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Assessment of Snake Bite in Some Selected Communities in Benue State, Nigeria

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Abstract: This study was carried out in some selected communities in Benue state Nigeria to identify the species of snake, age and the gender of snake bite victims, occupations that are most vulnerable to snake bites and determine the season that has the highest record of snake bite in the study area A reconnaissance survey was carried out to identify communities where snakebites cases were predominant and from this the number of questionnaires were deduced. 150 questionnaires were administered to respondents in Six (6) communities namely Edikwu-Icho, Ugbokpo, Amoke, Iga-Okpaya, Ofoke and Ikor. Descriptive statistics such as tables, percentages, charts and figures were used to present data obtained from the study. The results show that 63% of the snakebite victims were male while 37% were female. Snakebite was highest among 21- 30 years while the least were among 51 years and above. The result also shows that farmers has the highest percentage of snakebite with the least being civil servants. The records indicate that most of the snakebite were on the farm 74(49.3%) while 4(2.7%) falls under others. Majority of the victims 123 (82%) were bitten in their legs while 27(18%) were bitten in their hands. Viper (*Echis ocellatus*) has the highest number of victims while python has the least. Result also shows that most of the snakebite occurs during rainy season with the month of April having the highest number of victims. Expansion of farmlands are the main cause of snakebites. Since snake bites mostly occurs in farms protective clothing such as boots, hand gloves, trouser should be worn when working. There is also need to enlightened and educate communities on snake and snake bite risks

Keywords: Snakes, Snakebites, Rural communities

INTRODUCTION

Nigeria is among the regions of the world that is rich in biodiversity. According to IUCN Red list (2013). Nigeria has a total of 309 threatened species which includes 8 reptiles which is under pressure from deforestation, urbanization, construction industries, bush burning, over hunting, climate change, habitat loss among others (Yohanna, 2017). Maintaining a high level of biodiversity is important to all life on earth, including humans, and snakes are an important part of that biodiversity.

Snakes are absolutely paramount to the health of many ecosystems, the environment and to biodiversity. They are extremely valuable components to the ecological communities in which they live; playing several complex roles, including that of predators and prey.

Human-wildlife conflicts have resulted to human fatalities and injuries and retaliatory killing of wildlife which is the major threat to the survival of many wildlife species (Lumbonyi *et al*., 2017). Conflict between humans and snakes occurs when people try to capture or kill a snake or disturb them in some way which results to snake bites. When left alone, snakes present little or no danger to people.

Snakes are widely distributed in the world. More than 3000 known species of snakes have been identified globally, a vast majority of around 60%-80% are nonvenomous (Sani *et al.,* 2013; Wang, *et al*., 2014). It is estimated that approximately five million people across the globe are bitten by snakes annually, causing around 125,000 deaths and 400,000 individuals to be permanently disabled or disfigured (Lancet, 2015).

According to Hansson *et al*., (2010) snakebite has been included in the World Health Organization (WHO) classification of Neglected tropical diseases. The venomous snakes in Africa are known to belong to four main families – the colubridae, elapidae, viparide and hydrophidae. In Nigeria, the most common venomous snakes are the (black cobra) *Naja melanoleuca* and (spitting cobra) *Naja nigricolis*, (carpet viper) *Echis carinatus* and (Puff adder) *Bitis arietans*. (Habib *et al.*, 2001; Omogbai *et al*., 2002).

Snakebite is a common occurrence in Nigeria as indeed in many parts of the tropics and it is a significant cause of morbidity and mortality (Habib *et al.*, 2001). The occurrence and specie of snake seem to vary according to the geographical zone, the occupational practices of the population and the season with majority of snakebite victims being rural dwellers. It has been observed that the incidence of snake bite is seasonal and there is a peak during the rainy season – a time when frogs and toads emerging from their hibernation are preyed on by snakes that thereby come in frequent contact with humans, and when farmers engage in intense farming activities that also bring them frequently in contact with snakes in the farm. Snake bites, are however, not confined to bush encounters as significant numbers of victims are known to be bitten in their homes some while sleeping indoors (Akani, *et al*., 2013).

In Benue State where more than 70% of the population are engaged in agricultural activities, snake bite has become a common occurrence. Reliable data on morbidity and mortality due to snake bite in Benue State are scarce due to lack of community-based surveys.

Snake bites is a major public health concern in Benue State with Oracle Foundation that was specifically established to cater for the poor and peasant farmers in the rural areas that are bitten by snakes but have no means of treatment spending over N30 Millions in treatment in three months. Records released by the Oracle Business Limited Foundation have indicated that it expended over N150 million on the treatment of snake bite victims from 2013 till date. Over one million people have so far received treatment for various degree of snake bites (Personal Interview with Oracle Foundation). Other States in Nigeria where snakebites are also common include Taraba, Adamawa, Borno, Plateau, Jigawa, Niger, Kogi, Oyo and Enugu States.

The objective of the study was to identify the species of snakes in the study area, age and the gender of snake bite victims, occupations that are most vulnerable to snake bites and determine the season that has the highest record of snake bite. Knowing the species of snake and the venomous status of the snake may help in reducing huge amount of money spent in treating snake bite.

METHODOLOGY

Study Area
The study was carried out in Apa Local Government Area of Benue State, North Central Nigeria. It shares boundary with Agatu, Otukpo and Gwer West Local Government areas of Benue State to her north, south and east respectively while to her west, she is bordered by Olamaboro Local Government Area of Kogi State (Idu and Ogwola, 2007).The inhabitants of Apa Local Government are predominantly farmers

Reconnaissance Survey
A reconnaissance survey was carried out for two weeks in July, 2017 to identify communities where snakebites cases were predominant and where snakebite victims were being treated traditionally in Apa LGA Benue State

Data Collection
Six (6) communities namely Edikwu-Icho, Ugbokpo, Amoke, Iga-Okpaya, Ofoke and Ikor were purposefully selected for data collections. Questionnaires were administered in each community making a total number of 150 respondents from August to December, 2017

Data Analysis
The data collected were processed into suitable format for various analyses. Descriptive statistics such as tables, percentages, charts and figures were used to present data obtained from the study.

RESULTS
The results shows that 63% of the snakebite victims were male while 37% were female (Figure 1). Snakebite was highest among respondents between 21- 30 years of age while the least were among 51 years and above as shown in figure 2
The result in figure 3 shows that farmers has the highest percentage of snakebite with the least being civil servants.
The result also indicates that most of the snakebite were on the farm 74(49.3%) while 4(2.7%) falls under others (Table 1). Majority of the victims 123 (82%) were bitten in their legs while 27(18%) were bitten in their hands (Table 2).

Viper (*Echis ocellatus)* has the highest number of victims while python has the least as shown in figure 4. Result also shows that most of the snakebite occurs during rainy season with the month of April having the highest number of victims (Figure 5).
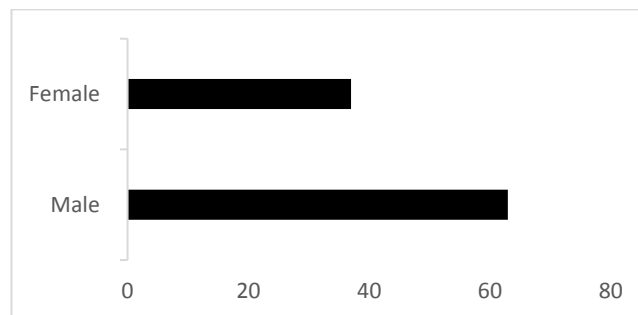

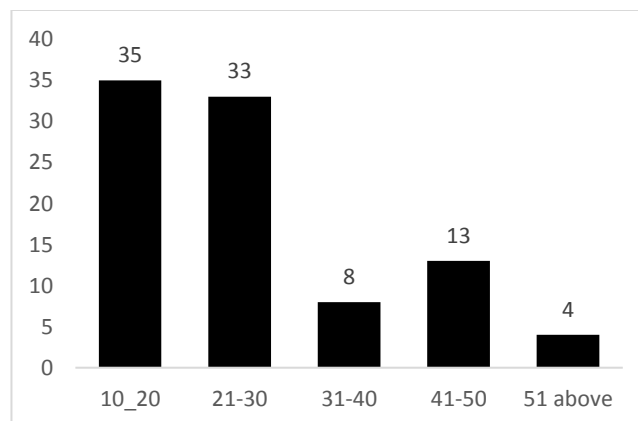**Figure 1: Distribution of the snakebite victims by gender**

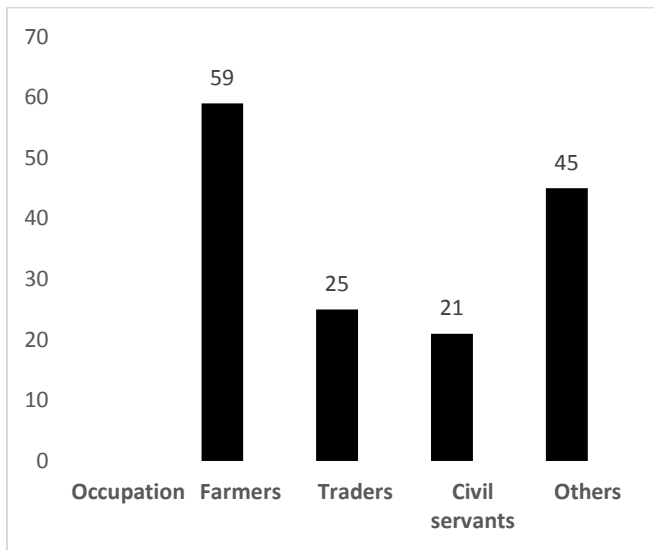**Figure 2: Distribution of the snakebite victims by age**

Figure 3: Distribution of snake bite victims by occupation

Table 1: Distribution of the snakebite victims by place

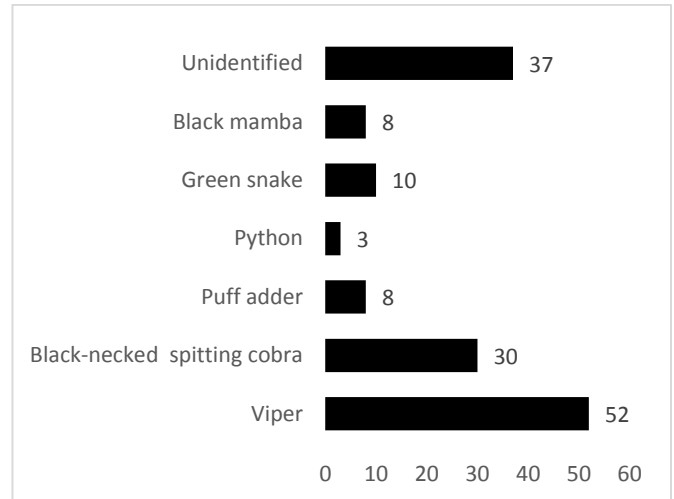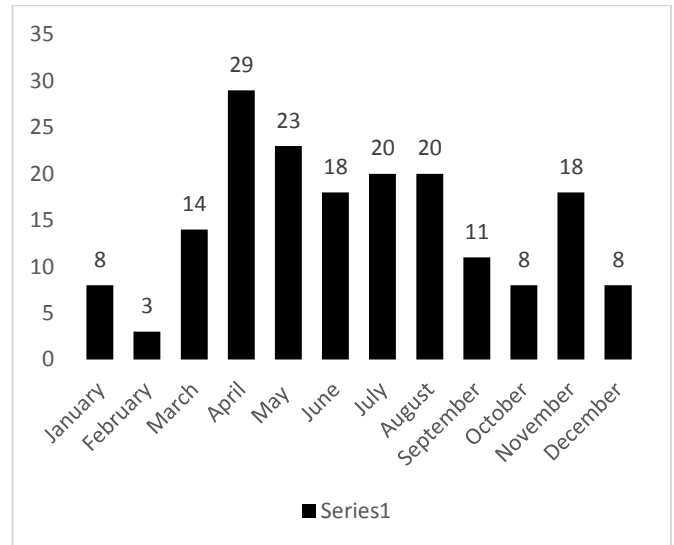| Place of snakebite	Frequency	%
On the farm	74	49.3
In the bush	30	20
Outside, within the compound	23	15.3
Outside, near the compound	10	6.7
Inside room	9	6
Others	4	2.7
Total	**150**	**100**

Figure 4: Distribution of victims by snake species

Figure 5: Monthly distribution of snakebite

Table 2: Distribution of the snakebite victims by body part

Site of bite	Frequency	%
Leg	123	82
Hand	27	18
Total	**150**	**100**

DISCUSSIONS

Snakebite envenoming is a major public health problem among rural communities in Nigeria. Snake species identified by victims include viper (*Echis ocellatus*), black spitting cobra (*Naja nigricollis*), Puff adder (*Bitis arietans*), python,green snake,black mamba. Viper (*Echis ocellatus)* has the highest number of victims while python has the least. This is in line with the study by Habib, (2013) and Sani *et al*., (2013) that Echis

carinatus (saw-scaled carpet viper), *Naja nigricolis* (spitting cobra) and *Bitis arietans* (Puff adder) are the species of snakes that are associated with envenoming in Nigeria and to a large extent West African sub-region and responsible for most of mortality and morbidity associated with snake bites in the sub-region. Significant number could not identify the species of snake that bite them which agrees with Sani et al., (2013) that accurate determination of the offending snake species is not always reliable in many parts of Africa. This is because the snakebite victims were male while 37% were female. Snakebite was highest among 21- 30 years while the least were among 51 years and above the finding is similar to that by Omogbai *et al*., (2002) and Sharma *et al.,* (2004). Snake bite was highest among farmers with the least being civil servants. This agrees with Habib, (2013) that Snakebite affects farmers, nomads and rural dwellers of all ages.

The result indicates that most of the snakebite were on the farm 74(49.3%) while 4(2.7%) falls under others. Majority of the victims 123 (82%) were bitten in their legs while 27(18%) were bitten in their hands which agrees with Omogbai *et al*., (2002)

CONCLUSION
Snake bites usually occurs when human intrude in snake habitat through land clearing for agricultural expansion which can result to local extinction of snakes in the area. Most of snake bite victims in the selected communities were farmer and most of the snake bite occurs in the farm which can affect food security. Protective clothing including boots, hand gloves and long trousers should be worn while working in the farm. People need to be enlightened on snakebite risks. Since the research was based on questionnaires there is need for a further study to get records from the hospitals in the communities. There is also need for field survey of snakes in the area.

the mode of identification of the snakes is usually by verbal description from witnesses.

Snake bites are more common between April and July which is the period of intense farming activities as it coincides with the beginning of the rainy season (Sani *et al* 2013; Sharma *et al.,*2004). Record shows that most of the snakebite occurs during rainy season with the month of April having the highest number of victims. 63% of

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