

KNOWLEDGE AND PERCEPTION OF DENGUE AMONG STAFF NURSES IN SELECTED HEALTH INSTITUTIONS IN BENIN CITY, EDO STATE NIGERIA

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ABSTRACT

The study examines the perception of nurses towards dengue in tertiary and state institutions in Benin, City. Descriptive cross-sectional design was used and the target population for this study is the nurses in University of Benin Teaching Hospital and Central Hospital. The Yamane Formula was used to determine the sample size of 297 respondents which was selected through simple random sampling technique. The research instrument for this study is a self-developed structured questionnaire with 38 items. The face and content validity were ensured and the reliability coefficient score using Cronbach alpha was 0.88. Descriptive statistics in the form of frequency, percentage, mean, standard deviation, pie chart and inferential statistics in the form of Chi-square was used to analyse data. The level of precision assumed was set at 0.05. Findings of the demographic characteristics reveals that majority are between the age of 30-39 years and are married (67.0%). Additionally, this study observes that the respondents are knowledgeable about dengue fever but their perception is poor. Further findings show that all factors listed negatively influence the perception of dengue fever among the respondents. Reports of the four hypotheses tested show that firstly, there is a significant relationship between the qualification of the nurses and their level of knowledge of dengue. Secondly, there is no significant relationship between years of experience of nurses and their perception of dengue. Thirdly, there is no significant relationship between the nurses'

knowledge and their perception of dengue and lastly, there is no significant relationship between the perception of dengue among nurses in University of Benin Teaching Hospital and Central Hospital, Benin-City. Therefore, it is recommended that adequate awareness should be made across the country to help clarify the misconceptions of dengue and continued insight on dengue prevention, transmission and high-risk patient population be given. Also, periodic assessment and training of healthcare professionals to reduce the burden of dengue should be harnessed..

Keywords: Perception: Nurses: Knowledge: Dengue.

INTRODUCTION

Health challenges seems detrimental to the health of individuals and pose many questions and thoughts about its outcomes. Dengue is sure health threat moot by every individual regardless of their age and race. According to World Health Organization [WHO] (2019), dengue is a major health challenge globally and it's a main cause of morbidity and mortality around subtropical and tropical areas worldwide. Also, it is a fast-emerging pandemic-prone viral disease in many parts of the world. Additionally, dengue is a mosquito-borne viral infection caused by dengue virus, a single positive-stranded RNA virus of the family Flaviviridae that causes the most common arbovirus-borne infectious disease transmitted by arthropod vectors such as mosquitoes and ticks. The transmission of dengue virus is

dependent on the vector carrier mosquito - *Aedes aegypti* and *Aedes albopictus* (Back & Lundkvist, 2014).

According to WHO (2019), the global incidence of dengue has grown dramatically in recent decades leaving about half of the world's population at risk of contracting this disease and an estimated 390 million dengue infections occur annually of which 96 million manifests clinically with any severity of disease classification. Additionally, approximately 3.6 billion people in 128 countries live in dengue endemic region and are at risk of infection with dengue virus. Each year, an estimation of 400 million people is infected with dengue, 100 million become ill with dengue, and 21,000 deaths are attributed to dengue.

Dengue virus infection causes classical Dengue Fever (DF), Dengue Haemorrhagic Fever (DHF), Dengue Shock Syndrome (DSS), the most common form of the Dengue Virus infection is Dengue Fever, characterized by fever, headache, malaise, anorexia, maculopapular rash and lymphadenopathy (Fagbami & Onoja, 2018). Dengue is caused by any of the four related viruses that consist of four serotypes [DENV1-4]; they are called serotypes because each has different interactions with the antibodies in the human blood serum. For this reason, a person can be infected with a dengue virus for as many as four times in his or her lifetime. Despite these variations, infection with each of the dengue serotype result in the same disease and range of clinical symptoms (Centres for Disease Control and Prevention [CDC], 2019; Nature Education, 2014).

In the last 50 years, incidence has increased 30-folds with increasing geographical expansion from urban to rural settings (WHO, 2019). Although the actual numbers of dengue cases have been underreported and misclassified (Yusuf & Ibrahim, 2019). Dengue is a major international public health concern because of

the expanding geographic distribution and competent mosquito vectors increased frequency of epidemics, co-circulation of multiple virus serotypes, and emergence of dengue haemorrhagic fever in new areas (Smith, 2019). The presence of dengue is becoming highly prevalent in Nigeria.

Dengue is the second most diagnosed cause of fever after malaria among travellers returning from developing countries (WHO 2019; Wilder-Smith, 2014). All four dengue virus serotype have been isolated in Africa, with dengue virus 2 [DENV2] reported to cause the most epidemics (Were, 2016). The first isolated case of dengue in Nigeria is in the 1960s from febrile patients attending Outpatient Clinic of the University College Hospital Ibadan, recent studies report that 10% of malaria patients in Ibadan, Nigeria have active dengue infection (Ayukekbong, 2014)

Also, the presence of dengue virus has been established in Nigeria, owing to the severity of this disease and its attendant complications. Dengue virus serologically was present among febrile children under 5 years of age in Ilorin, Nigeria. Also, a prevalence rate of 30.8% is reported, but dengue is not a reportable disease in Nigeria with most cases often undiagnosed or misdiagnosed as malaria or referred to as fever of unknown cause (Adedayo et al., 2014).

Also, Baba et al. (2017) report a dengue prevalence of 81.7%, 69.0%, 32.6%, 38.1%, respectively in four of the eight ecological zones in Nigeria. However, the disease is neglected, under recognised and under reported in Nigeria due to lack of awareness by health care providers, lack of prioritization by the public health authorities, other prevalent febrile illnesses, lack of diagnostic testing and systematic surveillance (Yusuf & Ibrahim, 2019). Ohnishi (2015) states that adults are at risk for dengue infections and these include health care workers in hospitals. The main transmission is through mosquitoes that

generally acquire the virus while feeding on the blood of an infected person. Although, dengue virus transmission without a mosquito vector has been reported, the route of transmission includes needle-stick injuries, bone marrow transplantation, blood transfusion, mucocutaneous contact with blood (Chen & Wilson, 2014).

Nurses are the major health workforce in Nigeria who administer care and are always close to patients. They play an important role in health care system in both institutionalized settings and community care centres. In hospitals, nurses come across various types of patients, it is important for the nurse to have wide knowledge about all diseases especially infectious diseases like dengue fever (Valarmathi & Parajulee, 2014). With this they stand a chance of health educating the general public of certain disease conditions and proffer programs on how health can be improved and available to all. If the nurses themselves break down with this infection either through mosquito bite or needle-stick injury during routine work at a hospital, this could lead to complications which could be detrimental on their health and economy productivity.

Studies reveal that despite this revelation, few nurses are conscious of the health threat posed by this arbovirus and it is greatly underestimated, this may be due to the fact that most clinical signs and symptoms of this viral infection are non-specific in nature, and could be confused with other illnesses like malaria, typhoid and bacterial meningitis (Jain et al. 2014; Kamran & Mansoor 2017; Kolawole, Seriki & Ogah, 2018). Additionally, Moustafa, El-Ghany & Mahmoud (2018) state that few nurses have been trained and exposure to dengue fever preventive practices. Furthermore, a study carried out in India by Mane (2016) show that most of the nurses do not have enough knowledge regarding the disease and its preventive practices.

The theoretical framework used in this study is the Health Belief Model developed in 1950 by social psychologist Hochbaum, Rosenstock and Kegel working in the U.S Public Health Services. The health Belief Model is a value-expectancy theory where value refers to the desire to avoid illness or to get well and expectancy is the belief that a specific health action would prevent illness. Perceived susceptibility, perceived severity, benefits and barriers are main components. Threat perception depends upon the beliefs regarding the perceived susceptibility to illness and the anticipated severity of the illness.

Behavioural evaluation encompasses two beliefs as well, those regarding the benefits of recommended health behaviour and those regarding the barrier or costs to enacting the behaviour. Therefore, individuals are expected to take actions to prevent illness if they perceive themselves as susceptible to this condition, believe that the condition has potentially serious consequences, believe that an available course of action would be beneficial and anticipate that the barriers to taking actions would be outweighed by the benefits. Perceived susceptibility refers to an individual's subjective assessment of his or her risk for contracting an illness, while perceived severity refers to an individual's feelings about the seriousness of contracting an illness.

Then, benefits refer to an individual's belief regarding the effectiveness of a particular health condition in reducing the disease threat. Barriers purport the potential negative aspects of a particular health action, and can involve both practical and psychological costs. Cues to action state the triggers that are necessary for promoting engagement in health promoting behaviours. It could be external or internal. Self-efficacy is an individual's perception of his/her competence to successfully perform health-related behaviour.

In applying this model, firstly, the perceived susceptibility is the likely perception that the nurses hold, that dengue may or may not be contracted by them and the client in their care. The nurses may also believe that since dengue is not a reportable disease in Nigeria, then it's not contractible. Secondly, perceived severity denotes the nurses perceiving dengue as a serious health problem with complications of shock. The severity of this disease can influence the role and actions of the nurses. Thirdly, the perceived benefits are the abilities the nurses seek in preventing dengue, enhancing productivity and the prevention of nosocomial infection in their health institutions thus, reducing the incidence of death among health workers. Also, the effective recognition of the differences between dengue and other disease in order to swiftly tackle the early symptoms before it becomes severe. Fourthly, barriers include aspects such as the availability of time, lack of diagnostic investigation in detection of dengue etc which may hinder the nurses' compliance to preventive or curative guidelines. Finally, cues to action triggers that which is necessary for nurses to act on health promotion strategies to combat dengue. For instance, creating awareness of dengue and encouraging laboratory investigation of dengue as a routine investigation of suspected cases of infectious disease in order to rule out dengue. Furthermore, nurses enhancing themselves of any emerging disease condition to boost their self-efficacy.

The health danger of this arbovirus is neglect by most health care practitioners, especially nurses and also the observation by previous studies owing to the fact that nurses have little or average knowledge regarding dengue. However, only few studies have assessed the perception of dengue among staff nurses and the factors influencing this perception. In order to improve the prevention, promote the control and to limit of the outbreak of dengue globally and among the occupations, it is therefore, pertinent to assess the perception of nurses

towards dengue in selected health institutions in Benin-City, Edo State.

RESEARCH QUESTIONS

1. What is the level of knowledge of dengue among nurses in these health institutions?
2. What is the level of perception of dengue among the nurses in these health institutions?
3. What are the factors that influence the perception of dengue among the nurses?

HYPOTHESES

1. There is a no significant relationship between the qualification of the nurses and their level of knowledge of dengue.
2. There is no significant relationship between the level of experience of nurses and their perception of dengue.
3. There is no significant relationship between the nurses' knowledge and their perception of dengue.
4. There is no significant relationship between the perception of dengue among nurses in University of Benin Teaching Hospital and Central Hospital, Benin-City.

METHODOLOGY

The research design used for this study was a descriptive cross-sectional design. The setting for this study was the University of Benin Teaching Hospital (UBTH) and Central Hospital, Benin-City, Edo State, Nigeria. These are the federal and state hospital in Benin City located in the southern part of Nigeria. The study included all registered nurses working in the various departments in the hospitals and has practiced from 3 months and above with a license. Therefore, nurses who have practiced for less than 3 months and do not have the Registered nurse license were

excluded. The target population is the nurses in University of Benin Teaching Hospital and the nurses in Central Hospital and they are 720 and 430 respectively. The total number of the target population was 1,150. These figures were gotten from the recent statistics of the Nursing Service Unit in these hospitals.

The Yamane Formula was used to determine the sample size of 297 of respondents and simple random sampling technique was used to select the sample size from the target population. The research instrument for this study is a self-developed structured questionnaire with 38 items. Section A contains the socio-demographic variables of the respondents; Section B consists of information about the knowledge of dengue among the nurses; Section C contains information about the perception of dengue among these nurses. Section D consists of information about the factors influencing the perception of dengue. The face and content validity were ensured. For reliability, a pilot study was carried out among 20 staff nurses in Stella Obasanjo Women and Children Hospital, Benin City, Edo State to pre-test the reliability of the instrument. Cronbach alpha was used to test for reliability and yielded a reliability coefficient of 0.88. The decision rule for a 4-point Likert scale was a mean score of 2.50, as a mean greater than 2.50 is considered positive perception as well as factors.

The knowledge questions were scored and expressed in percentage as thus: 0-49.9%= Poor knowledge; 50-69.9%= Fair knowledge; 70-100%= Good knowledge. Data was obtained from the respondents after proper permission and ethical clearance from the various health institution ethical committees. Voluntary participation, confidentiality and anonymity of respondents were maintained. The purpose of the study was explained to the respondent and retrieved the same day. Although, some copies of the questionnaire were left with the nurses in the various wards

and collected the following day from those who were busy to fill instantly.

Data was collected within September through to October, 2019 from Monday to Friday between the working hours of 8am to 2pm. Data was coded into International Business Machine (IBM) Statistical Package for Social Sciences (SPSS) Version 24.0. Descriptive statistics in the form of frequency, percentage, mean, standard deviation, pie chart and inferential statistics in the form of Chi-square was used to analyse data. The level of precision assumed was set at 0.05.

RESULTS

From Table 1, 13.8% of the respondents are within the age range of 20-24, 15.2% are within the age of 25-29, 19.5% are within the age of 30-34, 19.9% are within the age of 35-39, 18.1% are within the age of 40-44, 8.5% are within the age of 45-49 while 5% are 50 and above. Majority of the respondents are married (67%), 28.7% are single, 1.1% are divorced while 3.2% picked others. 46.1% of the respondents are Bini, 38.3% are Igbo, 13.1% are Yoruba, 1.8% are Hausa while 0.7% are from other tribes. Most of the respondents (85.5%) are Christians, 13.1 are Muslims while 1.1% are traditionalists. Also, 4.3% of the respondents have only RN, 41.8% have RN and RM, 24.8% have RN, RM and/or any other additional specialities, 19.1% have BNSc, 8.5% have MSc while 1.4% have PhD. 44.3% of the respondents 1-5 years of experience, 32.6% have 6-10 years of experience, 11% have 11-15 years of experience, 8.9% have 16-20 years of experience while 3.2% have more than 20 years of experience. Majority of the respondents (65.2%) are from UBTH while 34.8% are from central hospital. From this result, it is deduced that majority of the respondents are within age 30-44, married and from Bini. Also, majority are Christians, have RN and RM, have 1-5 years of experience and are from UBTH.

TABLE 1
Sociodemographic characteristics of respondents

Variables	Attributes	N	%
Age	20-24	39	13.8
	25-29	43	15.2
	30-34	55	19.5
	35-39	56	19.9
	40-44	51	18.1
	45-49	24	8.5
	50 and above	14	5.0
Marital Status	Single	81	28.7
	Married	189	67.0
	Divorced	3	1.1
	Others	9	3.2
Ethnicity	Bini	130	46.1
	Igbo	108	38.3
	Yoruba	37	13.1
	Hausa	5	1.8
	Others	2	0.7
Religion	Christian	242	85.8
	Islam	37	13.1
	Traditional	3	1.1
	Others	0	0.0
Level of qualification	RN	12	4.3
	RN & RM	118	41.8
	RN, RM and/or any other additional specialties	70	24.8
	BNSc	54	19.1
	MSc	24	8.5
	PhD	4	1.4
Years of experience	1-5	125	44.3
	6-10	92	32.6
	11-15	31	11.0
	16-20	25	8.9
	20 and above	9	3.2
Institution	UBTH	184	65.2
	Central Hospital	98	34.8

Table 2 shows that majority of the respondents (68.8%) agree that dengue is referred to a mosquito-borne viral disease, 8.2% said it is a mosquito-borne parasitic disease, 13.1% said it is a viral condition affecting the brain and the spinal cord while 9.9% said it is a bacterial disease spread through contaminated food and water. 76.2% of the respondents said it is caused by a virus, 16% said it is caused by a bacterium, 1.8% said it is caused by a fungus while 6% said it is caused by a protozoa. 79.4% of the respondents agree that dengue is transmitted by mosquitoes, 13.1% said it is transmitted by housefly, 4.3% said it is transmitted by tick while 3.2% said it is caused by worm.

Also, 35.8% of the respondents agree that aedes mosquito is the carrier of dengue fever, 7.8% said anopheles' mosquito is the carrier, 18.8% said Culex mosquito is the carried while 37.6% said all mosquitoes are carriers. 50.7% of the respondents agree that immunoassay MAC-ELISA is a major diagnostic test involved in diagnosing dengue fever, 12.8% said it is haematocrit elevated more than 45, 12.8% said it is total platelet count less than 100.00 per mm^3 , 9.9% said it is Giemsa stain while 10.6% said it is malaria rapid diagnostic test. 16.3% of the respondents agreed that headache is a

symptom that dengue presents with, 13.8% said its fever, 11.3% said its muscle pain, 13.5% said its rashes while 56.4% chose all of the above. 17.4% of the respondents said that the mosquito that transmits dengue does not spread yellow fever, 33% said chikungunya, 14.5% said zika fever, 33.7% said malaria while 2.1% picked others. Also, 24.1% of the respondents agreed that children are the most vulnerable group of population for dengue fever, 7.1% said adults are the most vulnerable group of population, 10.6% said the aged are the most vulnerable group while 58.5% of the respondents said all age groups are vulnerable.

This result further shows that 26.6% of the respondents agree that dengue haemorrhage fever is a major complication of dengue fever, 9.2% agree that pneumonia is a major complication, 32.6% said dengue shock syndrome is a major complication while 31.6% of the respondents said that all the mentioned complications are the major complications of dengue fever. 55.3% of the respondents agree that another name for dengue fever is break-bone fever, 8.5% agreed that it is also called yellow fever, 14.2% said it is also called dandy fever while 22% picked all of the above. This study concludes that the respondents are knowledgeable (55.6%).

TABLE 2
Knowledge of Nurses Towards Dengue

Variables	Attributes	Frequency	Percentage
Dengue is referred to as	A mosquito-borne viral disease*	194	68.8
	A mosquito-borne parasitic disease	23	8.2
	A viral condition affecting the brain and the spinal cord	37	13.1
	A bacterial disease spread through contaminated food and water	28	9.9
Dengue is caused by?	*Virus	215	76.2
	Bacteria	45	16.0
	Fungi	5	1.8
	Protozoa	17	6.0
Dengue is transmitted by?	*Mosquito	224	79.4
	Housefly	37	13.1
	Tick	12	4.3
	Worm	9	3.2
What type of mosquito is the carrier of dengue fever?	Aedes	101	35.8
	Anopheles	22	7.8
	Culex	53	18.8
	All mosquitoes	106	37.6
Which of the following is a major diagnostic test involved in diagnosing dengue fever?	*Immunoassay MAC-ELISA	143	50.7
	Hematocrit elevated more than 45	55	19.5
	Total platelet count less than 100.00	36	12.8

What symptoms do you think dengue presents	Giemsa stain	28	9.9
	Malaria rapid diagnostic test	30	10.6
	Headache	46	16.3
	Fever	39	13.8
	Muscle pain	32	11.3
	Rashes	38	13.5
The mosquito that transmits dengue can also spread all of the following diseases except	*All of the above	159	56.4
	yellow fever	49	17.4
	*Chikungunya	93	33.0
	Zika fever	41	14.5
	Malaria	95	33.7
The most vulnerable group of population for dengue fever is?	Others	6	2.1
	Children	68	24.1
	Adult	20	7.1
	Aged	30	10.6
A major complication of dengue fever is	*All	165	58.5
	Dengue haemorrhagic fever	75	26.6
	Pneumonia	26	9.2
	dengue shock syndrome	92	32.6
Dengue is also called	*All of the above	89	31.6
	*Break-bone fever	156	55.3
	yellow fever	24	8.5
	dandy fever	40	14.2
	All of the above	62	22.0

* Correct answer

From Table 3, 27.3% of the respondents strongly disagree that dengue is a preventable disease and 52.5% disagree while 16% of the respondents agree and 4.3% strongly agree with a mean score of 1.97. 15.2% of the respondents strongly disagree that dengue is a communicable disease and 49.3% disagree while 24.5% of the respondents agree and 11% strongly agree with a mean score of 2.31. 9.9% of the respondents strongly disagree that dengue fever is a curable disease and 25.9% disagree while 58.9% of the respondents agree and 5.3% strongly agree with a mean score of 2.60. 34.8% of the respondents strongly disagree that dengue is not a disease condition and 46.1% disagree while 17% of the respondents agree and 2.1% strongly agree with a mean score of 1.87.

Also, 16% of the respondents strongly disagree that malaria management can cover up for dengue and 34.8% disagree while 40.8% of the respondents agree and 8.5% strongly agree with a mean score of 2.48. 8.2% of the respondents strongly disagree that dengue is a global health threat and 33.3% disagree while 47.9% of the respondents agree and 10.6% strongly agree with a mean score of 2.61. 15.2% of the respondents strongly disagree that dengue doesn't exist in Nigeria and 43.3% disagree while 38.3% of the respondents agree and 3.2% strongly agree with a mean score of 2.29. 20.6% of the respondents strongly disagree that dengue is an occupational infectious disease and 31.6% disagree while 41.8% of the respondents agree and 6% strongly agree with a mean score of 2.33. From the result, it shows that the respondents have a poor perception of dengue.

TABLE 3
Perception of Dengue

	SD	D	A	SA	Mean	SD	Remark
Dengue is a not preventable disease	77 (27.3)	148 (52.5)	45 (16.0)	12 (4.3)	1.97	0.78	Negative
Dengue is a not communicable disease	43 (15.2)	139 (49.3)	69 (24.5)	31 (11.0)	2.31	0.86	Negative
Dengue fever is a curable disease	28 (9.9)	73 (25.9)	166 (58.9)	15 (5.3)	2.60	0.74	Positive
Dengue is not a disease condition	98 (34.8)	130 (46.1)	48 (17.0)	6 (2.1)	1.87	0.77	Negative
Malaria management can cover up for dengue	45 (16.0)	98 (34.8)	115 (40.8)	24 (8.5)	2.42	0.86	Negative
Malaria diagnosis is also the same as diagnosing dengue	54 (19.1)	119 (42.2)	98 (34.8)	11 (3.9)	2.23	0.80	Negative
Dengue is a global health threat	23 (8.2)	94 (33.3)	135 (47.9)	30 (10.6)	2.61	0.78	Positive
Dengue doesn't exist in Nigeria	43 (15.2)	122 (43.3)	108 (38.3)	9 (3.2)	2.29	0.76	Negative
Dengue is an occupational infectious disease	58 (20.6)	89 (31.6)	118 (41.8)	17 (6.0)	2.33	0.87	Negative

From Table 4, 5% of the respondents strongly disagree that lack of in-service training is a factor influencing the perception of dengue fever and 18.8% disagree while 58.5% of the respondents agree and 17.7% agree with a mean score of 2.89. 4.3% of the respondents strongly disagree that staff strength is a factor that influences the perception of dengue fever and 19.5% disagree while 55.3% of the respondents agree and 20.9% agree with a mean score of 2.93. 2.8% of the respondents strongly disagree that hospital managerial settings of infectious disease is a factor that influences the perception of dengue fever and 19.1% disagree while 59.6% of the respondents agree and 18.4% agree with a mean score of 2.94. 5.7% of the respondents strongly disagree that self-efficacy is a factor that influences the perception of dengue fever and 19.5% disagree while 51.4% of the respondents agree and 23.9% agree with a mean score of 2.93. 2.5% of the respondents strongly disagree that lack of adequate resources and assistance from the

public health sector is a factor that influences the perception of dengue fever and 17.4% disagree while 56.4% of the respondents agree and 23.8% agree with a mean score of 3.01. 2.8% of the respondents strongly disagree that clinical practice guideline on the management of dengue is a factor that influences the perception of dengue fever and 15.6% disagree while 54.6% of the respondents agree and 27% agree with a mean score of 3.06. 2.5% of the respondents strongly disagree that research opportunities on trending disease conditions is a factor that influences the perception of dengue fever and 14.2% disagree while 58.9% of the respondents agree and 24.5% agree with a mean score of 3.05. 12.1% of the respondents strongly disagree that insufficient time is a factor that influences the perception of dengue fever and 19.1% disagree while 44% of the respondents agree and 24.8% agree with a mean score of 2.82. From the result, all factors listed negatively influence the perception of dengue fever among the respondents.

TABLE 4

Factors influencing the perception of dengue

	SD	D	A	SA	Mean	SD	Remark
Lack of In -service training influences the perception of dengue	14 (5.0)	53 (18.8)	165 (58.5)	50 (17.7)	2.89	0.74	Positive
Staff strength influences the management of dengue	12 (4.3)	55 (19.5)	156 (55.3)	59 (20.9)	2.93	0.76	Positive
Hospital managerial settings of infectious disease	8 (2.8)	54 (19.1)	168 (59.6)	52 (18.4)	2.94	0.70	Positive
Self-efficacy	16 (5.7)	55 (19.5)	145 (51.4)	66 (23.4)	2.93	0.81	Positive
Lack of adequate resources and assistance from the public health sector	7 (2.5)	49 (17.4)	159 (56.4)	67 (23.8)	3.01	0.72	Positive
Clinical practice guideline on the management of dengue	8 (2.8)	44 (15.6)	154 (54.6)	76 (27.0)	3.06	0.73	Positive
Research opportunities on trending disease conditions	7 (2.5)	40 (14.2)	166 (58.9)	69 (24.5)	3.05	0.70	Positive
Insufficient time	34 (12.1)	54 (19.1)	124 (44.0)	70 (24.8)	2.82	0.94	Positive

Hypothesis one

There is a no significant relationship between the qualifications of the nurses and their level of knowledge of dengue. Table 5 reveal the relationship between the qualifications of the nurses and their level of knowledge of dengue. Respondents with PhD report highest proportion with good level of knowledge of

dengue. The test of association shows that there is a significant relationship ($p < 0.05$) between the qualification of the nurses and their level of knowledge of dengue. We therefore reject the null hypothesis which states that there is a no significant relationship between the qualification of the nurses and their level of knowledge of dengue.

TABLE 5**Relationship between the qualification of the nurses and their level of knowledge of dengue**

Qualification	Level of Knowledge of Dengue			χ^2	P
	Poor	Fair	Good		
RN	2(16.7)	8(66.7)	2(16.7)	33.784	0.000
RN & RM	35(29.7)	39(33.1)	44(37.3)		
RN, RM and/or any other additional Specialties	1(25.0)	2(50.0)	1(25.0)		
BNSc	61(55.5)	36(32.7)	13(11.8)		
MSc	12(35.3)	12(35.3)	10(29.4)		
PhD	0(0.0)	2(50.0)	2(50.0)		

Hypothesis two

There is no significant relationship between the level of experience of nurses and their perception of dengue. Table 6 shows the relationship between the level of experience of nurses and their perception of dengue. The table shows that there is no significant

relationship ($p > 0.05$) between years of experience of nurses and their perception of dengue. We therefore accept the null hypothesis which states that there is no significant relationship between the level of experience of nurses and their perception of dengue.

TABLE 6**Relationship between the years of experience of nurses and their perception of dengue**

Years of experience	Perception		χ^2	P
	Negative	Positive		
1-5	85(68.0)	40(32.0)	2.532	0.639
6-10	66(71.7)	26(28.3)		
11-15	19(61.3)	12(38.7)		
16-20	15(60.0)	10(40.0)		
20 and above	5(55.6)	4(44.4)		

Hypothesis Three:

There is no significant relationship between the nurses' knowledge and their perception of dengue. Table 7 shows the relationship between the nurses' knowledge and their perception of dengue. The table reveals that

there is no significant relationship ($p < 0.05$) between the nurses' knowledge and their perception of dengue. We therefore accept the null hypothesis which states that there is no significant relationship between the nurses' knowledge and their perception of dengue.

TABLE 7

Relationship between the nurses' knowledge and their perception of dengue

	Perception		χ^2	P
	Negative	Positive		
Level of Knowledge				
Poor	68(61.3)	43(38.7)	4.553	0.103
Fair	67(67.7)	32(32.3)		
Good	55(76.4)	17(23.6)		

Hypothesis four

There is no significant relationship between the perception of dengue among nurses in University of Benin Teaching Hospital and Central Hospital, Benin-City. Table 8 show the relationship between the perception of dengue among nurses in University of Benin Teaching

Hospital and Central Hospital, Benin-City. The table reveals that there is no significant relationship ($p > 0.05$) between the perception of dengue among nurses in University of Benin Teaching Hospital and Central Hospital, Benin-City thereby accepting the null hypotheses.

TABLE 8

Relationship between the Perceptions of Dengue among Nurses

	Perception		χ^2	P
	Negative	Positive		
Institution			1.155	0.283
UBTH	128(69.6)	56(30.4)		
Central	62(63.3)	36(36.7)		

DISCUSSION

This study determines the knowledge and perception of dengue among staff nurses in selected health institutions in Benin-City, Edo State Nigeria. The demographic statistics reveals that majority of the respondents are within age 30-44, married and from Bini. Also, majority are Christians, had RN and RM, had 1-5 years of experience and are from UBTH. This study observes that the respondents are knowledgeable about dengue fever. This is in accordance with the study by Kamran & Mansoor (2017) which reveals that majority of the nurses show insufficient level of understanding of the epidemic disease. This study is at variance with Baba et al. (2017) who reports that there is lack of awareness of dengue fever by health care providers and lack of prioritization by the public health authorities Nigeria. This study is also not in line with Kamran & Mansoor (2017) who report that there is poor understanding and knowledge of the management of dengue fever among nurses working in a tertiary hospital. This study is not in agreement with Moustafa, El-Ghany & Mahmoud (2018) who show that the overall knowledge related to dengue fever among nurses at Zagazig Fever Hospital is very poor. This study is not in agreement with Mane (2016) who shows that most of the nurses at the outpatient department of the SMBT Medical College, in India do not have enough knowledge regarding the dengue disease and its preventive practices.

Our result shows that the respondents have a poor perception of dengue. This is relatable to the study conducted by Valarmath & Parajulee (2014) among nurses working in various departments of a teaching hospital, which reveal a negative perception towards dengue and this influences their belief despite adequate knowledge. This study is at variance with Moustafa, El-Ghany & Mahmoud (2018) who reveal that nurses' attitude at Zagazig Fever

Hospital has positive attitudes towards dengue fever. However, few studies have assessed the perception of dengue among staff nurses and the factors influencing this perception.

Our study observes that all factors listed such as lack of in-service training influences the perception of dengue, staff strength influences the management of dengue, and hospital managerial settings of infectious diseases, self-efficacy and lack of adequate resources including assistance from the public health sector negatively influence the perception of dengue fever among the respondents. The writers suggest more studies should be done on factors influencing the perception of dengue. The writers also posit that since dengue fever is not commonly diagnosed it may be difficult to observe factors influence the perception of dengue fever.

This study shows that there is a significant relationship between the qualification of the nurses and their level of knowledge of dengue. Our study reports that there is no significant relationship between years of experience of nurses and their perception of dengue. This study reveals that there is no significant relationship between the nurses' knowledge and their perception of dengue. Our study also observes that there is no significant relationship between the perception of dengue among nurses in University of Benin Teaching Hospital and Central Hospital, Benin-City.

Implication to Nursing

This study has elicited the perception of dengue among staff nurses and this will help to proffer insight in increasing the knowledge of nurses regarding the management of clinical cases and the laboratory diagnosis for the differential recognition of dengue. The implication is on nurses' about dengue in order to reduce incidence of morbidity and mortality, promote health education and behavioural changes.

Furthermore, the incidence of occupational nosocomial dengue infection among nurses will reduce. Likewise, it will proffer insight into the severity of dengue globally and its research ability interest among the nurses as well as the dissemination of information of the disease.

CONCLUSION AND RECOMMENDATIONS

The findings of this study reveals that majority of the nurses' level of knowledge on the dengue is average and the perception negative. Additionally, a negative perception is displayed towards the factors influencing their perception. Similarly, the test of association shows that there is a significant relationship between the qualification of the nurses and their level of knowledge of dengue. Also, there is no significant relationship between the levels of experience of nurses and their perception. Overall negative perception towards dengue is revealed as there is no significant relationship between the perceptions of nurses in both institutions. It is recommended that several strategies to improve management and diagnosis of clinical cases of dengue in Nigeria be strengthened. A strong health care policy begins with accurate information, which can be best obtained and disseminated through collaboration between health care providers and the health sector.

Adequate awareness through mass media, conferences, seminars etc. should be made across the country to help clarify misconceptions on dengue and give continued insight on dengue prevention, transmission and high-risk patient populations. Also, periodic assessment and training of healthcare professionals to reduce the burden of dengue should be harnessed.

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