Research Article **ISSN: 2394 – 7403**

International Journal of Medicine and Health Profession Research

Journal home page: www.ijmhpr.com

https://doi.org/10.36673/IJMHPR.2022.v09.i02.A08

KNOWLEDGE, ATTITUDE AND PRACTICE ON DENGUE FEVER PREVENTION AND CONTROL IN KEREN, ANSEBA REGION, ERITREA: A CROSS-SECTIONAL STUDY

Mensur Yenus*[1], Samuel Jirom Wolday[1], Amanuel Kflemariam[1], Linto M. Thomas[2], Anjana Kuriakose[2]

[1*]Malaria Control Program, Ministry of Health Anseba Zone, Eritrea.
[2]Orotta College of Medicine and Health Sciences, Asmara, Eritrea.

ABSTRACT

Background: Anseba Zone has witnessed several dengue fever outbreaks. As a result, community-based dengue intervention was introduced in 2020 and possibly come with a satisfactory outcome. However, people's awareness of dengue fever (DF) has never been assessed. Therefore, the present study aimed to assess the knowledge, attitude, and practice (KAP) on dengue fever of Keren town residents. **Method:** A cross-sectional survey was conducted in Keren town, encompassing 369 households (HHs). Data on the socio-demographic characteristics and KAPs of the participating HH heads or any adult 18 and above years old were collected using a structured questionnaire. Data was entered and analyzed via SPSS version 23 software. **Results:** More than 99% of the respondents have heard of dengue. And 94% of them identified fever as the main sign of DF. Moreover, the respondents have a good level of knowledge of the other common symptoms like muscular pain (62.1%), headache (62%), and joint pain (52%). More than 68% agreed on the seriousness of DF, 81% agreed they have an essential role in DF prevention, and more than 87% believed DF could be prevented. Respondents reported that they used mosquito nets, repellents and house screening as the primary preventive methods. Generally, 61.5%, 48.5%, and 47.4% of respondents had good knowledge, good attitude, and good practice. This result indicated that respondents had good knowledge, poor attitude, and poor practice. **Conclusion:** A pretty good knowledge, poor attitude and poor practice was observed in the study population. Thus, the Ministry of Health should implement inclusive community involvement and multi-sectoral collaboration to improve the community's knowledge, attitude and practice.

KEYWORDS

Knowledge, Attitude, Practice and Dengue fever.

Author for Correspondence:
Samuel Jirom,
Ministry of Health Keren Sub Zone,
Anseba Zone, Eritrea.

Email: samitusamitu234@gmail.com

INTRODUCTION

Dengue is a mosquito-borne disease caused by a virus from the family Flaviviridae. There are four dengue serotypes responsible for causing dengue and any individual has a possibility of being infected four times. According to WHO (World Health Organization), the global incidence of dengue has

grown dramatically in recent decades, and about half of the world's population is now at risk[1]. Annually nearly 400 million people are infected with dengue, of which 96 million manifest clinically with any severity of disease[2]. A study conducted by Brady *et al*, on the prevalence of dengue estimated that over 3.9 billion people from 129 countries were at risk of dengue infection in 2011[3]. Furthermore, the dengue cases have increased more than eight-fold over the last 20 years, from 505,430 cases in 2000 to over 2.4 million in 2010 and 5.2 million in 2019[1]. These days all dengue serotypes are circulating the world (Figure No.1)[4]. That means all the dengue serotypes now share the same geographical and ecological niche, consequently becoming the leading cause of severe diseases. The severity of dengue increases in areas where two or more serotypes are present[5].

The serotype that produces the secondary infection and, in particular, the serotype sequence are essential to ascertain the severity of the disease. All four serotypes can produce dengue hemorrhagic fever (DHF) cases[6]. Studies in Thailand have revealed that the dengue serotype-1 (DENV-1)/dengue serotype-2 (DENV-2) sequence of infection was associated with a 500-fold risk of DHF compared with primary infection and the DENV-3/DENV-2 sequence the risk was 150-fold and a DENV-4/DENV-2 sequence had a 50-fold risk of DHF[7]. In this respect, the world has faced a big challenge with arbovirus, particularly dengue and dengue hemorrhagic fever.

In 1970 only nine countries were experiencing severe dengue. The disease is now endemic to more than 100 countries in the WHO region. Dengue is now found to appear in new places like the European countries and was the second most diagnosed cause of fever after malaria. According to WHO, in 2020 alone, dengue was seen in east African countries like Sudan and Kenya in an epidemic state and was seen in Afghanistan for the first time in 2020[1].

Several studies have been conducted to assess the awareness of communities and health workers on DF. A study conducted in Yemen in three urban districts found that despite the good knowledge and attitude of the respondents, poor practices were common[8]. A study from Eastern Ethiopia also revealed that the KAP of the health workers working at different health services was found to be very low, although training was given for the majority of the respondents[9]. Similarly, a study conducted in Malaysia with high dengue prevalence with a seroprevalence positivity of 74.1% found a very low KAP among respondents[10]. Conversely, a study from Greece revealed that the door-to-door intervention resulted in good knowledge, attitude, and practice in dengue prevention and control[11].

DENV-1 was detected in Eritrea in 2005; afterward, no study has been done to incriminate the virus yet. Dengue virus is transmitted by Aedes (*Ae*) mosquitoes, mainly *Ae. aegypti* (primary vector and *Ae. albopictus* to a lesser extent)[12]. According to a study conducted in the western and northern parts of Eritrea, *Ae. aegypti* was the only vector identified in these areas[13,14]. According to Yenus *et al*, in Anseba Zone, particularly Keren town, DF has been continuously burdening the inhabitants every year during the rainy season since 2014[14].

To overcome this burden, the Ministry Of Health (MOH) Anseba Zone has introduced a community-based intervention in Keren town, which was adapted from experience by Espino[15]. The sustainability of the adapted community-based intervention depends on the community knowledge, attitude and practice. However, the KAP study on the community of the Keren town has never been assessed. Therefore, this study aimed to assess study participants' knowledge, attitude, and practice in preventing and controlling dengue fever in Keren town. The findings of this result will help to use another health strategy or adapt another communication strategy recommended by the World Health Organization called communication for behavioral impact (COMBI).

METHODOLOGY

Study design

The study was a community-based cross-sectional study interviewing the head of the household or a family member 18 and above years old.

Study Area and population

The study was conducted in Keren, the capital city of the Anseba Region, which was the second-largest city in Eritrea. It is situated around 91 kilometers

northwest of Asmara at an elevation of 1,390 meters above sea level. It comprises Tigre, Tigrigna and Bilen ethnic groups. The population of Keren is 74,880 (16,175 households). Of this, 71,138 people were part of the study. However, 3742 community members (829 HHs) were excluded from the study because they were economically and socially different; they were rural communities even though they were under the same subzone. All households residing in Keren town with an eligible individual are the study population. The head of the families who were randomly selected from the selected administrative households was enrolled in the study. If the head of the household was not available, one member of the household (husband, wife, or adult >18 years old) was interviewed. Nevertheless, health professionals, individuals unable to respond and non-residents were excluded from the study.

Sampling size determination

The sample size of this study was calculated based on various aspects, including knowledge proportion, precision level and confidence level. The sample size was determined using the following formula:

$n=z2pq/d2$

Where:

n = the sample size

z = the critical value for achieving (1-α) % confidence level, here, z = 1.96.for 95% confidence interval.

p = the anticipated proportion. Here p=0.5. q = 1-p

d = the desired margin of error,

d=5%

By using these values, the final required sample size was 369 households.

Sampling method and sampling techniques

According to the subzonal administration, there were 16,175 HHs from 7 administrative areas. The present study targeted 13,704 HHs in six urban dengue-endemic administrative areas. The rest HHs were excluded from the study because they are from the rural communities in which, during the previous surveillance, the prevalence of *Aedes* aquatic stages was found to be nearly zero. A total of 369 HHs were enrolled as part of the study. HHs were randomly selected using simple random sampling and HHs heads or any member of the HHs greater than 18 years of age were invited to participate in the study after obtaining their informed consent. If the HH head or any adult responsible for the interview was not present or refused to participate, the head of the next HH was included until reaching the required sample size.

Variables

The knowledge, attitude and practice questions were given scores. Scores of "one" and "zero" were given to the correct and incorrect responses of knowledge, attitude, and practices, respectively. Then the respondents' knowledge, attitude, and practices were considered poor if the score was lower than or equal to half (50%) of the total score.

Data collection method and tools

Data were collected using a structured questionnaire through face-to-face interviews. Interviewers were trained before surveying to ensure that the surveyors understood the questionnaire well, avoiding the difference in the definitions and interpretations of concepts used. A pilot study was done by taking 10% of the sample size in communities outside the study area. This pilot study was basically conducted to develop and test the adequacy of the research equipment and to design a research protocol. The questions contained both open and closed-ended questions about socio-demographic data, knowledge of symptoms, transmission and vector control, attitudes and practices towards dengue. It was initially prepared in English and was translated to the local language (Tigrigna). The content of the questionnaire was adapted from extensive literatures.

Data management and analysis

Data collected from the field were entered into a data entry screen developed via CSPro7.2. Double data entry was implemented to minimize errors during data entry. SPSS software version 23 was used to analyze the data. Findings were presented as frequencies and percentages; primary associations were assessed using the chi-squared test. Moreover, a p-value <0.05 was considered significant association.

Ethical Clearance

Ethical clearance was obtained from the ethical clearance committee of MOH Eritrea. The responders' had the right to refuse or withdraw from

the study. All participants gave their informed consent by their signature (thumb signature) to participate in the study. Anonymity and confidentiality were ensured in that the respondents' names were not recorded on the questionnaire. The information collected was kept under a locked cabinet, and electronic records were also stored in a password-protected computer.

RESULTS AND DISCUSSION

Socio-demographic characteristics and source of information

The majority (80.2%) of the respondents were females, and 31.2% were 30 to 40 years old. About 14.6% of the respondents were illiterate, and nearly 9% were graduates. Of the total respondents, 3.7% were students, and 55.8% were housewives. In this study, 65.6% of respondents identified health care professionals as their source of information, followed by friends and family (44.2%). On the other hand, 30% stated that television/radio was their source of information, and about 3.5% of respondents had obtained knowledge through different educational institutions (Table No.1).

Table No.2 summarizes respondents' knowledge of dengue fever signs and symptoms, its transmission, and the practices that can contribute to the spread of its vector mosquitoes. Overall, 62% had comprehensive knowledge of DF. Among the respondents, 99.2% had heard about dengue fever (DF). More than half (51.2%) had misconceptions that unclean water-holding containers could be potential breeding places for the Aedes mosquito. The respondents indicated that fever (94%), headache (62.3%), muscular pain (62.1%), and joint pain (52%) are the main signs and symptoms of dengue fever. However, pain behind the eyes (12.5%), skin rash (11.4%) and bleeding (1.9%) was the least frequent symptom of the disease correctly identified.

Almost all respondents (99.2%) answered dengue fever is transmittable, and 43.9 % knew that the black mosquito is the vector transmitting dengue fever. However, only 2.7% knew that *the Aedes* mosquito usually bites during sunrise/sunset. In addition, only 2 (0.5%) knew the possibility of dengue fever transmission via blood transfusion. Moreover 15.4% recognized using repellent creams as preventive measures. About 74.8% answered to seek immediate medical treatment, followed by 11.7% (43/376) who took medicine with a prescription after noticing fever symptoms.

Attitude of respondents on DF prevention and control

More than two-thirds (68.8%) agreed about the seriousness of dengue fever, 81% agreed they have an essential role in dengue fever prevention, and 87.5% believed that dengue fever could be prevented. However, collectively the respondents had a poor attitude, with a total score of 48.5%.

Respondents practice

Generally, the respondents had poor practice, with a total score of 47.4%. Mosquito repellent, bed net and window/door screening were used by 25%, 86.4% and 31.4% of respondents to protect themselves and their family members to prevent dengue infection.

Table No.4 shows participants' practices in preventing dengue. The response was "search and destroy mosquito breeding sites" (65.9%), followed by about 41.2% of them being aware of scrubbing containers before discarding the containers with water collections to get rid of mosquito eggs attached to containers.

Association among knowledge, attitude and practice

Participants who had good knowledge had good attitudes, whereas those with poor knowledge had a poor attitude (62% vs. 27%, $p<0.001$). Also, participants with a good attitude had good practice, whereas those with poor attitude had a poor practice ($P < 0.001$). Besides, participants who had good knowledge were 7.9 times more likely to have good practice (OR: 7.97; 95% CI: 4.83-13.15, $P<0.001$) and it was statistically significant.

Discussion

In the present study, nearly all respondents (99.2%) heard of dengue, more than 90% believed DF is transmissible and 72.1% believed dengue is transmitted through mosquito bites. Generally, most respondents had a basic knowledge of dengue; they identified water-holding containers, roof gutters, flower vases, tree holes, and discarded tires and tines

as the primary breeding habitats for the dengue vector. A study from Bangladesh, India, and Pakistan revealed that most respondents had misconceptions about dengue, particularly about dengue vector breeding places. They stated unclean water, such as sewage drains, were the most common breeding sites for dengue mosquitoes[17-20].

Many of the study population identified mosquitoes as vectors of the diseases, and nearly half of them identified the specific species. A study by Syad revealed that even though most of the respondents identified mosquitoes as vectors, little was known about *Aedes* mosquito[20]. However, the present study found a lack of knowledge on DF transmission through blood transfusion and from mother to fetus during pregnancy. According to a survey from Pouliot, this is a dire finding since vertical transmission of antibodies from mother to fetus leads to adverse fetal outcomes[21].

The majority (94%) of the respondents identified fever as the main sign of DF. Besides, a good level of knowledge was seen regarding the other common symptom like headache, muscular pain, and joint pain. However, the majority of the respondents did not mention the life-threatening and unique symptoms and signs of dengue, such as bleeding, pain behind the eyes, and skin rash. A similar finding was observed in a study conducted by Syadet *et al*[20]. As a result, recommended modification of health-seeking behavior could be possible if the population were able to be aware of this severe symptoms[20]. More than half of the respondents had good comprehensive knowledge. But it needs another aggressive health education campaign to increase the community's level of awareness. Even though the community (study population) accepted DF is not a killer disease, less than half of the respondents had a good attitude. This would have been true in a particular period.

Large proportions of the study population used mosquito nets and poured water with larva onto the ground. And a fair number of the respondents washed their water containers with antiseptic if larvae were seen. A study from Malaysia revealed some of the respondents believed removing mosquito breeding sites from their residence was not their responsibility[10]. And another study from the same country found that nearly 1/3 of their respondents believed removing larva breeding sites was a complete waste of time[22]. Dengue cases could be averted, if all the community members could engage equally in dengue vector control activities. Simply if one HH maintained a larva breeding habitat, it would be a source of infection to the HHs at a range of *Aedes* flight nearly 200 meters to all dimensions.

Generally, it was believed that practice is a result of good knowledge and a good attitude, but despite good knowledge being observed, it was not translated to good practice. This was consistent with a cross-sectional study from Malaysia by Selvarajoo *et al*[10]. However, several studies found acceptable dengue prevention practices following good knowledge and attitude[23,24]. The zonal dengue control program should introduce some suitable mechanism to translate the knowledge to a required practice in line with multi-sector involvements.

Limitations and recommendations for further research

The present study focused in Keren town only. Therefore, the finding may not represent the rest of the zone (region) and the country. In the case of the Anseba region, the majority of the dengue fever cases were concentrated in Keren town. However, due to the invasion and inhabitation of the dengue vector to the rest of the towns and semi-towns of the region, comprehensive research from all corners of the country may be required to infer the KAP of the region and the country as a whole.

A community-based dengue intervention was introduced in Keren town in late 2020. The intervention includes house-to-house training on DF prevention and control. The present study failed to address whether the study participants attended such training.

Table No.1: Socio-demographic characteristics and source of information of the study respondents at Keren, Anseba Zone Eritrea (n=369)

S.No	Characteristics		Frequency	Percent
1	Gender	Male	73	19.8
		Female	296	80.2
2	Age of respondents	<30	78	21.1
		30-40	115	31.2
		41-50	81	21.9
		51-60	62	16.8
		>60	33	8.9
3	Educational Level	No formal education	54	14.6
		Primary school	86	23.3
		Junior school	94	25.4
		secondary school	103	27.9
		Higher level	32	8.6
4	Employment status	Teacher	12	3.2
		Business man	16	4.3
		Farmer	5	1.3
		Student	14	3.7
		Laborer	10	2.7
		Housewife	206	55.8
		Military	25	6.7
		Unemployed	36	9.7
		Other	45	12.1
5	Source of information about dengue	TV/radio	110	29.8
		Health care professionals	242	65.6
		Friends and family	163	44.2
		School/college	22	6.0
		Advertisements/billboards	4	1.1
		Newspaper/social media	8	2.2
		Others	13	3.5
6	Ever been infected with dengue fever	Yes	201	54.5
		No	168	45.5

Table No.2: Summarizes respondents' knowledge of dengue fever signs and symptoms

S.No	Description	Yes n(%)	No n(%)
1	Heard on dengue	369 (99.2	3 (08)
2	DF is transmissible	333 (90)	36 (10)
3	DF is transmitted to a person via.	266 (72.1)	103(27.9)
	Mosquito bite		
4	Airborne	67(18.2)	302(81.8)
5	Waterborne	12(3.3)	357(96.7)
6	Blood transfusion	2(0.5)	367(99.5)
7	Mother to foetus during pregnancy	2(0.5)	367(99.5)
8	Contaminated food	4(1)	363(99)
9	Other means	19(5.1)	350(94.9)

10	Doesn't know	29(7.9)	340(92.1)
Aedes active to bite during			
11	Afternoon	202(54.7)	167(45.3)
12	Evening	120(32.5)	249(67.5)
13	Morning	120(32.5)	249(67.5)
14	Night	90(24.4)	279(75.6)
15	Sunrise/sunset	10(2.7)	359(97.3)
16	Don't know	71(19.2)	298(80.8)
Common breeding site of _Aedes_ inside the house is			
17	Clean water	121(32.8)	248(67.2)
18	Unclean water	189(51.2)	180(48.8)
19	Tray under the fridge	51(13.8)	318(86.2)
20	Water container	187(50.7)	182(49.3)
21	Flower vase	110(29.8)	258(70.2)
22	In opened water tank	137(37.1)	232(62.9)
23	Other means	13(3.5)	356(96.5)
24	Don't know	53(14.4)	316(85.6)
Common breeding site of _Aedes_ outside the house is			
25	Flower leaves	185(50.1)	184(49.9)
26	In the roof gutter	315(85.4)	54(14.6)
27	Garbage	227(61.5)	142(38.5)
28	In the abandoned tyres	262(71)	107(29)
29	Other means	29(7.9)	340(92.1)
30	Tree holes	233(90.2)	36(9.8)
31	Don't know	60(16.3)	309(83.7)
DF transmission could be prevented using			
32	Mosquito net	270(73.2)	99(26.8)
33	Mosquito spray/repellent/cream	57(15.4)	312(84.6)
34	Covering body with long cloths	116(31.4)	253(68.6)
35	Covering tightly all water containers	155(42)	214(58)
36	Keeping drain free from blockage	76(20.6)	293(79.4)
37	Changing water in plant container	100(27.1)	269(72.8)
38	Changing water in tray under the fridge	47(12.7)	322(87.3)
39	Burying unused tyre	41(11.1)	228(88.9)
40	Adding larvicide in water container	48(13)	321(87)
41	Removing water from flower vase	81(22)	288(78)
42	Burying discarded tins and cans	64(17.3)	305(82.7)
43	Other means	25(6.8)	344(93.2)
44	Don't know	50(13.6)	319(86.4)
What are the sign and symptoms of DF			
45	Fever	347 (94)	22 (6)
46	Chills	231 (62.6)	138(37.4)
47	Headache	230 (62.3)	138 (37)
48	Eye pain	46 (12.5)	326(87.5)
49	Muscle pain	229 (62.1)	140(37.9)

50	Skin rash	42(11.4)	327(88.6)
51	Joint pain	192(52)	177(48)
52	Loss of appetite	146(39.6)	223(60.4)
53	Nausea and vomiting	134(36.3)	235(63.7)
54	Diarrhea	24(6.5)	345(93.5)
55	Bleeding	7(1.9)	362(98.1)
56	Others	62(16.8)	307(83.2)
What is/are the treatment of DF			
57	Intravenous fluid rehydration	100(27.1)	269(72.9)
58	Paracetamole	259(70.2)	110(29.8)
59	Anti- bacteria	8(2.2)	361(97.8)
60	Anti- viral	3(0.8)	366(99.2)
61	Aspirin	18(4.9)	351(95.1)
62	Diclofenac	83(22.5)	286(77.5)
63	No treatment	7(1.9)	362(98.1)
64	Doesn't know	69(18.7)	300(81.3)
Mosquito transmit dengue		**Frequency**	**%**
65	Aedes	162	43.9
66	Anopheles	14	3.8
67	Culex	2	0.5
68	All types of mosquitoes	13	3.5
69	Don't know	178	48.2
70	Comprehensive knowledge	62%	

Table No.3: Attitude of respondents on DF prevention and control

S.No		Strongly Agree N(%)	Agree N(%)	Neutral N(%)	Disagree N(%)	Strongly Disagree N(%)
1	DF is preventable	176(47.7)	147(39.8)	21(5.7)	19(5.1)	6(1.6%)
2	DF is a series disease	148(40.1)	106(28.7)	39(10.6)	70(19)	6(1.6%)
3	Eliminating the breeding sites of *Aedes* mosquito is complicated and time consuming?	129(35)	68(18.4)	33(8.9)	103(27.9)	36(9.8%)
4	You've an important role in DF prevention?	144(39)	155(42)	48(13)	16(4.3)	6(1.6)
5	Dengue is a major problem for your population?	143(38.8)	104(28.2)	33(8.9)	79(21.4)	10(2.7)
6	Dengue is difficult to detect	108(29.3)	92(24.9)	57(15.4)	81(22)	31(8.4)
7	DF has a high morbidity	129(35)	100(27.1)	63(17.1)	61(16.5)	16(4.4)
8	Dengue decreases economic productivity?	157(42.5)	128(34.7)	46(12.5)	28(7.6)	10(2.7)

Table No.4: Attitude of respondents on DF health seeking behavior in Keren, Anseba zone, Eritrea

S.No		Frequency	%
	Seek medical attention after suffering from fever		
1	immediately	184	49.9
2	within 24 hours	71	19.2
3	after getting serious condition	68	18.4
4	after a few days	40	10.8
5	Do nothing	6	1.7
	If I feel seek with dengue fever		
6	I take medicine without prescription	95	25.7
7	I take medicine with prescription	239	64.8
8	I wait few more days to observe health condition	25	6.8
9	do nothing.	10	2.7

Table No.5: Practice of respondents on dengue prevention and control in Keren, Anseba zone, Eritrea

S.No	Description	Yes N(%)	No N(%)
1	Calling health authority for chemical control	90(24.4)	279(75.6)
2	Destroy larva breeding site in regular bases?	243(65.9)	126(34.1)
3	Wash container with antiseptic to destroy larva breeding site	152(41.2)	217(58.8)
4	Wash container with hot water to destroy larva breeding site	109(29.5)	260(70.5)
5	I search and destroy (bury) discarded tins or tyres	182(49.3)	187(50.7)
6	Routine environmental sanitation.	263(71.3)	106(28.8)
7	I report to nearby health facility if any difficulty to destroy larva breeding site	85(23)	284(77)
8	I get advice and cooperate with neighbors to eliminate larva breeding site	170(46)	199(54)
9	I used mosquito repellent to protect myself and my family members	92(25)	277(75)
10	I used bed net to protect myself and my family members	319(86.4)	50(13.6)
11	I screen window/door to protect myself and my family members	116(31.4)	253(68.6)
12	I wear long cloths to protect myself and my family members	124(33.6)	245(66.4)

Table No.6: Cross tabulation among KAP

S.No	Comprehensive knowledge					Total	P-value
				Good knowledge	Poor knowledge		
1	Comprehensive attitude	Good attitude	Count	140	39	179	<0.001
			% within comprehensive knowledge	61.7%	27.5%	48.5%	
		Poor attitude	Count	87	103	190	
			% within comprehensive knowledge	38.3%	72.5%	51.5%	
2	Total		Count	227	142	369	
3			% within comprehensive knowledge	100.0%	100.0%	100.0 %	
	Comprehensive attitude						
S.No				**Good attitude**	**Poor attitude**		
4	comprehensive practice	Good practice	Count	122	53	175	<0.001
5			% within comprehensive attitude	68.2%	27.9%	47.4%	

6		Poor practice	Count	57	137	194	
7			% within comprehensive attitude	31.8%	72.1%	52.6%	
8	Total		Count	179	190	369	
9			% within comprehensive attitude	100.0%	100.0%	100.0 %	
Comprehensive knowledge							
S.No				**Good knowledge**	**Poor knowledge**		
10	Comprehensive practice	Good practice	Count	148	27	175	<0.001
11			% within comprehensive knowledge	65.2%	19.0%	47.4%	
12		Poor practice	Count	79	115	194	
13			% within comprehensive knowledge	34.8%	81.0%	52.6%	
14	Total		Count	227	142	369	
15			% within comprehensive knowledge	100.0%	100.0%	100.0 %	

CONCLUSION

A fairly good knowledge, poor attitude and poor practice was observed in the study population. This knowledge, attitude, and practice can be improved through inclusive community involvement and the encouragement of multi-sectoral collaboration.

ABBREVIATIONS

Dengue Fever; HH: House Hold; HI: KAP: Knowledge Attitude and Practice; MOH: Ministry of Health; SPSS: Statistical Package for Social Sciences; WHO: World Health Organization.

ACKNOWLEDGEMENT

We would like to thank the community as a whole, experts who were involved in the validation survey, data analysis and the people who were reviewed the study.

CONSENT FOR PUBLICATION

This manuscript has not been published elsewhere and is not under consideration by another journal. All authors have approved the final manuscript and agreed for its publication.

SOURCE OF FUNDING

There was no source of funding for the study, for the authors or manuscript preparation.

CONFLICT OF INTEREST

None declared.

AUTHORS' CONTRIBUTIONS

All authors participated in all phases of the study including topic selection, design, data collection, data analysis and interpretation.

AVAILABILITY OF DATA AND MATERIALS

The complete data set supporting the conclusions of this article is available from the corresponding author and can be accessed up on reasonable request.

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Please cite this article in press as: Samuel Jirom Wolday *et al*. Knowledge, attitude and practice on dengue fever prevention and control in Keren, Anseba Region, Eritrea: A cross-sectional study, *International Journal of Medicine and Health Profession Research,* 9(2), 2022, 61-72.