



PERCEIVED EFFECT OF EBOLA VIRUS DISEASE (EVD) OUTBREAK ON WILD ANIMAL EXTRACTION FROM AFI MOUNTAIN WILDLIFE SANCTUARY (AMWS), CROSS RIVER STATE, NIGERIA

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ABSTRACT

The 2014 outbreak of EVD has generated fears in some hunting communities in Nigerian as bush meat consumers, traders and hunters have been perceived to stop such practices for fear of contacting the disease. It is on this note that this research was carried out to ascertain the perceived effect of EVD outbreak on wild animal extraction from Afi Mountain Wildlife Sanctuary, (AMWS). The research x-rays the perceived effect of bush meat hunting, bush meat trade, bush meat consumption, and level of awareness of EVD in communities around AMWS and its significance on wild animal conservation. The study made use of semi-structured questionnaire distributed across four communities. The snowball sampling technique was used to administer the one hundred (100) questionnaire representing five (5) percent sampling intensity of inhabitants' population. Data obtained was analyzed and presented in tables and charts. Results of the investigation shows that majority of the respondents were males of the age group of (18-40) this is an indication that the youths are more involve in these activities. On the level of awareness before and after EVD outbreak, it revealed that not until the 2014 outbreak, respondents were not aware of EVD. Results further revealed that bush meat hunting, trading and consumption still persist. The species observed to be extracted included Rodents, Reptiles and, Aves. It was therefore recommended that proper sensitization on animal and human interaction should be targeted to the youths as they are the majority also relevant agencies should include conservation study in Elementary schools to educate the younger generation on the importance of wildlife our environment and human health.

Keywords: Ebola Virus Disease (EVD), Bush meat, wild animal extraction, AMWS.

INTRODUCTION

Africa is a continent known for its pristine and abundant natural resources, the rural dwellers depend upon these resources to improve their daily life through hunting, logging among others. The continent has now been considered a focal point of conservation due to the steady decline of its resource potential and the most worrisome is the emergence of zoonotic diseases through contact with infected animals (Karesh & Nobel, 2009). Wild animals are known for harboring infectious diseases probably because they are not given medical attention like vaccination in domestic, trained, or reared animals. This has made wild animal a potential vector for zoonosis. Although

wild animals' extraction is a global phenomenon, the

west and Central Africa is the centre for the current bush meat, crisis, where an estimate of about 282 grams of bush meat are consumed per person per day with over three million tons harvested annually Willkie and Carpenter (1999). Zoonosis is in the central stage of the major public health challenges facing humanity today, accounting for about three fourth of the diseases affecting humans (Taylor *et al.*, 2002, Smolinski *et al.*, 2002). This include agent responsible for mortality (example, HIV – 1 and 2, influenza virus).

The Ebola virus disease of 2014 outbreak in Nigeria has tragically killed over 660 people within

six months, and had its origin traced back to bush meat. The Ebola virus outbreak began in late 2013 with the fatal infection of a young boy in Guinea who might have contracted the virus from a species of bat, the disease's putative natural reservoir (WHO, 2015). The World Health Organization (WHO) of the United Nations released a public notice warning rural communities in West Africa on the risk of contracting the virus from eating any of the putative natural reservoir species. The virus is capable of affecting both human and non-human primate (NHP) e.g. Gorillas (*Gorilla gorilla*) and Chimpanzees (*Pan troglodytes*).

Much is known about the Effect of EVD but seldom discusses on the significance its outbreak has on conservation as it may have brought about the fallout on bush meat extraction. In Nigeria where bush meat is greatly sourced, some hunters are reported facing hard times in the business as customers no longer patronize them (Daily Trust, 2014a).

This study was therefore carried out to determine the perceived effect of the disease outbreak on wild animal extraction from Afi Mountain Wildlife Sanctuary Cross River State, Nigeria which still holds one of the last remaining forests in the country.

MATERIALS AND METHODS

Study Area

The research was conducted in communities surrounding Afi Mountain Wildlife Sanctuary (AMWS) in Boki Local Government Area Cross River State Nigeria. AMWS lies between Latitude $6^{\circ} 25'$ and $63^{\circ} 63'$ North and longitude $8^{\circ} 45'$ and $9^{\circ} 15'$ East. The topography ranges from 130m. The result of respondents' preference on animal species hunted, traded and consumed before EVD

1300m above sea level, a rocky Massif with steep slopes running from different rocky peaks separated by deep valleys (Mittermeier et al., 2009).

The study area has an annual rainfall of 3,500mm-5,000mm (Ogogo et al., 2010). The vegetation is made up of primary and secondary forest but has been modified by anthropogenic activities (Edet, 2011).

Method of Questionnaire Distribution

The stratified random sampling method as described by Emaikwu (2011) was used to select four communities to distribute copies of semi-structured and validated questionnaires.

In this method, the sixteen communities of MWS were grouped into four strata of A, B, C and D according to their relative approximate distances from the area of study, following the procedure employed by Bukie (2015) in the same location and Ajayi *et al.* (2012) in communities around Okomu National Park in Edo State. Subsequently four communities were randomly selected, one from each of the four strata. The snowball sampling technique as adopted by Abere *et al.* (2016) was used to distribute 100 semi-structured questionnaires to Bush Meat hunters (BMH), Bush Meat Traders (BMT) and Bush Meat Consumers (BMC) in those communities. The statement of hypothesis in the null form is: there is no significant difference in BMH, BMT and BMC before and after EVD outbreak in AMWS.

RESULTS

Preference of species hunted, traded and consumed before EVD outbreak.

Outbreak in the selected communities around AMWS is presented in figure 1.

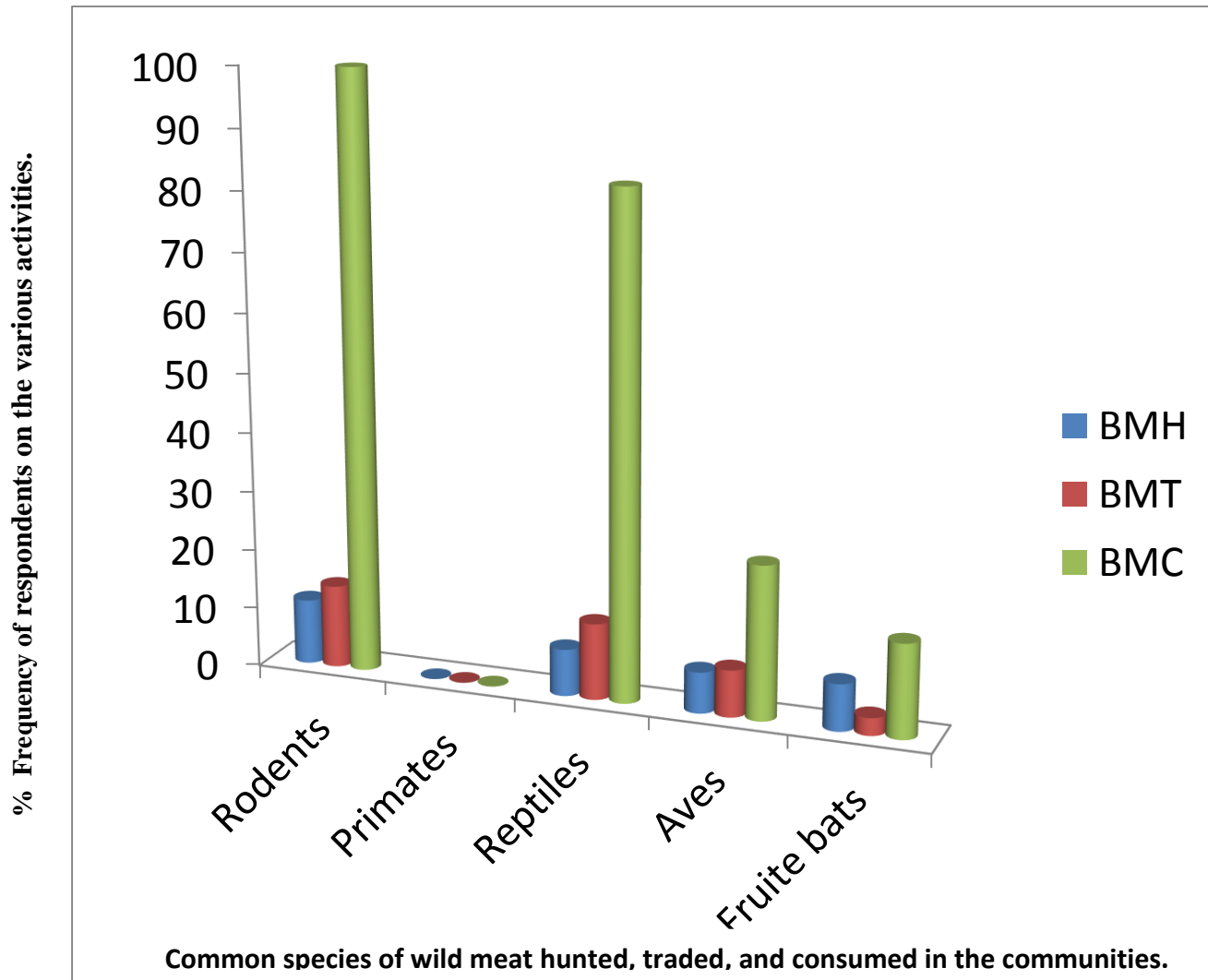


Figure 1: Respondents preference of wild animals extracted from AMWS before EVD outbreak.
 NOTE: BMH= Bush Meat Hunted. BMT= Bush Meat Traded, and BMC= Bush Meat Consumed.
 Source: Field survey, 2015

Preference of animal species, hunted, traded and consumed after EVD outbreak.

The result of respondent’s preference on animal species hunted, traded and consumed after EVD outbreak in the selected communities of AMWS is presented in table 1.

Respondents Awareness level on EVD outbreak.

The result of respondent’s awareness level on EVD outbreak is presented in figure 2.

Table 1: Preference of animal species, hunted, traded and consumed after EVD outbreak.

Variables	Animal Species				
	Rodents	Primates	Reptiles	Aves	Fruit Bats
Bush Meat Hunted	10	0	8	2	0
Bush Meat Traded	10	0	12	1	0
Bush Meat Consumed	40	0	20	7	0

Source: Field survey, 2015.

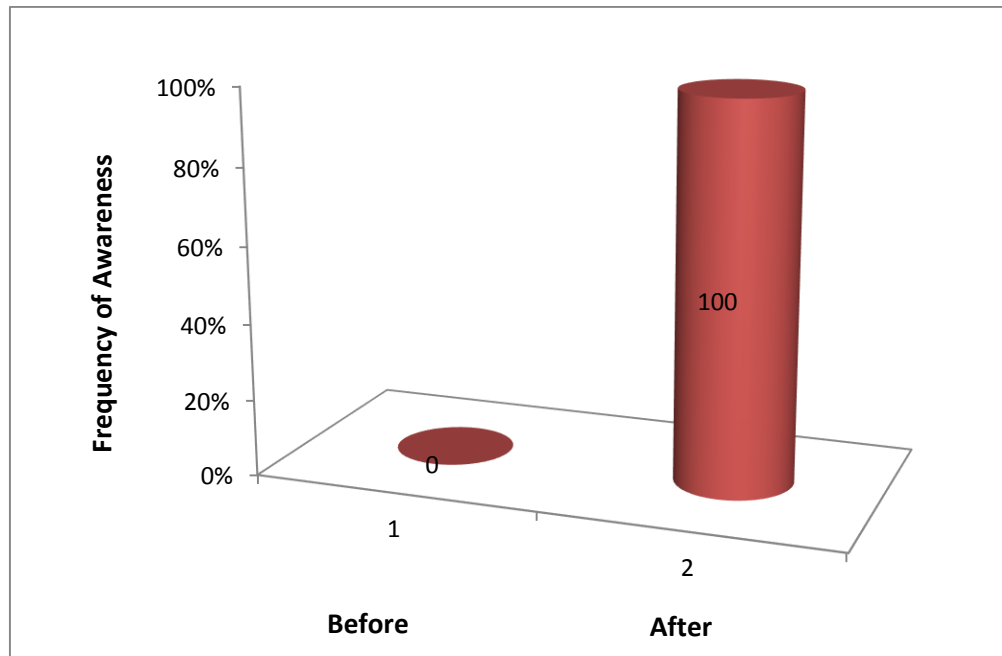


Figure 2: Respondents awareness level on EVD before and after outbreak.

DISCUSSION

Demographic information of respondents

Majority of the respondents were male numbering 76, while female respondents were just 24. This result agrees with the findings of Edet and Lameed (2002), that men are more involved in anthropogenic activities than women in communities surrounding conservation areas. Hunting is predominantly male activities, but women also play a significant role in the collection of wild resources to supplement their livelihood and feed the household especially in the value chain as traders. The result also shows that majority of the respondents are within the age range of 18-40 years this age class is different from that of 20-35 years observed by Ajayi, *et al* (2012) among hunters in Okomu National Park. The age class 18-30years is the second majority of respondents this agrees with Tutu *et al* (1994) findings among hunters in Africa as a rite of passage where young men use kills as a prove of manhood to their social group.

Preference of species hunted, traded, and consumed before EVD outbreak.

According to the research findings in figure 2 above, it is observed that before EVD outbreak the respondents' preference of species hunted, traded and consumed in order of preference are Rodents, Reptiles, Aves, and Fruit bats respectively, this correlates with the findings of Ajayi, (1978), Martin,

(1983) and (1984); Anadu, (1987), that small mammals like Squirrel, Grass cutters, porcupines, giant rats, brush-tailed porcupines and fruit bats are common species consumed in Nigeria. Primates are not included among their preferred species probably because primates are under protected species and as the study site fall in the corridors of Afi Mountain Wildlife Sanctuary (AMWS). This is an indication that species taken as bush meat is influenced by hunting restriction, Nasi, *et al.*, (2011), and their relative importance. These have been documented for several areas of the continent and vary from locality to locality depending mainly on species available for exploitation in each region and on hunting restrictions enforced in each country. Rodents, Reptile, Aves and fruit bats are particularly important in terms of range of species taken as bush meat possibly because they are not subjected to hunting restriction like the case of large mammals in the area and also the fact that the reproductive capacity of these species makes them relatively more abundant. This conform with the findings of Lahm, (1993) that rodent, porcupines, duiker, lizards and crocodile are the most frequently harvested species as bush meat.

Preference of species hunted, traded, and consumed after EVD outbreak.

Also in table 2 above after EVD outbreak respondent interest on species hunted, traded and

consumed in order of preference indicates that Rodents, Reptiles and Aves are now their preferred species but the quantity have dropped significantly because of fear of Ebola virus disease and fruit bats are no longer sauced for as bush meat as it is tagged the host of EVD. This perhaps explains self-restriction from eating fruit bat as bush meat to avoid suffering stigma when seen with species that are EVD carriers.

The comparison between the mean species of bush meat hunted, traded and consumed shows that there is slight variation between the means before and after EVD outbreak. Statistical test of significance showed no significant difference ($t\text{-cal } 0.28 < t\text{-tab } 1.98$), ($t\text{-tab } 0.25 < t\text{-tab } 1.98$) and ($t\text{-tab } 1.05 < t\text{-tab } 1.98$) for BMH, BMT and BMC respectively at $p < 0.5$, therefore we accepted the hypothesis that bush meat related activities has not decline in the study area due to the outbreak of EVD. This finding however, did not agreed with the report of Daily Trust (2014a) that bush meat vendors no longer get patronage after EVD outbreak. This also did not concur with the report of the Sunday Mirror (2014) that selling and eating of bush meat has reduced greatly in Nigeria since the outbreak of Ebola Virus Disease.

The findings also agree with another report by Daily Trust (2014b) that some Nigerians still patronize bush meat sellers despite the Federal Government warning on the risk of bush meat consumption on public health. According to the research the area where standard variation exists is on species, as people believe that fruit bats, primate/apes are the cause of Ebola virus disease their interest on these species has decline.

Respondents' awareness level on EVD outbreak.

Figure 2 shows that prior to the 2014 Ebola Virus Disease outbreak the disease was totally unknown, among respondents until a case was reported in Nigeria, possibly through the 'salt bath' rumor that spread all over the country as measures for prevention and as the recent outbreak covers a wider geographical range. They claimed that they got informed through phone calls from family and

friends, jingles and interaction around their neighborhood.

Other response like level of perceived change within the community in respect to bush meat activities indicate that ever since the 2014 EVD outbreak they have been mixed reactions on the mind of people if EVD is the driver in reduction in wild animal extraction in protected areas. Interaction with the cofounder of Drill Rehabilitation Center (DRC) and other staff attest that the EVD outbreak reduces wild animal's extraction for some months. On the area of transmission, the respondents believe that the disease can be contacted by eating fruit bats or contact with infected animals or persons.

CONCLUSION

Today there is a mix reaction among hunting communities in Nigeria ever since the outbreak of EVD relating to wild animal extraction, if wild animal is the actual cause of the disease, the answer to them can be a little difficult to find as wild animal consumption is an ancient practice. To some people it is superstitious or a way of scaring them from wild animal resource to achieve the objectives of conservation feeling deprived on what they believe is their entitlement or birthright.

From the findings of the study, it concluded that hunting, trading and consumption of bush meat have reduced but not stop due to the outbreak of EVD as reported by Daily trust, 11 August (2014). The research finds out that it is only on the area of species extraction that experiences significant changes because people in the communities no longer hunt trade or consumed fruit bats as bush meat knowing that fruit bat is the putative natural reservoir of the disease, it was also shown that prior to the "salt bath" rumor, respondents were not aware of EVD in the study area.

Recommendations

Based on the outcome of this research, it was therefore recommended that conservation education and sensitization on EVD should be extended to the elementary Schools; wildlife domestication should also be encouraged.

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