public and private hospitals in Bobo-Dioulasso and its surrounding areas from August 2024 to February 2025. A pre-tested structured questionnaire, including a series of questions on these diseases, was used to assess healthcare workers' knowledge of dengue and chikungunya (causal agent, modes of transmission, and symptoms) and their management practices: diagnosis, preventive measures, and treatment. Individual interviews were conducted with study participants, including doctors, nurses, midwives, laboratory technicians, and medical assistants.

Results: A survey of 210 healthcare workers in Bobo-Dioulasso revealed that 68.57% had a high level of knowledge about dengue, linked to profession and experience, while 55.86% showed good knowledge of chikungunya, primarily tied to profession. Over 90% knew both diseases are mosquito-borne, but awareness of chikungunya (69.04%) lagged behind dengue (100%). Diagnostic methods were correctly identified by 75.24% for dengue and 62.76% for chikungunya, though some errors (e.g., blood smears) persisted. Prevention measures were better understood for dengue (64.29%) than chikungunya (41.38%). Case management knowledge was higher for dengue (83.33%) compared to chikungunya (57.24%). Overall, healthcare workers demonstrated stronger knowledge and practices for dengue than chikungunya. However, some healthcare workers still require training, despite the 2023 outbreaks, particularly those with a low level of knowledge. Additionally, to improve case management, staff have expressed the need for ongoing training and refresher courses to strengthen their acquired knowledge.

Conclusion: All healthcare workers demonstrated better knowledge and practices for dengue compared to chikungunya in Bobo-Dioulasso and its surrounding areas. However, some still have a low level of knowledge, highlighting the need to intensify training efforts.

Keywords: *Dengue; Chikungunya; Knowledge of Healthcare Workers; Public Health; Bobo-Dioulasso; Burkina Faso*

Abbreviations

RDT: Rapid Diagnostic Test; ELISA: LLIN: Long-Lasting Insecticidal Net; PCR: Polymerase Chain Reaction; CMA: Medical Center with Surgical Antenna

Introduction

Dengue fever and chikungunya are two viral diseases caused by an arbovirus (arthropod Borne virus) transmitted to humans by the bite of blood-sucking arthropod vectors such as mosquitoes of the genus *Aedes* (*Aedes aegypti* and *Aedes albopictus*). Over the last 50 years, the impact of these two diseases on public health has increased considerably worldwide [1]. The spread of these diseases could be the result of rapid urbanisation, migration and the development of massive international trade with the rest of the world [2,3]. Nowadays, these diseases are a major public health problem in many tropical and subtropical regions, particularly in sub-Saharan Africa [4,5]. The dengue virus is a single-stranded RNA virus with positive polarity, belonging to the *Flaviviridae* family, in the *flavivirus* genus, and is characterised by four different but related serotypes (DENV1-4) [6]. This virus is responsible for the most widespread arbovirus disease in the world, with more than 3.9 billion people in 129 countries at risk of contracting the disease. The chikungunya virus is a pathogen of the *alphavirus* genus in the *Togaviridae* family [7]. It is estimated that 1.3 billion people in 94 countries are exposed to the risk of transmission of this disease [8]. Dengue fever and chikungunya have similar clinical symptoms, such as fever, headaches, arthralgia, myalgia and rash [9,10]. Because of the similarity of these symptoms to those of malaria, clinicians generally overlook the possibility that a different infection may be detected in febrile patients, particularly in countries where malaria is endemic. This situation leads to over-diagnosis of malaria, resulting in anti-malarial drugs being prescribed to patients with no evidence of malaria parasitaemia and frequent failure to treat other causes of the disease [5,11,12].

In West Africa, the circulation of dengue virus in the human population was first described in the 1960s in Nigeria, and since then several African countries have reported epidemic outbreaks associated with this virus [13]. A few cases have been reported in Burkina Faso since 2010, notably in 2013, 2016 and 2017 [14,15]; and more recently in 2023, another dengue epidemic was reported, with 123,804 suspected cases, 56,637 probable cases and 570 deaths as of 19 november 2023 [16]. Since 2000, there has been an increase in chikungunya epidemics in Africa [17]. There is very little data on the circulation of chikungunya in Burkina Faso. Recent data come from a study carried out in 2015 in Ouagadougou, the capital of Burkina Faso, which showed a seroprevalence rate of 29% for chikungunya [18,19]. And more recently, in 2023, 89 cases of Chikungunya were reported in Pouytenga in the Centre-East region of Burkina Faso [16]. Given that there is no vaccine available against these diseases, effective treatments are based on raising awareness, prevention, early diagnosis and case management by health workers [1,20]. This means that healthcare professionals must have sound knowledge and be properly trained to provide accurate diagnosis and quality treatment for individuals affected by these diseases. However, their effectiveness largely depends on their level of knowledge, attitudes and practices (KAP) in relation to these diseases. Studies carried out in other parts of Africa have shown that gaps in the knowledge of health workers can compromise the response to epidemics [21]. Inadequate recognition of symptoms or ignorance of preventive measures can delay the detection of cases and encourage the spread of disease.

In this context, it is essential to assess the knowledge, attitudes and practices of health workers in a number of health facilities in the city of Bobo-Dioulasso and the surrounding area with regard to dengue fever and chikungunya.

Aim of the Study

The aim of this survey is to fill a gap in local data on the subject and to identify training, awareness and health promotion needs in order to improve case management and control of these diseases in Burkina Faso. The results can be used to guide public health policies and strengthen the ability of healthcare professionals to combat these emerging diseases effectively.

Materials and Methods

Study area

An anonymous survey was conducted in the city of Bobo-Dioulasso and its surrounding areas from August 2024 to February 2025 in healthcare facilities. Bobo-Dioulasso is located in the west, about 365 kilometers from the political capital, Ouagadougou. It has a Sudanian climate characterized by a relatively long rainy season from June to October, with rainfall ranging from 1000 to 1200 mm, and a dry season from November to May. As the second-largest and most populous city in the country, it has a high number of healthcare facilities and health personnel, though their distribution is uneven, with areas of high density like urban centers and lower density in the outskirts of the city.

Study Design

We conducted a descriptive cross-sectional study aimed at evaluating the knowledge and practices regarding dengue and chikungunya among healthcare workers. After obtaining the approval of the ethics committee and the agreement of the regional health director of the Hauts Bassins, copies of both letters were made and submitted to the district chief doctors, specifically those of Do, Dafra, and Karangasso-Vigué. These various district officials have shown us their full availability to support us in making the study a success. The actual investigation began in August at the CSPS Guimbi Ouattara, which was the second center to have recorded the most cases of dengue during the 2023 epidemic in the region, after the CMA of Dafra, according to the center's manager. The methodological approach used was a census, that is, an exhaustive collection in which the participation of healthcare professionals was voluntary, followed by individual interviews. In each health center, the following personnel were involved in the study (doctors, nurses, laboratory technicians, midwives, state magnetician, and medical assistants) on a voluntary basis. After a non-exhaustive literature review, a questionnaire containing several open-ended questions was developed; and the questionnaire was structured into 3 parts: i) patient identification, ii) general knowledge, iii) case management (see attached file). The recorded demographic variables were district, gender, seniority, and profession. Internal checks were conducted by colleagues and researchers to assess the accuracy of the questions. The investigators were instructed on the use of the questionnaire and techniques to interact with participants and obtain their consent. The number of individuals surveyed per hospital varied according to their willingness to participate in the study.

Ethical approval

This study received approval from the Institutional Ethics Committee for Health Sciences Research under the reference number 049-2022/CEIRES. The objectives of the research were clearly explained to the heads of the healthcare facilities involved as well as to the participants.

Data collection

We developed a questionnaire after conducting a non-exhaustive review of the literature. Following this, the questionnaire has been digitized to facilitate data collection. During the survey, the interviews were limited to a maximum of 10 minutes per healthcare worker within the facilities. One of the key criteria for inclusion in the study was being "a permanent staff member of the facility at the time of the survey"; as a result, interns and trainees were not included. The interviews were conducted in French, in a confidential office within the establishment, thus facilitating open and unreserved speech from the participants. After each interview, a 5-minute clarification is conducted to explain the knowledge and preventive practices against dengue and chikungunya in order to eliminate any ambiguity.

The details provided by participants were kept strictly confidential and were not disclosed to anyone. Before entering the data collected into the database, the completed questionnaires were carefully checked and double-checked for completeness and consistency. The questionnaires aimed to assess the understanding of healthcare workers regarding the process of dengue and chikungunya (symptoms,

transmission, and vector) and standard prevention strategies (use of mosquito nets and repellents, destruction of breeding sites).The information gathered fell into two categories: the first category included socio-demographic variables like years of experience, type of establishment, gender, and profession; the second category focused on the information obtained from the analysis of the collected data concerning variables such as knowledge and diagnostic practices.

Data processing and analysis

The study data collected on Kobocollect was extracted on Excel before being analyzed. Microsoft Excel was used to edit, sort, and code the responses. Statistical analysis was conducted using Stata version 17. There were two categories of missing data: systematic missing values and non-response missing values. Non-responses were handled using the imputation approach, employing the mode for each variable. Next, we conducted a univariate and bivariate descriptive analysis to study trends within our sample and explore potential relationships (Chi-2) between variables of interest such as profession, seniority, and knowledge level. Additionally, we developed scoring systems to assess the level of knowledge of each disease, focusing solely on factors related to the pathogen, symptoms, transmission methods, diagnostic practices, and case management. The Chi-2 was conducted after establishing the scores. Statistical significance was set at a p-value of ≤0.05.

The assessment of knowledge about these diseases was conducted using a knowledge index based from the works of Itrat., *et al*. (2005) and Al-Zurfiet., *et al*. (2015), with some minor adjustments. A good understanding was determined when participants correctly answered questions related to the infectious agent, mode of transmission, symptoms, diagnostic methods, and case management. For each knowledge item, correct answers were scored as "1", while incorrect answers were marked as "0". For better analysis, the scores were categorized into the following levels: low knowledge (0-39%), moderate knowledge (40-69%), and high knowledge (70-100%).

Results

Characteristic of the population studied

The survey was conducted with 210 participants, all of whom are healthcare staff members. These participants were selected from 42 healthcare facilities, with 164 coming from 31 public institutions and 46 from about 10 private institutions (Table 1). The gender distribution in the sample was relatively balanced, with a sex ratio of 0.96 men for every 1 woman. One third of our sample, or 33.80%, included nurses (n = 71), 26.67% were midwives and state qualified magnaticians (n = 56), 15.24% were doctors (n = 32), 14.28% were medical assistants (n = 30), and 10% were laboratory technicians (n = 21) (Table 1). The majority of healthcare professionals had more than 15 years of service in the medical field (45.24%; n = 95), followed by those with less than 5 years of experience (25.71%; n = 54), those with between 6 and 10 years of service (19.52%; n = 41), and finally those who had worked for 11 to 15 years (9.53%; n = 20) (See table 1).

Modality	**Public**	**Private**	**Total**
Variables	**n = 164 (%)**	**n = 46 (%)**	n **= 210 (%)**
Gender			
Male	76 (53.66)	27 (58.70)	103 (49.05)
Female	88 (46.34)	19 (41.30)	107 (50.95)
Profession			
Doctors	16 (9.76)	16 (34.78)	32 (15.24)
Medical assistant	29 (17.68)	1 (2.17)	30 (14.28)
Nurses	59 (35.97)	12 (26.09)	71 (33.80)
Laboratory technicians	9 (5.49)	12 (26.09)	21 (10)
Midwives and state-qualified magneticians	53 (32.32)	3 (6.52)	56 (26.67)

Experience			
≤ 5	27 (16.46)	27 (58.69)	54 (25.71)
[6,10]	28 (17.03)	13 (28.26)	41 (19.52)
[11,15]	19 (11.58)	1 (2)	20 (9.53)
>15	90 (54.88)	5 (10.87)	95 (45.24)

Table 1: *Demographic characteristics of the healthcare professionals surveyed in some health facilities in the city of Bobo-Dioulasso and its surrounding areas.*

n: Number of People Surveyed; %: Proportion.

General knowledge of the studied population about dengue and chikungunya

All the healthcare professionals surveyed, 100% (n = 210), had already heard of dengue. 66.67% (n = 140) of the participants had heard about the disease for the first time in the context of their service during training, through health statistics sheets provided by the Ministry of Health; and 22.86% (n = 48) of the respondents reported having learned about it from the media during the outbreaks. Other responses provided were during their studies, i.e. university studies 8.57% (n = 18); and 1.90% (n = 4) through personal research (Table 2). Réponses varied by profession. Regarding at-risk population, 98.1% (n = 206) of respondents answered that the most affected people are those living in tropical, subtropical, urban, or rural areas, while 1.90% (n = 4) did not provide any response. Unlike dengue, only 69.04% (n = 145) of the participants say they have heard of chikungunya (Table 2). However, the majority, 40.69% (n = 59), stated that they first heard about the disease through the media when asked, *«How did you first learn about the infection ?»* Among those who had heard of it, 40% (n = 58) had learned about it through their work, 14.48% (n = 21) through their academic studies, and 4.83% (n = 7) through personal research (Table 2). In the case of chikungunya, the healthcare personnel (n = 145) did not give any incorrect answers regarding the most affected areas. The people who know about the disease (n = 145) agreed that those most at risk are individuals living in tropical, subtropical, urban, and rural areas (Table 2).

Variables	**Dengue**		**Chikungunya**	
	People surveyed (n)	**Share (%)**	**People Surveyed (n)**	**Share (%)**
Have you ever heard of infection?				
Yes	210	100	145	69.04
No	0	0	65	30.95
Total	210	100	210	100
How did you heard about the infection?				
Service framework (statistical training health)	140	66.67	58	40
Medias	48	22.86	59	40.69
School (High school, university)	18	8.57	21	14.48
Personal research	4	1.90	7	4.83
I don't remember	0	0	0	0
Total	210	100	145	100
Which populations are most affected?				
Subtropical	5	2.43	6	4.14
Tropical	71	34.47	41	28.28
Urbain	129	62.62	97	66.90
Rural	1	0.49	1	0.69
No answer	4	1.90	0	0
Total	210	100	145	100

Table 2: *Knowledge of healthcare personnel on dengue and chikungunya in some health facilities in the city of Bobo-Dioulasso and its surroundings.*

Regarding knowledge about the dengue pathogen, only 0.48% (n = 2) were unable to answer the question, and 20% (n = 42) did not know this disease was caused by the dengue virus (Table 3). Among those who provided incorrect answers, many confused the pathogen with the vector, giving responses such as insects, mosquitoes, plasmodium, *Aedes*, or contact with infected individuals (Table 3). More than half, 53.79% (n = 78), of the healthcare professionals who had heard of chikungunya knew its pathogen, only 2.07% (n = 3) confused the vector with the pathogen, and 44.14% (n = 64) stated that they did not know the causal agent (Table 3). Thus, more than 90% of the respondents knew that these diseases were transmitted to humans by mosquito bites. Nearly all professions had a good understanding of the causative agent. Most could recognize fever (around 75%), headaches (around 70%), and vomiting (around 47.76%) as symptoms of these diseases. Fewer recognised stomach ache 8.55% as a symptom of these diseases (Table 3). However, some (30.25%) reported recognizing hemorrhages as a symptom, and another 27.8% mentioned body aches (Table 3).

Variables	Dengue		Chikungunya	
	People surveyed (n)	Share (%)	People surveyed (n)	Share (%)
What is the pathogen?				
Virus	167	79.52	78	53.79
Wrong answers (mosquitoes, contact with a sick person)	42	20	3	2.07
No answer	2	0.48	64	44.14
Total	210	100	145	100
How is it transmitted to Humans?				
By mosquito bite	194	92.38	121	92.38
Wrong answers	16	7.62	24	7.62
Total	210	100	145	100
What are the symptoms of the infection?				
Headaches	185	88.10	74	51.03
Stomach aches	20	9.52	11	7.59
High fever	197	93.81	81	55.86
Body aches	69	32.84	33	22.76
Vomitting	121	57.62	55	37.93
Hemorrhages	72	34.29	38	26.21
No answer	00	00	59	40.69
Correct answers	63	30	20	13.79
Wrong answers	147	70	66	45.52
Total	210	100	145	100

Table 3: *Knowledge of healthcare personnel on dengue and chikungunya in some health facilities in the city of Bobo-Dioulasso and its surroundings.*

Knowledge of healthcare professionals regarding diagnostic practices, prevention, and treatment for dengue and chikungunya

Of all the healthcare professionals surveyed, 52 of them (24.76%) were unable to name the methods used to diagnose dengue and chikungunya; some even mentioned blood smears as a diagnostic method. On the other hand, just over three-quarters, or 75.24% (158 participants), were able to identify the techniques used for diagnosing these diseases, with methods such as PCR, serology, and rapid diagnostic tests (RDTs) being cited (Table 4). As for chikungunya, 91 participants (62.76%) were able to name the diagnostic methods for the disease, while the remaining 54 (37.24%) provided incorrect answers, such as blood smears (Table 4).

Regarding preventive measures for dengue, 135 healthcare workers (64.29%) mentioned vector control through vector control, the use of repellents and long-lasting insecticidal nets (LLINs), the destruction of larval breeding sites, and public awareness campaigns. While some, 75 (35.71%) cited vaccination as a preventive measure (Table 4). As for chikungunya, only 60 participants (41.38%) were able to correctly identify preventive measures. However, the vast majority, 80 (58.62%), of healthcare professionals were unable to list preventive measures against chikungunya (Table 4).

Most of the participants, 175 (83.33%), were able to answer questions related to the management of dengue cases by specifying that «the treatment consisted of alleviating the symptoms». It should be noted that 35 people (16.67%) were unable to provide appropriate answers about case management. 83 participants, or 57.24%, were able to correctly answer questions related to chikungunya case management, while 62 of them (42.76%) failed to respond or provided incorrect information (Table 4).

Variables	Dengue	Chikungunya
	n (%)	n (%)
Diagnostic methods		
Correct answers (serology, PCR, RDT)	158 (75.24)	91 (62.76)
Wrong answers	52 (24.76)	54 (37.24)
Total	210 (100)	145 (100)
Préventive measures		
Correct answers (Vector control, use of mosquito nets and repellents)	135 (64.29)	60 (41.38)
Wrong answers	75 (35.71)	85 (58.62)
Total	210 (100)	145 (100)
Case management		
Symptomatic	175 (83.33)	83 (57.24)
Wrong answers	35 (16.67)	62 (42.76)
Total	210 (100)	145 (100)

Table 4*: Knowledge of diagnostic, prevention, and treatment practices among healthcare workers for dengue and chikungunya.*

n: Number of people surveyed; %: Proportion.

Relationship between profession, years of experience, and knowledge of dengue and chikungunya

Figure 1 summarizes the knowledge scores for dengue and chikungunya. The majority of participants (68.57%) demonstrated a good level of knowledge (knowledge score between 70% and 100%, corresponding to a high level) of dengue. This score was higher among respondents with over 15 years of service (n = 144) and lower among those with less than five years of experience (n = 21). Moreover, experience and profession are both statistically related to the level of knowledge. A chi-2 analysis (χ^2 = 18.14) was conducted to assess the relationship between knowledge level and profession. The results show that a high level of knowledge is significantly associated

with profession (p = 0.05), indicating that the level of knowledge varies significantly depending on the profession practised (doctors, nurse, technician, etc.). Specifically, doctors and nurses tend to have a higher level of knowledge, a trend that is statistically significant. Additionally, a significant relationship was observed between knowledge level and years of experience, with statistically significant results ($p < 0.05$; p = 0.03195) and a Chi-2 of 7.01. Among respondents, 21.41% demonstrated a moderate level of knowledge, corresponding to a score between 40% and 69%, while only 10% showed a low level of knowledge, with scores ranging from 0% to 39%.

The Chi-2 test shows that knowledge is linked to both profession, as $p \leq 0.05$ (p = 0.05). One in two healthcare workers 55.86%, had a high level of knowledge, 27.59% had an moderate level of knowledge, and less than 17% (16.55%) had a low level of knowledge about chikungunya. A high level of knowledge is associated with more favorable responses regarding the knowledge, diagnosis, and practice of chikungunya and with seniority in the field. Thus, the knowledge scores showed significant variations based on profession with a $p \leq 0.05$ (p = 0.00) and Chi-2 = 39.27. However, the test was not statistically significant at the 5% level ($p > 0.05$), suggesting that there is no link between years of experience and the level of knowledge about chikungunya (p = 0.38).

Good knowledge and good practices (scores)

From this study, more than 55% of the healthcare workers surveyed were identified as having good knowledge and practice regarding dengue (68,57), and (55.86%) of chikungunya. As shown in figure 1, it is evident that healthcare professionals have a better understanding of dengue compared to chikungunya.

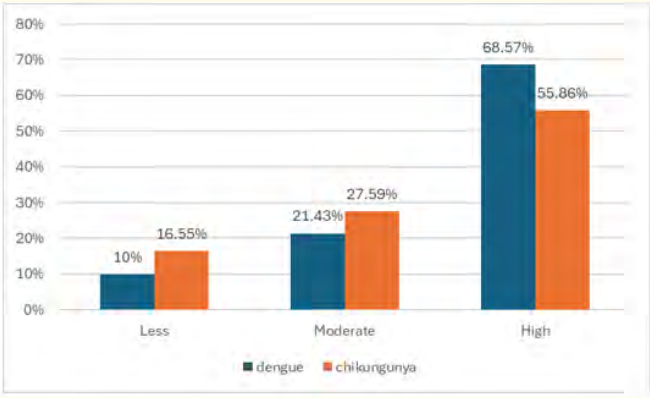

Figure 1: *Dengue and Chikungunya knowledge score.*

Discussion

All health agents (100%) were familiar with dengue, and more than half (69.04%) had also heard of chikungunya. These results are similar to those of a study conducted in Tanzania where it was also found that 96.8% of respondents are familiar with dengue, while 87.2% had never heard of chikungunya [5]. A similar assessment was carried out in Cameroon, where less than 41% of participants had heard of dengue and chikungunya [1], and in Karachi, Pakistan, where participants were found to have basic knowledge of dengue [6,22]. These results are contradictory to mine, and this can be explained by the fact that in Cameroon the risk of transmission and the endemicity of these diseases are very low [1]; whereas Burkina Faso accounted for 85% of the epidemic cases reported in Africa in 2023 [23]. So, a good understanding of the mosquito vector and the signs and symptoms of dengue and chikungunya is essential for identifying the disease and seeking early, appropriate medical treatment to save lives [1,24]. In Burkina Faso, sporadic cases were reported in 2013, 2016, and 2017 [14,15], and the 2023 outbreak has resulted in 570 deaths as of November 19 [16]. However, a recent study on chikungunya revealed a

seroprevalence of 29% [18,19], and during the dengue epidemic in 2023, 89 cases of chikungunya were reported in the Centre-Est region [16]. These repeated sporadic cases lead to a frequent and high rate spread of these these pathogens. Dengue, chikungunya, malaria, and other arboviral diseases share similar symptoms that are difficult to differentiate clinically [25]. The endemicity of malaria in Burkina Faso has limited the ability of healthcare workers to detect for the presence of other febrile illnesses. In most African healthcare centers, diagnostic tests for diseases such as dengue and chikungunya (arboviruses in general) are not readily available. It is also uncommon for doctors to prescribe diagnostic tests for dengue and chikungunya for patients presenting with fever symptoms [12]. However, following the dengue outbreak that occurred in Burkina Faso in 2023, healthcare workers are now paying more attention to diagnosing dengue, especially when rapid diagnostic tests (RDTs) for malaria comes back negative. On the other hand, the diagnosis of chikungunya is rarely performed. Despite the epidemic that severely affected the country in 2023, many healthcare centers still lack dengue RDTs, and even fewer have tests for chikungunya. The testing in private. Even facilities that have testing kits only maintain limited supplies. This largely explains why dengue tests are so expensive in private clinics - and why patients hesitate to seek hospital care at the first symptoms. As a result, many only arrive at hospitals at a late stage, often with complications already developing.

The current study revealed that 68.57% of participants have a high level of knowledge about dengue. This result is similar to other studies that have shown that healthcare professionals in endemic regions generally have a good knowledge of vector-borne diseases like dengue. For example, a study conducted in India revealed that 65% of doctors and nurses had adequate knowledge of dengue, which is comparable to the results of this study [26]. The study shows that profession is a determining factor, as it is significantly associated with the level of knowledge ($p \leq 0.05$, $p = 0.05$). Doctors and nurses have a higher level of knowledge than other healthcare professionals. This result is consistent with previous studies such as those by Dhimal., *et al.* (2014), Harapan., *et al*. (2017) [1,27,28], which showed that doctors and nurses generally have better knowledge of vector-borne diseases due to their more advanced training and central role in diagnosing and managing patients. Other studies have often indicated that doctors tend to have a better understanding of infectious diseases compared to other healthcare professionals. For example, a study in Brazil showed that doctors had a significantly higher level of knowledge than other healthcare professionals regarding dengue [29]. The difference could be attributed to variations in training programs.

Only 55.86% of healthcare workers have a high level of knowledge about chikungunya, which is lower than the rate observed for dengue (68.57%). This could be explained by the fact that dengue is more widespread and better documented than chikungunya in many regions. A similar study conducted in Tanzania also showed that healthcare professionals had a better knowledge of dengue than chikungunya, due to the higher prevalence of dengue in the area [30]. Knowledge of chikungunya is lower than that of dengue and is significantly associated with profession ($p \leq 0.05$, $p = 0.00$), with doctors and nurses having a higher level of knowledge. This result is similar to that observed for dengue and aligns with the findings of Staples., *et al.* (2009) [10], who showed that doctors and nurses are generally better trained on emerging diseases due to their central role in patient care. Unlike dengue, seniority does not seem to have a significant impact on the level of knowledge, which suggests that other factors such as initial training or exposure to cases could influence knowledge. More than 55% of healthcare workers were identified as having good knowledge and practices regarding dengue and chikungunya. This result is encouraging, as it suggests that the majority of professionals are well-informed and capable of managing these diseases. However, there remains a significant proportion (16.55%) with a low level of knowledge, which could have implications for the quality of care. A study in Thailand showed that gaps in healthcare workers' knowledge could lead to delays in diagnosing and treating dengue, potentially worsening patient outcomes [30]. The results show that healthcare workers have a better understanding of dengue than chikungunya. This could be due to several factors, including the higher prevalence of dengue, more intensive awareness campaigns, and greater media attention. A study in India also found that healthcare professionals were more familiar with dengue than with chikungunya, due to the higher frequency of dengue outbreaks [26].

The majority of healthcare professionals have a good understanding of dengue, but gaps remain regarding chikungunya, particularly for certains professions. Profession and years of experience significantly influence the level of knowledge about these diseases. Additional

efforts, particularly through tailored and targeted training programs, are necessary to improve the understanding of chikungunya and ensure that all professionals, regardless of their experience, are well-informed about these diseases. These findings confirm previous studies while highlighting the importance of continuous training. However Regular awareness campaigns and training sessions should be conducted to improve knowledge among healthcare workers with limited understanding and to reinforce existing knowledge for others, in order to prevent and treat dengue and chikungunya. Clinicians should also be encouraged to read more and enhance their knowledge of these diseases. Regular assessment of this staff should be undertaken to ensure they are up to the task and well-prepared to address challenges in the event of an outbreak.

Regarding the study's limitations, the questionnaire was designed exclusively for healthcare workers. Additionally, group discussions were not conducted to delve deeper into the knowledge and practices of the staff. It is important to expand the study geographically to assess the knowledge and practices of medical personnel and the general population.

Conclusion

The survey reveals that healthcare workers in the city of Bobo-Dioulasso and its surrounding areas have a good understanding of dengue but insufficient knowledge of chikungunya. This difference highlights the need to strengthen training and awareness campaigns specifically on chikungunya and arboviruses in general. Although preventive attitudes and practices are generally positive, the identified gaps underscore the importance of an integrated approach to improve the management of both diseases. It is crucial to consolidate knowledge and harmonize practices to optimize the healthcare system's response to these arboviral diseases while maximizing training for all categories of healthcare professionals.

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Conflict of Interest

The authors declare no conflict of interest regarding the publication of this article.

Author's Contributions

Abdrahamane Camara, Dieudonné Tialla, Merci Muhigwa, Brou N'Guessan Akuèlou Kouamé, Aboubacar Kiendrébeogo, Moussa Namountougou, Salimata Pousga, Abdoul Salam Ouédraogo, Ibrahim Sangaré have contributed equally to the work of this article.

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