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Impact of Ebola Education on Knowledge Level of Ebola Disease among Primary School Teachers in Benin Metropolis

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Abstract
The paper determined the efficacy of a two-day Ebola Education on knowledge and awareness level of primary school teachers in Benin Metropolis of Nigeria. Two research questions were raised and two corresponding hypotheses were formulated which were tested at 0.05 level of significance. A total of 587 teachers proportionately selected from the primary schools in three Local government areas that make up Benin metropolis were used. That served as 20% of the population of2,933 primary school teachers in the area. The education modality centered on six key areas of Ebola. The participants were pre and post tested prior to and after the Ebola Education intervention. Frequency counts, percentages and chi-square were the statistics used for data analysis. The results revealed the teachers' significant differential knowledge of Ebola prior to Ebola Education. There was also significant improvement on Ebola knowledge after the education intervention. It was recommended that a well-planned Ebola Education be organized for primary school teachers (and pupils) outside Benin metropolis. Moreover, a similar Ebola Education be extended to teachers of secondary and tertiary educational institutions in Nigeria. There is the need to institute a proactive policy regarding Ebola prevention to guide against complacency that is likely to encourage Ebola re-emergence in Nigeria.
Key **words:** Ebola, Virus, Ebola Education, Primary School Teachers.

Introduction

Ebola is a deadly virus which was previously known as Ebola hemorrhagic fever which is a severe, often fatal illness in humans. It not only spreads quickly and kills fast but also identified as a disease that emerges, disappears and re-emerges. It is a disease of humans and nonhuman primates caused by an Ebola virus classified in the genus *Ebolavirus* the family of *Filoviridae* of an order *Mononegavirales* (Hoenen, Goseth & Feldmann.2012). Ebola was first discovered in 1976 near the Ebola River in what is now the Democratic Republic of the Congo. It is the river that Ebola derived its name (Simpson, 1977). Since then, outbreaks have appeared, disappeared and reappeared sporadically in Africa (WHO, 2014). The natural reservoir host of Ebola virus remains unknown. However, on the basis of evidence and the nature of similar viruses, researchers believe that the virus is animal-borne and that fruit bats are the most likely reservoir (CDC, 2014). Monkeys, gorillas and chimpanzees as well as plants, arthropods and birds have been implicated as the mode of transmission of Ebola virus (WHO, 2014). It is on record that Ebola virus can be contracted through blood, sweat, saliva, mucus, vomit, feaces. tears, breast milk, urine and bodily fluids of an infected person or animal. Semen may be infectious in survivors for up to 7 weeks (WHO, 2014; CDC, 2014). Entry points include the nose, mouth, eyes, or open wounds, cuts and abrasions (CDC, 2014). Ebola Virus Disease (EVD) outbreaks have a case fatality rate of up to 90% (WHO, 2014).

According to WHO (2014), Ebola symptoms start two days to three weeks after contracting the virus, with a fever, sore throat, joint and muscle pain as well as stomach pain, lack of appetite and headaches. Typically, vomiting, diarrhea and rashes follow, along with decreased function of the liver and kidneys as well as general weakness. Around this time, affected people may begin to bleed both internally and externally after it has damaged the immune system and organs (Gatherer, 2014; Cassoobhoy, 2014 & CDC.2014). Other symptoms include frequent hiccups, vomiting blood, coughing it up and, or defecating blood in stool (Hoenen, Goseth & Feldmann, 2012).Ultimately, it causes levels of blood- clotting cells to drop which leads to severe uncontrollable bleeding or haemorrhaging which can result in death (Gatherer,2014). Early symptoms of EVD may be similar to those of malaria, cholera, dengue fever, or other tropical fevers before the disease progresses to the bleeding phase (Gatherer, 2014). There has not been neither certified cure nor any vaccine for Ebola virus worldwide. This chain of events forms a possible indirect means of transmission from the natural host species to other animal species, which has led to research into viral shedding in the saliva of fruit bats. Fruit production, animal behavior, and other factors vary at different times and places that may trigger outbreaks among animal populations (Gonzalez, Pourrut & Leroy, 2007). This gives rise to emerging and re-emerging phenomenon of Ebola disease.

Primary School teachers are trained group of educators who care for our children that are among the most vulnerable to Ebola infection because of their close contacts and interplays. The teachers ought to be highly

knowledgeable and aware of the disease in all its ramifications. Hence the choice of such a group. The questions that arise, however, are: Are the Primary School teachers really knowledgeable of Ebola Disease? To what extent do the Primary School teachers comply to the proactive preventive and control measures concerning Ebola Disease to avoid its re-emergence in Nigeria? This is based on the fact that ignorance and complacency are the two attitudes that aid Ebola emergence and re-emergence.

There is disjointed sometimes misinformation about Ebola disease being dished out by non-expert people. The information, apart from being unorganized, or unstructured, in most cases, lack details and scientific authentication. It is an established fact that people perish for lack of information. Moreover, teachers, especially those in primary schools that handle vulnerable children who ought to be well informed seem to be the most uneducated about Ebola disease. The tendency is that children unders such teacher will either be uninformed or misinformed. This scenario therefore creates a gap which needs to be filled, hence the justification for the present study that concentrated on assessing the primary school teachers' knowledge level of Ebola disease and the impact of an organized Ebola education on them. The outcome may lead to instituting seminar/workshop for teachers' on Ebola as well policy makers infusing Ebola education into teacher education curriculum in Nigeria.

To the best knowledge of the author, there have not been any known indepth research carried out in Edo State to assess the efficacy of Ebola Education on the knowledge and awareness level of Primary School Teachers. This gap in research effort is what the present research aimed at bridging.

Research Questions

The following research questions were raised to guide the study.

1. What is the level of knowledge of primary school teachers concerning Ebola disease prior to subjecting them to Ebola Education?
2. Would a two-day Ebola Education impact positively on primary school teachers' level of knowledge and awareness about Ebola Disease?

Hypotheses

The hypotheses tested for the study were: 1.Primary school teachers did not possess significant differential knowledge about Ebola prior to Ebola Education. 2. A two-day Ebola Education would not significantly impact positively on the primary school teachers' knowledge of Ebola Disease.

Methodology

Research Design

A pre-post quasi-experimental research design was adopted for the study. The design permitted the description of intervention modalities and conditions as they existed in their natural settings to which one could generalize with the study's results. Hence, it was considered relevant for the present study.

Population of the study

The target population for the study comprised all the primary school teachers in Benin metropolis of Edo State. The population of the primary school teachers within the metropolis was 2,933 (Edo State Universal Basic Education Board Records /Statistics. 2015) comprising 890 from Egor, 989 from Oredo and 1,054 from Ikpoba-Okha local government areas.

Sample and Sampling Techniques

A sample size of 587 participated in the study. This represented 20% of the population. The sample was recruited through proportionate sampling technique which yielded 178 primary school teachers from Egor, 198 from Oredo and 211 from Ikpoba Okha.

Research Instrument

The instrument for the study was a structured two-day Ebola Education Modality (EEM). which hinged on:

a. History and nature of Ebola Disease.
b. Signs and Symptoms of Ebola Disease.
c. Sources/ Causes of Ebola Disease
d. Mode of Transmission of Ebola Disease.
e. Ebola Disease Preventive and Control measures.
f. Cure/ Treatment of Ebola Disease.
g. Validity of the Instrument

The face and content validity of the EEM for units a-f was ascertained by three experts in Public Health and Health (Ebola) Education. It was their corrections and suggestions that were incorporated into the final draft of the Ebola Education notes or resource materials that guided the teaching and focused group discussion for educating the participants

Reliability of the Instrument

The reliability of the instrument was established through a split halves technique on 10 primary school teachers outside Benin metropolis. The even and odd numbered halves were subjected to Pearson Product Moment Correlation Coefficient. A reliability of 0.82 was obtained which was deemed a high reliability.

Administration of the Instrument

Three (3) resource persons who were trained in Public Health and Health Education conducted a pre- Ebola Education Teachers' Knowledge Assessment. This exercise yielded the pre-Ebola Education values. An intervention involving Ebola Education which lasted for two days was introduced. The intervention composed of six (6) units (a-f) of Ebola Education. Each education period lasted for 30 minutes of three (3) sessions or periods a day. Ebola Education units (a-c) were taken on the first day which thereafter a 15-minute written assessment was conducted. The second day was devoted to units d- f followed by another 15-minute written assessment. The two written assessment values were merged to form the post-Ebola Education values.

Data Analysis

The data collected (Pre-Ebola Education values and Post-Ebola Education values) were descriptively analyzed with frequency counts and percentages to answer the research questions. Inferentially, the data were analyzed with chi-square to test the hypotheses. The alpha level was set at 0.05 level of significance.

Results

The results are presented in tables 1 – 4

Table 1: Pre- Ebola Education Teachers' Level of Knowledge

	Knowledgeability (K)		Non Knowledgeability (NK)	
Teachers' Ebola's Knowledgeability N= 587	**Frequency**	**%**	**Frequency**	**%**
History and nature of Ebola Disease	374	63.7	213	36.3
Signs and Symptoms of Ebola Disease	417	71.0	170	29.0
Sources/ Causes of Ebola Disease	372	63.4	215	36.6
Mode of Transmission of Ebola Disease	350	59.6	237	40.4
Ebola Disease Preventive and Control Measures	364	62.0	223	38.0
Cure/ Treatment of Ebola disease	121	20.6	466	79.4
Mean Total	**333**	**56.7**	**354**	**43.3**

In Table 1, the participants prior to the Ebola Education recorded 56.7% overall knowledge of the six key areas of Ebola disease while 43.3% of them were ignorant of such key Ebola areas. However, on specific key areas, the participants were highly knowledgeable of Ebola signs and symptoms (71.0%) but moderately knowledgeable of the history and nature (63.7%) of the disease, its sources/causes (63.4%), as well as the preventive and control measures (62.0%). Nonetheless, they indicated poor knowledge (20.6%) of the cure or treatment of the disease.

Table 2: Post-Ebola Education Teachers' Level of Knowledge

	Knowledgeability		Non Knowledgeability	
Teachers' Ebola's Disease N=587	**Frequency**	**%**	**Frequency**	**%**
History and Nature	441	75.1	146	24.9
Signs and Symptoms	502	85.5	85	14.5
Sources/ Causes	418	71.2	169	28.8
Transmission Mode	405	69.0	182	31.0
Preventive and Control	401	68.3	186	31.7
Cure/ Treatment	332	56.6	255	43.4
Mean Total	**417**	**71.0**	**170**	**29.0**

After the Ebola education, the participants exhibited improved knowledge of Ebola from pre to post education values (Tables 1& 2) of 63.7% to 75.1% for history- and nature, 71.0% to 85.5% in signs and symptoms, 63.4% to 71.2% in sources/causes. 59.6% to 69.0% in transmission mode, 62.0% to 68.3% in prevention and control, and 20.6% to 56.6% in cure/ treatment. Generally, the participants showed the overall mean improvement from 56.7% pre-education to 71.0% post-education values.

In order to ascertain whether or not the impact of Ebola Education was significant, the formulated hypotheses were tested at 0D5 alpha level as reflected in Tables 3 & 4.

Table 3: Chi-square Analysis of Teachers' Differential Knowledge about Ebola prior to Ebola Education

	Value	df	Asymp.Sig. (2- sided)
Pearson Chi-square	3522.000[a]	II	.000
Likelihood Ratio	4818.543	II	.000
Linear-by-Linear Association	445.125	I	.000
N of Valid cases	3522		

[a] O cells (0%) have expected count less than 5. The minimum expected count is 52.36

Table 3 shows that the chi-square analysis is significant. This implies that teachers who were knowledgeable about Ebola prior to instituting Ebola education differed significantly from those who were not knowledgeable of it.

Table 4: Chi-square Analysis of Teachers' Knowledge of Ebola Pre-Post Ebola Education

	Value	df	Asymp.Sig. (2- sided)
Pearson Chi-square	4497.000[a]	II	.000
Likelihood Ratio	6178.234	II	.000
Linear-by-Linear Association	992.127	I	.000
N of Valid cases	4497		

[a] O cells (0%) have expected count less than 5. The minimum expected count is 53.76

Table 4 shows a significant result of chi-square analysis, indicating that the teachers' level of knowledge about Ebola prior to Ebola Education significantly improved or altered positively after the Ebola Education.

Discussion of Findings

It is a truism that Ebola is one of the emerging and re-emerging diseases in Africa. Its sporadic outbreak in 2014 in West African Countries including Nigeria, after almost a decade of similar outbreak in Congo and Sudan attests to its re-emerging characteristics.

The present study is a fulfillment of the recommendation of the World Health Organization (WHO, 2014) which asserts that **education** of the general public on the risk factors and the protective measures individuals could take concerning Ebola serves as an affirmation of the relevance of Education in dealing with Ebola matters. It is on this premise that the researcher embarked on determining the efficacy of instituting Ebola Education to primary school teachers that are regarded as the molder of children who seem to be the most vulnerable mankind to all communicable diseases, including Ebola, if not handled with care and wisdom.

The participants' exhibition of significant differential knowledge of Ebola prior to the introduction of Ebola Education to them seems expected. This is based on the fact that the primary school teachers used for the study were of divergent cultural, educational and health orientations and backgrounds. The aim of introducing Ebola Education to them was therefore to equalize their differential knowledge about spreading the word, Ebola as a preventable disease if the necessary precautions are taken in order to avoid contracting and spreading the disease that its cure has not been discovered. It is when the teachers are well informed and educated that they will be in a better position to guide and guard themselves and the primary school children placed under their care as Loco-parentis.

The efficacy of Ebola Education was confimed by the significant impact the two-day education programme had on the participants. Their percentage of Ebola knowledge in-all its ramifications shifted or increased from 56.7% to 71%, an impart factor of 24.30%. This, no doubt, is expected to boost their knowledge and confidence as the certified vanguard in dealing with Ebola matters vis-a-viz their school children, colleagues, at home and the general public. When this knowledge base is established, the re-emergence of Ebola disease becomes under control.

Conclusion and Recommendations

It is concluded from the results of the study that a well-articulated and executed Ebola Education is capable of positively altering or improving the awareness level and knowledge base of people about Ebola disease. It is therefore recommended that:

- A well planned Ebola Education be organized for primary school teachers and pupils not only in Benin metropolis but throughout Nigeria.
- There is need to institute proactive measures in schools and the general public to avoid its re-emergence in the country.
- A similar well planned Ebola Education be extended to secondary and tertiary education staff and students throughout Nigeria.
- Governments of all levels should, from time to time, provide the enablement required for Ebola disease preventive and control measures in schools.

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