

EFFECT OF EBOLA VIRUS DISEASE OUTBREAK ON BUSH MEAT CONSUMPTION IN IBARAPA REGION OF OYO STATE, NIGERIA

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Abstract

Bush meat is a special delicacy of the Ibarapas, hence, a survey of the effects of Ebola Virus disease outbreak on consumption of bush meat in Ibarapa region of Oyo state was conducted. Questionnaires were randomly administered on 630 respondents in the three local governments in the region. Data were analyzed using descriptive statistics and likert rating scale. Findings revealed that outbreak of Ebola virus disease has implication on consumption of bush meat in the study area and has affected the livelihood of the marketer. Bush meats consumed in the area were also found to include squirrel, rodents, antelope, snake, alligator, bush fowl etc. Investigation revealed that consumption of animals such as bats and big rats were forbidden in some places in the studied area. Also, choices of bush meat consumed were found to depend on availability, delicacy, price, nutrition and custom. Respondents agreed that bush meat if not properly cooked can transmit not only EBOV but other diseases. Respondent agreed that not all wild animals can transmit EBOV. The study therefore concluded that there should be adequate education on mode of transmission and prevention of EBOV by stakeholders, such as Health officer and extension workers.

Keywords: EBOV, Disease, Bush meat, Consumption and Ibarapa

Introduction

Wildlife harvesting is amongst the oldest forms of human endeavor. Game was the main, if not the only, source of meat before man domesticated a limited number of species and hunting game has continued to be socially and economically important in many traditional societies until very recent times. Even till today, game meat contributed substantially to the diet and livelihood of some indigenous people in a number of tropical countries.

Bush meat is a popular delicacy in Ibarapa area of Oyo state. This is attributed to the consumption pattern, tradition and the abundance of wild animals in the area. Bush meat is often used to augment their animal protein intake due to its availability and affordability. It is important to note that the role of bush meat in terms of its contribution to provision of animal protein and as a means of sustenance of livelihood for people of

the area cannot be over-emphasized. Bush meats commonly consumed in Ibarapa area are rodents of all kinds, antelope, snake, snails, alligator, bush fowl, fox and wild pigs to mention but a few. Interestingly, snails and bats are forbidden for consumption or display for sale in a place like Idere while indigenes of Tapa are forbidden to eat African giant rat (Ajuwon, Adenrele and Faturoti, 2012).

Unfortunately, in the light of the recent incidence of Ebola Virus (EBOV) disease outbreak in some part of West Africa, some countries in West Africa has banned the sale and consumption of bush meat to prevent the spread of the Virus (BBC News Africa, 2014). Undeniably these had brought a deleterious effect on the consumption and sales of bush meat, and untold hardship on people, especially rural women, who depend on marketing of bush meat as a means of livelihood sustenance.

Although, it had been reported that transmission of EBOV to human being occurs through contact with dead or living infected animals such as primates (like monkey, and chimpanzees,) forest antelopes, duiker, porcupines and bat (European Centre for Disease Prevention and Control, 2014) but bats remain the most likely, but still unconfirmed, reservoir host of EBOV (Wood, Leach, Waldman, Macgregor, Fooks, and Jone, et al, 2012; Hayman, Gramar, Wangb, Delicatm, Rollin, Kisiazek, Gomzales, and Leroy, 2007) While hunting and butchering of wildlife such as great apes and fruits bats have been identified in previous outbreak as a potential source of infection (Muyenube, Tanifun, Malangu, Masumu, Kayembe, Kemp and Paweska, 2012).

The foregoing implies that identifying the effects of Ebola virus disease outbreak on consumption of bush meat in Ibarapa area of Oyo State is very crucial to understanding, formulating, and implementation of policies on control and prevention of this dreaded disease now and in future without jeopardizing the livelihood of those who depends on marketing of bush meat. Again, this becomes very imperative since consumption of bush meat is synonymous with the Ibarapas, and had been a veritable means of meeting daily dietary protein needs from time immemorial.

Therefore, the aim of this paper is to find out on the basis of a questionnaire survey how the incidence of the EBOV outbreak has affected the consumption of bush meat in Ibarapa area of Oyo state. The specific objectives of the study are as follows:

- i. To identify socio-economic characteristics of bush meat consumers in the area.
- ii. To identify types of bush meat commonly consumed in the area
- iii. Examine reasons for choice of bush meat preference
- iv. Examine bush meat consumption before and after outbreak of Ebola virus disease.
- v. Investigate the general opinion of respondents on whether bush meat can actually transfer EBOV.

Material and Methods

The Study Area: The study was carried out in Ibarapa region of Oyo state. Ibarapa region falls within latitude $7^{\circ}35'N$ and $7^{\circ}45'n$ and longitude $3^{\circ}10'N$ and $3^{\circ}40'E$. The region is bounded in the North by Oke-Ogun area of Oyo State (Oladapo, Ogundele and Akindele, 2012). Ibarapa region comprises of three local government areas, namely Ibarapa East, Ibarapa Central and Ibarapa North. It has an estimated population of 322,297 and the land mass is 279,160 hectares (NPC, 2006). The annual rainfall is between 1500mm and 2000mm. Relative humidity is over 80% in the morning and falls

between 50% and 70% in the afternoon. The mean annual temperature is 27⁰C and annual temperature range is 8⁰C (Oladokun, Oladepo and Ogundele, 2012).

Data Collection

The study was conducted in all the three Local Government areas that made up Ibarapa region. 210 respondents each were randomly selected from each town that make up the three local government areas of the region.

Thus, in total, 630 respondents were surveyed. The socio-economic profile of the respondents, including age, sex, location, occupation, religion and level of education was also recorded. The selected respondents were personally interviewed and given a pretest set of questions in the form of questionnaire. The questions include their year of bush meat consumption, type of bush meat consumption, rate/frequency of bush meat consumption both before and after EBOV outbreak.

Analytical Technique:

The major tools used for analysis in this study were simple descriptive statistics such as mean and percentage. It was used to analyze the socio-economic variables of respondents. 5-point likert scale analysis was used to gather information about the opinion of bush meat consumer in relation to Ebola Virus Disease in the study area. Opinions were listed on a likert type scale with values of 5, 4, 3, 2 and 1. A mean value of 3.00 was obtained by adding the values and dividing by 5. The respondents mean scores (Xs) were obtained for each opinion and any mean response higher or equal to 3.00 was regarded as acceptable opinion.

Results and Discussion

Table 1: Distribution of respondents by socio-economic characteristics (n=630)

Item	variables	frequency	percentage
Age (years)	<=30	207	32.86
	31-40	206	32.70
	41-50	143	22.70
	> 50	74	11.74
Sex	Male	344	54.60
	Female	286	45.40
Location	Urban	235	37.30
	Rural	395	62.70
Major Occupation	Farming	84	13.30
	Civil service	128	20.30
	Teaching	132	21.00
	Trading	148	23.50
	Artisan	138	21.90
Religion:	Christianity	275	43.70
	Islam	305	48.40
	Traditionalist	50	7.90
Level of Education:	No-Formal	94	14.90
	Primary	163	25.90
	Secondary	221	35.00
	Post Secondary	152	24.20

Source: Field Survey, 2014

Table 2: Distribution of respondents by consumption of bush meats (n=630)

item	variables	frequency	percentage
Varieties consumed*	Rodents	431	68.41
	Primates	91	14.44
	Antelope	103	16.35
	Snake	148	23.49
	Alligator/ Crocodile	69	10.95
	Bush fowl	188	29.84
	Elephant	72	11.43
	Wolf/wild pigs	79	12.54
	Bats	103	16.35
	Snails	228	36.19
	Period of consumption (in years)	< 5	131
5- 10		112	17.78
11- 15		156	24.76
16 – 20		155	24.60
> 20		76	12.07

Source: Field Survey, 2014 * Multiple responses observed

Table 3: Frequency of bush meat consumption pre and post EBOV outbreak (n=630)

Location	frequency					
	none	daily	weekly	fortnightly	monthly	
Urban						
occasionally						
Post	98(41.70)	15(6.38)	28(11.92)	36(15.32)	42(17.87)	16(6.81)
Pre	nil		87(37.03)	91(38.72)	16(6.81)	17(7.23)
24(10.21)						
Rural						
Post	10(2.53)	142(35.95)	102(25.82)	84(21.27)	49(12.41)	8(2.02)
Pre	nil	198(50.13)	103(26.08)	51(12.90)	37(9.37)	6(1.52)

Source: Field Survey, 2014

Table 4: Reasons for choice of bush meat

	Reasons	Calculated mean	Rank
1.	Taste and deliciousness	3.59	1 st
2.	Tradition and custom	2.96	2 nd
3.	Availability	2.05	3 rd
4.	Nutritional value	2.01	4 th
5.	Affordability/price	1.55	5 th

Table 5: Distribution of Respondents by their opinion on effects of EBOV outbreak on consumption of bush meat

ITEMS	SD	D	A	SA	Mean	Remark
1. Ebola virus outbreak has economic implication on consumption of bush meat	102	82	231	215	3.22	Accept
2. Ebola virus outbreak has negative effects on the quantity of bush meat consumed by consumers	65	67	240	258	3.10	Accept
3. All bush meat has tendency to carry Ebola virus to their consumers	176	251	118	85	3.18	Reject
4. Monkey, Chimpanzee, and bat are the only animals (bush meat) that carry Ebola Virus	93	117	221	199	2.83	Reject
5. Small animals (such as) Rat, Rodent and squirrel etc. cannot carry Ebola virus	225	113	205	83	2.20	Reject
6. Consumers of Bush meat should stop consumption of it until when there is a cure for Ebola virus	192	122	209	97	2.30	Reject
7. Bush meat when properly and hygienically prepared cannot carry Ebola virus	184	128	246	82	2.86	Reject
8. Sellers of bush meat will have serious set-back as regards marketing of their items.	65	89	257	263	3.26	Accept
9. Bush meat can transfer other disease apart from Ebola if not properly prepared	176	251	118	85	3.17	Accept
10. Bush meat can cause or transfer disease such as Rabbits, Tuberculosis, Anthrax, Brucellosis etc.	92	106	214	218	3.01	Accept
11. All meat can transfer disease to human being if not properly handled	176	251	118	85	3.18	Accept
12. Health officials such as Vet. Doctors has major role to play in combating transfer of disease from animals to human being	65	67	240	258	3.10	Accept
13. Government has important role to play in putting a stop to transfer of Ebola disease	65	89	257	263	3.26	Accept
14. There is need for extension agents to rise to the occasion of putting an end to transfer of	46	79	234	271	3.18	Accept

Ebola virus.109						
15. Ebola virus can permanently discourage consumption and marketing of bush meat.	109	61	212	248	3.00	Accept
16. Bush meat if not properly prepared can transmit diseases	131	101	196	202		
17. All game carry Ebola virus	278	235	87	40		

Finding and Discussion

The personal and socio-economic variables investigated are reported in Table 1: Majority (48.7%) of the respondents were thirty years and below, 39.4% were between more than thirty years and fifty years and 13.49% were above fifty years. 54.6% of the respondent were male and 45.4% were female. 62.7% of respondent reside in the rural area and 37.3% reside in the urban centre. This is in line with Ajuwon et al (2012) that presented Ibarapa region of Oyo state as a rural area. 3.3% of respondents were into active farming, 20.3% were civil servant, 21.0% were teachers, 23.5% were into trading and 21.9% were Artisans. 48.4% were muslims, 43.7% were Christians and Traditionalist were 7.9% of the respondents. 14.9% had no formal education. 25.9% had primary leaving certificates, 35% went to secondary school, 19.8 had Nigeria Certificate in Education or Ordinary National Diploma and 4.29% had at least a first degree.

Table 2 illustrates distribution of respondents according to years of bush meat consumption. 20.8 % of the respondent had been consuming bush meat since about 5 years ago. 17.8% had been consuming bush meat for more than 5 years but less than 10 years. 49.4 of the respondents had been consuming bush meat for more than two decades or more. This region have bush meat as their special source of animal protein. Bush meats commonly consumed in Ibarapa region were squirrel, rodent, grasscutter, Rabbit, monkey antelope snake, alligator, crocodile, bush fowl, wild pigs and bats. The respondents gave price, availability, taste and nutrients as their reasons for preference of their bush meat. 37.3% and 32.5% of the respondents consumed bush meat frequently or occasionally before the outbreak of EBOV. The frequency of bush meat consumption had reduced because of the campaign against spread of EBOV through bush meat consumption.

Majority (63.2%) of the respondents agreed that bush meat can transmit EBOV and other diseases, if not properly prepared, 36.8% disagreed with that position. The respondents were well informed about the fact that not all animals can transfer EBOV because 81.4% of them agreed with the statement.

Table 3: Distribution of Respondents according to their opinion on effects of consumption of bush meat on the outbreak of EBOV.

The respondents accept items 1, 2, 8, 9, 10, 11, 12, 13 and 15 respectively. They reject items 3, 4, 5, 6, and 7 respectively. This clearly established the following:

- Ebola virus outbreak has economic implication on consumption of bush meat
- EBOV can permanently discourage consumption and marketing of bush meat

Recommendations

- There is need to educate bush meat consumers and marketer on the mode of transmission, animals that can transfer EBOV and symptoms of the virus.
- There is need to educate people that EBOV can survive in liquid or dried material for a number of days (Piercy et al, 2010) the virus can be inactivated by UV radiation, gamma irradiation heating for 60 minutes at 60°C or boiling

- for five minutes
- Health officers such as veterinary officers has major role to play in prevention and control of EBOV
- There is need for extension agents to rise to the occasion of educating the public about handling of living and dead animals

Conclusion

EBOV outbreaks in some part of West Africa has serious implication on consumption and marketing of bush meat in the area, this is evident in the study area. Ebola Viruses are highly transmissible by direct contact with infected blood, secretion tissues, organs or other bodily fluids of dead or living infected animals or persons. Hunting and butchering of wildlife (great apes and fruit bats) has been identified as a potential source of infection. Bats remain the most likely reservoir host of Ebola viruses. Bush meat prepared by heating for 60 minutes at 60⁰C or prepared by boiling for more than five minutes make the virus inactive. Hence, the need for adequate education on EBOV with regards to bush meats marketing and consumption.

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