Assessment of knowledge and practice towards rabies and determinants of dog rabies vaccination in Sumbawanga municipality

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School of Public Health and Social Sciences

ASSESSMENT OF KNOWLEDGE AND PRACTICE TOWARDS RABIES AND DETERMINANTS OF DOG RABIES VACCINATION IN SUMBAWANGA MUNICIPALITY

By

Henry Donart Kissinga

A Dissertation Submitted in (Partial) Fulfilment of the Requirement for the Degree of Master of Science (Applied Epidemiology) of

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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled: **"Assessment of knowledge and practice towards rabies and Determinants of dog rabies vaccination in Sumbawanga municipality",** in (partial) fulfillment of the requirements for the degree of Master of Science (Applied Epidemiology) of Muhimbili University of Health and Allied Sciences.

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Dr. Simon .H. Mamuya

(Supervisor)

_____

Date

DECLARATION AND COPYRIGHT

I, **Henry Donart Kissinga,** declare that this **dissertation** is my own original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

Signature:……..…. **Date:**……..

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I take this opportunity to thank Livestock field officers participated and all respondents for their consent and support during data collection for this study.

On top of all, I thank the Almighty God, for his blessings and for giving me health, energy and the ability to accomplish this work.

DEDICATION

This work is dedicated to my wife and my sons for love and moral support without forgetting my parents who laid a strong foundation for my school life.

ABSTRACT

Background: Rabies is a viral zoonotic disease which is nealrly always fatal caused by lyssavirus. The annual human deaths due to dog-mediated rabies is estimated to be 59 000 globally where in African alone 21476 human deaths are reported to occur each year. In Tanzania according to the active surveillance which was conducted in 2002 estimated human rabies mortality to be 1,499 per year..The vacination coverage of dogs against rabies in countiwise is not well known but according to study done to kilosa previous year indicated vaccination of rabies to be only 24.4 % Vaccination coverage of dogs in Sumbawanga Municipality has been very low 2015 (11%) ,2016 (22%) and 2017 was 28% despite the high dog bites cases in human and associated human dog-mediated rabies deaths.

Broad objective: This study was conducted to assess knowledge and practice towards rabies and Determinants of dog rabies vaccination in Sumbawanga municipality

Material and method: A cross sectional survey with two stage sampling were used based on the WHO Expanded Program on Immunization coverage , semi structured questionnaire was used to collect information related to vaccination of dogs from households. A set of questions related to rabies knowledge and practice were used to score respondents. The data were analysed to determine mean proportions,the Odds ratio was used as the measure of association between outcome variable and independent one was significant at $P < 0.05$ and logistic regression was used for modeling . STATA13 software was used for analysis of the data.

Results Three hundred and sixty households enrolled had a population of 498 dogs with 48.2% (n=240) dogs vaccinated against rabies within the last 12 month. The vaccination of dogs at household level were statistically significantly associated with history of being exposed to rabies (OR=3.6, 95% CI 1.29 - 10.05), Education,were by secondary education and above (OR=8.72, 95% CI 2.6 -29.5) , Proper feeding of dog (OR=4.0 95% CI 2.09-5.91), Availability of vaccine (OR=1.72 95% CI 1.08-2.75), Availability of Vet/Field officer (OR=9.64 95% CI 1.28-72.64) and Sex of dogs were more males were vaccinated than

females (OR=1.5 95% CI 1.03-5.91). The overall respondents with knowledge and good practice of rabies were 83.6%(n=301) and 78.9% (n=282) respectively .

Conclusion: Though knowledge of rabies is adequate among households of Sumbawanga municipality, dogs vaccination coverage was below the 70% recommended for herd immunity. Mass vaccination campaign and law enforcement is needed.

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ABREVIATIONS

DE Design Effect

DED District Executive Director

EPI Expanded program for Immunization

IDSR Integrated Diseases surveillance and Response

IRB Institutional Review Board

MUHAS Muhimbili University of Health and Allied Science

N Sample size

OIE World Organization for Animal Health

PEP Post Exposure Prophylaxis

PI Principal Investigator

RABV Rabies Viruses

SMC Sumbawanga Municipal Council

TFELTP Tanzania Field Epidemiology and Laboratory Training

USA United state of America

VEO Village Executive Officer

WHO World Health Organization

DEFINITION OF KEY WORDS

Rabies, Dog vaccination, Knowledge, Practices, Household

Rabies is a zoonotic disease caused by neurotropic RNA viruses of the genus *Lyssavirus* in the family *Rhabdoviridae* of the order Mononegavirales that can affect all mammals.

Dog Vaccination is the administration of antigenic material (a **vaccine**) to the dog in order to stimulate immune system to develop adaptive immunity to pathogen disease-causing organisms.

Knowledge is an information and understanding about a subject which a person has, or which all people have.

Practices are the actual application or use of an idea, belief, or method, as opposed to theories relating to it.

Household refers to a person or group of persons who reside in the same homestead or compound but not necessarily in the same dwelling unit, have same cooking arrangements, and are answerable to the same household head except for collective household.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Rabies is an acute encephalitis or meningoencephalitis due to a lyssavirus infection. It is a zoonotic disease transmissible to all mammals through the saliva of an infected animal via bite wounds, or infected saliva entering an open cut or wound or mucous membrane, such as those in the mouth, nasal cavity or eyes (1)(1–3). Clinical rabies in animals could be presented in two different forms: furious rabies and dumb or paralytic rabies. In humans, rabies is presented with an acute neurological syndrome (i.e. encephalitis) dominated by forms of hyperactivity (furious rabies) or a paralytic syndrome (paralytic rabies) that progresses towards coma and death, usually due to cardiac or respiratory failure, typically within 7–10 days of the first sign if no intensive care is instituted (4).

All mammals can be infected and transit rabies to human but most common animals that can transmit rabies is dog and cats because of their intimate association with human(5), The most common wild reservoirs of rabies are raccoons, skunks, bats, and foxes .(6)

The incubation period in dogs is usually 3-9 weeks but can be as short as 10 days or as long as 10 months depending on amount of implanted virus, richness of local innervations and distance of wound from the central nervous system. The incubation period of rabies in human may vary from few days to several years but a typically known is 1-3 Months(7).

There is no certain cure for rabies except supportive care. If a person is bitten by an animal, the wound and scratches should be washed thoroughly with soap and water to decrease the chances of infection Rabies can be prevented before the latent symptoms can develop, consists of giving a person an injection of rabies immune globulin as soon as possible after the bite or exposure to saliva from an infected animal(8) in animals it is advised to vaccinate animals in order to prevent rabies but It is suggested to euthanize animals which are developing clinical signs of rabies since there is no cure for rabies after sighn and symtoms (5)

The disease causes a severe and long-lasting societal and economic burden and the implications are especially apparent in poverty-stricken developing countries (2). Direct economic impact of rabies is death and have case fatality rate of nearly 100% when human start developing rabies signs and symptoms after exposure (9). The burden of rabies is estimated to be around US$20 million in Africa, with the highest financial expenditure being the cost of post-exposure prophylaxis (PEP) (10).

The annual human deaths due to dog-mediated rabies is estimated to be 59, 000 globally where in African alone, 21,476 human deaths are reported to occur each year (1). In Tanzania according to the active surveillance which was conducted in 2002, human rabies mortality was estimated to be 1,499 per year (11). The estimates of rabies burden in Africa have always been uncertain, due to poor surveillance attributed to the under reporting of rabies cases in many low income countries (1).

In Tanzania, rabies was reported for the first time in the 1923 and it was confirmed in the laboratory in 1933 (12). The most important reservoir of rabies in Tanzania like other low income countries is domestic dogs (13). Dog-mediated rabies is more prevalent and wide spread, continuing to be a serious public health problem (14).

Dog vaccination has been mentioned to be one of the successful approach in controlling dog-mediated rabies (15). For instance the mass dog vaccination campaign which was conducted in Serengeti district showed tremendous decrease of rabies cases (14,16).

1.2 Problem statement

Although rabies is preventable through vaccination in both animals and humans (17),The vacination coverage of dogs against rabies in countiwise is not well known but according to study done to kilosa previous year indicated vaccination of dog against rabies to be only 24.4% (18). Vaccination coverage of dogs in the Sumbawanga Municipality over years, has been persistently below the 70% (WHO recommended vaccination coverage for elimination of dog mediated rabies).The dog vaccination coverage in 2015 was 11%, and slightly improve in the subsequent years to 22% in 2016 and 28% in 2017 [source: Data from department of livestock Sumbawanga Municipal Council]. In 2017, a total of 104 human cases due to animal bites were reported in Sumbawanga municipality through passive surveillance (IDSR system). On the other hand, an active surveillance which was done by reviewing data from July 2017 to June 2018 a total of 1050 cases and 17 deaths of humans due to animal bites respectively were reported in the Sumbawanga Municipality (Source: Rukwa Regional referral hospital).

Several efforts have been taken by different stake holders including Veterinary and Public health officers to ensure that, people understand rabies and its effects in Sumbawanga municipality. These include distribution of the guidelines for controlling rabies to primary schools, providing mass education during vaccination campaigns about rabies and its effects to the community. Also the municipal authority imposes penalty to the dog owners who do not confine dogs within their household compound.

Despite these efforts on public awareness, prevention and control of rabies, vaccination coverage in the Sumbawanga municipality is still low and number of animal bites reported remains high, therefore lack of baseline information on household knowledge and practice and vaccination associated factors, could possibly be the reason of the problem.

1.3 Conceptual frame work

Frame work showing factors that influence vaccination of dogs at household level, the factors are categorized into individual, institutional and factors related to dogs and vaccine itself.

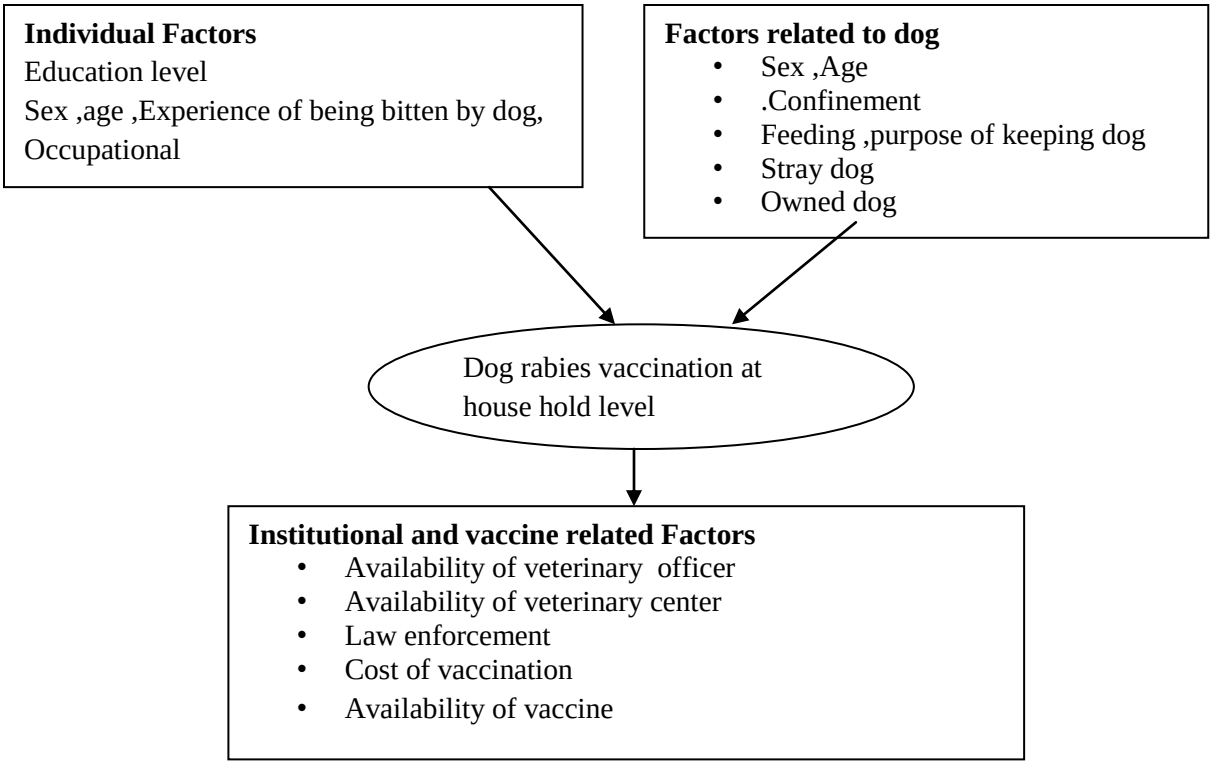

Figure 1:Conceptual frame work showing how factors influencing rabies vaccination coverage among dogs at household level (Adapted from (19)).

This conceptual frame work (Figure 1) help to clarify the different factors influencing the vaccination coverage among dogs at household level, the arrows represent the causal effects, Dogs rabies vaccination coverage at household level depend on 1. Individual factors like (Education, Sex, Age, Occupational and experience of being bitten by dog can influence vaccination of the dog) 2. Institutional factors (Availability of Veterinary services which include availability of expertise (Veterinary/field officers and veterinary center) may increase the vaccination of the dogs at household level 3. Factor related to vaccine (availability of vaccine and cost of vaccine) 4. Factors related to dogs like confinement, feeding and purpose of keeping dogs.

1.4 Rationale of the study

This study provide opportunity to determine knowledge and practice towards rabies and determinants of dog rabies vaccination among community in Sumbawanga Municipal and therefore serve as an important and useful tool to bridge the gap towards best control strategies to achieve the global target of rabies elimination by 2030 (20) as mentioned in Sustainable Development Goal three (SDG3) "to ensure health lives and promote well being for all at all ages". The outcome of this information will be used by multi-sectorial stakeholders like animal health, human health and wildlife sector through approach of one health on controlling and preventing rabies.

1.5 Objectives

1.5.1 General Objective

This study was conducted to assess knowledge and practice towards rabies and Determinants of dog rabies vaccination in Sumbawanga municipality.

1.5.2 Specific objectives

1. To determine proportional of the dogs vaccinated against rabies within last twelve month at household level in Sumbawanga Municipality.
2. To determine factors associated with rabies vaccination in dogs at household level in Sumbawanga Municipality.
3. To assess the proportion of heads of household with knowledge toward control and prevention of rabies in Sumbawanga Municipality.
4. To assess the proportion of heads of household with appropriate practices toward control and prevention of rabies in Sumbawanga Municipality.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Aetiology description and Epidemiology of Rabies

Rabies virus belong to the Mononegavirales order, the *Rhabdoviridae* family and the *Lyssavirus* genus. Of all the lyssaviruses known to date, classical rabies virus (RABV) is the most important one for public and animal health (1,2). Rabies infection is maintained in two epidemiological cycles, the urban and sylvatic (wildlife) cycles. In the urban rabies cycle, dogs are the main reservoir host and responsible for more than 99% of human cases (21). Rabies it can affect a wide range of victims including all warm-blooded animals.

Common mode of transmission of rabies is through bite from infected animals and saliva of an infected animal is the one responsible for transmission (22), oral route transmission can be another way of getting infection when animal feed from the infected dead animal (23). The virus is inoculated into the tissues by a bite, and replicates locally in the muscles, then enters nerve axons at neuromuscular junctions and is transported along the nerve axons to the central nervous system. It then spreads rapidly along neurons and induces behavioral abnormalities and progressive lower motor neuron deficits. The incubation period in dogs is usually 3-9 weeks but can be as short as 10 days or as long as 10 months depending on amount of implanted virus, richness of local innervations and distance of wound from the central nervous system. The incubation period of rabies in human may vary from few days to several years but a typically known is 1-3 Months(7).

2.2 Dog vaccination coverage

In order to eliminate rabies in a dog population which have significant important in transmission of rabies in human canine vaccination is considered to be the most cost- effective approach for eliminating human rabies exposure (24). Vaccination of dog must be taken into consideration as research show that in endemic area at least 70% of dog population need to be vaccinated during annual rabies vaccination campaign (25).

Vaccination of domestic dog was used to eliminate rabies in many countries worldwide, example of countries like Japan, Taiwan, Western Europe, USA and across part of Latin America, the most strategy which they used is through vaccination of domestic dog(26). Mass dog vaccination programs starting in1920s to 1930s were largely responsible for eliminating dog rabies in Canada, Japan Western Europe and United state (27) wide spread use of dog vaccine were managed to eliminate canine rabies in Malaysia 1954, Japan 1956, Taiwan 1961(28).In Visayas the region which is found in Philippines the effect of rabies vaccination also indicated positive impact were by the decrease of suspected cases of rabies to 9 cases in 2014 compare to 43 cases reported in 2009 (29,30).

In African counties also effect of dog vaccination shows evidence of decreasing rabies incidence for example in South Africa project in the province of Kwa Zulu Natal, a clear correlation was shown between vaccination of dogs and decrease of rabies cases in animal as well as in human where by cases in animals drop up to 2 cases per month while in human drop up to 0 cases per month (29).

In Tanzania a study which was conducted in Serengeti district showed that, dog vaccination campaign decreased the incidence of rabies by 70% after the first campaign and by 97% after the second campaign. Vaccination of 60-70% of dogs was sufficient to control dog rabies in this area and to significantly reduce demand for human post-exposure rabies treatment (31). For the project site in Southern Eastern in Tanzania the average bite incidence decreased due to vaccination from 26/100,000 in 2011 to 12/100,000 in 2014.This decrease was resulted to reduction in the use of Post exposure prophylaxis (PEP) used after exposure to rabies (28).

2.3 Factors associated to rabies vaccination coverage among dogs

There are several factors mentioned to be associated with the dog vaccination, for example in research which was done in Bohol, Sex of the dog was mentioned to be among the factors where by males were seen to be vaccinated more compared to females (32). Age of dog was shown in some countries like Mexico and Equador to be contributing factor of vaccination were by dog with age of 1-11 months were less to be vaccinated than dog with age above one year (33). In Africa, a study done in Ethiopia reported that, shorter distance from vaccination

center and older age among dog owners were associated to increased dog vaccination (34) . Other similar studies have reported poverty to be factor contributing to low dog vaccination coverage in African countries (35). In Tanzania according to study in rural area vaccination coverage was associated with the livestock keeping at the household (36). Other factors reported to be associated with dog vaccine coverage include education, residence in an area with history of rabies intervention and having ever being exposed to a dog suspected to have rabies. (19) Availability of the veterinarians also was seen to be factors influencing the vaccination of dog (22) .

2.4 Knowledge of rabies

In the study conducted in Haiti a country which has highest burden of rabies in Western Hemisphere majority of the people knows that dogs is primary reservoir of the rabies but very few knows that mangooses can transmit rabies (37). In Sri Lanka majority of the people knows that rabies can be prevented through vaccination of dogs and human, low knowledge was observed on severity of the rabies after development of diseases and the lack of knowledge about other reservoir of rabies also noted (38). In the study conducted in Filipinos shows that about 94% heard about rabies but specific knowledge of rabies was limited and about 18% know where to report suspect rabies in case it occur (39).

In Africa, study which was done in Ethiopia shows majority of the people (94%) were aware about rabies and mostly mention dogs to be the primary reservoir of rabies to human, also majority of studied population knows that bite from the infected animal to be the primary mode of transmission, despite the fact that majority knew rabies but knowledge on the prevention was limited (40). In Kenya people who were aware about rabies were 90% but only 49% were able to describe correctly rabies, according to another study done in Kakamega county very few people found, know that when a person develops rabies signs and symptoms it is rare to be managed (22). In Tanzania according to study conducted in district which had long-term rabies interventions like Serengeti and Musoma and control districts that had no rabies intervention Mpwapwa and Kilosa. It was noted in those districts more than

95% heard about rabies but only 5% were aware about the need of cleansing wound immediately after being exposed to rabid animals (19).

2.5 Practice on Rabies

Good practice towards rabies is needed in order to control and prevent rabies and example of that practices include confinement of dog which is the primary reservoir of rabies, feeding dogs, vaccinating dogs, proper handling of the rabies carcass ,practice toward suspected rabies animal and practice toward seeking treatment. In Philippine good practice towards suspect rabies animals was observed to some population, in study done in Bicol only 13.7% was able to report suspect case of rabid animal to the authority and practice of capturing and observe for sign was reported only to few of them (4.2%) (41). In Sri Lanka majority of studied population (97%) were able to seek medical treatment after being bitten by rabid animal but only half of the respondents admitted that their pets had being vaccinated against rabies (38). In Haiti a study shows very few people were able to provide good first aid by washing the wound with soap and water and seeking medical treatment after being exposed to bite by rabid dog(37).

In Africa some studies were conducted regarding rabies practices. A study conducted in Nigeria found 18% of the respondents vaccinated their dogs against rabies and on handling suspect rabid about half of the respondents admitted to tie and kill the rabid dogs (42). In Kenya majority of the people showed good practice on seeking medical treatment, burring rabid carcass but very few reported the suspected cases of rabid dogs to authority (22). In study conducted in Addis Ababa Ethiopia revealed majority of the respondents 89.5% confined their dogs in cage or tied in their compound but 44% of their dogs was vaccinated against rabies (43).

In Tanzania study which was conducted in four districts Serengeti, Musoma, Ulanga and Kilombero indicated majority 94% of the people suspected to be bitten by rabid dogs were able to seek medical attention to hospital although (50%) reported immediately after being exposed (10). Management of wound after being exposed to rabid dog as a first aid by washing of water and soap was low(5%) (19)

CHAPTER THREE

3.0 MATERIALS AND METHOD

3.1 Study area

The study was conducted in Urban and Peri-urban areas of Sumbawanga Municipality. The study area is located in Rukwa region in the South-West of Tanzania. Sumbawanga Municipal Council lies between latitude $7^0$48'and $9^0$31' South of equator and between longitude $30^0$29' and 31^0 49' East of Greenwich. It borders with Sumbawanga District Council to the North, East and South, with Nkasi District to the North-west and Kalambo District to the South-west. Sumbawanga Municipality has a total area of 1 329 km^2, all is land mass. Administratively the Municipal has 2 Divisions divided into 19 wards, 167 streets ("Mitaa") and 24 villages. According to 2012 Population and Housing Census, the human population is 209 793 of which 100 734 were males, 109 059 were females. Average household size was 5. The mean temperatures fluctuate from 13^0C (June and July) to 27^0C (October to December) and the mean annual rainfall is 800 to 1 200 millimeters. The altitude ranges between 1000 and 2 461 meters above the sea level. According the 2017/2018 Municipal livestock register, the Council is estimated to have 8 389 dogs and 1 325 cats, other animals include 36 417 cattle, 19 270 goats, 1 085 sheep and 13 010 pigs. Most people in Sumbawanga keep dogs for security and hunting especially for those living at peri-urban area.

3.2 Study Design

Cross sectional study was conducted between February and March 2019 involving collection of data from household keeping dogs in Sumbawanga Municipality.

3.3 Study Population

The study population was households owning dogs in Sumbawanga Municipality during study period from February to March 2019

3.3.1 Inclusion criteria

Households owning dogs, heads of households or any member of the family with 18 years old or above.

3.3.2 Exclusion Criteria

Heads of the households whom did not give the consent.

3.4 Sample size Estimation and Sampling technique

The sample size required was estimated to be 640 using kish leslie formular for survey assuming that the proportional of heads of household with aprporiate Knowledge and Practice to be 50%, with a marginal error of 5% and 95% CI, design effect of 1.5 based on prior evidence was multiplied to sample size and 10% of sample size was added to account for non-respondents

$$N = g \times \frac{z^2 P (1-P)}{E^2}$$

Where

- ✓ N = Sample size
- ✓ g = Design effect = 1.5
- ✓ P = proportional of house hold with appropriate Knowledge = 50%
- ✓ E = Margin of error = 5%
- ✓ Z= Standard normal deviate = 1.96
- ✓ The estimated sample size (N) = 576 and non response rate is assumed to be 10%,
- ✓ Then N = 640

Two stages random sampling method was used whereby in the first stage 30 clusters (Smallest administrative area which includes villages and streets) were selected using systematic random sampling. The sampling interval was determined by dividing the total number of clusters (streets and villages in Sumbawanga Municipal) by the number of cluster we expect to collect (30 clusters).

The first cluster was selected using a randomly generated numbers and matching it to the first cluster in our list to the random number. Cluster 2 was identified by adding the sampling interval to the random number. Subsequent clusters were selected by adding the sampling interval to the previously generated number until a total of 30 clusters will be identified.

After identifying all 30 clusters, selection of the household was done using simple random sampling in the field. The basic sampling unit was the individual household. The first household was selected randomly after spinning a pen at the centre of the village ,then, the household next to the index household along the roadside in the direction chosen was included until at least 12 households and 7 dog-owning households was selected per village (Requirement of WHO EPI Scheme to reduce effect of clustering in case some households owned ≥ 2 dogs) (22).

3.5 Variables

In determining the proportional of the dogs at household level vaccinated against rabies which is an outcome variable was measured by dividing number of dogs which have vaccinated against rabies to total number of dogs owned, and independent variables like education, occupational, management of dogs (Feeding and confinement of dogs), purpose of keeping dogs, charge of vaccination, Availability of veterinary service, resident of the household, was used to find association between outcome and independent variables. On assessing knowledge and practice against rabies prevention and control, likerts scale was used to score knowledge and practice among participants.

3.6 Validity and reliability

Validity was accounted by conducting training to the research assistants on both the content of data collection tool and the use of the interview tools prior to the start of the study and supervision was done during implementation.

Reliability which refers to the consistence of measuring tool, the same tool was used to collect information from research respondents.

3.7 Data collection

Pretested semi-structured questionnaires were used to gather information on rabies vaccination coverage, knowledge and practices of sampled population. The head of household or any member of the household with age of 18 years and above was requested to be interviewed using questionnaire. For the purpose of assessing Knowledge six questions were asked focused or based on description of rabies, its mode of transmission and outcome of the diseases, the range of the species affected and how it can be prevented and controlled. The highest mark achievable for knowledge was eleven and all respondents who got a score of seven (Equivalent to 64%) and above was classified as knowledgeable according to a Likert –type of scale while those who was scored below seven was classified as not knowledgeable, To assess the practice on rabies question asked was focused on four parameters which were practice on rabid carcass, medical attention/first aid practice, practice on suspect rabid dog and time taken to present to hospital. The highest mark achievable for practice was six and all respondents who got a score of six (Equivalent to 60%) and above was classified as good practices according to a Likert –type of scale while those who was scored below six was classified as poor practice.

3.8 Data analysis

The data were entered in excel sheet and the analysis was done using STATA version 13 for all statistical analysis. The data was analyzed using survey command in STATA for descriptive, univariate, and multivariate logistic regression analysis was used to determine odds ratios and assess potential associations between dog vaccination status and other independent variables. Variables in the univariate analysis with $P< 0.25$ were added to the multivariable model one at a time and odds ratio was examined to see any evidence of statistically significance. An odd ratio was considered significant at $P <0.05$ significant level. An Odds ratio estimates and standard errors in the univariate and multivariate models were carefully examined for evidence of confounding and multicolinearity , .Adjusted estimates from the final model, their 95% CI and the likelihood ratio test for statistical significance was summarized.

3.9 Ethical issue

The study was ethically approved by institutional Review board of Muhimbili University of Health and Allied Sciences. At the study area permission was granted by the Director of Sumbawanga Municipal Council and the Village Executive Officers who were asked for permission prior to starting work in each village sampled. At household level prior consent was sought to the heads of households present at time of study otherwise the member of the family with 18 years old or above was requested. Then explained the objective of study visit and informed that the answer will be kept confidential before administering questionnaire, verbal consent was asked from respondents. After administering of questionnaire, advice was given on risks of rabies and how can be prevented and controlled. Respondents were allowed to ask questions.

CHAPTER FOUR

4.0 RESULTS

4.1 Socio demographic characteristics of the household respondents

The results as summarized in Table 1 showed that from 360 households interviewed, there were more men than women interviewed (77% vs 22.8%). The mean age of the respondents during the study period was 39.7 years (SD±13 years). Majority of the respondents were farmers 275 (76.4%) and most had primary education 251(69.7%).

Table 3: Socio demographic characteristics of the respondents in Sumbawanga Municipality, 2019

Variable	N (column %) 360(100%)
Sex	
M	278(77.2)
F	82(22.8)
Age Group	
≤25	59(16.4)
26-35	89(24.7)
36-45	92(25.6)
46-55	72(20.0)
56-65	38(10.5)
≥66	10(2.8)
Education	
No formal Education	27(7.5)
Primary	251(69.7)
secondary Education	82(22.8)
Occupational	
Farmer	275(76.4)
Government workers	28 (7.8)
Others	57 (15.8)

4.2 Characteristics and vaccination status of dogs

The total number of dogs owned by the 360 households in study were 498 with an average household to dog ratio of 1:1.4 .There were more male than female dogs (64.7%) vs 35.3%). Majority of the dogs were aged between 1-5years 313 (62.9%) and the mean number of dog owned per house hold were 1.4 (SD ±1.08). Table 4 provides detailed characteristics of the dogs included in this study.

Less than half of the dogs (240/498, 48.2%) were vaccinated against rabies within last twelve month .The vaccinated dogs belonged to 186 out of 360 households owning dogs in the study. **Figure 2** provide information on the dogs vaccination status.

Table 4: Dogs characteristics, Sumbawanga Municipality 2019

Variable	N (Col%)
	498 (100%)
SEX	
Male	322 (64.7)
Female	176 (35.3)
Age	
<1year	97 (19.5)
1-5 year	313 (62.9)
>5year	88 (7.7)

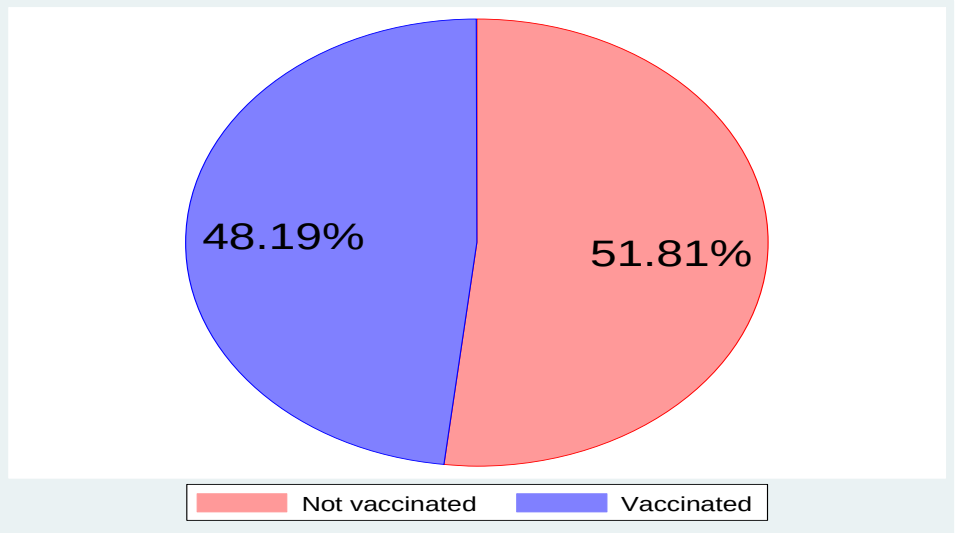

Figure 2: Proportion of Dogs vaccination status against rabies in Sumbawanga Municipality, 2019

4.3 Characteristics of house hold respondents by Rabies vaccination status

There was statistical evidence to suggest that the vaccination status differ by education level, among those who had Secondary Education, Primary and no formal education proportional of dog vaccination were (78%, 46.6% and 18.5% respectively)

Significant proportion of the respondents reported their dogs are being vaccinated due to availabity of rabies vaccine, confinement, exposure to rabies and low cost of vaccine (60.8%, 74.3%, 79.3% and 61.8% respectively).

Statistical evidence also was observed to suggest that the vaccination status differed by occupational, among Government worker, businessman, and farmers proportional of vaccination were (78.6%, 63.2%and 46.6% respectively) **Table** 3 provide the detail information on the characteristics of respondent by rabies vaccination status.

Table 5: Characteristics of household respondents by rabies vaccination status, Sumbawanga Municipality

Variable	All N(Col%)	Vaccinated N (row %)	Unvaccinated N (row %)	P value (X^2)
Overall	360(100)	186 (51.7)	174 (48.3)	
Sex				0.681
M	278(77.2)	142 (51.1)	136(48.9)	
F	82 (22.8)	44 (46.3)	38(53.66)	
Occupational				0.001
Farmer	275(76.4)	128 (46.6)	147(53.4)	
Government workers	28 (7.8)	22 (78.6)	6(21.4)	
small and medium business	57(15.8)	36 (63.2)	21(36.9)	
Education				<0.001
Secondary Education	82(22.8)	64 (78.1)	18(21.9)	
Primary	251(69.7)	117(46.6)	134(53.4)	
No formal Education	27(7.5)	5(18.5)	22(81.5)	
Exposure to rabies				0.002
Yes	29(8.1)	23(79.3)	6(20.7)	
No	331(91.9)	163(49.2)	168(50.8)	
Availability of Vet /Field officer				0.217
Yes	353(98.1)	184(52.1)	169(47.9)	
No	7(1.9)	2(28.6)	5(71.4)	
Avalability of veterinary center				0.063
Yes	77(21.4)	47(61.0)	30(39.0)	
No	283(78.6)	139(49.1)	144(50.9)	
Cost of rabies vaccination				0.003
High	239(66.4)	110(46.0)	129(54.0)	
Low	121(33.6)	76(62.8)	45(37.2)	
Availability of Rabies Vaccine[1]				0.009
Yes	130(36.1)	79(60.8)	51(39.2)	
No	230(63.9)	107(46.5)	123(53.5)	
Feeding				<0.001
Yes	146(40.6)	106(72.6)	40(27.4)	
No	214(59.4)	80(37.4)	134(62.6)	
Purpose of keeping dog				0.535
Guarding	352(97.8)	181(51.4)	171(48.6)	
Other	8(2.2)	5 (62.5)	3 (37.5)	
Confinement[2]				<0.001
Yes	148(41.1)	110(74.3)	38(25.7)	
No	212(58.9)	76(35.9)	136(64.2)	

[1] availability of rabies vaccine in the past 12 month,[2]Confinement (restraining the dog in the cage or using chain)

4.4 Factors associated with dog vaccination at house hold

Result of univariate analysis shows strong statistical evidence to suggest that occupation and education were strongly associated with Rabies vaccination among dogs (P<0.001 for both).Those who had secondary education were 15 times odds to vaccinate their dogs compare to those with no formal education (OR 15.6, 95%CI 5.19-47.13), whereas those with primary education were nearly four times odds to vaccinate their dogs as compared to those with no formal education (OR 3.8, 95%CI 1.41-10.47).On the other hand, Government workers were four times odds to vaccinate their dogs compare to farmers (OR 4.2 ,95% CI 1.65-10.70) where as small and medium businessman were two times odds to vaccinate their dogs compare to farmers (OR 1.9, 95%CI 1.09-3.47).

likewise for the respondents who have history in their family of being exposed to rabies were significantly associated with vaccination of the dog nearly four times odds to vaccinate their dogs compared to none exposed households (OR3.95 95%CI1.57 - 9.95,P=0.001)

There was a statistical evidence to suggest that vaccination status associated by cost of vaccination and availability of Rabies vaccine (p<0.05) for respondents who said had accesss to vaccine were nearly two times odds to vaccinate their dogs than those who said vaccine were not available (OR 1.78, 95%CI 1.57-9.97).

Whereas respondents who said cost of rabies vaccination was high were nearly 0.5 odds to vaccinate their dogs than those who said cost of vaccination was low (OR 0.5, 95%CI 0.32-0.79).

There was also an evidence to suggest that the vaccination status associated with feeding of the dog and sex of the dogs for instance male dog were 1.5 times odds to be vaccinated than female dogs (OR 1.5,95% CI 1.15-2.12 Among those who provided food to their dogs were four times odds to vaccinate their dogs compared to those who left their dogs to seek for their meals (OR 4.4 95%CI 2.8 -7.01).

After controlling other factors in multivariate analysis education, feeding of dog, exposure to Rabies, availability of vaccine, availability of veterinarians/field officers and sex of the dog were independently associated with dog vaccination status, refer **Table 4** for detailed information.

Table 4: Results of univariate and multivariate logistic regression of factors associated with rabies vaccination in dogs, Sumbawanga Municipal, 2019.

Variable	Crude OR(95%CI)	PV	Adjusted OR (95% CI)	Adjusted PV
Sex		0.681	NA	NA
Male	**0.90 (0.55-1.48)**			
Female	Reference			
Occupational		<0.001		0.570
Government workers	4.21(1.65-10.70)		1.51 (0.703 -3.23)	
Small/ medium business man	1.9(1.09-3.54)		1.6 (0.73 - 3.50)	
Farmer	Reference		Reference	
Education		<0.001		0.001
secondary Education	15.64(5.19-47.13)		8.72(2.58 -29.54)	
Primary Education	3.84(1.41 - 10.47)		3.37(1.17 -9.70)	
No formal Education	Reference		Reference	
Exposure to rabies		0.001		0.014
Yes	3.95(1.57 - 9.953)		3.60(1.29 - 10.05)	
No	Reference		Reference	
Availability of Vet /Field officer		0.211		0.028
Yes	2.72(.52 - 14.22)		9.64(1.28 - 72.64)	
No	Reference		Reference	
Cost of rabies vaccination		0.003		0.266
High	0.50(0.32 - 0 .79)		0.76(0.81 - 2.20)	
Low	Reference		Reference	
Availability of Vaccine		0.009		0.02
Yes	1.78(1.15 -2.76)		1.72(1.08 - 2.75)	
No	Reference		Reference	
Purpose of keeping dog		0.53	NA	NA
Guard	0.63(0.15 -2.70)			
Other	Reference			
Feeding		<0.001		<0.001
Prepared food	4.4 (2.8 -7.01)		4.0(2.09-5.91)	
Left over	Reference		Reference	
Sex of Dog				
Male	1.5(1.0 - 2.12)	0.04	1.5(1.03-2.18)	0.033
Female	Reference		Reference	

NA=Not Applicable, OR=Odds ratio, CI=Confidence Intervel

4.5 Knowledge of Rabies

Of all the study respondents, 354 (98%) had ever heard of Rabies. 56.1% of the study respondents (202/360) could correctly described Rabies as a disease while 142 (39.4%) described rabies as a change of behavior of dog/animal. Nearly all of the respondent (349/360,96.9%) correctly said that, rabies is transmitted through dog bite, one participant correctly mentioned dog scratch as a mode of transmission and 10 (2.8%) they didn't know how rabies can be transmitted.

Only 47.5% (171/360) could mention three or more species that can be affected and transmit rabies.. Half of the respondents (50.6%, 182/360) mentioned one or two species who could transmit rabies whereas seven respondents (2%) wrongly mentioned or didn't know the species that can be affected and transmit rabies. Respondent who mentioned more than three method of controlling rabies were only 23 (6.4%), 288 (80%) mentioned between one and two and 49 (13.6%) mentioned wrong /didn't know method of controlling rabies. For treatment of rabies /animal bite after exposure, 231(64.2%) of respondent said ant rabies, 68(18.9(%) said antibiotics/tetanus and 61(16.9%) didn't know what treatment of rabies after being exposed. Out of all respondents 282 (78.3%) said rabies is not curable after sign and symptoms stating observed. After applying Lickets scale respondent who were knowledgeable on Rabies were 301(83.6%) as shown in **figure 3.**

Table 6: Knowledge characteristics among respondents in Sumbawanga Municipality 2019 n = 360

Variable	N (%)
Description of rabies	
Correct describe rabies as disease	142 (39.4)
Rabies as a change of behavior	202 (56.1)
Wrong /I don't know	16 (4.5)
Mode of transmission	
Through bite	349 (96.9)
Trough scratch	1 (0.3)
Wrong /I don't know	10(2.8)
Animal that can suffer from rabies	
Who mention 3 or more	171 (47.5)
Mention 1 or 2 animal	182 (50.5)
Wrong /I don't know	7 (2.0)
Knowledge of control of rabies in animals	
Mentioned 3 or 4 methods	23 (6.4)
Mention 1 or 2 methods	288(80.0)
Wrong /I don't know	49(13.6)
Know right treatment when exposed	
Mentioned PEP	231 (64.2)
Antibiotic and tetanus without mention PEP	68 (18.9)
Wrong /I don't know	61(16.9)
Known that rabies is fatal	
Know fatal nature of disease	282 (78.3)
Wrong /I don't know	78 (21.7)

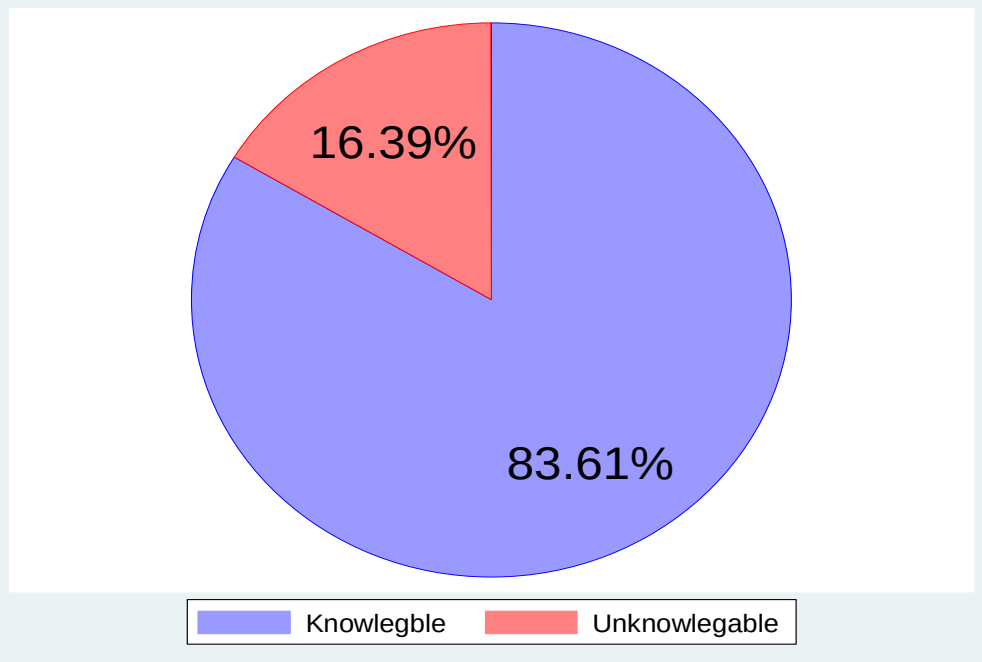

Figure 3: Proportional of respondent with adequate knowledge, Sumbawanga Municipality 2019

4.6 Practices on Rabies

Majority of the Respondents 320 (88.9%) said they would kill the suspected rabid animal as method of handling it. Respondent who said they would present to hospital immediately after dog bite incident were 302 (83.9%). In the case of handling the rabid carcass animal most of respondents 303 (88.6%) said they would bury it. On the side of medical attention and first aid majority of the respondents 354(98.3%) Said they would wash the wound with water, only 2(0.6%) said they will wash the wound with water and soap. After applying Lickets scale to score proper practices, Overall respondents with good practices were 78.9% refer **figure 4.**

Table 6: Practice characteristics, among respondents, Sumbawanga Municipality 2019

n=360

Variable	N (%)
Practice on the suspected rabid dog	
Do nothing	12(3.3)
Kill the dog	320 (88.9
Report to livestock officer	28 (7.8)
Practice on rabid carcass	
Burry or burn the carcass	303(84.2)
Throw away	55(15.2)
Cut the head and send to livestock office	2 (0.6)
Practice on hospital presentation	
Immediate after bite	302 (83.9)
Report next day after bite	36 (10.0)
Report to the hospital l 2 to 14 days	9 (2.5)
After 14 days	13 (3.6)
Medical attention/First Aid	
Wash the wound with water and soap.	2(0.6)
Wash the wound with water	354(98.3)
Do nothing	4(1.1)

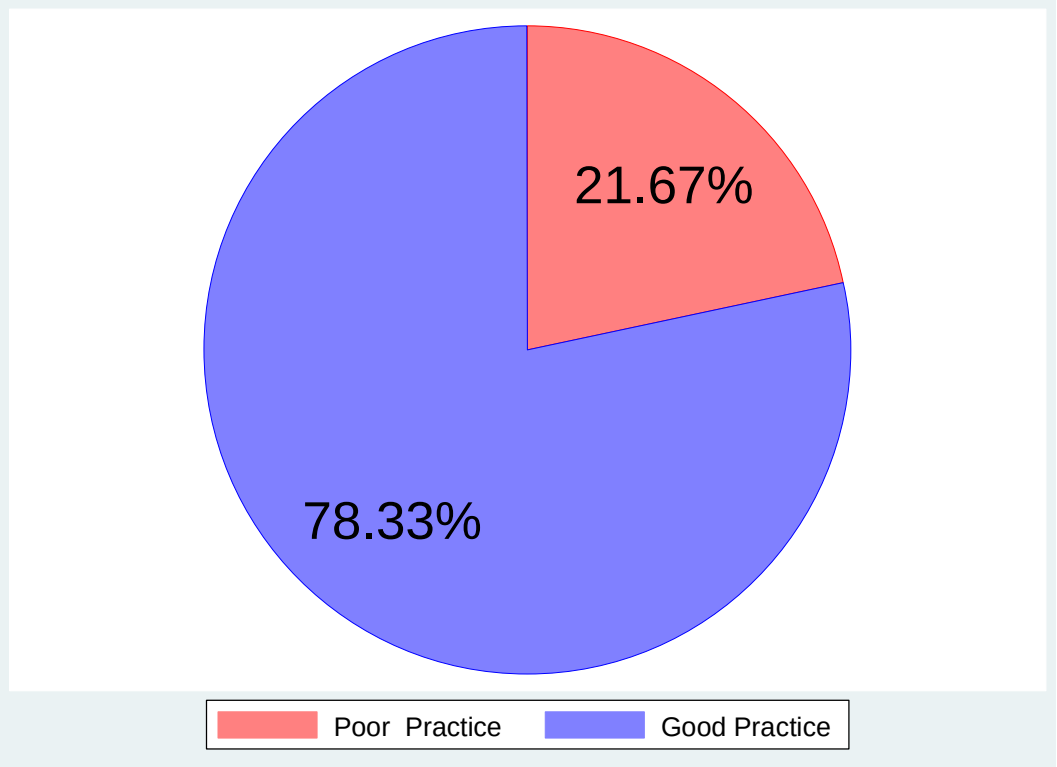

Figure 4: Proportional of participants with good practices

CHAPTER FIVE

5.0 DISCUSSION

The study showed percent of vaccinated dog (240/498, 48.2%) to be below than the WHO recommended coverage of 70%, which is required to achieve stopping transmission of Rabies between dogs and from dogs to humans. The majority of study respondents were aware of rabies as a disease and its transmission through bites from infected dogs, and most of them showed understanding of the need to seek medical attention following a dog bite but there was a lack of comprehensive knowledge on the wash of wound with water and soap following dog bite. After scoring it was found that the overall knowledge and practice of respondents towards Rabies were adequate.

The proportional of dogs vaccinated in this study was higher than the study which was done in Kenya where percent of vaccinated dogs was 26% (22) and lower than study done in South Africa, Indonesia and Bolivia where percents of vaccination were 64% ,83% and 85 % respectively (33,44,45). The percent of the dogs vaccinated in this study included only the population of owned dogs. According to the results, 64% of respondents who do not confine their dogs contributed to unvaccinated dog population, inclusion of ownerless and stray dogs might have contributed to the further decrease of vaccinated dogs percentage in the entire population of Sumbawanga Municipal.

The study also found more male dogs were more likely to be vaccinated than female and these also were slight similar with study which was done in Democratic Republic of Congo were male dogs were nearly two times more likely to be vaccinated than female (46) the reasons to that could be due to aggressiveness nature of male dogs whereby most people who own dogs prefer to vaccinate male dogs because of fearing their dogs could bite people and hence be charged and these could be supported with findings from Chad were 80% of dog bites was from male dogs (47) but also another reasons of vaccinating male dogs more than female could be due to behavioral fight for females during mating seasons, so owners fear their dogs to be exposed to rabies through fighting.

Among all respondents fifty nine percent of household fed their dog with leftovers from the house and 41% prepared food specifically for their dogs. These findings differ with studies done in Kenya were 95% fed their dogs leftovers and only 5% prepared food for their dogs (48), in Thailand 56% of households prepared food specifically for their dogs (49) and Ethiopia there were 88% household fed leftovers their dog (50). In this study households that prepared food specifically for their dogs were four times odds more likely to have vaccinated their dogs and indicates that they understand the animal welfare which include proper feeding and diseases prevention through vaccination. However 62% of households which do not feed properly their dogs contributed to unvaccinated dog population, This is an indication, that if dogs are not confined and fed adequately and properly then they may run away from home for seeking food and thus become difficult to be available during vaccination. However, the findings were inconsistence with study which was done in Bangladesh dogs which were provided with prepared food were two times more likely to be vaccinated (51), the reasons to that difference could be due to different cultural and purpose of keeping.

Households that reported to have history of being exposed to rabid dogs were 8.1% and these differ slightly with other study done in Bangladesh were people reported to be exposed to rabies were 5% (51) and the family reported their member to be exposed were three times odds more likely to have vaccinated their dog as compared to households which are not exposed, probably these could be due to awareness that post exposure prophylaxis is more expensive after being charged for the victims and these findings were consistent with studies done in Kenya (22).

The respondents, who reported to access veterinary services when they need to vaccinate their dogs, were three times more likely to vaccinate their dogs. The findings were nearly to be consistent with study conducted in Kenya (22) and probably the availability of veterinarians and field officers provide assurance and trustful to dogs owner on proper vaccination. Respondents who had secondary education and above were fifteen times odds more likely to vaccinate their dogs than those with no formal education, this indicates awareness and access to information regarding rabies and the importance of vaccinating dogs against rabies. Also

previous study done in Tanzania showed education to be a factor influencing vaccination of dog at house level (52).

Availability of vaccine was also seen as the contributing factor to the dog vaccination, for those who were able to access vaccine were more likely to vaccinate their dogs than those with limited access to vaccine. This finding indicates that there is limited supply of animal rabies vaccine in the animal sector and costs are considered as vaccination responce prohibitive. Probably the Local Government Authorities do not priorities' rabies control to the extent that it is budgeted low or don't budget at all for vaccine procurement which lead to limited accessibility of the rabies vaccine in the field.

The overall knowledge of rabies in this study was high and it was inconsistent to other study done previously in Tanzania were they found the overall knowledge to be 37% (45) .The majority of the respondents in this study (98%) were aware about rabies and mostly of them had able to mention dog as the major source of transmitting rabies to human through bite ,but this was inconsistence with study done previous in Tanzania 73% and Ethiopia 81% of the respondents were mentioned to be aware about rabies (45,50) probably the development of infrastructure like road and electricity increased accessibility of information about rabies through TV, radio and Smartphone as it was indicated in study done in Ethiopia on the significant role of the media to enhance the level of knowledge (43).

Sixty four percent of the household interviewed indicated that Post Exposure prophylaxis is expected to be provided when they went to hospital after being exposed to rabid animal, other study done in Addis Ababa and Gondar Zuria District in Ethiopia indicated 85.9% and 47.4% respectively of respondents mentioned receiving of PEP is expected when they become exposed or being bitten by rabid animal (40,50). Seventy eight percent of the respondents were aware that the rabies is fatal after development of disease and this finding was contrast to the study done in Sir Lanka and Ethiopia were only 22.5% and 67.8% knew the fatal nature of rabies after clinical signs development (38,40).

On the practices, seeking of medical attention immediately after being exposed to rabid animal most of the respondents mentioned it and this findings was consistent with other study done in Tanzania previous were 83% reported to seek medical attention immediately after exposure (45) and slight different with other study done in Sir Lanka and India were they reported 97% (38,53), only 0.6% of the respondents correctly mentioned washing the wound with water and Soap as the First Aid after being bitten by suspect rabid dog as recommended by WHO ,findings were inconsistence to other study done in Sir Lanka 8%, Ethiopia 30.7%, western India 42 % and New Delhi 32% (40,53,54).Washing of wound with water and soap increase survival by 50% (55),low respondent from the preferred first Aid measured in this study possibly could be due to the fact that awareness campaign done previous years used approach which was not well received and this indicate much has to be done by public health professional so as to make sure the community understand the importance of washing the wound with water and soap.

Majority of the respondent 88.9% reported to kill the dog as the preferable method of handling the rabid suspected dog and this findings were inconsistence to the study done in Nigeria ,India and Bangladesh were by 37.5%,73.5% and 12% respectively of the respondent replied to kill the dog (51,54,56).this findings in our study indicate poor communication between Animal health sector and community which lead to difficultness for veterinary sector to appreciate the burden of the rabies problem in the community and take appropriate steps to prevent further transmission also people need to be made aware that more humane measures are equally effective and that responsible dog ownership is the most important factor.

Practice on Caracas disposal, most of the respondents (88%) in this study mentioned burring as best method of disposing the rabid carcass ,this findings imply most of the respondent had a good practice on carcass diposing since proper carcass disposal is critical to prevent exposure to other animals as well as human this finding and it was slight consistence with study done Bulhatan were 92% of the respondent mentioned burring as the best handling of the rabid carcass (57) but this was contrary to the study which was done in Senegal were 89.6% responded to do nothing in the rabid carcass (58).

Limitation of the study and mitigation

The information bias during data collection was a concern especially on the vaccination status, mitigation of this bias was done by requesting the dog vaccination certificate and verification of their names from animal health data base at Sumbawanga Municipal Council Office for those who vaccinated and lost their certificate**.**

Selection bias during selection of the respondents was thought to be one of the limitations of the study but random sampling in the field to select households was done so as to mitigate the limitation.

Since Livestock Field Officers were used as the research assistants during data collection there was a possibility of introducing information bias simply as most of the dog keepers could pretend by providing information so as to satisfy the Field Officers. To mitigate this limitation the Field Officers were assigned to collect data in sampled villages and streets which were different from their working station.

Generalization of vaccination coverage in Sumbawanga municipality could be limited since the information on vaccination status was from owned dog population and excluded the ownerless and stray dogs population, despite the fact that this could be a limitation but it gives the baseline information on dog vaccination coverage and its associated factors in Sumbawanga which previous was not known.

The cluster sampling has a possibility of under estimating standard error but design effect of 1.5 was used during sampling calculation so as to increase sample size which decreased standard error.

CHAPTER SIX

6.0 CONCLUSSION AND RECCOMENDATION

6.1 Conclusion

The study revealed that despite the overall knowledge and practices towards Rabies being adequate for Sumbawanga municipal community only 48% of the owned dog population in Sumbawanga Municipal reported to be vaccinated for last 12 months prior to the survey. Furthermore the study showed that effective vaccination coverage of dog population depends on the availability of affordable animal rabies vaccines, veterinary services (Veterinary personnel and Veterinary canters), good husbandry management of dog associated with responsible ownership which include confinement, adequately proper feeding and other freedoms for welfare and level of education of the dog owners.

6.2 Recommendation

Since rabies is a zoonotic disease there is a need of implementing Multidisciplinary approach during sensitization of Rabies vaccination so that the whole community understands rabies disease and the importance of vaccinating their dogs.

Enforcement of animal control by laws on dog restraining and vaccinating all dogs more than three month.

There is a need of having rabies control program like in human health sector where they have some programs for controlling diseases like Malaria, which will be responsible for mobilizing funds and other logistic issues in order to ensure availability of vaccine and other resources for operational activities.

Mass vaccination of dogs must be implemented to make sure that all dogs which are required to be vaccinated are vaccinated.

There is a need of dog keepers to be educated on the importance of managing their dogs properly by confining and feeding dogs properly. This will ensure that dogs are easily available and restrained during vaccination. .

Since vaccination was reported to be higher in villages and streets with field officers than in those without, there is a need of changing the policy so as to train and recognize the community vaccinators which will enhance to increase vaccination coverage of dogs.

Since the study didn't explore information on the vaccination status of the ownerless dogs (stray dogs), there is a need of conducting research to identify and knowing the vaccination status of this dogs population.

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APPENDICES

Appendix I: Fomu ya ridhaa kwa Kiswahili

CHUO KIKUU CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI

FOMU YA RIDHAA KUSHIRIKI KWENYE UTAFITI JUU YA UELEWA, MWITIKIO NA SABABU ZINZOHUSIANA NA UCHANJAJI WA MBWA DHIDI YA UGONJWA WA KICHAA CHA MBWA KATKA HALMASHAURI YA SUMBAWANGA MANISPAA.

Na. ya Fomu …… Tarehe…….

Ridhaa kushiriki kwenye utafiti

Hujambo? Ninaitwa_____ Ninafanya utafiti juu ya uelewa mwitikio na sababu zinazohusiana na uchanjaji wa mbwa dhidi ya ugonjwa wa kichaa cha mbwa katika halmashauri ya Sumbawanga Manispaa..

Madhumuni ya utafiti

Lengo la utafiti huu ni kukusanya taarifa zihusuzo uelewa ,mwitikio na sababu zinazohusiana na uchachanjaji wa mbwa dhidi ya ugojwa wa kichaa cha mbwa katika halmashauri ya mManispaa ya Sumbawanga. Unaombwa kushiriki kwenye utafiti huu kwa sababu una taarifa muhimu ambazo zitasaidia utafiti huu kuwa wenye mafanikio

Ushiriki unahusisha nini?

Ukiridhia kushiriki katika utafiti huu, utatakiwa kujibu maswahi kadhaa na kuridhia kuangalia baadhi ya vitu kwenye nyumba yako ili kupata taarifa zinazokusudiwa kwa ajili ya utafiti huu.

Usiri

Taarifa zote unazozitoa kwa ajili ya utafiti huu kupitia dodoso hili zitakua ni siri na hakuna mtu mwingine ambaye hahusiki kwenye utafiti huu atakayepatiwa taarifa ulizosema. Baada ya ukusanyaji wa taarifa zote, itaandaliwa ripoti ya utafiti huu, katika ripoti hiyo, jina la mtu aliyeshiriki kutoa taarifa halitatajwa wala utambulisho wowote mwingine hautaonywshwa kwenye ripoti hiyo.

Madhara

Hakuna madhara yeyote yatakayojitokeza kwako au kwa familia yako kutokana na ushiriki wenu katika utafiti huu.

Haki ya kujitoa au vinginevyo

Kushiriki katika utafiti huu ni hiari na sio lazima. Unaweza kuamua kutoendelea kwenye utafiti huu wakati wowote hakutakua na adhabu wala hutapoteza haki yako yoyote kwa wewe kuamua kujitoa kwenye utafiti huu hata kana ulikuwa tayari umeridhia kwa kuweka saini kwenye fomu ya ridhaa.

Faida

Taarifa unazote kwenye utafiti huu zitasaidia kujua uelewa mwitikio na sababu zinazohusiana na uchanjaji wa mbwa dhidi ya ugonjwa wa kichaa cha mbwa katika halmashauri ya Manispaa ya Sumbawanga. Matokeo ya utafiti huu yatawasilishwa kwa mamlaka husika kwa ajili ya kupanga mikakati mbalimbali dhidi ya udhibiti wa kichaa cha mbwa katika halmashauri ya Manispaa ya Sumbawanga.

Endapo utapata madhara

Utafiti huu hautarajiwi kukuletea wewe binafsi au miongoni mwa familia yako madhara yoyote kutokana na ushiriki wako.

Nani wa kuwasiliana naye

Kama una swali lolote kuhusiana na utafiti huu tafadhali usisite kuwasiliana na wa fuatao mtafiti mkuu anayeratibu utafiti huu Ndugu

Henry Donart Kissinga Mtafiti mkuu, Chuo Kikuu cha Afya na Science shirikishi Muhimbili, S.L.P 65001.Dar es salaam.Simu (Simu Na: 0759 065 568).

Dkt. Bruno Sunguya (Simu Na Tel no 2150302-6) Mkurugenzi wa Tafiti na Machapisho,ChuoKikuu Cha Afya na Sayansi shirikishi Muhimbili, S.L.P 65001, Dar es salaam.

Dkt. Simon Mamuya, Msimamizi muelekezi wa utafiti pia Muhadhiri Chuo Kikuu cha tiba na sayansi (Simu Na. 0787 721 377)

Dkt. Diana Faini, Msimamizi muelekezi wa utafiti pia Muhadhiri msaidizi Chuo Kikuu cha tiba na sayansi (Simu Na. 0752587105)

Dkt. George Cosmas, Msimamizi muelekezi wa utafiti kutoka katika taasisi ya epidemiolojia Tanzania TFELTP (Simu Na. 0784724330)

Unakubali kushiriki na kujibu maswali ya tafiti hii

Mshiriki amekubali ( )

Mshirika amekataa ( )

Mimi_____nimesoma nimeilewa hii fomu, na maswali yangu yamejibiwa. Na kubali kushiriki katika utafiti huu.

Sahihi ya Mshiriki _____

Sahihi ya shahidi (kama hawezi kusoma na kuandika)_____

Sahihi ya mtafiti msaidizi_____

Appendix II: Questionnaire Survey -English Version

BACKGROUND INFORMATION OF THE RESPONDENT

Name of respondent ……

Age……. Sex…….

Village (Peri urban)……street (urban)…….

Are you the head of the household 1=YES 2= NO (Circle correct one)

If No what is the relationship with household head? Circle correct)

1 =Wife

2 =Husband

3 =Son/daughter

4 = Brother/sister in low

5 = other specify……

Highest Education level attained (Circle correct)

1 = No Formal education

2 = Primary education

3 = Secondary Education and above

Occupational status of the respondent

1. Occupational of the head of the household

1= Peasant

2= Builder/Manson

3= Small and, Medium business

4= Macro business

5= Government Employee

6=other specify……..

Information related to vaccine

1. Do you think cost of vaccination of dog is high?

1=YES 2=NO

2. Does vaccine available at any time when you require to vaccinate your dog?

1=YES 2=NO

Information related to veterinary service

1. Does veterinary officer/field officer available in your ward
   1=Yes 2=No
2. There is any veterinary center nearby
   1. YES 2. NO

Assessment of Knowledge and Practice on Rabies

1. Have you ever heard rabies? 1= YES 2.NO

2. (a) If Yes ,where did you get Knowledge of rabies for the first time

1 =From TV

2 =From Radio

3 = From Newspaper

4 = from school

5 = from government /community meeting

6 = from local community (parent, neighbor ,friends)

7= from poster/leaflets/brochour

8 other specify…….

(b) If yes, how would you describe rabies?

3. How can rabies be caught?

1= through bite

2=through a scratch

3=don't Know

4=other

4. Which species of animal can transmit rabies? (Circle all that apply)

1=Human

2= snakes

3 = chickens

4= dogs

5 =cats

6=cattle

7=Hyenas

8=goats

9=Mongoo

10=other specify

5. Has any member of your family been exposed to suspect rabid animals?

1=YES 2=NO

6. (a) What is the first things that you should do if you or any family member is exposed to any suspect animal bites (do not prompt for answers ,but code if answer given –If respondent says go to hospital, ask if there is anything else that they should also do)

1= wash wound with soap and water

2 =report to police

3 = wash with kerosene

4= go to see healer

5 = go to hospital

6 =other specify……

(b) If respondent says go to hospital, How quickly should you do this.....

7. If you were to go to hospital, what treatment would you expect at the hospital (do not prompt respondent for answers, but code if answer given)

1= Antibiotics

2 = Pain Killer

3 = Vaccine (Anti –rabies)

4 = Tetanus

5 = Dress wound

6= other specify

8 (a) what would you do to the suspect rabid animal? that attempt to bite you/your family member /neighbor

1= immediately kill that animal

2 =Report to livestock office

3 = I would not take any action

4 = other specify…….

(b) If the answer is 1 (to kill the animal) what action would you take with the killed animal?

1= throw away

2= burn

3= burry

4=Cut the head and send to the livestock office

9. (a) Which would you fear most (1) having malaria (2) being bitten by a rabid dog

(b) Why…….

10. (a) Is there any cure treatment for a person who started developing rabies symptoms ?

1= YES 2= NO

(b) If YES mention it …….

11.(a) Do you Know ways to control rabies in Animals

1 =YES 2= No

(b) If yes mention them

1…….

2…….

3……

4……

INFORMATION RELATED TO DOGS

Demographic information

Identification of Dogs ……

Age……. Sex……Breed……

Vaccination status

1. (a) Has your Dog been vaccinated against rabies in the previous year

1=Yes 2= No (Circle for the correct)

(b) If yes can you show me vaccination certificate?

YES (Tick if seen certificate)

YES but uncertain where it is stored (Need to be confirm to veterinary department).

NO

Management of Dogs and purpose of keeping Dogs

1. Do you confine your dogs?

1= YES 2= NO

2. How do you feed your dogs?

1=food are prepared specifically for dogs

2= Leftover from the house

3=Nothing is given or prepared as food for dogs

3. What is the purpose of you keeping the dogs?

1= Guard

2=Hunting

3 =Other specify……

THANK YOU FOR TAKING PART OF SURVEY

Appendix III: Dodoso kwa Kiswahili

UTAFITI UNAOHUSU UELEWA MWITIKIO NA UCHANJAJI WA MBWA DHIDI YA UGONJWA WA KICHAA CHA MBWA

TAARI YA UJUMLA KUHUSU MHOJIWA

1. Jina la mhojiwa ……..

2. Umri…….3.Jinsia……..

4. Kijiji (pembezoni mwa mji)……..5.Mtaa (Mjini)…….

6 .(a) Je mhojiwa ni mkuu wa kaya? 1=NDIYO 2= HAPANA
(b)Kama hapana una mahusiano yapi na mkuu wa kaya

1=Mtoto

2 =Mke

3 =mume

4 = shemeji

5= Nyingine Taja…….

7. Elimu aliyonayo mhojiwa

1=Hajasoma

2= Shule ya msingi

3=Shule ya sekondari au zaidi

TAARIFA KUHUSU KAZI AFANYAYO MKUU WA KAYA

1. Kazi ya mkuu wa kaya

1= Mkulima

2=Mjenzi (Fundi)

3=Mfanya biashara mdogo au wakati

4=Mfanya biashara mkubwa

5= Mfanya kazi wa serikali

6= Nyingine Taja……

TAARIFA ZINAZOHUSIANA NA CHANJO.

1. Je unafikiri gharama za uchanjaji ni kubwa

1= NDIYO2=HAPANA

2 .Je chanjo inapatikana kwa wakati kila unapohitajika kuchanja mbwa wako?

1= NDIYO2=HAPANA

TAARIFA ZIHUSUZO HUDUMA ZA MIFUGO

1. Je kuna Daktari wa mifugo/Afisa ugani katika kata yenu

1=NDIYO 2= HAPANA

2. Je kuna kituo cha huduma za mifugo kilicho jirani na mnapoishi

1=NDIYO 2= HAPANA

TAARIFA KUHUSU UELEWA NA MWITIKIO KUHUSU KICHAA CHA MBWA

1.Ulishawahi kusikia kuhusu kichaa cha mbwa? 1=NDIYO 2= HAPANA

2. (a)Kama NDIYO wapi ulipata uelewa kwa mara ya kwanza juu ya kichaa cha mbwa ?

1= Kwenye television

2= Kwenye redio

3= kwenye gazeti

4=shuleni

5=kwenye mkutano wa serikali/jamii

6=kwenye kipeperushi /bango

7=toka kwenye jamii /mzazi/rafiki/jirani

8=nyingine Taja……..

(b) Kama ndiyo unaweza kuelezeaje kichaa cha

mbwa?.....

3. Unawezaje kupata kichaa cha mbwa? (usimtajie majibu andika namba ya jibu alilotaja)……..

1=kwa njia ya kung'atwa /umwa

2=kwa njia ya kukwaruzwa

3= sijui

4=Nyingine Taja……

4.Ni wanyama gani huweza kuambukizwa ugonjwa wa kichaa cha mbwa? Zungushia kinachotajwa

1=Binadamu
2=Nyoka
3=Kuku
4=Mbwa
5=Paka
6=Ngo'mbe
7=Fisi
8=Mbuzi
9=Nguchiro
10= Wanyama wengine? Taja……..

5. Kuna mwanafamilia yeyote amewahi kuumwa na mnyama mwenye kichaa cha mbwa

1= NDIYO 2= HAPANA.

6. (a) Ni kitu gani cha kwanza kabisa kufanya ikiwa wewe /Mwanafamilia amenga'atwa na mnyama akisiwaye kuwa na kichaa cha mbwa ? (Usiionyeshe majibu ,ila weka kodi (Code) jibu lililotolewa

1=kuosha kidonda kwa maji na sabuni

2=kuripoti kituo cha polisi

3=kuosha kwa mafuta ya taa

4=kwenda kwa mganga wa kienyeji

5= Kwenda hospitali

6=Zingine taja…….

(b) kama majibu ni kwenda hospitali ni mapema kiasi gani unatakiwa kufanya hivyo?.....

7. Ikiwa utaeb=nda hospitali,Je ni matibabu gani utayategemea kutoka hospitali? (usionyeshe ,majibu ila weka kodi kamajibu limetolewa)?

1=Antibiotic

2=Dawa za kutuliza maumivu

3= Chanjo ya kichaa cha mbwa (anti-rabies)

4=Tetanusi/Pepopunda

5=kusafishwa kidonda kwa dawa

6=Zingine ,toa maelezo…….

8. (a) Utamfanyaje mnyama ambaye anahisiwa kuwa ana kichaa cha mbwa? Anyetaka kukumma wewe /mwanafamilia au jirani yako

1=kumuua mnyama huyo mara moja

2=Kutoa Taarifa kwenye ofisi ya mifugo

3=sitafanya jambo lolote

4=Nyingine ,Eleza…….

8 (b) Ikiwa jibu ni kumuua mnyama ni kitu gani utafanya kwa mnyama aliyeuwawa?

1=kutupa

2=kuchoma moto

3=kufukia

4=kukata kichwa na kukipeleka kwenye idara ya mifugo

9.Ni kipi kinatisha zaidi (1) kuwa na malaria (2) kuumwa na mnyama mwenye kichaa cha mbwa?

Kwa nini…….

10 (a).kuna tiba kwa mtu ambaye ameanza kuonesha dalili za kichaa cha mbwa?

1= NDIYO 2=HAPANA

(b) Ikiwa NDIYO taja…….

11 (a) Unazifahamu njia za kuuthibiti ugonjwa wa kichaa cha mbwa kwa wanyama?

1=NDIYO 2=HAPANA

(b) Ikiwa NDIYO zitaje

1……

2……

3…….

4……

TAARIFA ZIHUSUZO MBWA

Utambulisho wa mbwa (Jina la mbwa)……..

Jinsia ya mbwa ……. Umri wa Mbwa……

Hali ya uchanjaji wa Mbwa

1.(a) Je mbwa wamechanjwa dhidi ya ugonjwa wa kichaa cha mbwa ndani ya mwaka mmoja uliopita 1= NDIYO 2=HAPANA

(b) Ikiwa NDIYO wamechanjwa unaweza ukanionesha cheti cha chanjo?

NDIYO (weka alama ya V Ikiwa utaonyeshwa cheti cha chanjo)

NDIYO (Ila hakumbuki cheti kiko wapi inabidi upate uthibitisho wa mtaalamu wa mifugo katika kata husika)

HAPANA

Taarifa zihusuzo namna Mbwa anavyotunzwa na sababu ya kufuga Mbwa

1. Je namna gani mbwa anavyopata chakula (Weka alama ya mduara kwa jibu la swali)

1= je anatengezewa chakula na kuopewa

2= anapewa makombo ama mabaki ya chakula yanayobakizwa baada ya mlo

3= Hapewi chakula kabisa si makombo wala chakula chochote kuandaliwa kwaajili ya mbwa

2.Je Mbwa anathibitiwa/anafungiwa ?

1=NDIYO 2= HAPANA

3.Je unafuga mbwa kwa dhumuni gani

1=Kwa ulinzi

2=Kuwindia

3= Sababu nyingine Elezea……

AKSANTE KWA KUSHIRIKI KWENYE SURVEY HII.

Appendix IV: Check List for Assessing Knowledge and Practices towards Rabies

SN	OBJECTIVE	VARIABLE	VALUES/ANSWER	SCORE
1	To asses knowledge toward control and prevention of rabies among community	Description of rabies	Correct describe rabies as disease	Score of 2 will be given
			Rabies as a change of behavior	Score of 1 will be given
			Wrong /I don't know	Score of 0 will be given
		Mode of transmission	Through bite	Score of 2 will be given
			Trough scratch	Score of 1 will be given
			Wrong /I don't know	Score of 0 will be given
		Animal that can suffer from rabies	Who mention 3 or more	Score of 2 will be given
			Mention 1 or 2 animal	Score of 1 will be given
			Wrong /I don't know	Score of 0 will be given
		Knowledge of control of rabies in animals	Mentioned 3 or 4 methods	Score of 2 will be given
			Mention 1 or 2 methods	Score of 1 will be given
			Wrong /I don't know	Score of 0 will be given
		Know right treatment when exposed	Who will mention PEP	Score of 2 will be given
			Antibiotic and tetanus without mention PEP	Score of 1 will be given
			Wrong /I don't know	Score of 0 will be given
		Known that rabies	Know fatal nature of	Score of 1 will be given

		is fatal	disease	
			Wrong /I don't know	Score of 0 will be given
		Knowledgeable of rabies	**Who will get ≥ 7 of overall score (≥7/11)**	
		Unknowledgeable	**Who will get ≤ 6 of overall score (≤6/11)**	
2	To asses practice toward control and prevention of rabies among house hold	1.practice on suspected rabid animal	Kill the dog	Score of 1 will be given
			Report to livestock officer	Score of 2 will be given
			Do nothing	Score of 0 will be given
		2.Practice to carcass of suspected rabid animals	Throw away	Score of 0 will be given
			Burry or burn the carcass	Score of 1 will be given
			Cut the head and send to livestock office	Score of 2 will be given
		3.first aid and medical attention	Do nothing	Score of 0 will be given

			Report to police or village leader	Score of 1 will be given
			Who claimed to clean to report to hospital	Score of 2 will be given
			Wash the wound with water, soap, Kerosene then report to hospital	Score of 3 will be given
		4.Hospital presentation after bite	Immediate after bite	Score of 3 will be given
			Report next day after bite	Score of 2 will be given
			Report to the hospital 2 to 14 days after a bite	Score of 1 will be given
			After 14 days	Score of 0 will be given
		Good practice	**Who will get ≥ 6 of overall score (≥6/10)**	
		Poor practice	**Who will get ≤ 5 of overall score (≤5/10)**	