KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,

KUMASI, GHANA

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

KNOWLEDGE, ATTITUDE, PERCEPTION AND PRACTICES IN RESPECT OF RABIES DISEASE AMONG THE RESIDENTS IN GA EAST MUNICIPALITY, GHANA

BY

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BY

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A THESIS SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH, COLLEGE OF HEALTH SCIENCES, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A BACHELOR DEGREE AND PUBLIC HEALTH

NYANSAPƆ WƆ SANE NO BADWENMA

SEPTEMBER, 2019

DECLARATION

KNUST

I hereby do declare that except for references to other people's work which have been duly acknowledged, this piece of work is my own composition and neither in whole nor in part has this work been presented for the award of a degree in this university or elsewhere.

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ABSTRACT

Background: Rabies is one of the neglected tropical zoonotic diseases caused by a virus. It belongs to the *Rhabdoviridae* (Zachary, 2007). It is a disease that is commonly found in animals but can easily effect human (Quinn *et al.,* 2002). Where there are animal reservoirs, rabies is commonly spread. The General objective of this study to evaluate differences in knowledge, attitude and perception about rabies, among the residence in Ga East

Method: A cross-sectional study was used in this study using purposive sampling technics. Data was be collected by interviewing study participants with questionnaire and analysed using OKD Collection and also STATA version14.2

Results: A total of 475 respondents were involved in the study. Out of 475 respondents 354 representing 74.53% were males while 25.47 were females. For the categories of dog ownership and purpose of keeping dogs, out of the 475 respondents, 444 representing 93.47% own dogs and only 6.53% in the study areas did not own dogs. Assessing the purpose of keeping dogs, the majority [348 (77.25)] were of the view that they keep dogs of security reasons while others were also of the opinion that, dogs keeps them company and, they keep them because of having fun with them. Less than 50% of the respondents [186 (39.16%)] were of the view that buying medicine from the drug store is the first remedy to take after dog bits exposure. Others (29.05%) also were of their opinion that tetanus vaccination should be done first. Meanwhile, calling the doctor (12.84%) and thoroughly washing the wound with soap under running water (8.84%) seen less responses.

Conclusion: Findings from this study have revealed that dog owners do not provide housing for their dogs and do not feed them, this can lead to a situation which increases the number of stray

dogs on the street- which are more at risk of being bitten by rabid dogs, thus posing as a source of infection to humans. Not seeking medical help for dogs and beating them are unfair treatment for these animals.

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DEDICATION

This thesis is dedicated to my children Chief Wigglesworth Mangosutho Vetsi and Mollent Naana RahanaJayana Sefakor Vetsi.

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LIST OF ABBREVIATIONS

AfroREB	Africa Rabies Expert Bureau
AMA	Accra Metropolitan Assembly
CHNs	Community Health Nurses
CHOs	Community Health Officers
CHPS	Community Health Planning and Services

DHIMS	District Health Information Management System
ELISA	Enzyme-LInked Immunosorbent Assay
GHS;	Ghana health service
HBM	Health Belief Model
ICT	Information and communications technology
KABP	Knowledge Attitude Behaviour and Practices
MHD	Municipal Health Directorate
MOFA	Ministry of Food and Agriculture
NGO	Non-Governmental Organizations
NTDs	Neglected Tropical Diseases
ODK	Open Data Kit
OPD	Out Patients Department
PAHO	Pan American Health organization
PET	Post-Exposure Treatment
SEARG	Southern and Eastern African Rabies Group
SHS	Senior High School
TMA	Tema Metropolitan Assembly
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund
USA	United State of America
VSD	Veterinary Services Division
WHO	World Health Organization

DEFINITION OF TERMS

Knowledge: facts, information, and skills acquired through experience or education

Attitude: A settled way of thinking or feeling about something

Belief: An acceptance that something exists or is true, especially one without proof

Perception: The way in which something is regarded, understood, or interpreted

Vaccination: Treatment with a vaccine to produce immunity against a disease; inoculation

Reservoir; A population, tissue, etc. which is chronically infested with the causative agent of a disease and can act as a source of further infection.

Zoonosis; A disease which can be transmitted to humans from animals

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CHAPTER ONE

Background Information

Rabies is one of the neglected tropical zoonotic diseases caused by a virus. It belong to the *Rhabdoviridae* (Zachary, 2007). It is a disease that is commonly found in animals but can easily effect human (Quinn *et al.*, 2002). Where there are animal reservoirs, rabies is commonly spread. The virus is spread through an infective saliva in bites and scratches and in some cases through transmission is through lick from infected animal in open wounds as well as through the mucosal membrane. (WHO, 2013b).

The Pathogenesis of rabies

Development of rabies starts when the virus enters into the tissue of the human or animal. It is estimated that 99% transmission of virus to human is through dog bite (Bourhy et al., 2010), where this serves as inoculation of virus to the tissue by escaping the outer layer of the skin which serve as a protective barrier (Geerdes, 2014). After inoculation virus replicate in the skin and muscle tissue (Wilmshurst, 2014). Then the virus bind to the nicotine acetylcholine receptor at the neuromuscular cells also known as junction and transported via retrograde axonal by peripheral nerve to the spinal cord (Fooks et al., 2014). The virus then continue its replication in the motor neuron of the spinal cord and as well as the dorsal ganglia root, and ascending to the brain, up to this time there is no clinical sign and symptoms shown by the patient at this stage (Badoe & Wilmshurst, 2014; Jackson, 2013). Then in the brain the virus continue to replicate in the brain stem which will cause neuronal dysfunction hence lead to clinical symptoms (Jackson,

2013). In carnivores mammals both wild and domesticated especially dog, the virus will be found in the oral cavity in the saliva, because rabies virus will be transferred to the salivary gland since it is innervated from parasympathetic nervous system via submandibular ganglion and glossopharyngeal nerve by sympathetic innervations via superior cervical ganglion by afferent innervations (Fooks et al., 2014)

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Clinical symptoms of rabies

Clinical symptoms of rabies is characterized by; headache, fever, nausea and abdominal pain seen after the incubation period of seven to ninety days (7-90) or several years in some cases (Badoe & Wilmshurst, 2014). The symptoms are divided into two forms; which are dumb (paralytic) form and furious or prodromal (encephalitic form). Dumb form is characterized by flaccidity muscle weakness where there is ascend paralysis and duration of illness is longer within 14 days compared to the furious form (Jackson, 2013).

Furious form is associated by pain and pruritus at the site of inoculation which lead to inflammation and infection in the local sensory ganglia, hydrophobia, paresthesis, aerophobia, and encephalitis is also characterized by episode of excitement, hallucination and lucidity then followed by coma and death which can occur within seven days after onset of the clinical symptoms (Hemachudha et al., 2013). It is suspected that death occurs due to respiratory arrest caused by spasms of laryngeal muscle, diaphragm and accessory respiratory muscle which are caused by hydrophobia (Badoe, & Wilmshurst, 2014).

The link among humans, animal populations, and it surrounding environment is very close in many developing countries in Africa and Asia, where animals are means of movement, farming, and source of fuel, as well as clothing and protein. In the absence of proper care, this association can lead to serious public health implications with serious economic implications (World Health

Organization WHO, 2010.

Rabies in the tropics occurs in two epidemiological forms: urban rabies with dog as the principal reservoir and sylvatic rabies with wildlife as the principal reservoir. (Depani *et al.*, 2012) Some authors associate canine rabies with a seasonal trend. Studies made in Accra found that the disease has its peak in September and October. A smaller peak was also observed between January and February in two studies in Accra. (Stahl et al., 2014).

Globally, Zoonotic diseases are said to account for about 60% of all infectious disease pathogens and about 75% of all emerging diseases (Hogeveen, & Mourits, 2015) there were new emerging of new cases in developed and developing countries especially in Asia and Africa. Asia is the leading reported cases of rabies due to dog bites. Asia is the leading reported cases of rabies due to dog bites (Badoe & Wilmshurst, 2014)

After Asia, Africa is the second most affected continent with an estimated 23,000 human rabies deaths recorded and reported every year (Knobel; 2005).the disease is endemic throughout the African continent thus, Northern, Southern, Eastern, Western and Central Africa (Hayman et al.,2011). The urban rabies lineage is thought to have been introduced into sub-Saharan Africa from North Africa and Eurasia following patterns of human colonization (Bourhy 2009). Deaths due to rabies in Africa are linked to poverty, lack of awareness among people and medical practitioners, as well as lack of infrastructure for the management of rabies exposure (Harrak, 2011). However, studies by Lembo et al (2010) have confirmed that there are no association to doglike rabies control in most of Africa and that, rabies elimination is epidemiologically and practically feasible through mass dog vaccination (Lembo et al., 2010). In 1992, a group of independent scientists and public health officers created a network called Southern and Eastern African Rabies Group (SEARG) (consisting of south and east African countries) to strengthen

surveillance systems and coordinate rabies control programmes in the continent (www.searg.info). Similarly, in 2008 another network of rabies experts from 14 African

countries such as Algeria, Benin, Burkina Faso, Cameroun, Congo, Côte d'Ivoire, Gabon, Madagascar, Mali, Morocco, Nigeria, Central African Republic, Senegal, Togo, called the Africa Rabies Expert Bureau (AfroREB) was established to improve surveillance and coordinate effective rabies control (Dodet et al., 2008).

In Ghana Rabies poses a major public health problem. Between the year 2000 and 2004, 123 clinically confirmed human rabies cases were reported by public health facilities across the country and between 2010 and 2014, 22 cases were referred to Ghanaians largest hospital; the Korle bu Teaching Hospital in Accra. Also, between, 2014 to 2018 there were 69,771 Dog bites cases were reported and out of that, 269 of the cases were developed into Human Rabies. (GHS; DHIMS2, 2018)

Manifestation of Rabies in Humans

There is a period of vague symptoms lasting from 2-10 days after been bitten by an infected dog, which serves as the reservoir of the infection. The patient may have a fever, headache, malaise, decreased appetite and vomiting. There may also be itching, severe, numbness and tingling at the site of the wound. In man, one of the manifestations of the infection - an inability to swallow liquids - has given the disease the name hydrophobia. Since the development of symptoms in man is sufficiently different form that in other animals, hydrophobia is a term used only to describe the disease in human beings. Affected individuals will have foaming mouth due to inability to swallow their saliva, and the sight of water may terrify them. Some patients become agitated and disorientated while others become paralyzed and even die as a result of complications (Edward et al., 2014).

Rabies Control in Ghana

In Ghana there has not been any consistent programme to control rabies. Attempts have been made on few occasions to vaccinate all dogs but not much desirable results have been achieved. The 1998 National Anti-Rabies campaign was launched at Abokobi in the Ga District. The Deputy Minister for Food and Agriculture, Mr. Mike Akyeampong, launching the campaign on the 15th April, 1998, emphasized that the vaccination of pets should be free for those who will bring their dogs for vaccination within the first two weeks of the campaign and that the government had voted 300 million cedis for the nation-wide exercise. However, the Director of Veterinary Services, in his address explained that the mass vaccination has not been consistent, due to inadequate funding. The highest Anti-Rabies vaccination coverage ever achieved is said to have been 34% in 1988, and the 1998 campaign has 50% coverage as its target Cutler SJ (2004). The best way of preventing Rabies disease is by vaccinating all dogs. Other experts also believe that it's also important to control the dog population through sterilization (Lembo *et al.,* 2010). But in most countries the aim is to try to bring down the endemicity (prevalence and the incidence) of rabies through vaccination. Unfortunately, several countries that are endemic to rabies do not achieve their expected coverage which was due to (Fielding *et al*., 2012), lack of awareness of the importance of dog vaccination among dog owners, lack of vaccine, as well as the cost of the vaccine for the dog owner and distance to cover to get the vaccines (Jemberu *et al.,* 2013).

Clinical diagnosis is possible but may be difficult in the prodromal stage, rabies may be confused with other diseases due to its presentations. In most cases, when the severity form of manifestation begin that is when it is simple to diagnose Some of the symptoms may be inability

to swallow saliva in all species is suggestive of an obstruction in the throat, a foreign body logged between the teeth or ingestion of irritating substances. The main confirmatory test for rabies are Fluorescent Antibody test and ELISA. Human beings can be treated with human rabies vaccine and human rabies immunoglobulin (Hemachudha et al., 2013).

Statement of the Problem

Rabies is been considered as one of the neglected zoonotic disease and has the case fatality rate of about 100% (Jackson, 2013). It is estimated that about 90% of rabies cases reported are due to dog bites (Fooks et al., 2014). The disease can be spread through bite or scratches of rabid dog (Fooks et al., 2014; Dogs are domesticated animals which serves as companion, protector, investigator (security agencies) and hunters and also as source of food to man in some parts of the world (Hutabarat; 2003). But they serve as source of rabies to human being due to close contact and relationship between dog and human (Hutabarat et al., 2003).

In Ghana, between the year 2000 through to 2004, there were 123 clinically confirmed human cases that were reported by Public Health Unit of the Ghana Health Service (Hayman et al., 2011). Ga East been a rural Municipality in the Greater Accra Region recorded 888 (Exaction from DHIMS2) cases of dog bites between 2014 and 2018 with 5 deaths. Most of the cases were from the rural settings. Even though, the urban setting reports cases but the majority of the cases comes from the rural settings. Factors such as socio-economic status, level of education, religion. The published data above were data from epidemiologic system. But it is believed that the figures reported at the facility is just a handful of what is happing in the community.

It was also observed that most community members who report with dog's bites do not know the action to take at home before reporting at the health facility. It's also noted that community members seek for medical help at drug store for wound management after exposure to dog bites.

This practices has not helped since most of these individuals later report at the facility with severe forms of rabies.

Even though there are two agencies involved in Rabies elimination such as Ghana Health Service (GHS), Neglected Tropical Diseases (NTDs) and the Ministry of Food and Agriculture (MOFA), Veterinary Services Division (VSD), their efforts had not yielded the expected result. Based on the above the researcher's aim is to find out the perception of the public as to their knowledge in dog bite and rabies control measures at community levels

Research Questions

1. What is the knowledge of the community concerning Rabies
2. What are the common practices after been exposed to Dog bites
3. What do the community perceive regarding rabies disease?
4. What are the common attitudes of the community towards dog bites?

Objectives

General Objective

The General objective of this study to evaluate differences in knowledge, attitude and perception about rabies, among the residence in Ga East.

Specific Objectives

1. To assess the communities knowledge of rabies disease.
2. To identify the communities practice after exposure to dog bite.
3. To assess the community perception regarding Rabies.
4. To evaluate the community's attitude toward Dog bites.

Significance of study

Lots of efforts were been made to reduce the incidence of the disease in endemic areas through mass vaccination of domesticated dogs and cats, but still most of people who keep them do not care about the welfare of their animals hence these practices cause exposure of people to rabies (Bourhy et al., 2010) and also, most of rabies cases are not reported at the health facilities, this is due to lack public awareness and surveillance, and also due to some cultural and social confounded factors (Fooks et al., 2014).This study was conducted in Ga East Municipality and the finding will help to advocate resources for rabies control and will also it will provide a base line information for the Municipality and other researchers for future references.

Assumptions

Based on the high data on both morbidity and mortality associated with rabies, it's been assumed that;

1. Community members do not know the causes and preventive measures to take to avoid rabies disease after been exposed to dog bite
2. Residence of the municipality do not know the basic steps to take when bitten by dogs before reporting at the health facility

Limitations of Study

It is anticipated that due to high rate of dog bites in the Municipality, most dog owners were not responding to the interview thinking this will used against them for not vaccinating their dogs. On the other hand, the community member demanded ID cards from the school- KNUST as prove before responding to the questionnaire or given the researcher their attention/audience.

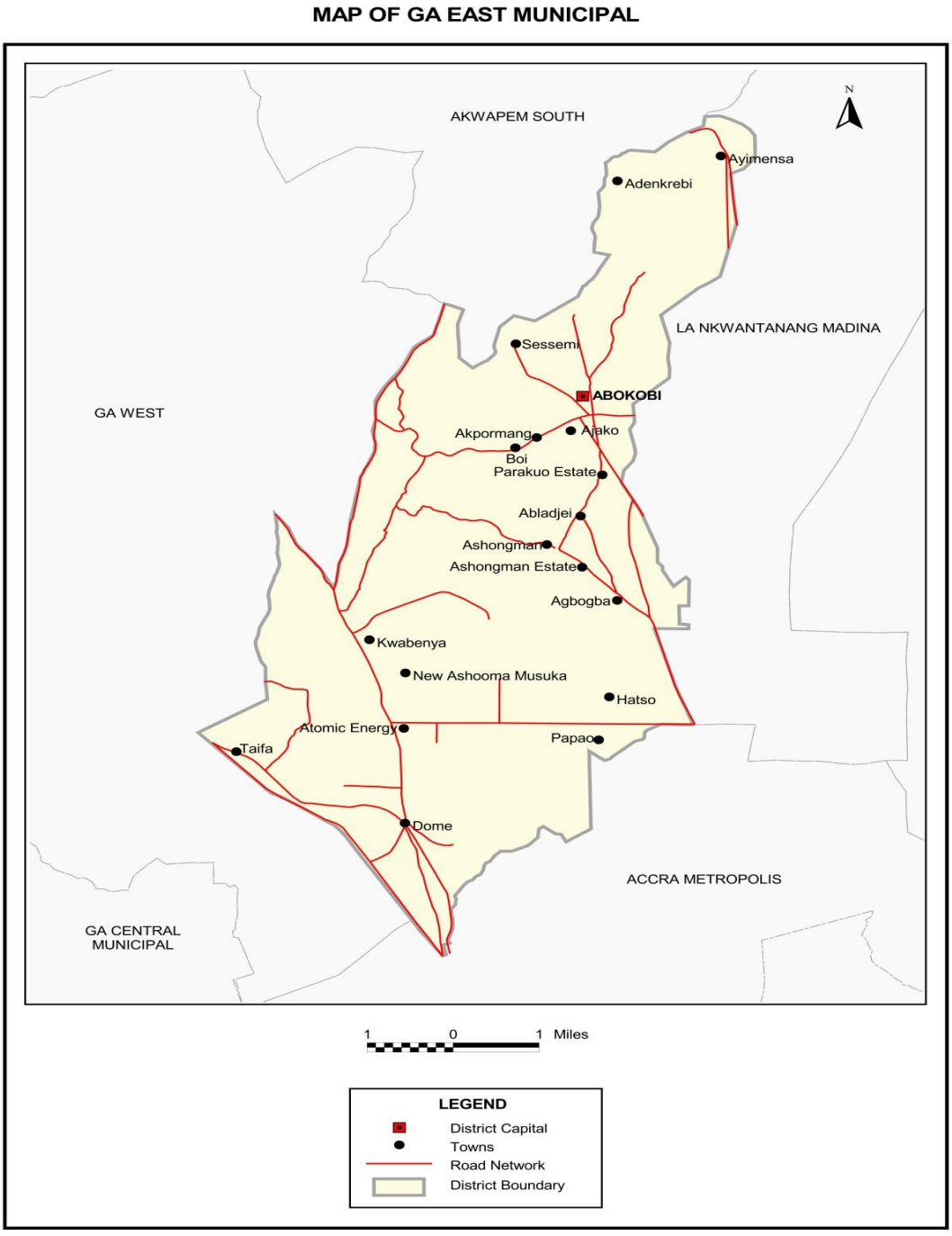
Profile of Study Area

The Ga East Municipal with the district population of 175,249 (MHD Annual Report 2018) is located at the northern part of Greater Accra Region. It covers a land area of about 85.7 square kilometres. The capital of the Municipal is Abokobi. It shares boundaries with the Ga West Municipal to the West, the La - Kwantanang Municipal to the East, Accra Metropolitan to the South and the Akwapim South District to the north. The Municipal is sub divided into two administrative areas, namely the Abokobi Zonal Council and the Dome Zonal Council.

Relief and drainage

The land area consists of gentle sloped landscape interspersed with plains in the west. The Akwapim range rises steeply above the western end and lies generally at 375 - 420 meters north of Aburi in the Akuapim South District and fall to 300 meters southward in the Okaikwee North District. There are a few rivers and seasonal streams most of which are threatened by human activities. They include the Sesemi stream at Sesemi and the Dakubi stream at Ajako. Other small ponds exist at Abloradjei, Sesemi, and Old Ashongman. Most of these ponds are also threatened by human activities and the Assembly has to make conscious efforts to preserve them for agricultural use. The Municipal also has a lot of underground water some of which have been tapped to provide potable water for small towns and communities in the Municipality.

Figure 1.1: Map of Ga East Municipal Assembly



Source: Ghana Statistical Service, GIS

Land Tenure System

Chiefs, as well as clan and family heads own the land in the Municipality, and they hold the land in trust for their subjects. The land could be acquired through direct purchase, rented, leasehold and sharecropping. The fact that these parcels of land could be inherited through parents or grandparents has led to a lot of sale and resale of land with its attendant land litigations and chieftaincy disputes. This situation has also contributed to the rapid loss of farmlands with its attendant unemployment and migration especially the youth to adjoining districts such as the Tema Metropolitan Assembly (TMA) and Accra Metropolitan Assembly (AMA).

Structure of the Assembly

The Municipality consists of ten (10) electoral areas and it is represented in the general Assembly by elected and appointed Assembly members. The composition of the Assembly is made up of 10 elected members, 4 appointed members, the Member of Parliament representing Abokobi and Dome-Kwabenya constituency and the Municipal Chief Executive. The General Assembly is therefore made up of 16 members. The 10 electoral areas are as follows: Taifa South, Taifa North, Abokobi, Agbogba, Kwabenya, Haatso, Atomic, Dome East, Dome west and Abladjei. An elected Presiding Member is the head of the General Assembly with the Municipal Coordinating Director as the Secretary. To enable the Assembly perform its function of overall development of the municipality the following sub-committees and decentralized departments have been established. The sub-committees include Development Planning Sub-committee, Finance and Administration Sub-committee, Justice and Security Sub-committee, Works SubCommittee and Social Services Sub-committee.

Ethnicity and Chieftaincy

Almost all the ethnic groups in Ghana exist in the district although Akans seem to have a slight majority over Gas and Ewes in that order. Others are Dangbes and the Gurs. This situation is especially true for areas like Dome, Taifa and other urban communities. In the rural and peri-urban communities like Abokobi, however, the Gas form an overwhelming majority though other ethnic groups continue to reside amongst them. Though the Municipality has an Islamic presence especially in and around Abogba, Christianity remains the most dominant form of religion for the people of the district. Pockets of people however maintain they are traditionalists and Krishna, whilst others profess no religion at all.

Water and Sanitation

Potable water supply in the urban/peri-urban areas of the municipality has been a major challenge to the Assembly, especially when the Assembly has no direct control over urban water supply. Areas like Dome, Taifa, Agbogba, Ashongman and Musuko have limited access to pipe-borne water. Others depend on tanker services and a few hand-dug wells. In general therefore, the price of water is fairly high in these urban communities. The situation is further worsened due to the steadily increasing population through the influx of skilled and unskilled labour from the rural areas. To improve this situation the Municipal Assembly will have to support and facilitate government strategies to accelerate the provision of safe water in the urban areas, especially the inclusion of rain water facilities when building.

Housing and Development Control

Access to adequate housing is an important ingredient in the Municipality's efforts to improve the livelihood and environmental sanitation of the people living in the Municipality. The lack of sufficient housing units, especially in the urban areas of the Municipality has among other things contributed to overcrowding, development of illegal structures, conversion of commercial facilities to residential use, streetism and pressure on social facilities and amenities. This has resulted in the development of slums in areas like Dome, Taifa, Kwabenya and Haatso.

The result of these is the creation of an insanitary environment with no drains and properly demarcated sanitary sites. Waste is therefore disposed of indiscriminately and liquid waste flows freely on the already poorly demarcated streets.

Education

The distribution of schools in the Municipality is quite even. There are six (6) privately owned Senior High Schools, which include Perfect Senior High School, The Masters School and Maxvic School, Dard Senior High School, Oxbert Senior High School and Christ International Senior High School. The Municipality, however, is yet to have a public Senior High School of its own. There are 31 public Basic Schools made up of Kindergarten, Primary and Junior High Schools and a 109 private schools that are sited mainly in the peri-urban areas of the Municipality. Most of the schools lack libraries, ICT resource centres and recreational grounds.

It is home to the University of Allied Science that has trained many high and low level manpower management human resource needs of the Municipality. It is also home to the Ghana Atomic Energy School and Research, which has done a lot of research in to energy. From the Early Childhood to the Senior High School (SHS) level, the private sector owned more than two third of the schools.

Health Service Delivery

The Ga East Municipal Health Directorate (MHD) is responsible for all health service delivery in the entire Municipality. The Municipality is divided into five Sub Municipals for the organization and distribution of primary health care services. These sub municipals include Abokobi, Dome, Taifa, Ashongman and Haatso. Each sub municipal health management team has the responsibility for the delivery of health services to the population of their defined areas, and has either government or private health facilities. The total of forty two health delivery centers are available. This include; one Quasi facility; Ghana Atomic Energy Commission, one health center; Abokobi health center and Taifa Polyclinic. The rest are private facilities. One CHPS compound and the rest are CHPS Zones. There are trained TBAs and other care providers such as chemical shop dealers, maternity homes, traditional healers etc. in the municipality. The doctor to population and nurse to population ratios in the metropolis are 40,246:1 and 2,012:1 respectively.

Malaria continues to be the major cause of Out Patients Department (OPD) attendance. It accounts for about 40.8 percent of morbidity. Frequent outbreaks of cholera in the Municipality are also of great concern. Sporadic cases have also been recorded in other parts of the Municipality. Poor environmental sanitation is a major contributory factor. (GDHS, 2008)

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

This chapter will describe knowledge, attitude, practices and perception rabies disease among the residents as well as the relationship that exist between man and dogs in his environment.

Brief History of Rabies

Rabies globally is an important ancient recognized viral zoonoses. Although, it has not been a disease of pandemic, it's always cause panic because of its horrific clinical manifestations and lethality (Charlton, 1988). Rabies been a fatal viral disease, it affect the Central Nervous System which is usually transmitted through bites of infected animals with infectious saliva. The disease affects humans and other warm blooded mammalian species (Hanna *et al., 2000).*

It well known that rabies is an ancient animal to human disease. In Latin, the word ***rabies*** is believed to originate from Sanskrit ***rabhas*** meaning '***to do violence'***. The French word for rabies is derived from the noun **"robere**", which means '**to be mad'** (Krebs *et aZ.,* 1995). In Greek, rabies means '*madness'.* In the 18th century, it was believed that, the cause of rabies was thought to be a poison contained in the saliva of rabid dogs. As that that time the cause of rabies was not known. The disease is broadly cited in Greek and Roman Mythology (Steele; 1991) and the first recorded canine rabies were documented by Democritus that is *500* BC (Krebs *et aI., 1995)*

Rabies is one of the major diseases of public health importance (Smith and Seidel, 1993) with mortality ranking 11th of all infectious diseases (Krebs; 1995). It is projected that, over 40,000 people die of rabies every year and that dogs are responsible for about 94 percent of these deaths in developing countries (Meslin *et aZ.,* 1994). The WHO in 1994 estimates that about four million individuals per year were given at least partial Post-Exposure Treatment (PET).

Transmissions of the Rabies Disease

Biting animals which transmit disease to human are mammalian carnivores where 99% of human rabies is caused by rabid dog, followed by other animals such as cat and ferrets and wild carnivores such as hyena, mongooses, jackals, foxes and wolves (Fooks et al., 2014). Transmission of rabies to human by bite from monkey and mice is rarely reported (Stahl et al., 2014). Also in livestock such as horses and donkey when infected with rabies, they become

aggressive, vicious and start to bite other animals and humans. Other animals such as cattle and buffalo do not bite when they are rabid but precaution is to be taken when examining and handling sick animals that are salivating (Stahl et al., 2014).

There was an inter-human transmission has been reported incidentally, following transplant of infected tissue or organs (Stahl et al., 2014). Apart from transmission through transplanted tissue, human to human transmission lies largely in the realm of folklore as reported by (Stanley 2000).

Trends in Animals and Human Vaccination against Rabies

WHO recommend at least 70 percent of dogs should be vaccinated, because study shows they 90% source of human rabies are caused by dog bite. Therefore to prevent human rabies at least 70% of dogs population in every country should be vaccinated against rabies (Mourits, 2015). Where most of experts accept that dog vaccination is more cost-effective than post exposure treatment. And according to WHO dog vaccination program costs 25-50% of post exposure treatment, so it is cost effective than post exposure treatment (Shwiff et al., 2013). Therefore practically there will be declining of rabies cases in the countries which will eventually cause decrease demand of post exposure treatment (Shwiff et al., 2013). The trends of vaccination differ from one continent to another and from one country to another. For instance Northen America and Easten Europe they were able to attain 70% of dog and cat rabies vaccination (Jibat et al., 2015). This is because in 1983 the Pan American Health organization (PAHO) and WHO set year 2005 as the target for eliminating canine rabies (Jackman & Rowan, 1992). Because of this target, every year 44 million of dogs are been vaccinated in the area and hence achieved 80% coverage of vaccination. Therefore lead to dropping of human rabies up to 91% and canine rabies declined to 93% from 1983 to 2005 (Rowan, 1992).

In Africa and Asia the situation is different where most of the country they have not reached 70%

dog vaccination because of socioeconomic factors, political instability and lack of commitment (Jibat et al., 2015). The average dog vaccination coverage is currently estimated to be 9.7% in Asia and 10.3% in Africa which is very low to get rid of human rabies according to WHO (Jibat et al., 2015). And in order to achieve the coverage of 70% mass dog vaccination, the countries needs at least two years of campaign and vaccination process but most of endemic areas in Africa and Asia they are not able to manage this long term activity (Jibat et al., 2015). But the study have shown that the place where there is free mass dog vaccination the coverage increases from 9% to 70%. For example the targeted free mass vaccination in rural north western Tanzania in Africa have shown to achieve reduction of dog rabies by coverage 70% hence lead to reduction of human rabies (S. Cleaveland, 2003).

Relationship between Man and Dog

Despite the increasingly parochial views of the western world on the concept of dog as man's closest companion, one learns about the very complex relationships between dog and man among various African tribal groups from Macpherson, (Craig et al.). According to these authors these complex relationships have evolved from prehistoric times and continue to be perpetuated in a variety of ways, among Africa's diverse people. The most widespread roles of the dog in Africa are as scavenger of refuse, guardian of people from predators and intruders, and as assistants for hunting and herding.

The Dog as a Scavenger

The Pokot of north Western Kenya ordinarily lay their dead out on the surface of the ground for scavenging carnivores to eat them, excepting the rich Pokot whose bodies are buried under mounds of cattle dung. Among the Turkana of Kenya this companionship function assumes a

healing and nursing dimension among women. The dog owned by each Turkana woman is not only depended upon to clean her babies after they defecated and vomit, but also to clean up her own menses

In Northern Ghana dogs are used as guardians of people from predators and intruders. In addition dogs are used for herding, hunting and as food. Elsewhere in Africa the dog is a companion, a relationship which is apparently derived from dog's co-operation in hunting.

The Dog as a Spiritual Benefactor

The Nikotic Kuku of Southern Sudan honour dogs and treat them as tribal benefactors because dogs are believed to have explained childbirth to them as well as to have taught them to use fire and herbs in cooking and the grinding of grains. Among the Koma of Southern Ethiopia reddish coloured dogs are venerated and are unusually well cared for and sacrificed at the time of the New Moon which marks the yearly extension of the reign of their ruler. Elsewhere, dogs are also sacrificed to help the sick recuperate and to keep away diseases. The flesh of a sacrificed dog is thought to have a medicinal or spiritual value. (Holmes, E. C. (2008)

The Dog as a Source of Protein

Many African tribes stretching from the Congo Basin, and the rain forest to adjacent savannas of West Africa (Northern Ghana) eat dog meat (Devisch, R. (1991). The Talensis of Ghana and the Poto of Zaire are said to prefer eating dog meat to other types of meat. The dog intended for food is fattened in various ways to tenderize their flesh. On the other hand the Yaka of Zaire fear that eating dog meat will cause disease.

Rabies Control in Some Countries

How do countries view the implications of the relationship between man and dog, and what do they do to control the situation? This section briefly reviews rabies control activities in *Viet Nam, Bangladesh, Cambodia, China, United States, Thailand, South Africa and Ghana.*

Viet Nam

In Viet Nam where about 95% of the total human population live in rural areas in close proximity to various domestic and sylvatic animals, rabies is considered a priority zoonosis. In these localities large dog populations act as potential sources of the rabies virus. Sporadic cases occur in all parts of the country throughout the year. Viet Nam's national rabies control programme is one of the priorities of the National Health Care Programme of the preventive Medicine system. The activities of Viet Nam's rabies control programme of interest to the Ghanaian situation include:

Conducting epidemiological survey of rabies, and promoting education, information and communication for rabies prevention.

Bangladesh

In Bangladesh rabies is also considered as a priority zoonosis. Sporadic incidence occurs in all part of the country, throughout the year. Dogs, cats, jackals and other animals are all carriers of the disease but most cases in human and animals are due to dog's bites. In 1992, 50,000 human beings and 8,000 domestic animals received post exposure treatment with all the cases being the result of dog bites. About 2,000 human deaths resulted. The Veterinary Public Health Division initiated a country wide rabies control programme, which included:

i. Elimination of stray dogs by Municipal authorities

ii. Registration and vaccination of pet dogs and

iii. Provision of logistic support by the Veterinary Public Health Division to the Local authority which includes posters leaflets, booklets and film shows.

About 10,000 dogs are killed every year and 5,000 dogs are vaccinated every year as a way of making the relationship between man and dogs safer.

Cambodia

In Cambodia the number of deaths due to rabies has been very low due partly to the improved post exposure treatment delivery system. About 4,000 Cambodians are reported to seek for medical assistance after dog bites every year. Control measures taken are:

i. Public education and Publicity about rabies to promote co-operation in rabies control and proper medical treatment at the time of bite.

ii. Vaccines for post exposure treatment are available and are free.

iii. Immunization of dogs and cats has been initiated by the veterinary services at US $5 per rabies vaccination.

China

China has no national rabies control programme or coordinated organization or officials at central level. National data on animal rabies are incomplete although it is estimated that there are 150 million dogs in China. The key measure for human rabies prevention is mass dog immunization to control the disease in its main reservoir. A total number of 42,153 human deaths due to rabies were reported from 1983 to 1992, but the annual number of deaths has been decreasing rapidly and constantly since 1990. Human rabies incidence decreased from 70 cases to 1 in 1991 in the areas vaccinated. Workshops on control of rabies are being held with financial assistance from the World Health Organization and publicity campaigns for rabies are carried out through educational material and media such as radio and television. Rao, S. Q., & Lu, J. H.

(2008)

United States of America (USA)

In the United States the epidemiology of rabies has changed substantially during the last 50 years. The source of the disease has changed from domesticated animals to mainly wildlife, raccoons, skunks, foxes and bats. Human attraction to recreational and economic resources provided by wildlife has contributed to the re-emergence of rabies as major zoonosis. More than 50% of human rabies cases in the U.S.A. occur in returning travellers and immigrants as a result of exposure to dogs outside of the U.S.A. In 1992, a Veterinary Surgeon died of rabies in the USA three after grinding up rabid goat brain. He probably inhaled an aerosol of virus generated by blending machine. Rabies prevention and control strategies in the United States have succeeded in lowering the number of human rabies deaths to an average of one to two per year.

Thailand

In Thailand rabies control measures in animals include mass vaccination of dogs and birth control in dogs. Publicity campaigns are organized through television and radio and other mass media including community broadcasting and distribution of posters and leaflets in the field and to other interested parties. Lumbertdacha, B. (1991)

Literature reports that 20 to 30 people die from rabies in South Africa every year and that 600 to 700 (Khan, S. (2012)) cases of rabies are diagnosed in domestic and wild animals each year. The disease has proved to be particularly difficult to control in the rural and peri-urban settlements of Kwa Zulu-Natal, where dogs roam freely and civil unrest has hampered vaccination campaigns. The 300-400 cases confirmed annually in dogs constitute approximately 90% of all cases of the disease diagnosed in the region and about 80% of all cases of the disease diagnosed in dog in South Africa.

The Anti-rabies campaign programme in Ghana consists of

1. Educating the general public on the dangers the disease poses to animals and their owners using mass media.
2. Destruction of dogs with clinical signs and those bitten by suspected rabid animals.
3. Reduction of contact rates between susceptible dogs by muzzle and leash laws, dog movement control and quarantine.
4. Mass immunization of dogs by campaigns and by continuing vaccination of young dogs.
5. Stray dog control and destruction of unvaccinated dogs.
6. Registration of dogs.

Some Theoretical Perspectives

Any service provider or development worker whose aim is to change the behaviour of people must understand human behaviour and appreciate all the factors which influence behaviour, one way or another.

Value Expectancy Theory Determinants of Human Behaviour

According to the value expectancy theory (Hubley, 1993), people will only perform a given behaviour if they themselves see that it will provide some benefits.

To understand why people do or do not perform a particular behaviour we have to try and find out how the community themselves looks at the action. The Knowledge Attitude Behaviour and Practices (KABP) of dog owner should give an idea of people's behaviour pattern as far as rabies control are concerned.

The Health Belief Model (HBM), says that (Rosenstock, 1974), if a person is to perform a particular act (Health) he/she has to believe they are susceptible, that the health problem could

affect him or her personally rather other people or society as a whole; feel that the condition is serious; is that it can lead to death or other serious outcomes if action is not taken. The person also has to believe that the condition could be prevented and that the benefits of taking action will outweigh the disadvantages. When applied to the study under consideration, the questions to be asked are: To what extent does a dog owner in Ga East Municipality consider himself susceptible to rabies; how serious does he consider rabies/dogs he think rabies can be prevented and does he think vaccinating his dog has more benefits than disadvantage?

Knowledge Level

Communities often have detailed knowledge about their surroundings. This community knowledge includes among other things, the treatment and prevention of disease. It makes sense, therefore, for service providers and other development workers to involve communities in making plans because they know local conditions and the possibilities for change. If the community is involved in choosing priorities and deciding on plans, they much more likely to become involved in the programme and make use of the services because such programmes are seen to be meeting their needs.

Beliefs

Beliefs deal with a people's understanding of themselves and their environment. Beliefs about the different possible outcomes from performing actions are especially important in understanding behaviours. Social Science theory tells us that while some behaviours may exist on their own, others are part of a wider system of beliefs, such as religion.

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CHAPTER THREE

METHODOLOGY

Overview

This section of the report explains how the study was conducted. It also looked at what was done,

how it was done what data was collected and what data tools were used. Thus, this section discussed the study design, study population, sample size, sampling procedure, and piloting of instrument data collection procedure and data analysis.

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Study Design

A cross sectional study design was be used for this study. The researcher opted to use this research design because of the objectives, and the research questions. This helped to obtain first hand data from the respondents. For this study, quantitative methods was used to obtain information on knowledge, attitude, beliefs and practices of owners and non-owners of dogs in the Municipality which was quantified into percentages. For this reason, the researcher conducted an in-depth inter-personal interview with an individual respondents to solicit information.

Study Population

The study was conducted in the Ga East Municipality of Greater Accra Region. The study covered owners and non-owners of dogs who have resided in the Ga East municipality over the past five years. Communities of the municipality to be involved in the study include the Abokobi Township, Sesemi, and St Clement, Busanga, Ashongman Village Agbogba, Musuku, Kwabenya, Estate, and Mango lane.

Sample Size Estimation

Samle size estimation was done using the Cochran equation.

$$N = \frac{z^2 p (1-p)}{E_2}$$

Where: N = the minimum required sample size.

Z = standard normal deviate corresponding to 95% confidence interval, which equals to 1.96.

P= proportion of pregnant women who were bitten by dog was 12% (Annual report Ga East, 2018)

E = Is the Margin of Error on P estimated to be at 5%

Therefore, $n = \frac{1.96^2 \text{ X}32 (100 - 12)}{5_2}$

$n = 432$

A total number of 432 Respondents were used as the sample size in other to give a fair representation of the population's views. The calculation of this figure was Cochran equation; (1963). To cater for non-response 10% of 432 were added to the study sample. Thus 432/100*100= 43. Therefore 43 respondents more was added making the total sample size to be 475.

Table 1. 0: Sample size distribution per communities

Sub-District	**Total Population**	**Community/pop**	**%Of Respondents**
Abokobi	15,316	Abokobi township - 1024	21
		Sesemi-420	13
Dome	52573	St Clement-2365	49
		Busanga-2554	51
Haatso	33296	Ashongman Village- 2369	49
		Agbogba-3221	65
Taifa	54325	Musuku-2660	52

		Kwabenya-5246	105
Ashongman	20981	Estate-2048	38
		Mango lane-1552	31
Total			**475**

Sampling Technique Purposive sampling, (which is a non-probability) method was used to interview 75% the respondents who own dogs in each community whereas Convenient sampling was used for those who do not own dogs. This was because purposive sampling focuses on particular features of a population that are of interest, which will best enable me to answer your research questions. The language that were used were; English, Ga, Ewe, and Twi.

Data Collection Tools/Methods

Data was collected by interviewing study participants with questionnaire. The interviews were conducted by trained interviewers, to obtain information on knowledge, attitude, perception, beliefs and practices in respect of rabies disease among the residents in Ga East Municipality. The questionnaire consisted of lists of questions that address the objectives of the study.

The questionnaire again consisted of six sections; Sections A – D. Section A consist of Demographic Characteristics. Section B; Contain Dog Ownership/ Purpose of Keeping Dogs information. Section C; Knowledge information while Section C; also consist of attitude, Section D; Perception and lastly Section E; Common Practice of dog of dog exposure.

The interviewers were selected based on their familiarity with the communities and also who works in the community as Health workers (Community Health Nurses (CHN) and Community

Health Officers; (CHO). The interviewers were people who also have the better understanding of rabies disease. A total of five data collectors were used for this excess. The reason for using five data collectors was by the fact that these community know the health workers assigned to them (CHO/CHN) and they will give more cooperation with them. Outsiders obtaining information from these urban and Peri-Urban setting will be difficult. And moreover, the CHN/CHO have been visiting homes of these community to carryout home visit and are well known. Other reason for using the five data collectors was to eliminate apathy and avoid collecting data from one single points which will affect the generalization of the result.

To minimize errors, the interviewers were all trained for one day on how to administer the questionnaires.

Data handling and analysis

The questionnaire was designed using KOBO Data collection Tools and linked using URL to ODK collection for field data collection. The responses were recorded on Excel work sheet which enabled me run my frequency tables. Excel was again used to run the frequency tables.

Data was presented in tables, and all variables were in narratives.

Pretesting of Instruments

To determine reliability of the instrument, the validated version of the questionnaire was pretested with 20 individuals with dogs and 20 individual without dogs who live in Madina. Madina was used to pre-test the tools because, the two municipality shear a common futures and boundary

Validity of the instrument

Validity is the extent to which an instrument measures what it purports to measure (Burns & Grove, 2005; Polit & Beck, 2004). Validity is concerned with the accuracy of the measurement scale (Garcia, Rodriguez, & Carmona, 2009). The questionnaire was reviewed to determine whether it measured what it was designed to measure (Blanker & Schouten, 2003). The focus of the study is to investigate the Knowledge level of rabies disease among residence in Ga East. To ensure validity of the questionnaire, the researcher will make ensure that the items on the questionnaire represented the domain of interest. Again, the items on the instrument were reviewed by the supervisors, colleagues and other experts in the field of public health/ veterinary for scrutiny, corrections, readability, clarity and comprehensiveness for face and content validity. Pretesting of the instrument will also be done in Madina Municipality and the items on the questionnaire were analysed critically with the supervisors to determine the validity of the instrument.

Reliability of the instrument

Reliability is the extent to which a study instrument or any measurement procedure produces the same results on repeated trials. Reliability determine the stability or consistency of scores over time or across ratter's (Burns & Grove, 2005; Polit & Beck, 2004). .

Ethical Considerations

Ethical clearance for the study was sought from the Committee on Human Research, Publications and Ethics - Kwame Nkrumah University of Science and Technology.

Informed consent were also be sought from respondents before including them in the study. All

information that were obtained from the participants were kept confidentially. The names of the respondents were not be associated with responses that were provided to ensure their anonymity. Participants were informed about their freedom to skip some of the questions and exit from the study at their own discretions. They were informed that, answering of the questionnaire will take five (5) minutes.

There was no risk associate with the study and there were no material or financial benefit to respondents. The information that were obtained will inform the management of the region about the perception of the public of rabies. This will also help the management at the regional and district levels and policy makers to implement interventions that will improve on keeping domestic dogs and dangers associated with stray dogs in the municipality. Participation in the study was entirely voluntary, and that declining to enter the study, declining to answer a question, or terminating the interview that will not have any negative consequence. Data collected were stored in Researchers data base (up to three years) in KOBO collection online and it was protected using a password.

CHAPTER FOUR

RESULTS

4.0 Introduction

This section provides a detailed description of the results obtained from data analysis of the study. The variables are described as frequencies and percentages. The tables provide a summary of the demographic information of the respondent's belief, attitude, perceptions knowledge of rabies and practices toward dog bite. The findings are presented according to the objectives.

4.1 Quantitative Data Analysis

4.2 SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

The table 4.0 below describes the Demographic responses of the respondents. Out of 475 respondents 354 representing 74.53% were males while 25.47 were females.

Most respondents either fell in the 40-49 (32.63%) age categories or 30-39 (24.84%) categories, while the least were aged 15-19 (3.79%). In terms of educational level with the majority of (44.21%) reporting having tertiary education, while 9.68% representing primary level education as the least on the table. However, Christians were of the majority 342 (72.0%) and Traditional/Spiritualist constitute the least religious group of 28(5.89%). Other variables such as Sales and Services and Unskilled Manual constitute the highest (36.21%, 27.79%) of the occupation of the respondents. Meanwhile, clerical respondents 12 (2.53%) was the least among the categories of occupation.

Table 4.0 Distribution of Respondents by Age, Sex, Education, Occupation and Religion

Variables	Frequency (N=475)	Percentage (%)
SEX		
Male	354	74.53

Female	121	25.47
AGE (Years)		
15-19	18	3.79
20-29	52	10.95
30-39	118	24.84
40-49	155	32.63
50-59	99	20.84
60+	33	6.95
EDUCATION		
Primary	46	9.68
Secondary	155	32.63
Tertiary	210	44.21
No Education	64	13.47
RELIGION		
Christian	342	72
Muslim	53	10.95
Traditional/Spiritualist	28	5.89
No Religion	58	11.16
OCCUPATION		
Professional/Technical/Managerial	45	9.47
Clerical	12	2.53
Sales and Services	172	36.21
Skilled Manual	73	15.37
Unskilled Manual	132	27.79
Agriculture	41	8.63

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SECTION B: THE KNOWLEDGE OF THE COMMUNITY CONCERNING RABIES

Knowledge of Rabies

A total of 475 (100%) respondents responded to this section. However from the table 4: 2 below, it was observed that 96.42% of the respondent were of the view of hearing about rabies disease while a handful respondent said they have not heard of rabies disease before. Sources of information of those who said they have heard of rabies shows; School, friends and neighbors of 149 (32.53%), as the most occurring sources of information, media score of 20.74%, while vaccination campaign been other source was the least among the responses of sources of information. 37.7% of the respondents who have heard of rabies disease were of the view that rabies is a viral disease. Others, 21.62% have a different opinion that rabies is an air born disease. Even though 458 respondent have heard of rabies disease, 49 respondents representing 10.70% have no idea of rabies transmissions. Another variable was to explore the most common source of rabies transmission**.** It was noticed that playing with infected animal without bites (37.77%) poses a big danger of rabies disease transmission according to respondents. Meanwhile, dogs are the most mentioned common animals sources of rabies transmission mentioned which was followed by cat and the least was goat on the frequency table respectively (73.74%, 19.3% and 0.56%)

On the area of primary symptoms of rabies, fever constitute 187 representing 40.65%. Others are also of the view that stiff muscles (16.96%) is the first cardinal sign of any rabies disease. On the area of relationship of personal dogs, the majority are of the view that their own dogs can bit them (90.32%) and therefore rabies is dangerous and it can also kill human beings (91.89%). However, in the area of dogs licking open wound as to whether one can get rabies, most of the respondent (51.13%) were of the view that dogs licking open wound will lead to getting rabies

while 48.87% were of the view that this cannot be possible. Exploring the opinion of dog vaccination, 278 (62.47%) were of the view that dogs should be vaccinated every year. Meanwhile others (27.42%) were also of the opinion that vaccination of dogs should be done on quarterly bases.

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Table: 4:1: Knowledge of Rabies Disease

Questions	**Frequency (N=475)**	**Percentage (%)**
Have you heard of Rabies Disease		
Yes 458 96.42 No 17 3.58		
source of information about Rabies School, friends and neighbours 149 32.53		
Media	95	20.74
Veterinary Service	135	29.48
Healthcare Centre	66	14.41
Vaccination Campaign	13	2.84
Others	0	0
Rabies is ;		
Rabies is a **viral infection** that affects the nervous system of mammals	176	37.77
Rabies is **Bacteria infection** that affects the nervous system of mammals	76	16.59
Rabies is a **worm infection** that affects the nervous system of mammals	59	12.88
Rabies is an **air-born infection** that affects the nervous system of mammals	99	21.62
No Idea	49	10.70
Other	3	0.44

Most common source of Rabies		
Bites from infected animal	97	21.18
Playing with infected animal without bites	173	37.77
Scratch from infected animal	75	16.38
Consuming meat from infected animals	93	20.31
Others	5	1.09
No Idea	15	3.28
Most common animal source of Rabies		
Dog	264	73.74
Cat	71	19.83
Fowls	13	3.63
Bat	5	1.40
Sheep	3	0.84
Goat	2	0.56
Primary symptoms of rabies in people		
Fever	187	40.65
Sore throat	78	16.96
Stiff Muscles	127	27.61
Nausea	29	5.65
Fear of Water	16	4.57
Paralysis	21	4.89
Your dog can bite you		
Yes	401	90.32
No	43	9.68
Is rabies dangerous		
Yes	408	91.89
No	36	8.11
Rabies can kill		
Yes	322	72.52
No	122	27.48

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Rabid dog licking open wound you can lead to rabies		
Yes	227	51.13
No	217	48.87
Duration of dog vaccination		
Yearly	278	62.47
Quarterly	122	27.42
Monthly	43	9.66
Weekly	1	0.22
Others	1	0.22

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SECTION C: ACTIONS TAKEN WITHIN THE COMMUNITY AFTER EXPOSURE TO DOG BITE

Common Practice among Community members during Dog Bits (exposure)

Assessing the community's practice after dog exposure, the most of the respondents 186 (39.16%) were of the view that buying medicine from the drug store is the first remedy to take after dog bits exposure. Others (29.05%) also were of the opinion that tetanus vaccination should be done first. Meanwhile, calling the doctor (12.84%) and thoroughly washing the wound with soap under running water (8.84%) seen optimum responses.

In respect to the suspected rabid animal (Dog), 52.63% of the respondents said the animal should be killed. Others (17.68%) were of the notion that the animal should be sent to the Veterinary for assessment. However, 18.11% said the animal should be chased away from home immediately after suspecting it. To Confine and observe the suspected animal had seen response rate of 9.68% as well as 1.05% for five respondents who have no idea on what to do the rabid animal About 34.53% were also of the view that Taking tetanus injection before a bite will serve as preventive and protective measure against while 2.74% are of the view that the dead animal (rabid animal) should not be touched.

In the area of protective measures, the vast majority of the respondents 340(71.58%) believe they best way to be protected against rabies was to have rabies vaccination done before a bite. The table below outlined each responses.

Table 4:3; Common Practice among Community members during Dog Bits (exposure)

Questions	Frequency (N=475)	Percentage (%)
What would you do (First) if you are bitten by an animal or exposed to the saliva of a possibly rabid animal		
Call the Doctor	61	12.84
Thoroughly wash the wound with soap and running water	42	8.84
Buy medicine from the Drug store	186	39.16
Put black stone on the wound	46	9.68
Take Tetanus Injection	138	29.05
Other	1	0.21
No Idea	1	0.21
What do you do to the animal you suspect of rabies or bite you		
Kill it	250	52.63
Send to the veterinary	84	17.68
Chase away from home	86	18.11
Confine and Observe	46	9.68
Other	4	0.84
No Idea	5	1.05
What is the best way to protect myself/ family and others from rabies		
Vaccinate your domestic dog, cat, or ferret	168	35.37
Keep wild animals out of homes, workplaces and other dwellings	128	26.95
Take tetanus injection before a bite	164	34.53

Do not touch dead animals	13	2.74
Other	2	0.42
Can a person get rabies vaccination as preventive measures		
Yes	340	71.58
No	135	28.42

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SECTION C: COMMUNITY'S PERCEPTION OF RABIES

Perception

About 38.32% of the respondents were of their opinion that freely roaming dogs should be vaccinated whereas others (28.63%) such populations should be reduced through scientific methods. Meanwhile, 20.63% holds their opinion that those stray dogs should be killed without any consideration. In controlling stay dogs population, 311 respondent representing 65.47% believe this should be done with the collaboration between Governments, residents in the community as well as NGOs into animal welfare. Again, 62.58% perceived stray dogs attack people while 26% found stray dogs as creating nuisance in the environment.

Table 4:4: Perception on stray dogs in the environment

Questions	Frequency (N=475)	Percentage (%)
Opinion about free roaming dogs/ stray dogs?		
They should be killed	98	20.63
They should all be vaccinated	182	38.32
not killing them	136	28.63
Chase from home	26	5.47
Observed	33	6.95
I don't care about them	0	0.00
Who in your opinion is responsible for the controlling stray dog population		

Government only	138	29.05
Government plus people in the community/NGO	311	65.47
Don't know	26	5.47
What problems do stray Dogs contribute to?		
They bark a lot and create nuisance	123	26.00
Attack and bite people who pass their way	296	62.58
Their population should be reduced using some method		

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SECTION D: COMMUNITY'S ATTITUDE TOWARD DOG BITES

Attitude of Individuals towards Dogs Keeping

The majority of the respondent 349 (78.60%) who own dogs do not feed their dogs at all. However, (8.78%,who fed their dogs does so ones a while and some one's daily (60.0%), others (5.86%) could not remember when they have fed their dogs.

Seeking for medical attention; about 63.74% don't send their dogs for medical check-up at all. In addition, 130 representing 29.28% seek for medical help only whenever the dogs are sick.

84.23% of the respondents beat their dogs whenever they have misbehaved untowardly. Likewise, 70.95% who own dogs do not vaccinate their dogs. Reasons for not vaccinating dogs seem "vaccination been too expensive" 136 (43.17%) and vaccination centre been too far of (33.33%). Some respondents (23.49%) are not even aware they have to vaccinate their dogs. 11.71% as fully fenced their houses to prevent dogs from been on the street or going to the nearby houses. A higher number of

respondents (60.32%) who own dogs freely allow their dogs moving to nearby houses and street as well as others 107 (24.10%) partially fenced their homes

Table 4:5: ATTITUDE OF INDIVIDUALS ON DOGS

Questions	Frequency (N=475)	Percentage (%)
Feeding you dog		
One's a while	39	8.78
One's a day	27	6.08
Twice a day	2	0.45
Trice a day	1	0.23
No feeding at all	349	78.60
I can't remember	26	5.86
Others	0	0
Do often do you take your dog for medical checkup		
Every months	2	0.45
Every quarter	9	2.03
Very Year	11	2.48
Whenever the dog is sick	130	29.28
Not at all	283	63.74
Others	9	2.03
Do you beat your dog when it misbehaves Yes	374	84.23
No	70	15.77
Have you vaccinated your dog		
Yes	129	29.05
No	315	70.95
Reason for not vaccinating your		
Not aware of dog vaccination	74	23.49
Vaccination too expensive	136	43.17
Vaccination centre too far	105	33.33
Level of dog confinements		
Caged	7	2.22
Rope	9	2.86
Freely moving within the house	109	34.60
Free moving to nearby houses and street	190	60.32
Level of Home Fencing		
Not fenced	285	64.19
Partially fenced	107	24.10
Fully fenced	52	11.71

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CHAPTER FIVE

DISCUSSION

Demographic characteristics

The demographic characteristics of respondents as presented in demographic table seem to have more Males responding to the questionnaire than Female because, the married women were of the view that their husbands should be in the position in responding to the survey not them.

In the area of religion, some Muslims who have dogs believed that dogs plays a very important role in securing homes when well trained and that they have dogs because of insecurity of the current state in the country.

Even though the educational level of the respondents was good (tertiary) most are into sales and service such as selling of mobile phones, fast foods and others engaged in the sale of home used clothing as sources of income.

The Knowledge of the Community Concerning Rabies

Data from the analysis shows that most of the community members have heard of rabies disease before, yet variables such as "common sources of information was attributed to hearing from Schools, friends and close neighbours had seen more responses. Schools, friends and close neighbours had been seen to play an important role in the disseminations of information on Rabies as compared to the media, health facilities (personnel) and the veterinary. This supports a study done in Abidjan, most of the people interview knew of rabies disease and schools was the most occurring sources of information *Tiembré et al (2014).* This makes schools an important targets of public awareness creation or education on rabies than any other sources. This is a call for the veterinary Department on the Ministry of Agriculture to embark public education on rabies disuses.

Less than 50% knew that rabies is a viral disease. . This is also seen when the respondents said rabies is an **air-born infection** that affects the nervous system of mammals 21.62%. Relating this to student in South Sudan (Holmes, E. C. (2008), it revealed that most of the respondent do not know how rabies is transmitted to human. Another study conducted in Southern Ethiopia among Koma's, (Salomon, J. (2010).Their findings were not different from the Sudan study. From this study, it was obverted that playing with animals without a bite can constitute rabies transmission, while exposing ones opened wound to dogs to lick dose not lead to rabies transmission. The respondents were of the view that, this will rather facilitate wound healing than normal wound dressing. According to them, this practice is less expensive and the result within two weeks is positive. While in a study conducted Nigeria (Abubakar, M. J. 2010), the result shows that most respondent believe this practices is dangerous and can leads to rabies. The practice of dogs licking open wounds for faster healing e needs to be discourages because rabies is a viral disease and it migrate to the salivary gland of the affected dogs. Such practices rather will expose the individuals to rabies infection if only the dogs is an infected dogs. There should be a very strong

collaboration between the Veterinary departments and the Health service to reach out to the entire population on rabies disease.

From the earlier discussion it can be seen that among the rabies control measures, education is very important. The type of information given to the general public about rabies must be clear and relevant. Community participation or involvement is also very important, but before the community will participate they need to be educated on why they should participate and what they are expected to do or the economic important of rabies. With adequate information, dog owners would make an informed decisions that will health them take appropriate actions toward their dogs. This (knowledge) would encourage participation and cooperation from dog owners and it can lead to more effective control programmes.

In assessing the knowledge of the population, Majority knew that rabies is a very dangerous disease and can kill them. Most of respondents also know that they are at risk of being bitten by their own dogs. When asked about the symptoms of rabies, less than half of the respondents could mention fever as the common symptom.

Wilmshurst, J. M. (2014), in his study revealed majority of Africans are exposed to rabies infection because mothers do not know how rabies is transmitted and also have lesser knowledge on rabies prevention. This study was conducted to ascertain Current and Future Trends in the Epidemiology, Prevention, Treatment, Control and Possible Elimination of Rabies. Views on this study, it is an indication that information at the community level is woefully is incomplete, and may not lead to required actions.

Communities Practice after Exposure to Dog Bite

From the analysis it was noticed that buying of medicines from the drug stores and taken of Tetanus

injection were the common practices of the respondents. Exploring their reasons for seeking treatment from above sources, some were of opinion that; there will not be a queue at the chemical shops and services over there are very fast. Others were also of the opinion that the tetanus injection works the same as another medicines (anti-rabies).

A similar survey conducted in Tamale (Municipal Assembly (1997); Annual Report,) shows that majority of the respondents buy medicines and call for tetanus injection from the chemical sellers whenever they are been bitten by dogs. In another study conducted; Motschwiller, E. (2000 most of the) respondents resort to medical help when every bitten by dogs (South Africa, Angola, Egypt) yet in Sub-Saharan Africa countries, the practice of buying medication from drugs stores and peddlers are common whenever bitten by dogs.

However, this is an indication of insufficient information (knowledge) at the community levels. The most important actions were all left out. The thorough washing the wound with soap under running water and seeking Medical help were all not considered as intervention measures mentioned by the respondents.

Under the Animal Disease (Act of 1961), the Veterinary Services Department is to be notified of cases of animal diseases and also the Act empowers the Department to isolate infected animals. The Department is vested with the power to inspect any animal at a reasonable time. Dog owners are to housed (caged) their animals and prevent them from straying. Owners are to present their animals to the Veterinary staff for inspection and for any veterinary intervention such as treatment and vaccination to be carried out. People bitten by dogs are to report to the Ministry of Health for Post Exposure Treatment (Hospital or clinics) and also report to the Veterinary Services Department as specified in the Disease of Animals Act 1961 with the dog for veterinary examination and quarantine. Dogs with clinical signs and those bitten by suspected rabid animals

are killed and sent to the veterinary laboratory for examination. As to whether dog owners in the Ga East Municipality knew and adhere to these regulations is also another issue to be considered.

Community perception regarding Rabies

Majority of dogs owned by members in the community are not caged (housed) and not fed. In a study conducted by Cleaveland, S. (2003), it also revealed that most Rural Africa dog owners do not house their dogs. The same study also stated that the dogs are mostly on free range and they look for their own food.

Community's Attitude toward caring for their Dogs

The majority of the respondents do not send their dogs for medical check-up at all. Even those who send their dogs does so when-every the dogs are sick. Some of the respondents beat their dogs whenever they have misbehaved untowardly. In a study (Ehimiyein, I. O. (2014), it was revealed that most dogs owners in Nigeria, do not send their dogs for medical check-ups. Again in a study by Adewale, O. G. (2010), findings are not different from (Ehimiyein, I. O. (2014). Majority of the respondents left their dogs to seek for their own health out sending them for medical check-ups or even when the dogs are sick, they do not care for their health.

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CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

Study revealed that the residents of Ga East Know about Rabies disease and that they are of the view rabies is transmitted mostly by dogs. However, most of the respondent believe rabies is a bacterial disease. The common practice of the community members after dog exposure is buying and taken tetanus injection at chemical shops only few seek for medical help at the health facility.

Most of the community members perceived that rabies can kill them and all stray dogs have to be killed with consideration. However, most of them don't believe that when dogs lick their open wound they can get infected with rabies.

In conclusion, the resident's in Ga East Municipality are of the view that all dogs should be vaccinated against rabies and the vaccines should be made accessible and affordable.

6.2. Recommendations

Base on the study findings and other information collected during the study, the following

Recommendations are made:

1. The Ministry of Health and Veterinary Services Department of the Ministry of Food and Agriculture should embark on education on Rabies.
2. Vaccines should be made available and accessible to the resident (Dog Owners) in Ga East
3. There should be a community durbar to bring all stakeholders together in the fight against rabies.

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APPENDICES

Appendix A; Permission Letter

In case of reply the number and the date of this letter should be quoted.

GHANA HEALTH SERVICE
GA EAST MUNICIPAL HEALTH DIRECTORATE
ABOKOBI-GREATER ACCRA
P. O. BOX AK 1
ABOKOBI.
14/12/2018

THE FACILITY IN-CHARGE

Dear Sir/ Madam,

SUBJECT: INTRODUCTION LETTER FOR MR OSCAR VETSI, STUDENT FROM KWAME NKRUMAH UNIVERISTY OF SCIENCE AND TECHNOLOGY.

The Municipal Health Directorate, Ga East writes to introduce the bearer to this letter **Mr. OSCAR VETSI** a student from the Kwame Nkrumah University of Science and Technology who is to undertake his research studies or survey in the Municipality on Knowledge, attitude, perception and practices in respect of rabies disease, he will be working in the Municipality on his project from the period of 14th December 2018 to 31st March, 2019, this is of awarding a degree in his academic studies.

We kindly recommend that, all facilities should support and assist him complete his project successfully in the Municipality.

Counting on your co-operation.

Thank you.
Yours Faithfully,

MUNICIPAL DIRECTOR OF HEALTH SERVICES ABOKOBI-GA EAST

DR JUSTICE A. HOFFMAN
Municipal Director, Health Services – Ga East
Public Health Specialist
drhoff@hotmail.com

Appendix B; Introduction Letter

Kwame Nkrumah
University of Science
and Technology, Kumasi

College of Health Sciences
SCHOOL OF MEDICINE AND DENTISTRY

Department of Community Health

5th July, 2019

The Chairman
Committee of Human Research and Publication Ethics
KNUST
Kumasi

Dear Sir,

LETTER OF INTRODUCTION – VETSI, OSCAR

This is to introduce Vetsi, Oscar a Bachelor of Public Health student of KNUST African Institute of Sanitation and Waste Management (KAISWM) – affiliated to the KNUST.

He is working on a study entitled: "Knowledge, attitude, perception and practices in respect of rabies disease among residents of the Ga East Municipality".

He requires ethical clearance to be able to complete his research in fulfillment of the requirements of the award of the degree. I would be grateful if you could kindly assist him in this endeavor.

Thank you.

Yours truly,

Dr. Yeetey Enuameh
Supervisor

PMB UPO, KNUST, Kumasi **Fax**: 233-3220-60302. **Tel**: 03220 60293, 60303, 60295
Email: head.commhealth@knust.edu.gh, Website: www.knust.edu.gh

Appendix C; Cover Letter

KWAME NKRUMAH UNIVERSITY OF
SCIENCE AND TECHNOLOGY-KUMASI
SCHOOL OF PUBLIC HEALTH
K-ASWAM CAMPUS
ACCRA
22/05/2019

THE OFFICE OF THE CHAIRMAN
COMMITTEE ON HUMAN RESEARCH AND PUBLICATION ETHICS
KUMASI

Dear Sir/Madam

APPLICATION FOR AN ETHICAL CLEARANCE TO PERSUDE ACADEMIC RESEARCH.

I OSCAR VETSI a student of Kwame Nkrumah University Of Science And Technology- K-AISWAM Campus write to seek for your approval to carry out academic research for my first degree. The title of the paper is; Knowledge, Attitude, Perception and Practices in Respect of Rabies Disease among the Residents in Ga East Municipality, Ghana.

This will benefits the residence of Ga East and the entire population against rabies disease.

Hope this will be considered as I wait patiently for your Approval

Thank you

Oscar Vetsi
0201752014

QUESTIONNAIRE FOR ASSESSING COMMUNITY ON RABIES DISEASE

IDENTIFICATION

Questionnaire no…… Date of interview: ……...

Sub-District ……

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Introduction:

I am a student of Kwame Nkrumah University of Science and Technology. I am here to collect information on Rabies Disease, this information is going to be used for research purpose only and it is expected that the outcome of the research will be used to improve on Rabies disease among residence in the Municipality. I therefore request for your time and cooperation to participate in this interview that will not take much of your time. You have every right to opt out from this exercise and your decision is highly accepted.

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

1. Sex

Male ---------- 0

Female----------1

2. Age

15-19----------1

20-29----------2

30-39----------4

40-49----------5

50-59----------6

60+ ----------7

3. Education

- Primary ----------1 Secondary----------
- ----------2
- Tertiary ----------3
- No Education ----------4

4. Religion

a) Christian ----------1

b) Muslim ----------2

c) Traditional/Spiritualist …-…….3

d) No Religion ----------4

5. Occupation

a) Professional/Technical/Managerial ----------1

b) Clerical---------- ----------2

c) Sales and Services----------3

a) Skilled Manual ----------4

b) Unskilled Manual----------5

c) Agriculture----------6

SECTION B. DOG OWNERSHIP/ PURPOSE OF KEEPING DOGS

6. Ownership of dogs

a) Yes ----------0

b) No ----------1

7. Number of Dogs Owned (Answer this question if you say YES to the previous question)

a) 1
b) 2
c) 3
d) 4
e) 5

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8. Purpose of keeping dogs at home (All should answer)

a) Hunting ----------1
b) Home Pet ----------2
c) Home Guide----------3
d) For Sale (Business) ----------4

SECTION C: KNOWLEDGE OF RABIES

9. Have you heard of Rabies Disease?

a) Yes----------0
b) No----------1

10. If yes, what is the source of information?

a) School, friends and neighbours ----------1
b) Media----------2
c) Veterinary Service----------3
d) Healthcare Centre----------4
e) Vaccination Campaign ----------5
f) Others ----------6

11. If yes, what is Rabies?

a. Rabies is a viral infection that affects the nervous system of mammals.-------1
b. Rabies is Bacteria infection that affects the nervous system of mammals-----2
c. Rabies is a worm infection that affects the nervous system of mammals.-----3
d. Rabies is an air-born infection that affects the nervous system of mammals--4

e. No Idea----------5
f. Other ----------

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12. What is the most common source of Rabies?

a. Dog----------1
b. Cat----------2
c. Fowls----------3
d. Bat----------4
e. Sheep----------5
f. Goat----------6
g. Cow----------7

13. How is rabies commonly transmitted?

a) Bites from infected animal ----------1
b) Playing with infected animal without bites--------2
c) Scratch from infected animal----------3
d) Consuming meat from infected animals----------4
e) Others ----------5
f) No Idea----------6

14. What are the Primary symptoms of rabies in people (Mention at least two?)

a) Fever---------- 1
b) Sore throat----------2
c) Stiff Muscles ----------3
d) Nausea----------4
e) Fear of Water----------5

f) Paralysis ----------6

15. Do you think your dog can bite you?
    a) Yes ----------0
    b) No----------1
16. Do you think rabies is dangerous?
    a) Yes ----------0
    b) No----------1
17. Do you believe that rabies can kill?
    a) Yes ----------0
    b) No----------1
18. Do you think when a rabid dog licks your open wound you can get rabies?
    a) Yes ----------0
    b) No----------1
19. How often do you think you should vaccinate your dog?
    a) Yearly ---------- 1
    b) Quarterly----------2
    c) Monthly----------3
    d) Weekly----------4
    e) Others ----------5

SECTION D; ATTITUDE OF INDIVIDUALS ON DOGS

20. How often do you feed you dog?
    a) One's a while ----------1
    b) One's a day----------2
    c) Twice a day----------3
    d) Trice a day ----------4
    e) No feeding at all----------5
    f) I can't remember----------6 1. Others
21. Do often do you take your dog for medical checkup?
    a) Every months----------1
    b) Every quarter----------2
    c) Very Year----------3
    d) Whenever the dog is sick--------4
    e) Not at all----------5
    f) Others----------6

22. Do you beat your dog when it misbehaves?
    a) Yes----------0
    b) No----------1

23. **Dog's vaccination status (For those who owe Dogs). Have you vaccinated your dog?**

    a) Yes ----------0

    b) No----------1

24. Reason for not Vaccinating your dog (Answer this question if your response to the question above is no)

a) Not aware of dog vaccination ----------1

b) Vaccination too expensive----------2

c) Vaccination centre too far----------3

25. Level of dog confinements

a) Caged ----------1

b) Rope ----------2

c) Freely moving within the house----------3

d) Free moving to nearby houses and street---4

26. Level of Home Fencing

a) Not fenced ----------1

b) Partially fenced----------2

c) Fully fenced----------3

SECTION E; PERCEPTION

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27. What is your opinion about free roaming dogs/ stray dogs?

a) They should be killed----------1

b) They should all be vaccinated----------2

c) Their population should be reduced using some method not killing them---3

d) Chase from home----------4

e) Observed----------5

f) I don't care about them----------6

28. Who in your opinion is responsible for the controlling stray dog population?

a) Government only---------- 1

b) Government + people in the community/NGO---3

c) Don't know----------4

29. What problems do stray Dogs contribute to?

a) They bark a lot and create nuisance----------1

b) Attack and bite people who pass their way----------2

c) Not a problem at all----------3

SECTION F: COMMON PRACTICE DURING DOG

30. What would you do (First) if you are bitten by an animal or exposed to the saliva of a possibly rabid animal?

a) Call the Doctor ---------- 1

b) Thoroughly wash the wound with soap and running water--- 2

c) Buy medicine from the Drug store---------- 3

d) Put black stone on the wound----------4

e) Take Tetanus Injection----------5

f) Other ----------6

g) No Idea

31. What do you do to the animal you suspect of rabies or bite you?

a. Kill it----------1

b. Send to the veterinary----------2

c. Chase away from home----------3

d. Confine and Observe----------4

e. Other ----------6

f. No Idea

32. What is the best way to protect myself/ family and others from rabies?

a. Vaccinate your domestic dog, cat, or ferret----------
---1

b. Keep wild animals out of homes, workplaces and other dwellings---
---2

c. Take tetanus injection before a bite----------3

d. Do not touch dead animals ----------4

e. Other ----------6

33. Can a person get rabies vaccination as preventive measures?

a) Yes----------1

b) No ----------2

Thank you

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