Environtropica, June 2017, Vol. 14, 42-54 ISSN 1597-815X

Post Ebola Disease Scourge: Impacts on Perception and Influx Rate of Tourists into the University of Ibadan Zoological Garden, Nigeria

Lameed, G.A.[1], ✉Adedoyin, S.O.[2], Olajumoke, M.[3] and A.G. Adetiloye[4]
[1]Department of Wildlife and Ecotourism Management, Faculty of Agriculture and Forestry, University of Ibadan, Nigeria. [2]Department of Forestry and Wildlife, Faculty of Agriculture, University of Benin, Nigeria. [3]Department of Zoology, Faculty of Science, University of Ibadan, Nigeria. [4]Department of Tourism and Development, Center for Sustainable Development (CESDEV) University of Ibadan, Nigeria.
✉Corresponding Author: adedoyin.so.mnim@gmail.com

Accepted on January 27, 2017

Abstract

This work aimed at highlighting the impacts of post Ebola disease scourge on the perception and influx rate of tourists into the University of Ibadan zoological garden. The study used an interviewed-administered questionnaire. Two types of questionnaire (type I and type II) were used. Data were analyzed and presented in percentages as well as Pearson moment correlation coefficient and descriptive statistics. Results showed that tourists who responded to the questions were Nigerians (119.0; 92.2%) while majority of the tourists had tertiary education (90.0; 69.7%). It was shown that not touching animals in their enclosure is significant .050* (P<0.05 at levels) at the zoological garden. This is also supported by the awareness of the tourists that animals can transmit the Ebola Virus Disease (EVD) which was very strong .026* (significant at P<0.05 levels). The perception of tourists if EV can be contracted at the zoological garden stood at .000*. The respondents maintained they avoided physical contact with other visitors .007* (significant at P<0.05 levels). It was revealed that the Ebola virus outbreak in the country affected the influx rate of the tourists to the zoological garden. This is significant 0.000* at P<0.05 level. Tourists' influx rate to the zoological garden before and after the outbreak of Ebola disease (EV) stood at a frequency of: before Ebola outbreak, (99.0; 76.8%) tourists were visiting the zoo and after Ebola outbreak, only (31; 79%) of the tourists came visiting the zoological garden. There was a significant increase in the numbers of tourists who never visited (23.0; 17.8%) before the outbreak and those who never visited after (55.0; 42.64%) the outbreak. Finally, the reported case of Ebola outbreak in the country affected the influx rate of tourists into the zoological garden, but measures taken during and after the outbreak has made the University safe.

Key Words: Ebola Virus Disease (EVD), Perception, Impacts, Influx-rate, Tourism, Biodiversity

Introduction

Tourism is a form migration. It is temporary migration for leisure purposes and current research has evidently showed that what draw both local and foreign tourists mostly are the wildlife resources in Nigeria (Oladele, 2000).

However, there are some diseases that can be contracted from animals, in other words there are some animals that can transmit certain diseases to human beings, and these diseases are called zoonoses. Examples of some zoonoses include: *Psittacosis* (*Ormithosis*) which can be contracted from infected animals like ducks, caged birds and other form of poultry, Ringworm from animals like cattle, horses, cats and fish, *Salmonellosis* from reptiles, mammals, birds, fish, *Campylobacteriosis* from intestines of chickens and turkeys, and also from ground water contaminated by farmyard run off or abattoir effluent, *Ebola Virus* from primates such as monkeys, gorillas and chimpanzees (Health and Safety Executives, 1985).

Ebola virus disease (formerly known as Ebola Haemorrhagic Fever) is a severe, often fatal illness, with a death rate of up to 90%. Ebola is introduced into human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals and illness affects humans and non-human primates such as monkeys, gorillas and chimpanzee, fruit bats, forest antelopes and porcupines are carriers of Ebola Virus (WHO, 2014). Ebola first appeared in 1976 in two simultaneous outbreaks, one in a village near the Ebola River in the Democratic Republic of Congo, and the other in a remote area of Sudan (WHO, 1978a). Although the origin of the virus is unknown but fruit bats (*Pteropodidae*) are considered the likely host of the Ebola virus. Ebola can be contracted through close contact with the blood, secretions, organs, or other body fluids of infected animals (WHO, 1978b).

Unfortunately, there was an outbreak of Ebola in Nigeria in July to September 2014, brought in by a Liberian named Patrick Sawyer, who later died due to the infection. Sadly, the disease got transmitted from him to the medical team who attended to him and from there the disease later spread to many places where other cases were later reported thereafter resulting in the death of 8 people. This had a lot of serious adverse effects on the country, hospitality industry suffered a great loss as conferences and bookings got cancelled, transportation industry was negatively impacted, as well as the tourism industry, resulting in economic downturn for the country during the period (The Nation News Paper, 2014).

The response of World Health Organisation (WHO) to this outbreak and prompt researches quickly revealed the possible sources: animals who could be carriers, places of high risk, and interestingly, zoological gardens where animals who could be carriers of the Ebola virus made the list. The fear that Ebola has no cure gripped everybody, as Nigerians steered clear of possible locations of the virus. Among the notable zoological gardens in Nigeria is the University of Ibadan Zoological Garden.

However, the year 2014 in Nigeria witnessed an outbreak of a dreaded virus: The Ebola Haemorrhagic Fever (EHF) which labelled most animals from the wild a potential carrier. The presence of such animals in a zoological garden where there could be a direct or indirect contact with the animals and where staff and hundreds of visitors move up and down, a

careful study of this depth is worth all it takes to find out how this could impact the health of the visitors and the status of the garden as well as how people now perceive the University of Ibadan zoological garden after the outbreak of the Ebola Virus. Viz-a-viz, this work thus aimed at highlighting the impacts of post Ebola disease scourge on the perception and influx rate of tourists into the University of Ibadan zoological garden.

Materials and Methods

Study Site Description

The University of Ibadan (7˚23' 47' and 3˚55' 00' E) is the oldest and one of the most prestigious Nigerian universities, and is located five miles (8 km) from the center of the major city of Ibadan in western Nigeria. It falls within the humid tropical climate zone which is next to the transitional forest of guinea savannah belt of Nigeria. Ibadan been a low land tropical rain forest has an annual mean temperature of about 27^0C. The dry season occurs between November and March while the rainy season is from April to October every year. Harmattan is usually experienced between the mid December and late January of each year due to hot, dry and dusty North-East trade wind which blows across the Sahara desert in the country University of Ibadan Zoo Record Unit, 2000).

The University of Ibadan zoological garden was established as an extension of the Zoology Department of the University of Ibadan in 1948. It was opened to the public in 1974 and it has since then been opened to the public for visit on daily basis. It was initially in the form of a menagerie where a few species of animals were kept in isolation, but later transmuted into full-fledged zoological garden in 1974. During the administration of a Briton, Bob Golden, who served as the Director of the zoo. The zoo presently covers over 10 acres of land (University of Ibadan Zoo Record Unit, 2000).

Data Collection

The study used an interviewed-administered questionnaire. Two types of questionnaire (type I and type II) were used. The questionnaire included both open ended and fixed response questions. The questionnaire was designed to evaluate the perception and influx rate of tourists into the University of Ibadan zoological garden after Ebola virus outbreak. Type I questionnaire was administered on the tourists, while the type II was conducted on the management staff of the zoological garden, University of Ibadan. Education and demographic information, including gender and age, were obtained from each respondent.

Although, the period of the outbreak of Ebola virus in Nigeria was between July and October 2014, the data collected for the sake of this work was before the outbreak 2013 (secondary data from the UI zoo Record Unit), during the outbreak 2014 and after the outbreak 2015. The work was done between December, 2014 and June, 2015. Out of One hundred and thirty-five (135) copies of questionnaire administered on the tourists, One hundred and twenty-nine (129) were retrieved and analysed. However, on the other hand, fifteen (15) copies of questionnaire were administered on the staff, while fourteen (14) copies were retrieved.

Data Analysis

Data were grouped and summed by response category. The responses were recorded on a data sheet and later transcribed into English and entered into a Microsoft Excel 2010 database as well as Statistical Package for Social Sciences version 19 for Windows (IBM SPSS Inc,

Chicago, USA). Where multiple responses were possible on an open-response question, data are presented as the percentage (%) of respondents giving each response, and may sum to 100%. Pearson Moment Correlation Coefficient and Descriptive Statistics were also used.

Results and Discussion

Table 1 below revealed that, the highest number of visitors was between the age of 26-35 with the frequency of 52.00 (40.3%) while the lowest age of visitors was above 40 years of age with the frequency of 6.00 (4.7%). Not that alone, it also showed that female visited more than male with the frequency of 69.00 (53.5%) while that of the male stood at 51.00 (39.5%). The table also showed that single (yet to marry) people visited more with the frequency of 80.00 (62.00%) and married people stood at 43.00 (33.30%). The number of Christians who visited was more than that of the Muslims with Christians accounting for 98.00 (76.00%) while Muslims stood at 24.00 (18.6%). No foreigner visited during the time under review as all the respondents were Nigerians, which stood at the frequency of 119.00 (92.20%) and finally the highest number of visitors had either HND or BSc. certificates as the frequency stood at 38.00 (29.50%) while the lowest was M.Sc holders which stood at 16.00 (12.40%).

Table 1: General Demographic Information of the Respondents (Tourists)

S/N	Variables	Frequency	%
1	**Age**		
	16-25	46.00	35.7
	26-35	52.00	40.3
	36-45	19.00	14.7
	Above 45	6.00	4.7
	No Responses	6.00	4.7
	Total	**129.00**	**100.0**
2	**Gender**		
	Male	51.00	39.5
	Female	69.00	53.5
	No Responses	9.00	7.0
	Total	**129.00**	**100.0**
3	**Marital Status**		
	Single	80.00	62.00
	Married	43.00	33.30
	No Responses	6.00	4.70
	Total	**129.00**	**100.00**
4	**Religion**		
	Christianity	98.00	76.00
	Islam	24.00	18.6
	No Responses	7.00	5.4
	Total	**129.00**	**100.00**
5	**Nationality**		
	Nigerian	119.00	92.20
	Others	-	-
	No Responses	10.00	7.80
	Total	**129.00**	**100.00**
6	**Educational Background**		
	SSCE	29.00	22.50
	ND/NCE	36.00	27.80

	HND/BSc	38.00	29.50
	MSc	16.00	12.40
	No Responses	10.00	7.80
	Total	**129.00**	**100.00**

Source: Field Survey, 2015

Demographic Information of the Respondents (Tourists)

From Table 1, one hundred and twenty-nine questionnaires were analyzed. The respondents, regardless of their occupations and professions took time to respond to the questions. Respondents between the ages 26 and 35 were the highest (52.0; 40.3%), while the least responses came from ages above 45 (6.0; 4.7%). Others were respondents with the ages 16-25 (46.0; 35.7%) and ages 36-45 (19.0; 14.7%). This is revealing the strength, vigour and vitality (since the highest ages of respondents fall between 26-35 years) required in engaging in tourism activities, especially nature-based tourism. Also, female responded (69.0; 53.5%) more than their male counterpart (51.0; 39.5%). This is contrary to the outcome of UNDP, 2014 study carried out in Guinea, Sierra-Leone and Liberia that the epidemic (Ebola) had a disproportionate impact on women. In two of these three countries, more women were infected than men, largely because their traditional role as caregivers exposes them to infection. Women livelihoods were also particularly affected, since they make up the majority of local traders and producers of fruits and vegetables, activities that have been sharply reduced in the wake of the epidemic. Many women also finance economic activities through various forms of cooperative borrowing arrangements that typically require gatherings of people, which have been suspended due to fear of contagion. This then made them distance themselves from nature-based area or places of high possible risk. Majority of the respondents were not married (80.0; 62.0%); Christians were more than Muslims (98.0; 76.0% > 24.0; 18.6%); all who responded to the questions were Nigerians (119.0; 92.2%) while majority of the respondents had tertiary education (90.0; 69.7%) while only (29.0; 22.5%) had secondary education as shown in the table 4a above. This further shows and strengthens the fact that education plays a major role in enlightening the populace (most especially the tourists). The categories for the tertiary education include: ND/NCE (36.0; 27.8%), HND/BSc (38.0; 29.5%) and MSc (16.0; 12.4%).

From Table 2 below, the respondents revealed their fear and courage in visiting the University of Ibadan zoological garden. Table 2 showed that not touching animals in their enclosure is significant .050* (P<0.05 at levels) at the zoological garden. This is also supported by the awareness of the respondents that animals can transmit the Ebola Virus Disease (EVD) which is very strong .026* (significant at P<0.05 levels). The perception of respondents if EV can be contracted at the zoological garden is .000*. The respondents maintained they avoided physical contact with other visitors .007* (significant at P<0.05 levels). All these might not be unconnected with the highly explosive public and rural sensitization of the entire citizenry in the wake of EV outbreak.

On Table 2b below, it is shown that the Ebola virus outbreak in the country affected the influx rate of the tourists into the University of Ibadan zoological garden. This is significant 0.000* at P<0.05 level. It was found that tourists who visited still harboured the fear of Ebola virus due to the awareness and reality of Ebola in the country.

According to ECDPC, 2014a; visitors and residents in EVD-affected areas face a low risk of becoming infected in the community if the following precautions are strictly followed: avoid contact with symptomatic patients and their bodily fluids; avoid contact with corpses and/or bodily fluids from deceased patients; avoid contact with wild animals (including primates, monkeys, forest antelopes, rodents and bats), both alive and dead, and consumption of bush-meat and wash hands regularly, using soap or antiseptics. Bausch *et al.*, (2013) opined that generic precautions for travelling in West African countries also apply to the prevention of

Table 2a: Respondents' Perception to Places of High-risk of Ebola

Variable	Pearson Correlation Sig. (2-tailed) N	1 128
Animals in their enclosures should not be touched.	Pearson Correlation Sig. (2-tailed) N	.050* .559 128
Have you ever heard of Ebola Virus before?	Pearson Correlation Sig. (2-tailed) N	.110 .218 128
Are you aware that animals can transmit the Ebola Virus?	Pearson Correlation Sig. (2-tailed) N	.026* .771 128
Do you think Ebola can be contracted in the University of Ibadan Zoological Garden?	Pearson Correlation Sig. (2-tailed) N	.000* 1.000 128
Were you visiting this Zoo before the outbreak of Ebola?	Pearson Correlation Sig. (2-tailed) N	.225 .004 128
Have you visited the Zoo after the spread of of the Virus stopped?	Pearson Correlation Sig. (2-tailed) N	.004* .965 128
Can the fear of contracting Ebola make you stop visiting the Zoo?	Pearson Correlation Sig. (2-tailed) N	.118 .186 128
In the course of your visits, was there a physical contact with other visitors?	Pearson Correlation Sig. (2-tailed) N	.007* .236 128
Will you visit the University of Ibadan Zoological garden again?	Pearson Correlation Sig. (2-tailed) N	110 .216 128
*Correlation is significant at the 0.05 level (2-tailed)		

Source: Field Survey, 2015

EVD infection: wash and peel fruit and vegetables before consumption; avoid unprotected sexual intercourse and avoid habitats which might be populated by bats, such as caves, isolated shelters or mining sites. All these were well publicized by the Nigerian government

which influenced the perception and knowledge of the respondents (tourists) about EV outbreak in the zoological garden.

Table 2b: Staff' Perception on the Zoological Garden concerning Ebola Virus outbreak

Variable	Pearson Correlation Sig. (2-tailed) N	1 14
Does the outbreak of Ebola in the country affect the influx of tourists into the University of Ibadan Zoological Garden?	Pearson Correlation Sig. (2-tailed) N	.000* 1.000 14
Do you think there are animals that can transmit this virus to visitors within the zoo?	Pearson Correlation Sig. (2-tailed) N	.284 .325 14
Is there increase in income generation after the country was declared free of Ebola Virus?	Pearson Correlation Sig. (2-tailed) N	.251 .386 14
Do you still sense fear on the part of visitors to the zoo due to Ebola awareness?	Pearson Correlation Sig. (2-tailed) N	.059* .841 14
*****Correlation is significant at the 0.05 level (2-tailed)		

Source: Field Survey, 2015

Influx Rate of Tourists to the Zoological Garden, before and after the Outbreak of Ebola Virus (EV)

Table 3 as well as Figure 1 showed the respondents (tourists) rate of influx to the zoological garden before and after the outbreak of Ebola virus (EV). Table 3a showed that before Ebola outbreak, ninety-nine (99.0; 76.8%) respondents visited the zoo with the following degree of frequency of visitation: once (85.0; 65.9%), twice (9.0; 7.0%), thrice (3.0; 2.3%) and many times (2.0; 1.6%). After Ebola outbreak, only forty-one (31.79%) of the respondents claimed they visited the zoological garden. The degree of frequency of visitation of the tourists is as follow: once (35.0; 27.13%), twice (2.0; 1.55%), thrice (3.0; 2.33%) and many times (1.0; .78%).

However, there was a significant increase in the numbers of respondents who never visited (23.0; 17.8%) before the outbreak and those who never visited after (55.0; 42.64%) the outbreak. This increase in number of those (tourists) not visiting the zoological garden can either directly or indirectly affect the zoological garden and the nation at large. According to Muiderman (2014), the Ebola crisis has had a negative impact on the economies of the countries it has affected and its impact can be felt in many different sectors. The economic impacts such as loss of gross domestic output, threat to food security, fall in employment and livelihoods, and decline in foreign investment (UNDP, 2014). The agricultural, mining and service sectors have been particularly hard hit, especially agriculture (Muiderman, 2014; Welthungerhilfe, 2014a&b). These assertions are supported in the study as shown in table 2b above.

Table 3: Tourists' Rate of Visiting the University of Ibadan Zoological Garden before and after Ebola Outbreak

S/N	Variables	Freq.	%
1	**Visiting before Ebola outbreak**		
	Once	85.00	65.90
	Twice	9.00	7.00
	Thrice	3.00	2.30
	Many times	2.00	1.60
	Never	23.00	17.80
	No Responses	7.00	5.40
	Total	**129.00**	**100.00**
2	**Visiting after Ebola outbreak**		
	Once	35.00	27.13
	Twice	2.00	1.55
	Thrice	3.00	2.33
	Many times	1.00	0.78
	Never	55.00	42.64
	No Responses	33.00	25.57
	Total	**129.00**	**100.00**

Source: Field Survey, 2015

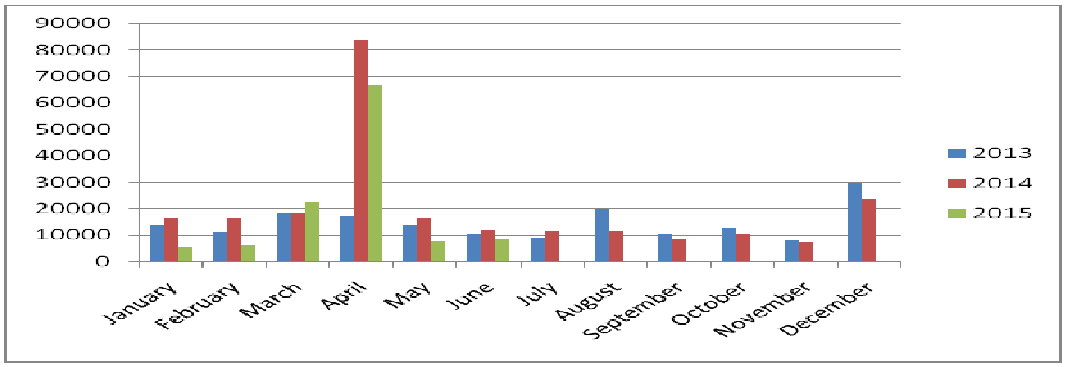

Figure 1: Tourists influx into the zoological garden for year 2013-2015
Source: University of Ibadan Zoological Garden Record Unit

This not only happened in Nigeria, but also affected Sierra Leone economy. The Ebola outbreak in Sierra Leone has resulted in slower economic growth as a result of disruptions to activities in agriculture, mining, construction, manufacturing, trade, tourism and transport (GoSL *et. al.*, 2014; UNDP, 2014). The World Bank has recalculated GDP growth estimates for 2014 which now stood at 4.0 per cent, compared with 11.3 per cent before the crisis, and 8.0 per cent in October (World Bank, 2014a&b). In December 2014, the World Bank estimated Sierra Leone's 2015 growth as -2.0 per cent down from pre-Ebola estimates of 8.9 per cent (World Bank, 2014a&b). This is a drop from what they estimated in October (World Bank, 2014a&b). The crisis has resulted in increasing unemployment, especially among the

youth (GoSL *et al.*, 2014). The government and donors have diverted financing from different sectors to combat Ebola.

Status of the University of Ibadan Zoological Garden concerning Ebola Virus outbreak
From Table 4a, it is shown that (12; 85.72%) of the staff claimed that respondents were always screened before gaining entrance into the Zoological garden. Washing of hands with sanitizer (7; 5.0%) was mostly used by the management of the UI zoo to screen visitors. Other methods employed include the use of security scanner (3; 21.4%) and measuring of visitors of temperature (2; 14.3%). According to World Health Organization (2014), several cases of Ebola were recorded from December 2013 and March 2014, it took some time for health professionals to recognize the disease, which was difficult to identify without experience of this type of virus. Medical Doctors first suspected cholera, which was endemic in the first affected region (Guinée Forestière), and some of the victims tested positive for cholera. Quick awareness of the people and quick response to stopping this dreaded disease had nipped the spread of the virus in the bud. Also, the staff (of the zoo) asserted that the university of Ibadan zoological garden was very safe (8; 57.15%) as regards Ebola outbreak in the country. Some of them claimed that the zoological garden was just safe (3; 21.43%) and not very safe while only one staff each said that the zoo was not safe (1; 7.14%) as well as not sure (1; 7.14%) if it was safe or not.

As opined by UNDP Regional Bureau for Africa (2014a), at the time of the onset of the disease, no health facility in the country could safely and effectively test for, and treat, Ebola. To address this challenge, the Government set up central facilities to diagnose, admit and manage the medical care of confirmed cases, provide psychological and nutritional follow-up for cured patients and their families, and establish secure burial procedures. Until the beginning of October, these centres were able to cope with the demands of treatment and support by constantly adapting their admission capacities. Training had been provided on how the disease was transmitted, the prevention of infection, and the management of cases. The provision of individual protection and hygiene kits to health facilities in affected areas, distribution of ambulances and motorcycles to some care and referral facilities, and the establishment of health monitoring teams at the border had helped cope with the disease. Thus, pronouncing the University of Ibadan zoological garden safe was not enough; the management should work in keeping it safe all the time for all and sundry.

However from Table 4b, it was established by most of the tourists (48; 37.2%) that the zoological garden is spacious, well-organised, neat and safe (Plates 1 and 2). This will minimize any contact with the animals within the garden. Also, this serene and orderly arrangement of the zoological garden will attract tourists to the zoological garden, thereby increasing the income base of the zoo.

Plate 1: Distance of about 5ft between the Ape house and visitors, University of Ibadan Zoo
Source: Field Survey, 2015

Plate 2: Distance of about 4ft between the Monkeys' enclosure and the visitors, University of Ibadan Zoo. **Source:** Field Survey, 2015.

Furthermore, some of the tourists (18; 14.0%) opined that tourists should be careful with the animals, as they can be carriers of the Ebola virus (EV). This had been well emphasized in ECDPC, (2014b) that visitors and residents in EVD-affected areas face a low risk of becoming infected in the community if the following precautions are strictly followed.

Finally, the perception of the respondents was very clear that reported case of Ebola outbreak in the country affected the influx rate of tourists into the zoological garden as well as pronouncing University of Ibadan zoological garden to be safe for people (tourists) after the Ebola Virus (EV) outbreak in the country.

Table 4a: Status of University of Ibadan Zoological Garden as regards the Ebola Virus Outbreak (Staff account)

S/N	Variable	Frequency	%
1	**Did you screen visitors at entrance?**		
	Yes	12.00	85.72
	No	1.00	7.14
	No Response	1.00	7.14
	Total	**14.00**	**100.00**
2	**How did you screen the tourists?**		
	Security scanner	3.00	21.40
	Washing of hands with sanitizer	7.00	50.00
	Measuring of temperature	2.00	14.30
	No response	2.00	14.30
	Total	**14.00**	**100.0**
3	**How safe is the University of Ibadan Zoo as regards Ebola outbreak in the country?**		
	Very safe	8.00	57.15
	Just safe	3.00	21.43
	Not sure	1.00	7.14
	Not safe	1.00	7.14
	No Response	1.00	7.14
	Total	**14.00**	**100.00**

Source: Field Survey, 2015

Table 4b: Perception of Tourists on University of Ibadan Zoological Garden about the Handling and Management of Ebola Virus Outbreak

S/N	Variables	Freq.	(%)
1	Tourists should be careful with the animals, because they can be carriers of the Ebola Virus	18.00	14.00
2	Tourists still come visiting as a result of their love for animals and nature	1.00	.80
3	People are fearful to patronize the zoo since the outbreak of the Virus	4.00	3.10
4	The zoo is spacious, well-organised, thus making contact with animals very minimal. It is neat and safe.	48.00	37.20
5	The zoo is too artificial.	2.00	1.60
6	No Responses	56.00	43.30
	Total	**129.00**	**100.00**

Source: Field Survey, 2015

Recommendations

The following recommendations were made based on the outcome of this study:

- All primary health care centres should be well equipped and financed to cater for the needs of the local communities;
- Health workers should be orientated, updated and trained even if the cases of such epidemic disease has not been recorded in their own locality;
- A special quarantine facility should be made stand-by in all hospitals to enable the health workers isolate any suspected case of infected persons;
- Ministries and parastatals in charge should increase the level of priority placed on primary health care and implement health related policies;
- All zoological gardens within and outside the country should be aware of the possible infection that can occur from animals to man and adequate measures should be put in place to ensure visitors are not infected;
- The issue of a tour guard and protection of visitors should be taken very seriously as the safety of the lives of visitors are determined by the state of the places visited;
- There should be a computer data base for all visitors, to be able to determine season of peak as this will be easy to discover the effect of any form of negative event on the influx rate; and
- Finally, this kind of research should not be left on the shelf but be considered as useful tool to tackle zoonoses as regards wildlife practices and a point of reference for both health practitioners and zoo managers on how to combat cases of disease outbreak for the service to humanity.

References

Bausch D.G., Towner J.S., Dowell S.F., Kaducu F., Lukwiya M. and Sanchez A. (2013) *Assessment of the Risk of Ebola Virus Transmission from Bodily Fluids and Fomites*. *J Infect Dis. 2007 Nov 15;196 Suppl 2:S142-7*

European Centre for Disease Prevention and Control (2014a) *Outbreak of Ebola Virus Disease in West Africa - Rapid Risk Assessment*. 8 April 2014 [Internet]. Stockholm: ECDC; 2014. Available from: http://www.ecdc.europa.eu/en/publications/Publications/Ebola-RRA-West-Africa-8April2014.pdf

European Centre for Disease Prevention and Control (2014b) *Outbreak of Ebola Virus Disease in West Africa - Rapid Risk Assessment*. Second update, 9 June 2014 [Internet]. Stockholm:ECDC;2014.Available from: http://www.ecdc.europa.eu/en/publications/ Publications/ebola-risk-assessment-virus-Guinea-Liberia-Sierra-Leone.pdf

Government of Sierra Leone (GoSL), United Nations Development Programme, International Monetary Fund, the World Bank, & African Development Bank (2014) *The Economic and Social Impact of Ebola Virus Disease in Sierra Leone: Joint Preliminary Assessment Report*. Government of Sierra Leone, United Nations Development Programme, International Monetary Fund, the World Bank, & African

DevelopmentBank.Retrievedfrom:http://reliefweb.int/sites/reliefweb.int/files/resources/Joint%20preliminary%20assessment%20socio%20economic%20impact%20of%20EVD%20in%20Sierra%20Leone.pdf.

Health and Safety Executives (1985) *Management of Health and Safety at Work: Management of Health and Safety at Work Regulations 1985*. Approved Code of Practice and Guidance L.21(second edition) HSE books 2000 ISBN 0717624889

Muiderman, K. (2014) *Ebola's International Impact: Analysis of the Dynamics of a Region in crisis*. *The Broker*. Retrieved from http://www.thebrokeronline.eu/content/view/pdf/15084.

Oladele F. (2000) *Understanding Tourism In Nigeria* ISBN: 978-2096-17-4, Printed by JIS Printing Press, Bodija Estate , Ibadan

The Nation News Paper. October 10, 2014: pp 32-36

United Nation Development Programme (2014) *Socio-economic Impact of the Ebola Virus Disease in Guinea, Liberia and Sierra Leone* (Policy Notes Volume 1, Numbers 1-5). UNDP.Retrievedfrom:http://www.africa.undp.org/content/dam/rba/docs/Reports/UNDP%20Policy%2 note%20EN_web.pdf

United Nation Development Programme Regional Bureau for Africa (2014a) "*The Economic Impact of Ebola Virus Disease (EVD) in Guinea, Liberia and Sierra Leone"*, United Nations Development Programme Africa Policy Note, *Vol. 1, No.1, 3 October 2014*

University of Ibadan Zoological Garden Record Unit, 2000

Welthungerhilfe (2014a) *Ebola in Sierra Leone: The Impacts of the 'Ebola Virus Disease' on the Livelihoods of Rural Communities, Agricultural Production and Food Security*. Bonn: Deutsche Welthungerhilfe e.V.. Retrieved from: http://www.welthungerhilfe.de/fileadmin/user_upload/Projekte/Sierra_Leone/PDFs/Ebola-sierra-leone-case-study-welthungerhife-09-2014.pdf

Welthungerhilfe. (2014b) *The Non-medical Impacts of the Ebola Crisis in Sierra Leone*. Bonn: Deutsche Welthungerhilfe e.V.. Retrieved from: http://www.welthungerhilfe.de/fileadmin/user_upload/Mediathek/Mediathek_int/Fachpapiere/Sierra-Leone-Ebola-Study-Non-Medical-Impacts-Welthungerhilfe-October-2014.pdf

World Bank (2014a) *The Economic Impact of the 2014 Ebola Epidemic: Short and Medium Term Estimates for Guinea, Liberia and Sierra Leone"*

World Bank (2014b) "*Update on the Economic Impact of the 2014 Ebola Epidemic on Liberia, Sierra Leone, and Guinea*"

World Health Organisation (1978a) '*Ebola Haemorrhagic Fever in Sudan, 1976.* Report of a WHO/ International Study Team', *Bulletin of the World Health Organization 56, 247–270*. PMid:307455

World Health Organisation (1978b) '*Ebola Haemorrhagic Fever in Zaire, 1976'*. *Bulletin of the World Health Organization 56, 271–293.* PMid:307456

World Health Organisation (2014) "*Ebola Response Roadmap: Situation Report." World Health Organization; 10 December*.