AWARENESS OF EBOLA VIRUS DISEASE AMONG NON-DOCTOR HOSPITAL STAFF IN BASSA LOCAL GOVERNMENT AREA OF KOGI STATE

Article Review by Okebugwu Andrew Nwachimere-eze, Nigeria
(MBBS, Master of Public Health, Texila American University
Email: - okandrews@yahoo.com

ABSTRACT

The objective of this study was to assess the level of awareness amongst non doctor hospital staff in Bassa L.G.A of Kogi state on the subject of Ebola Virus Disease.

Methodology: A descriptive cross sectional study design was used. A well structured self-administered questionnaire was given to 278 consenting health staff in Bassa L.G.A selected by a multistage sampling technique comprising of clustering and simple random sampling. The results were collated and analyzed manually.

Results: A total of 278 health staff drawn from different departments completed the questionnaire. 58.2% of respondents respectively, were between the ages of 21 and 30 years and first degree holders. All the respondents have heard of Ebola Virus Disease. 83.5% heard of it from electronic media such as radio and television. 74.8% respectively knew that it is caused by Ebola virus, can occur both in the rural and urban areas, putting on protective wears each time one visits an Ebola patient or during routine clinical work can protect one from the virus and that Ebola has no cure. 66.5% knew that everyone is at risk of contracting the disease and that confirmation is by laboratory assays. 91.7% knew that the incubation period is between 2 and 21 days, the same number knew that high fever is an early symptom. 50% of the respondents knew vomiting and bloody diarrhea as late symptoms. None of the respondents knew the location of the laboratories in Nigeria.

Conclusions: the result shows a below average awareness about Ebola virus Disease among these health workers. However, more awareness is needed in certain areas.

KEYWORDS

Ebola virus disease, Awareness.

INTRODUCTION

The world and medical world in general and West African sub region and public health medicine were stunned by the outbreak of Ebola Virus in March 2014 in West Africa mainly with few cases outside the sub region. This outbreak turned out to be the   most complex Ebola outbreak since the virus was discovered in 1976.

The recent outbreak had a total case of 17834; laboratory confirmed cases 11214, total deaths 6346 as at 9th December 2014.

Nigeria had a total of 20 cases, 19 laboratory confirmed and 8 total deaths. Health care providers caring for Ebola patients are at highest risk of getting sick because they come in contact with infected blood and body fluids of patients who are very sick with Ebola.(WHO 2014) This necessitated this study which is on assessment of hospital staffs' preparedness to combat the scourge in Bassa Local Government Area of Kogi State.

METHODOLOGY STUDY AREA

The study area is Bassa Local Government Area Kogi state, Nigeria, located in the North central geopolitical zone of the country. It has a general hospital, a cottage hospital, ninety five primary health care centers, fifty two private clinics most of which are not been manned by doctors, a health staff population of 1453. The area is inhabited by Bassa Komu, Bassa Nge, Igbirra, Igala, Igbo and Yoruba.

STUDY POPULATION

The study design was a descriptive cross sectional one. Consenting hospital staffs were enrolled into the study.

SAMPLING METHOD

A multistage sampling technique was used.

Stage one: formation of clusters; the respondents were clustered into three namely, general hospital staff, PHC staff and Private hospital staffs.

Stage two: Selection of the ninety three staffs from the general hospital and PHC staff respectively and ninety two staff from private clinics by simple random sampling.

Data collection was done using self administered structured health care provider questionnaires; Quantitative data was analyzed manually.

The results are presented in form of tables for easy appreciation.

SAMPLE SIZE AND SAMPLING TECHNIQUE

The sample size was 278. This was determined using the single proportion formula,

$$n = \frac{z^2 \times p \times q}{d^2}$$

Where n = calculated sample size, z=standard normal deviate at 95% confidence interval =1.96, P= Prevalence (taken as 50% since there is no similar study in the area), d = marginal error (taken as 5%).

q= 50% = (1-P = 0.5) the proportion of the population that don't.

d=0.05 (degree of accuracy)

$$n = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} = \frac{0.9604}{0.0025} = 384$$

For population less than 10,000

An adjustment of the estimate of the sample size to cover was made using the correction formula by dividing the sample size calculated with a factor f that is n/f where f is an estimated response rate. nf =the desired (corrected) sample size when the population is less than 10,000 n= 384 i.e. the desired sample size when the population is more than 10,000 N= 1000, i.e. the estimate of the population size.

$$nf = \frac{nl}{1 + nl/N}$$

$$nf = \frac{384}{1 + \frac{384}{1000}} = \frac{384}{1.384} = 277.5 = 278$$

The calculated sample size was 278 health staff in Bassa L.GA. A 10% non response rate was assumed and 305 questionnaires were administered.

Pretesting was done at Dekina Local Government amongst similar population.

Ethical considerations: Permission to conduct the study was obtained for the study Ministry of Health, and Hospital Management Board of Kogi state at Lokoja and the various hospital heads to satisfy the right to institution. In addition consent was obtained verbally from all the respondents to satisfy right to participants. Confidentiality of participants was ensured throughout the study.

DATA ANALYSIS

All data obtained from the questionnaire forms were entered manually. Descriptive statistics was used to compute percentages.

RESULTS

The results of the study done on the awareness of Ebola virus disease among hospital staff in Bassa L.G.A in Kogi state Nigeria are as shown below.

278 questionnaires were administered and analyzed based on the following parameters, age of respondents, gender, religion, educational qualification, awareness of Ebola virus disease, means of awareness, transmission modes, those at risk, early and late signs and symptoms, protective measures against the disease, knowledge of designated isolation centers and notification process, knowledge of diagnosis and management of cases, awareness of input of the Nigerian government against the spread of the virus. Below are the tables representing the aforementioned parameters.

Table 1. Socio-demography of respondents

Characteristics	Variables	Number (%) (n= 278)
Age group (years)	21-30	162 (58.2)
	31-40	43 (15.5)
	41-50	46 (16.6)
	>50	27 (9.7)
Sex	Male	193 (69.4)
	Female	85 (30.6)
Highest educational qualification	First degree and above	152 (58.2)
	RN/RM	46 (16.6)
	High school	70 (25.2)
Religion	Christian	146 (52.5)
	Muslim	93 (33.5)
	Traditional	39 (14)

Departments	Administration	115 (41.3)
	Nursing	70 (25.2)
	Laboratory	70 (25.2)
	Records	23 (8.3)

Table 1 shows the socio-demographical data of respondents namely

Age distribution: The age group of 21-30 forms bulk of the respondents while the least was age greater than 50.

Gender distribution: shows the males leading 69% while females were 31%.

Highest educational qualification of respondents and it shows that first degree holders were 162 (58.2%) while the least were secondary school certificate holders numbering 46 (16.6%).

Religious caste of respondents which shows that the Christians to be 38(52.7%), Muslim 24 (33.4%). The distribution of respondents by departments with administrative staff having the bulk of the respondents.

Table 2: Knowledge of epidemiology of Ebola.

Question/ Answer Knowledge	Number (%) N=278
Have you heard of Ebola disease before? Yes No	 278(100) 0 (0)
Through what means? (Multiple responses allowed) Media (TV and radio) Seminars Relatives Friends Places of worship	 232 (83.5) 70 (25.2) 23 (8.3) 23 (8.3) 23 (8.3)

Internet	46 (16.6)
What is the causative organism of Ebola virus disease? Ebola virus Ebola bacterium Ebola fungus No response Spiritual attack	208 (74.8) 47 (16.9) 0 23 (8.3) 0
How is Ebola virus transmitted? (Multiple responses allowed) From animals such as bats, monkeys, gorillas, chimpanzees and antelope Touching of dead body of humans and animals infected by Ebola Contact with infected human urine, blood, sweat, feces and sperm By consumption of fruits/ foods left over by animals From consumption of fish	208 (74.8) 162 (58.3) 139 (50) 93 (33.5) 0
Where is Ebola transmitted? Both rural and urban Rural areas only Urban areas only No response	208 (74.8) 47 (16.9) 0 23 (8.3)
Has there been any case in Nigeria? Yes	278 (100)

No	0 (0)
Who is at risk?	
Everyone	185 (66.5)
People participating in burial of Ebola infected corpses	93 (33.5)
Health workers and support staff caring for and handling dead bodies of Ebola virus disease patients.	
Handlers of wild animals such as bats, monkeys	70 (25.2)
People that travel to or from infected settlements or countries	70 (25.2)
People exposed to poor hygiene	46 (16.6)
	0 (0)
What is the incubation period? (Days)	
< 2	0 (0)
2- 21	255 (91.7)
>21	23 (8.3)

Table 2 shows knowledge of Ebola epidemiology.

The awareness of EVD was 100% as all respondents have heard of Ebola viral disease.

The means of awareness. Mass media ranks first with 232 respondents (83.5%) followed by seminars, 70 (25.2%).

The knowledge of causative organism of Ebola virus disease. 74.8% of the respondents knew it is caused by infection with a virus, 16.9% said bacterium while 8.3% did not know.

Knowledge of modes of transmission of Ebola virus disease. 75% of respondents knew that consumption of infected animals such as monkeys, bats, gorillas, chimpanzees and antelope could cause the disease, 58.3% knew that touching of dead body of humans and animals infected with Ebola, 50% knew that contact with infected human body fluid while 33.3% knew that consumption of food left over by infected animals could all cause Ebola disease. None of the respondents chose consumption of fishes as a mode of transmission.

Knowledge on urban-rural distribution of Ebola. 74.8% of respondents said that both areas can be involved, 16.9% said rural, none of the respondents chose urban areas alone while 8.3% chose none of the options.

Knowledge about cases of Ebola in Nigeria. All the respondents are aware of the cases in Nigeria. Knowledge about those at risk.66.5% of respondents said everyone is at risk, 33.5% said burial rites can predispose people, 25.2% said health workers caring for patient and also handlers of wild animals such as monkeys and bats, 16.7% mentioned travelers to infected settlements or countries. Incubation period for Ebola 2-21 days was chosen by 91.7% of respondents while 8.3% chose greater than 21 days.

Table 3: Signs and symptoms of Ebola

Questions/ answers on signs and symptoms	Number (%) N=278
What are the early signs and symptoms of Ebola disease ?(Multiple response allowed)	
High fever	255 (91.7)
Muscle and joint pains	70 (25.2)
Headache	46 (16.6)
Sore throat	46 (16.6)
Weakness	46 (16.6)
What are the late symptoms of Ebola disease? Multiple responses allowed	139 (50)
Vomiting	139 (50)
Bloody diarrhea	115 (41.3)
Bleeding eyes, nose, ears and nose	70 (25.2)
Rash	46 (16.6)
Difficulty in breathing	23 (8.3)
Confusion and irritability	23 (8.3)
No response	0 (0)

Stomach and chest pain	

Table 3 shows knowledge of signs and symptoms of EVD.

Early symptoms of Ebola virus disease.91.7% of respondents knew that high fever was an early symptom, 25.2% knew about muscle and joint pains, headache, sore throat and weakness had 16.6% of respondents.

Knowledge of late signs and symptoms of Ebola disease. Vomiting and bloody diarrhea had 50% of respondents, bleeding eyes, nose, ears and nose had 41.3%, rashes 25.2%, difficulty in breathing had 16.6%, confusion and irritability 8.3%, 8.3% did not respond to this question. Stomach and chest pain was not chosen by any of the respondents.

Table 4. Awareness of protective measures against the disease

Questions/ Answer.	Number (%) n=278
How can you protect yourself and others? (Multiple responses allowed)	
Wearing gloves, gowns, facemasks, goggles to visit Ebola patients	208 (74.8)
Avoid improperly cooked bush meat	139 (50)
Clean environment	115 (41.3)
Hand washing with soap and clean water always	115 (41.3)
Avoid eating fruits left over by animals	115 (41.3)
Obtaining clearance from health authority before moving corpses from abroad or one state to another	
Avoiding forest animals that are sick or found dead and their body fluids.	93 (33.5)
Avoiding embalmment, washing or touching dead bodies (traditional practices)	70 (25.2)
Report death of suspected Ebola patients to nearest health facility	70 (25.2)
	70 (25.2)

Table 4 shows knowledge of protective steps against Ebola. Wearing protective covers such as gowns, facemasks etc had 74.8% of respondents, 50% chose avoiding improperly cooked bush

meat,41.3% respectively chose hand washing, clean environment, avoiding leftover food consumed by animals, 33.5% said obtaining clearance from health authority before moving corpses, 25.2% respectively chose avoiding the bodies and body fluids of forest animals found dead or sick, avoiding harmful traditional practices such as embalmment, washing and touching Ebola dead bodies, and report of the death of suspected Ebola patients will prevent transmission of the disease.

Table 5: Knowledge of isolation and diagnosis

Questions /Answers	N =278 (%)
Do you know any Isolation centers?	
Yes	185 (66.5)
No	70 (25.2)
No response	23 (8.3)
If yes how far is it from your location	All respondents said very far
Do you know Ebola hotline?	
Yes	93 (33.5)
No	162 (58.2)
No response	23 (8.3)
What will you do if someone exhibits signs and symptoms of Ebola disease?(Multiple responses allowed)	
Inform the nearest isolation center	185 (66.5)
Tell others not to touch patient	115 (41.3)
Call Ebola hot line	93 (33.5)
Run away from patient	0
Start treating patient	0

What will you do if you have signs and symptoms?	
Cooperate and adhere to government health institutions	208 (74.8)
Hide away	23 (8.3)
Continue with social activities	0
No response	47 (16.9)
How are Ebola cases confirmed?	
Laboratory tests	185 (66.5)
Clinically	93 (33.5)
How many certified laboratories are there in Nigeria?	
Two	139 (50)
Three	47 (16.9)
Four	46 (16.6)
Five	46 (16.6)
Where are the laboratories located?	
Lagos and Oyo	139 (50)
Lagos, Port Harcourt and Abuja	47 (16.9)
Lagos, Aba, Ogun and Oyo	46 (16.6)
Abuja,Oyo, Lagos and Ogun	0
Kaduna, Lagos, Port Harcourt, Aba, Ogun	46 (16.6)

Table 5 shows knowledge of Ebola isolation and diagnosis.

Knowledge of isolation centers. 66.5% of respondents were aware of presence of isolation centers, 25.2% did not know, 8.3% did not respond.

All the respondents knew that the isolation centers were far but none could quantify the distance. Knowledge of Ebola hotline. 58.2% of respondents did not know the Ebola hotline while 33.5% knew it, 8.3 % never responded.

Action to be taken by health staff on a suspected Ebola case. 66.5% said they will inform the nearest isolation center, 41.3% said they will inform others not to touch the patients, 33.5% said they will call Ebola hotline, none of the respondents chose to run away from the patient or to start treating the patient.

What the health staff should do when he/she has symptoms and signs of Ebola. 74.8% will cooperate and adhere to government and health institutional directives, 8.3 will hide away, none will continue social activities, 16.9% didn't respond.

Confirmation of Ebola. 66.5% of respondents knew that confirmation is via laboratory tests while 33.5% said confirmation was clinically using symptoms and signs.

Knowledge of number of laboratories for Ebola tests in Nigeria. 50% of respondents chose 2 labs, 16.9% chose 3 labs while 16.6% chose 4 and 5 labs.

The locations of certified Ebola labs in Nigeria. 50% said Lagos and Oyo, 16.9% chose Lagos, Portharcourt and Abuja, Lagos.16.6% chose respectively Aba, Ogun and Oyo and Kaduna, Lagos, Portharcourt and Ogun. None of the respondents chose Abuja, Oyo, Lagos and Ogun.

Table 6: Management of Ebola cases

Questions/ Answers	N = 278 (%)
How are Ebola cases managed?	
Supportive (symptomatic management)	208 (74.8)
Ebola has a cure	70 (25.2)
If Ebola has a cure, what is it? N= 70 (multiple responses allowed)	70 (25.2)
Zmapp	46 (16.6)
Vaccines	23 (8.3)
Prayers	0
Bitter kola	0
Bathing with salt water	0
Nanosilver	

Table 6 shows Management for Ebola. 74.8% knew that Ebola disease is only managed symptomatically (supportive) while 25.2% believes there is a cure.

The cure for Ebola as was believed by some respondents. 25.2% believed Zmapp can cure Ebola, 16.6% believed vaccines and 8.3 believed in prayers as a cure. Bitter cola, nanosilver and bathing with salt water were not seen as cures.

Table 7. Attempts by Nigerian government to curb the spread (Multiple responses allowed)

Question/ Answers N=278	N (%)
What in your opinion has/have been done by the Nigerian government to prevent the spread of Ebola?	
Massive awareness campaigns in media in Local and English languages	231 (83.1)
Screening of travelers at entry and exit points	115 (41.3)
Use of churches and mosques	46 (16.6)
Seminars	46 (16.6)
Establishment of emergency operation centers	23 (8.3)
Intensification of early detection in 36 states and FCT	23 (8.3)

MEASURES	NUMBER	%
Massive awareness campaigns in media in Local and English languages	231	83.1
Screening of travelers at entry and exit points	115	41.3
Use of churches and mosques	46	16.6
Seminars	46	16.6
Establishment of emergency operation centers	23	8.3
Intensification of early	23	8.3

detection in 36 states and FCT		

Table 7 shows measures undertaken by the Nigerian government to prevent the spread of Ebola disease. 83.1% knew about the use of media houses in diverse languages, 41.3% knew about screening of people at entry and exit points, 16.6% knew of the use of worship centers and also organization of seminars, 8.3% respectively knew about the establishment of emergency operation centers and intensification of early detection in 36 states and Abuja FCT.

DISCUSSIONS

In the present study, the level of awareness of Ebola is low. All the respondents have heard of Ebola virus disease (EVD) through further questioning revealed that such knowledge have not gone further than an in passé hearing of the word Ebola. Majority of the respondents heard of Ebola from the electronic media (TV and radio)(83.5%). The internet which is turning to the major means of conveying information had only 16.6% of respondents having Ebola via it. This may stem from two things namely, internet illiteracy and the poor 3G networks in the areas of study. Although all the respondents know that Ebola virus disease is spread by Ebola virus. This could have been apparent fever from the name of the disease but 16.9% still thought it was a bacterial infection. Commendable, however given the nature of the superstition environment is that none of the respondents thought it is a spiritual attack and several other ailments are thought to be.

On the transmission, 74.8% of respondents knew the animal hosts of the disease namely the bats of the pteropodidae family, monkeys, porcupine, gorillas, chimpanzees and antelopes. Above average knowledge in contact with body fluids and touching dead bodies. However, consumption of fruits left over by animals was only selected by 33.5% meaning that this important means of transmission is still not widely known. None chose fish as a host.

Previously, the attacks were known to occur in rural areas but the present outbreak affected both rural and urban areas and 74.8% knew this new trend while 16.9% still held on to the previously held view that t was a purely rural disease. All the respondents heard about the outbreak in Nigeria. This is due to the wide media coverage given to the disease from the first day. 66.5% knew that everyone is at risk as the disease has no predilection to any age, socioeconomic status, religion, gender or tribe.

91.7% of the respondents knew the correct incubation period of between 2 and 21 days.

On awareness of the early symptoms and signs, the knowledge was very poor as the only above average symptom known is high fever (91.7%), other symptoms such as muscle and joint pains(25.2%), headache, sore throat and weakness(16.6%) were far below average. Awareness about the late symptoms was not good either. Vomiting, bloody diarrhea was chosen by 50% of respondents, 41.3% selected bleeding from the eyes, nose, ears, and mouth. Other symptoms

such as rashes (25.2%), difficulty in breathing and swallowing (16.6%) confusion and irritability were not well known. None of the respondents thought abdominal and chest pain is a late symptom.

The result showed that awareness of protective measures was poor. The option most chosen (74.8%) was wearing protective clothing such as gloves, face mask and goggles in hospital. This is not surprising as this was a hospital/clinic based study and response usually follows practice. Avoiding eating improperly cooked bush meat had 50%. However, personal and environmental hygiene (41.7%), Obtaining clearance from health authority before moving corpses from abroad or one state to another (33.5%), avoiding traditional burial practices such as embalmment, washing or touching dead bodies (25.2%), Reporting death of suspected Ebola patients to nearest health facility (25.2%) were not well known across respondents. Worthy of note is the wide disparity between those who knew that Ebola can be transmitted by consumption of fruits/foods leftover by wild animals (33.5%) and the 4.7% that said avoiding such food in itself is a protective means against the disease.

Awareness of isolation centers was above average 66.7%. The 25% that were unaware is a major problem. The nearest isolation centre is very far (Lagos) according to all the respondents that knew where it was though none attempted distance quantification.

The Federal Ministry of Health Abuja through the Nigerian Centre for Disease Control provided a toll free hotline for Ebola surveillance, 0800EBOLAHELP (0800326524357) which was on 24 hours, 7 days a week. In addition, a website, www.ebolaalert.org , an electronic mail, ebolainfo@health.gov.ng , two twitter handles, @ebolaalert; @ebolainfomohNg and a facebook page, fb.com/ebolaalert to enable communication and adequate notification. 33.5% of respondents knew about the existence of the hotline and also knew the hotline. This is very poor.

66.5% of respondents will rightly inform the nearest designated center and 33.5% consented to calling Ebola hotline. 41.3% will tell others not to touch a suspect which is another important issue. Remarkable here also is that none agreed to start treating the patient or running away from the patient.

74.8% of the respondents will cooperate and adhere to government and health institutions regulations such as quarantine when they exhibit symptoms and signs of Ebola. A dangerous 8.3% confessed they will run away, this group will obviously spread the virus if they succeed.

Diagnostically, Ebola can be definitively isolated in a laboratory through several types of tests namely

- Antibody-capture enzyme linked immunosorbent assay (ELISA)

- Antigen detection tests

- Serum neutralization test

- Reverse transcriptase polymerase chain reaction (RT-PCR) assay

- Electron microscopy

- Virus isolation by cell culture (Medscape 2014)

66.5% knew rightly that the confirmation for Ebola cases is by laboratory tests. Suspects can only be isolated through clinical signs and symptoms but real diagnosis is through the aforementioned tests.

Knowledge about these labs and their locations were nonexistent. The federal Ministry of health identified four laboratories for the testing of suspected Ebola cases as follows.

- ❖ Lagos: Central Research Laboratory, College of medicine, Lagos University Teaching Hospital, Idi Araba.

- ❖ Ogun: Redeemer University reference Laboratory, Lagos Ibadan Expressway, Mowe, Ogun State.

- ❖ Oyo: Virology Department, University College Hospital, Ibadan.

- ❖ FCT: National Influenza Reference Laboratory, Asokoro General Hospital, Abuja. (FMOH, Abuja 2014)

However only 16.6% knew that there are four reference laboratories for Ebola in the country and none of the respondents could mention the location of these laboratories. So even the 16.6% that mentioned four did merely guesswork.

On management of Ebola, 74.8% knew that only supportive management suffices at the moment while 25.2% said Ebola had a treatment. The talk about treatment regimen is another offshoot of misinformation by myths and the media that was awash with several remedies at the peak of the scourge. 25.2% of those who accented to a cure mentioned Zmapp, 16.6% mentioned vaccines, while 8.3% believed that prayers can cure Ebola viral disease. Notably, no one chose consumption of bitter kola or bathing with sodium chloride water which were rumored as cures for Ebola disease.

The Federal Government through the Federal Ministry of health created a lot if awareness to prevent the spread in Nigeria. Most of the respondents however, were not well aware of these measures. The only activity that was well known, which should have been a fulcrum for others but from all indicators did not work well was massive campaigns in radios and televisions in English and Local languages reported by 83.1% of respondents, this was followed by screening of travelers at the points of entry/exit (41,3%). Other areas where the government did pretty well such as use of churches and mosques (16.6%) organization of seminars (16.6%), establishment of emergency operation centre (8.3%), intensification of early detection in 36 states and FCT

were unrecognized. The result of this study may be so since both clinical and non clinical staffs were recruited. A core clinical study may have a different result.

CONCLUSION

Ebola virus disease is a rare and deadly viral disease which is reportable worldwide. Early recognition of Ebola is critical for infection control. Health-care providers should be alert for and evaluate any patients suspected of having Ebola.

Having come to the end of this study, the author concludes that the level of awareness on the subject of Ebola Virus Disease is low amongst the health staff in Bassa L.G.A of Kogi state. The study showed the commendable but improvable job that the media is doing and hence since it appears to be the major means of information dissemination amongst inhabitants of the area, more information should be passed to the people over the television and radio. In as much as the WHO has declared Nigeria Ebola free as at October 2014, we have to be on the watch out.

LIMITATIONS OF STUDY

The study was not devoid of limitations. Some of these limitations included:

STUDY DESIGN

A descriptive study design was used to describe the awareness of non-doctor hospital staff in Bassa Local government of Kogi State on Ebola virus disease. Descriptive designs fail to generalize the findings to the population outside the study participants. Hence, the findings of this study could not be generalized beyond the participants of the study in Bassa Local government Area.

SAMPLING METHOD

A multi stage random sampling involving clustering and random sampling were used. Cluster sampling is known to produce lower precision though it is cheaper (Osuala, 2005).

DATA COLLECTION TOOL

The use of structured questionnaire to collect data from the study participants was another limitation. This greatly limited the answers the respondents could choose from and did not have the capacity for in depth answers as could have been the case in an interview. This was however reduced by using words that could be understood clearly by the study participants after analyzing the pilot study.

NON RESPONSE

This affected the ability of the author to make inferences from the samples. This was foreseen and allowance was made to that effect by distributing more than 278 questionnaires.

RECOMMENDATIONS

(1) The government and nongovernmental organizations should utilize the media to create more awareness of what have been done, what is being done and what needs to be done.

(2) More seminars especially for health care workers and other hospital staff, who will now step down same to patients and their relatives.

(3) Localizing more of the isolation centers in different parts of the country to ensure proximity to the people.

(4) Network service providers should be pressed to provide 3G browsing services.

(5) More training on universal precautions would facilitate a decrease in spread.

(6) Institution of laws against harmful traditional burial practices should be done.

RECOMENDATIONS FOR FURTHER STUDIES

Having seen the trend so far, the author wishes to recommend that these studies should be carried out:

(a) Awareness of clinical staffs in Bassa on Ebola virus disease.

(b) Computer and Internet knowledge, attitude and practices amongst health care staff.

(c) Awareness of the Bassa people on Ebola virus disease. This is necessary because, the health staffs that should inform and direct them are themselves not adequately informed about the disease.

(d) A more robust study on attitude and practices on Ebola amongst same study population as the present study concentrated mainly on knowledge.

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