FUDMA Journal of Sciences (FJS)
ISSN online: 2616-1370
ISSN print: 2645 - 2944
Vol. 3 No. 4, December, 2019, pp 418 –426

KNOWLEDGE AND PERCEPTION OF MONKEYPOX DISEASE IN YENAGOA, BAYELSA STATE

Dr. Silas Joshua and Ikechukwu Ajah

Department of Geography, Federal University Lokoja, Kogi State.

Corresponding authors email: josilas2000@gmail.com

ABSTRACT

Human monkey pox is an emerging viral zoonotic disease, which is caused by monkey pox virus. People living around the forested areas are more prone to the disease, possibly leading to sub-clinical infection. This study examined the level of awareness and perception of monkey pox disease in Yenagoa, Bayelsa State. Community awareness about monkey-pox varies from one region to another and also among cultures and this in turn affects the way people relate with victims of the disease. Primary and secondary data sources were used and data were analyzed using descriptive and inferential statistics (chi-square), and results were presented in frequency tables and percentages. The result of the findings revealed that 92% of the respondents representing the majority had some sort of information about monkey-pox, 55% of the 92 respondents that had information about the disease gave credit to radio/television as the major means of getting information. Health centers and family members also served as means of dispersing information about the disease, contributing about 30.8% and 8.3% respectively. Furthermore, the (chi-square) results with calculated value of 23.20 and tabulated value 7.18 indicated that the perception of respondents is dependent on their level of awareness and determines their reactions towards monkey pox disease. The study thus recommends adequate acquaintance of the public through sensitization, and seminar as key in creating awareness of the monkey-pox disease. The study concluded that government should provide sustainable monitoring team to keep check on the population and educate them on the importance of hygiene.

Keywords: Knowledge, Perception, Awareness, Monkey pox and Disease

INTRODUCTION

Africa is one of the continents in the world that is prone to epidemic diseases due to some environmental factors. The spread of such diseases could be as a result of poor sanitation, poor water supply, climate, contact with an infected person or animal (WHO, 2009). In West Africa, Nigeria is one of the most affected with monkey pox disease. States that are severally infected and are at increased risk of infection include: Akwa-Ibom, Cross River, Delta, Edo, Ekiti, Enugu, Imo, Plateau, Lagos, Rivers, and Bayelsa State among others (Paez, A. Mercado, R.G., Farber, S., Morency, C. & Roorda, M. 2010). The virus can spread both from animal to human, and from human to human with transmission occurring when a person comes into contact with the virus from an infected animal, human, or materials contaminated with the virus. The primary route of infection is thought to be contact with the infected animals or their body fluids. Eating inadequately cooked meat of infected animals is also a possible risk factor that has given people different perceptions on the disease (Paez *et al.*, 2010).

The wrong perception of people suggest that human to human transmission is believed to take place majorly via substantial respiratory droplets; however on the contrary, the distance respiratory droplets can travel is not more than a few feets, hence prolong face-to-face contact is necessary (Realgene, S., Puschnik A., S., Kumar A., Goldsmith S. 2017). Similarly, people with active cases especially, household members are at greater risk of infection via droplet respiratory particles when there is sustained face-to-face contact (National Nonpoint Source Monitoring Programme, 2011). However recent knowledge about monkey pox virus posited that identification of the host targeted cells which are necessary for viral multiplications could provide way for the improvement and development of anti-viral therapy (Realgene *et al*, 2017). Furthermore, the manner in which the monkey pox virus spread to humans is not exactly known. Realgene *et al*, (2017) concluded that the reservoir for monkey pox virus is unknown, however deep interaction with wild animals leading to bites and bush meat consumption could be source of risk factors to acquire monkey pox virus infection (Quiner *et al*, 2017).

The perception and awareness of the people on Monkey pox diseases is on the increase in the study area. Perception is the process by which people receive information or stimuli from the environment and transform it into psychological awareness (Ishaya and Abaje, 2008). It is interesting to see that people infer a certain situation or phenomenon differently using the same or different sets of information. Knowledge, interest, culture and many social processes seem to shape the behavior of an actor who uses the information and tries to influence that particular situation.

Deressa, Hassan and Ringler, (2011) describe perception as an extremely complex concept and confines 'social perception' which is concerned with the effects of social and cultural factors to cognitive structure of our physical and structural environment. This varies with the individual's past experiences and present sets or attitudes acting through values, needs, memories, moods, social circumstances and expectations.

However, studies have shown that the societal perception of major illnesses such as leprosy, cancer, HIV/AIDS and monkey-pox varies from one region to another and also among cultures and elites which affect the way people relate with victims. (European Scientific Journal May 2013). This often results to unhealthy discrimination of the victims. As a result, victims, in many cases, are neglected and consequently are often times subjected to social and economic deprivation of public benefits and also because of the social Stigma associated with the illnesses, this raises the basic questions: In what way do people in society perceive illnesses? In what way does the perception of an illness influence people's relationship with the victims of the illness? Prior to this, monkey pox was not identified as an important worldwide health problem because human infection rates were either not known or were undermined to play a significant role in the pathogenesis. Therefore, this research examines the knowledge and perception on monkey-pox disease with a view to identify their perception of the disease based on educational level, exposure, personal experience and value to life.

STUDY AREA

Yenagoa Local Government Area is located at the North-Eastern portion of Bayelsa State at the confluence of the Epie and Ekole creeks, the latter being a major tributary of Nun River. It is bounded to the North by Kolokuma/Opokuma Local Government Area, to the South by Southern-Ijaw Local Government Area, to the North-west by Sagbama Local Government Area and to the East by Ogbia Local Government Area. Yenagoa is located between Longitude 60^0 15' East of the Greenwich Meridian and Latitude 40^0 55' North of the Equator (See figure 1) which puts it firmly on the Equatorial climatic belt, characterized by high temperature, humidity and heavy rain fall. There are private farms, forests and marshlands, especially to the North and South West of the area.

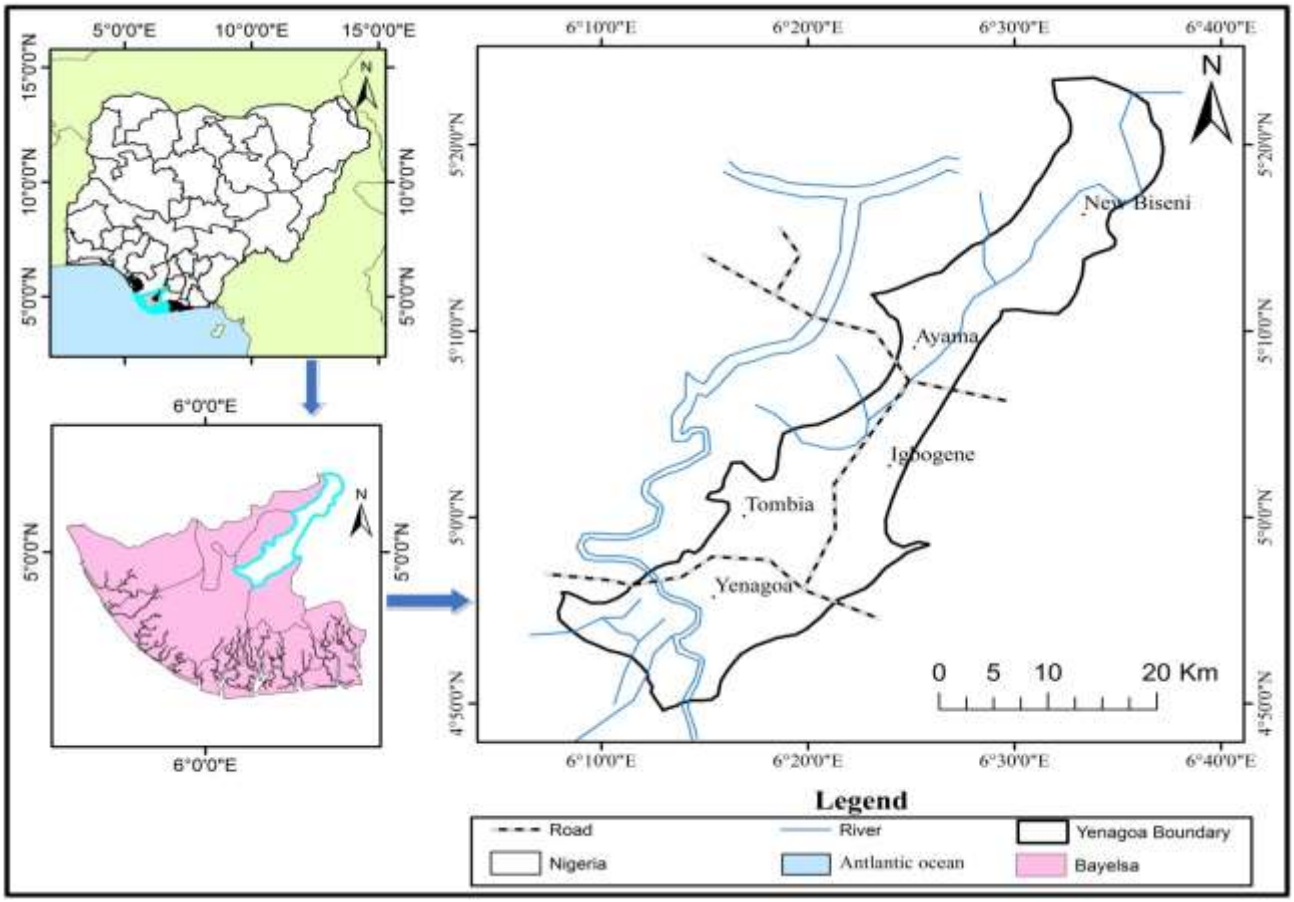

Fig. 1: Bayelsa State Showing the Study Area

Source: Adapted and modified from Quickbird Image, 2011.

MATERIALS AND METHODS

A reconnaissance survey was conducted in order to familiarize with the study area, and also to acquire needed information to undertake the study. This exercise involved visits to various locations where Monkey pox has occurred in order to know the appropriate sampling procedures to be used. Data were collected on the socio-economic and demographic data, place or layout of resident's data from Yenagoa, cultural features of respondents as well as perceived distances from infected areas and persons. The data used in the study were obtained from both primary and secondary sources. The primary data were sourced from reconnaissance survey, field observations, semi-structured questionnaire administered to the local residents and in-depth interviews to Key informants. Secondary data were sourced from existing literature gotten from relevant text books, journals, newspapers and magazines, conferences, papers, theses and dissertations, internet and maps.

Using the geographical base map of Yenagoa, as shown in (figure 1), five areas were identified and selected at random. They include: New Biseni, Ayana, Igbogene, Tombia and Yenagoa. Given the total population of the study area as at 2006 census gotten from (NPC, 2009) to be 352,285. Krejcie and Morgan Sample size determination was adopted. This implies that sample size of 384 represents the total respondents for this study. Questionnaires were used to collect the needed information from the respondents. In each location, simple random Sampling technique was used to collect data from the respondents.

The data were analyzed using both descriptive and inferential statistics. The descriptive analysis used involves Presentation of results by means of frequency, tables, bar charts and simple percentages.

RESULTS AND DISCUSSIONS

Demographic and Socio-economic Characteristics of the Respondents

Sex and Age Distribution

Table 1 present's information on the sex and age distribution of the respondents, the table reveals that males comprise 68.0% and females make up 32.0% of the respondents. This is not surprising as the study area is majorly dominated by Male who form significant majority of the population in the study area.

Table 1: Percentage Distributions According to Sex and Age

Age Group	Frequency	Percentage
Less than 15 Years	5	1.3
15-19	44	11.5
20-24	72	18.8
25-29	134	34.9
30-34	50	13.0
35-39	30	7.8
40-44	22	5.7
45-49	12	3.1
50-54	5	1.3
55-59	5	1.3
Above 60 Years	5	1.3
Total	**384**	**100.0**
Sex	**Frequency**	**Percentage**
Male	261	68.0
Female	123	32.0
Total	**384**	**100.0**

Source: Field Survey, 2018

The distribution by age, like that of sex, is a very important demographic parameter. Almost one third of the respondents 34.9 percent are within the age group 25-29 years followed by those in the age group of 20-24 years with 18.8 percent and 13.0 percent of the respondents within the age range of 30-34 years, older children are somewhat under-represented relative to their total numbers comprising of 11.5 percent of the total population within the age range of 15-19 years. This is an indication of the strong awareness and knowledge about Monkey pox by the younger generation compare to those in other age group. This finding confirm the extremely youthful nature of the respondents in the study area and bears out what is known from other data sources about the age structure of developing countries (Joshua, 2010). It is an indication that the proportion of respondents in the younger age groups is substantially larger than those in the older age and this make perceptions and knowledge about Monkey pox, to be high among the younger people. The large share of respondents under age 30 as shown above, is the result of strong confidence in the knowledge and perception of Monkey pox by the younger age group. The state is said to have a total fertility rate (TFR) of 6, while mortality is estimated at less than 13 per 1000 (Joshua, 2010). The

population momentum has been set in place. Tomorrow's parent are already here with us and are far too numerous. In other words, further population growth, over the following years is guaranteed.

The sex and age distribution of any population has many significant and important implications. Some of the fundamental implications are that these variables set the limits of a society's reproductive potentials, determine man power supply and influence school requirements and attendance. Because of its significant demographic, economic and social implications, the dynamics of a country's age and sex structure are a very central subject in any meaningful demographic analysis (Joshua, 2010).

Marital Status and Types of Marital Union

Given the problems of defining marriage, this study takes marriage to mean formal and informal unions. By formal union, we mean marriage where some ceremonies, customary or legal, have been performed. Informal, refers to couples who live together and cohabit as partners.

Table 2 indicates that 40.4 percent of the respondents are single, 49.2 percent are married, 3.6 percent are separated and 3.1 percent are divorced while 3.6 percent are widowed. The study area has high percentage of respondents who are currently married. This is probably due to the culture which encourages early marriage and frowns at girls staying beyond 18 years without marriage.

Table 2: Distribution by Marital Status and Type of Union

Marital Status	Frequency	Percentage
Single	155	40.4
Married	189	49.2
Separated	14	3.6
Divorced	12	3.1
Widows/Widowers	14	3.6
Total	**384**	**100.0**

Source: Field Survey, 2018

Ethnicity

Table 3 contains information on the ethnicity of respondents in the study area. The Basan community constitute 49.48% of the respondents, 39.06% are from the Apoi community, Busen community constitute 3.91%, followed by Akasa community with 2.60% while others constitute 3.91% of the respondents in the study area.

Table 3 Distribution of Respondents according to Ethnicity

Ethnic Group	Frequency	Percentage
Akasa	10	2.60
Apoi	150	39.06
Basan	190	49.48
Busen	19	4.95
Others	15	3.91
Total	**384**	**100**

Source: Field Survey, 2018

Level of Education

Table 4 shows the distribution of the sampled population by the highest level of education obtained at the time of the survey. From the data, it is obvious that literacy level is very high, as over 94.4 percent of the respondents have gone beyond secondary school. Among the interviewed respondents, 27.9 percent have received primary education and 44.5 percent of the samples have received secondary education. Only 26.0 percent of the samples have received tertiary education and 1.6 percent is others with no formal education.

Table 4: Distribution by Level of Education

Level of Education	Frequency	Percentage
Primary	107	27.9
Secondary	171	44.5
Tertiary	100	26.0
Others	6	1.6
Total	**384**	**100.0**

Source: Field Survey, 2018

It must however, be mentioned that the high literacy rate of the study area can be attributed to the fact that the area under study is an urban Centre. Urban Centre's are known to have very high literacy rates on account of the fact that most institutions of learning (both tertiary and secondary) are usually located in the urban areas.

Distribution by Occupation

The distribution of respondents by their most recent occupation at the time of the survey is shown in Table 5. Occupation especially that of the husband and wife has been the most widely used index of socio-economic status in the study of the Knowledge, level of awareness, and perception of monkey pox disease in Yenagoa, Bayelsa state.

Table 5: Distribution by Occupation

Occupation	Frequency	Percentage
Casual Laborers	81	21.1
Civil Service	190	49.5
Industrial Operatives	19	5.0
Business/Petty Traders	40	10.4
Farming	29	7.6
Professional/Managerial	6	1.6
Fishing	5	1.3
Commercial Vehicle/Taxi Driver	2	0.5
Unemployed	4	1.1
Students	4	1.1
Others	4	1.1
Total	**384**	**100.0**

Source: Field Survey, 2018

Table 5 shows that civil servants are by far the largest occupational category among the respondents, they constitute about 49.5 percent. It also shows that 21.1 percent are casual laborers while 10.4 percent are petty traders/businessmen. This distribution is surprising due to the awareness and knowledge about Monkey pox diseases that warrant civil servant to dominate in level of awareness of the disease compare to other occupational groups.

Income Level

Table 6 shows the distribution of respondents by income. Majority of the respondents are low income earners that constitute 64.6 percent. For the purpose of this research, the low income group can be defined as all wage earners and self-employed people whose income is ₦8, 999 and below per month.

Table 6 Distribution by Income

Income ₦	Frequency	Percentage
Less than 5,000	68	17.7
5,000 – 8999	180	46.9
9,000 - 11,999	28	7.3
12,000 – 15,999	37	9.6
16,000 – 19,999	46	12.0
20,000 and above	25	6.5
Total	**384**	**100.0**

Source: Field Survey, 2018

Statistics according to the National Housing Policy of the Federal Republic of Nigeria (1991) indicate that about 70 percent of Nigerians fall into this category. The middle income earners, that is, those earning between ₦9, 000 to ₦19, 999 per month constitute 28.9 percent; the upper income group (that is those earning above ₦20, 000 per month) were 6.5 percent. The significant proportion of laborers is probably responsible for the high proportion of respondent that earn less than ₦8, 999 per month. It can also be tied to the level of education and insufficient lucrative jobs in the study area. It is also likely that low income groups dominate in the LGA as such the inhabitants are too poor to access expensive modern medical care. This is an indication that the income levels reported generally seems low and conservative. It therefore means that attempts to measure income are not very reliable, for people generally do not like discussing their actual income level (Joshua, 2010).

Level of Awareness about Monkey-Pox

The research discovered an interesting response from the sampled population regarding their level of knowledge of monkey-pox disease in the study area. The result is reflected in table 7.

Table 7: Distribution of Respondents according to knowledge of Monkey-Pox

		Responses'	Percentage
Knowledge of monkey pox	Yes	301	78.39
	No	50	13.02
	I don't know	33	8.6
Total		**384**	**100.0**
Knowledge of		**Responses'**	**Percentage**
Communities of Monkey	Biseni	77	20.01
Pox	Ayana	77	20.01
	Igbogene	77	20.01
	Tombia	77	20.01
	Yenagoa	76	20.00
Total		**384**	**100.0**

Source: Field Survey, 2018

Amongst the 384 respondents, 301(78.39%) of them were aware of the disease, 50(13.02%) were not aware while 33(8.6%) had no idea about the subject matter. This means that a higher proportion of the respondents in the study area had awareness about the disease.

Furthermore, going by community knowledge and awareness of Monkey pox, it was discovered that Biseni community have very high knowledge of monkey pox disease with 20.01%, followed by Tombia community with 20.01%, Igbogene community have 20.01%, Ayana community have 20.01% and Yenagoa community have 20.00% knowledge of monkey pox disease. This is an indication of the variation according to level of knowledge of monkey pox by the different communities in the study area. The implication is that there is great awareness and knowledge of Monkey pox disease by the different communities under study, which shows that most of the communities are conscience about the Monkey pox disease.

Mode of Transmission of Monkey-Pox

The mode of transmission of monkey pox disease varies according to the level of exposure to the disease. Table 8 presents result on the mode of transmission of Monkey pox; the table reveals that 52.34% of the respondents believed that the disease was transmitted amongst some residents of the study area through eating of infected bush meat. It is also worthy of note that the disease can be transmitted through infected monkey which constitute 23.17 % of the respondents. The implication of the result is that Monkey pox can be contagious and transmitted through infected bush meat, infected Monkey, contagious through Monkey pox patient and through drinking water. This confirms that the monkey pox virus was first recovered from African Squirrels, and it is believed that various species of African squirrel may be the most common host for the disease.

Table 8: Mode of transmission of monkey-pox

		Responses'	**Percentage**
Transmission mode	Drinking water	34	8.88
	Infected bush meat	201	52.34
	Infected monkey	89	23.17
	Monkey-pox patient	60	15.63
Total		**384**	**100.0**

Source: Field Survey, 2018.

Humans get Monkey pox if they are bitten by or touch the blood, body fluids, or rash of an infected animal. Human- to- Human transmission occurs through respiration during long periods of face- to- face contact, or by touching either the bodily fluids of an infected person or objects such as bedding or clothing contaminated with the virus.

Perception on Deadly Nature of Monkey-Pox

Table 9 present data on the deadly level of Monkey pox disease. In fact 77.04% of them asserted it was capable of killing patients, an overwhelming response in comparison to the negative response of about 18.23%. The remaining 4.20% had divided opinions about the question. From the survey conducted, it can be deduced that monkey-pox disease is lethal and leads to death of the infected person if left untreated.

Table 9: Distribution of the Respondents by Perception on Deadly Nature of Monkey-Pox

		Responses'	Percentage
Fatality of Monkey-pox	Yes	298	77.04
	No	70	18.23
	I don't know	16	4.20
Total		**384**	**100.0**

Source: Field Survey, 2018

However, Monkey pox was first reported in human during an outbreak of the disease in central and western Africa in 1970 and 1971. The second known outbreak among humans occurred in the Democratic Republic of Congo in 1996 and 1997. In June 2003 the first outbreak in the United States was reported after the virus passed from prairie dogs to humans in the Midwest. The prairie dogs had been infected by a giant Gambian rat that had been kept as a pet in Chicago. No deaths were reported among the 72 infected people treated.

Common Signs and Symptoms of Monkey-Pox

The monkey pox disease has some common signs and symptoms, among them are highlighted in table 10 below. The result shows that the majority of the respondents 54.69% from the survey had attributed swelling of the body as the most noticeable symptom of the disease. But it is also worthy to note that some other symptoms of the disease manifested on patients who contacted the disease. Fever and headache were also among the most common symptoms and they account for 28.91% and 7.81% respectively.

Table 10: Distribution of the Respondents according to Common Signs and Symptoms of Monkey-Pox

		Responses'	**Percentage**
Signs and symptoms of monkey pox diseases	Fever	111	28.91
	Headache	30	7.81
	Chills	20	5.21
	Swelling	210	54.69
	Others	13	3.39
Total		**384**	**100.0**

Source: Field Survey, 2018

However, in humans the symptoms of Monkey pox are like those of small pox, but usually milder. They first appear about 12 after infection and include fever, headache, muscle aches, backache, fatigue, and swollen lymph nodes. Up to three or more days after the onset of fever, a rash appears that then develops into fluid-filled bumps. The rash usually starts on the face and then spreads. The bumps eventually get crusty, scab over, and fall off. The illness usually lasts between two and four weeks.

Source of Information's received about Monkey-Pox

Table 11 present data on the dispersal of information about the disease in the study area, it shows that there was high rate of dissemination amongst the resident. It has been discovered that out of the 384 respondents 330 of them had some sort of information about monkey-pox while 50 had no information. Amongst the 330 respondents that had information about the disease, 57.30% of them gave credit to radio/television as the major means in which they received information about the disease. Healthcare centers and partly family members also served as other means of dispersing information about the disease, contributing about 26.30% and 13.02% respectively.

Table 11: Distribution of Respondents by Interviewees Source of Information about Monkey pox.

		Responses'	**Percentage**
Information Received/Heard About Monkey-Pox?	Family member	50	13.02
	Healthcare Centre	101	26.30
	Radio/Television	220	57.30
	Others	13	3.40
Total		**384**	**100.0**

Source: Field Survey, 2018

The implication is that social media has done a great deal in disseminating information regarding Monkey pox. The radio, television, internet healthcare centre and family members have done a great deal in passing information to the people regarding Monkey pox disease.

Prevention and Control of Monkey-pox

Prevention and control of monkey pox is paramount in curbing the spread of the disease. Figure 2 present data on the prevention and control of Monkey pox. The opinion of the respondents was determined in the study area regarding the prevention and control measures against the monkey-pox disease. The study discovered that the opinion vary among the individual respondents. The result shows that 38.33% indicates avoidance of contact with sick animal, 28.33% stated that isolation of infected patients from others can help to prevent against the widespread of the disease. Furthermore, 25.0% proposed practice of good hygienic condition which can enhance prevention and control of Monkey-pox disease and 6.67% of the respondents proposed the use of protective equipment's. On the whole, prevention and control of Monkey pox disease is very important so as to enhance the reduction of the widespread of the disease in the study area.

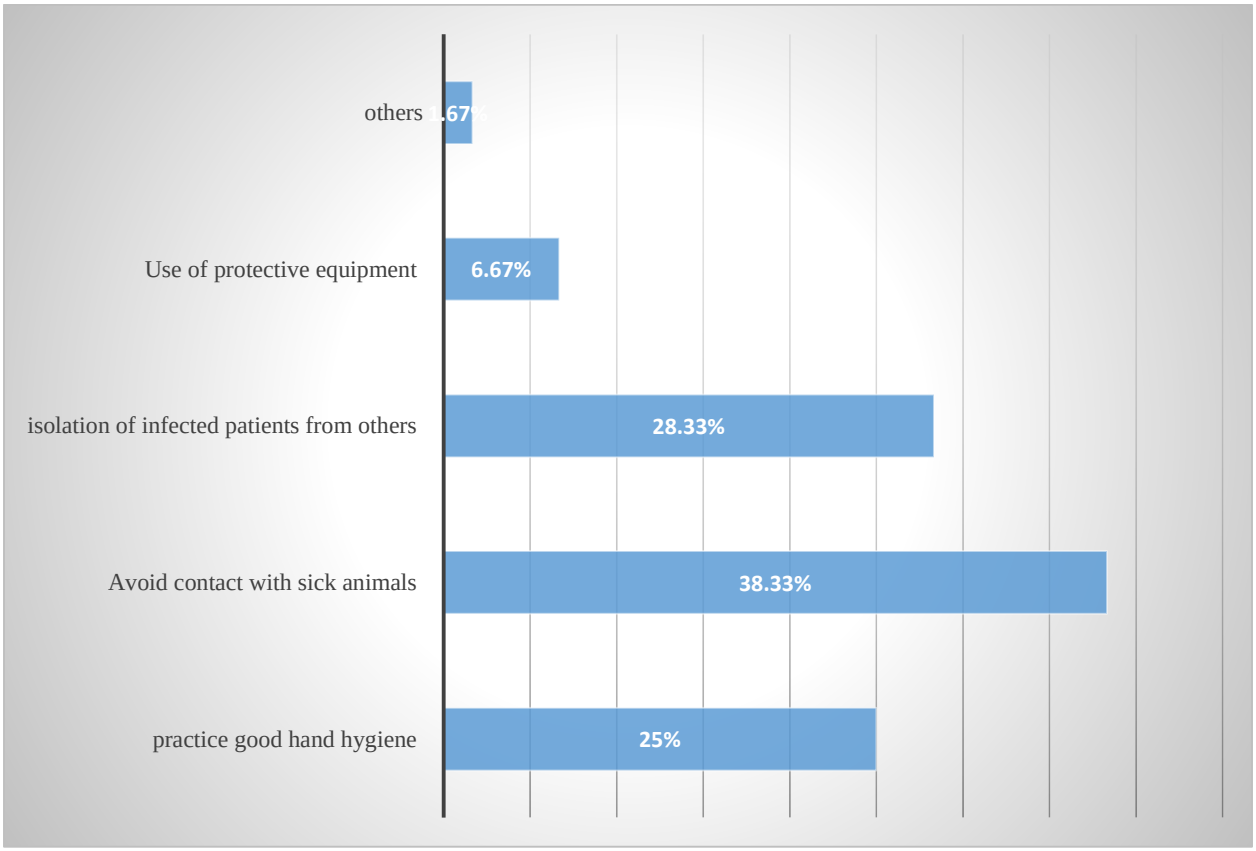

Fig. 2: Distribution of Respondents by Prevention and Control of Monkey-pox
Source: Field Survey, 2018

CONCLUSION AND RECOMMENDATION

From the study, it is observed that monkey-pox disease poses a serious threat to the residents of the study area as well as the general population. This is because monkey-pox is highly lethal to the human health when left untreated. The general population of the study area consumes bush meat which is a major delicacy within the community. Thus, when infected bush meat is consumed, there is likely to be an outbreak of monkey pox disease. Also, some of the symptoms of monkey-pox disease are very common symptoms which can go undetected for long periods of time include fever, headache, muscle aches, backache, fatigue, and swollen lymph nodes. We need more information on how best to handle a situation where someone becomes infected with monkey-pox disease. We also need information of ways to identify monkey pox disease. In view of the findings, it is recommended that:

i. A large number of the respondents were aware of the main mode of transmission of monkey pox disease. This is a good avenue for health education that should focus on good hygiene and sanitation.
ii. Base on the Knowledge and perception about Monkey Pox Disease there is need for television

programs and shows should be broadcasted on the dangers of monkey-pox especially when it is left untreated.

iii. The awareness of Monkey Pox disease by the community called for free treatment to be provided by the government as it will go a long way to ensure that infected persons are treated quickly.

iv. The result of this findings conscientised us on the need to be careful of the bush meat sold at the market and the need to closely monitor to ensure that infected meats are not sold to the residents' population.

REFERENCES

Deressa, T.T., Hassan, R.M., and Ringler, C. (2011). Perception of and Adaptation to Climate Change by Farmers in the Nile Basin of Ethiopia. *The Journal of Agricultural Science*, *149*(01): 23-31.

Ishaya, S., and Abaje, I. B. (2008). Indigenous People's Perception on Climate Change and Adaptation Strategies in Jema'a Local Government Area of Kaduna State, Nigeria. *Journal of Geography and Regional Planning*, *1*(8): 138-143.

Joshua, S. (2010). "*An Assessment of the Role of Traditional Medicine in Health Care Delivery of SabonGari Local Government"*, An UnpublishedM.Sc. Thesis Submitted to Department of Geography, Ahmadu Bello University, Zaria.

National Population Commission, (2009). Federal Republic of Nigeria Official Gazette–Legal Notice on Publication of 2006 Census Final Result. Abuja: Federal Government Printer.

National Nonpoint Source Monitoring Programme, (2011). Technical Note: Statistical Analysis for Monotonic Trends. Available at: www.bae.ncsu.edu/programs/extension 2011.

Paez, A., Mercado, R.G., Farber, S., Morency, C. & Roorda, M. (2010) Accessibility to health care facilities in Montreal Island: an application of relative accessibility indicators from the perspective of senior and non-senior residents. *International Journal of Health Geographic's, vol.* 9 (1): 48-52.

Quiner C. A., Moses C., Monroe B., P., (2017). Presumptive risk factors for Monkeypox in Rural Communities in the Democratic Republic of the Congo Yang Y., Plos Vol. 12 no.2: 168 - 169.

Quickbird Image (2011). *"Digita lGlobe Completes Quickbird Satellite Orbit Raise". DigitalGlobe News Room.*

Realgene S., Puschnik A., S., Kumar A., Goldsmith (2017). Monkeypox Virus Host Factors

Screen in Haploid Cells Identified Essential Role of Garp Complex in Extracellular Virus Formation Vol 1. Mar 22 no.3: 11-17.

WHO (2009). Roll Back Malaria Strategy for Improving Access to Treatment through Home Management of Malaria. African Heads of States and Governments.