



GSJ: Volume 12, Issue 1, January 2024, Online: ISSN 2320-9186
www.globalscientificjournal.com

**ASSESSMENT OF THE KNOWLEDGE, ATTITUDE AND PRACTICES ON RABIES IN
GUDURU DISTRICT OF HORRO GUDURU WALLAGGA ZONE WESTERN
ETHIOPIA**

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ABSTRACT

The study was conducted in Guduru District to assesses the knowledge, attitudes and practices (KAP) on rabies. A cross sectional study design and simple random sampling procedure were employed for house hold selection in this study. Peasant Association in study area were selected purposively, and selection of households from each Peasant Association was using simple random sampling method. The data were collected from 384 households through face to face interview using a direct and structured questionnaire. Out of the 384 respondents interviewed, 183 (47.7%) of them were males and 201 (52.3%) females. Age categories were grouped into 15-30, 31-50 and >50 years old. The majority of the respondents, 137 (35.7%) were protestant followed by orthodox, 125 (32.6%). Majority of the study participants, 67.7% had good level of KAP and there was no strong association ($P>0.05$) between KAP scores and educational status of the respondents. There was no strong association among the sex, age, and occupation of the respondents. Generally, these findings indicate that the community of the town has good knowledge about rabies. This necessitates a need for educational out reaches in and around Guduru district to raise accurate knowledge on mode of transmission, symptoms and appropriate prevention and treatment measures.

Keywords: *Attitude, Guduru, community, Knowledge, practice, Rabies*

INTRODUCTION

Rabies is one of the oldest recognized infectious diseases and affects all mammals. The disease is a fatal viral infection that is most commonly spread to animals and humans through the bite of an infected animal. The disease is an acute progressive encephalitis caused by a highly neurotropic virus and human infection usually occurs following a transdermal bite or scratch by an infected animal (Rupprecht *et al.*, 2002). Globally, human mortality from endemic canine rabies was estimated to be 55,000 deaths per year and 56% of the estimated deaths occur in Asia and 44% in Africa. About 98% of the human rabies cases occur in developing countries that possess large number of dogs, many of which are stray dogs (WHO, 2007).

Infectious diseases, particularly zoonosis, are recognized as the sources of serious problems that affect public and animal health around the world. Emerging infectious diseases have been reported at an unprecedented rate since the 1970s and a large proportion of these diseases are considered to be zoonosis (Jones *et al.*, 2008). However, reemerging zoonosis are also affecting public health around the world, in particular rabies, a classic zoonosis that is problematic in Africa and Asia, while new outbreaks have occurred in areas that were previously free of this disease, such as the islands of Flores and Bali in Indonesia (Lembo *et al.*, 2010).

Thus, research and technology development have been promoted for controlling emerging and reemerging zoonosis in developed countries. In the case of rabies, the research and technology developed to prevent this disease has been advancing. Rabies is a vaccine preventable disease, so a vaccine has been developed (Blanton *et al.*,

2008). The type of vaccine produced using animal nervous tissues has been progressively replaced by safer and more immunogenic vaccines, which are purified from cell culture supernatants. In addition, new replicative vaccines have been developed for the oral vaccination of wildlife, which are either attenuated rabies vaccines or recombinant vaccines where different viruses express the rabies glycoprotein (Tordo, 2011).

In Ethiopia, rabies is an important disease that has been recognized for many centuries (Fekadu, 1982). Nationwide data on rabies are not available to reveal the actual magnitude of the problem. However, the distribution of vaccine to the various regions and the fragmented reports on human and animal rabies cases are strong indicators of the wide spread nature of the disease in the country (Asefa *et al.*, 2010). The magnitude of the problem is higher in big cities like Addis Ababa linked with the presence of large population of stray dogs and associated factors (Tefera *et al.*, 2002).

Poor public awareness towards rabies is usually considered as one of the bottle necks for the prevention and control of the disease in Ethiopia, especially in canine rabies endemic towns including in and around Guduru district. Understanding the communities' perceptions about the cause, mode of transmission, symptoms, treatment and possible intervention measures of rabies is an important step towards developing strategies aimed at controlling the disease and determining the level of implementation of the planned activities in the future. Therefore, this study was designed and conducted to assess the level of knowledge, attitude and practices of selected communities in and around Guduru district on prevention and control of rabies.

MATERIALS AND METHODS.

Study Area

This study was undertaken in district of Oromia national regional state, called Guduru which is one of the district in the Oromia region of Ethiopia. Part of the Horo Guduru Wollega Zone, Guduru district is bordered on the south by Jimma Rare, on the southwest by Jimma Horo, on the west by Lake Fincha, on the Northwest by Abbay Chomen, on the North by the Hababo Guduru, and on the East by the Guder River which separates it from Shewa Zone. This district has latitude and longitude of 09°32'N and 37°30'E respectively with an elevation of 1969 meters above sea level and the area receives 800-1200 mm of rainfall per year. The 2007 national census reported a total population for Guduru District to be 98,084 people, of whom 48,848 were men and 49,236 were women; about 6,504 or 6.63% of its population were urban dwellers (GSCS, 2014).

Study Design and Study Population

A community based cross-sectional study was used to assess the knowledge, attitudes and practices (KAP) on rabies among the communities of five randomly selected Peasant Association kombolcha kebele 01 and 02, Loya, Baro and Ejersa kobo of Guduru district. A total of 384 people from both sexes were selected from those communities of the town for this study. Volunteer individuals and respondents who live for more than six months as the resident in the area were included in the study and who below 15 years of age were excluded from the study.

Sample Size and Sampling Technique

The required sample size for this study was estimated by considering 50% of population knowing about rabies since there is no awareness study on rabies in the area before. Thus, the sample size was calculated according to Thursfield (2005) using 95% confidence interval and 0.05 absolute precision. This is calculated by using the following formula

$$n = \frac{(1.96)^2 P_{exp}(1-P)}{(d)^2}$$

Where: n = required sample size

P_{exp} = Expected prevalence

d = desired absolute precision (5%)

ten percent non-responsive rate was added and the final sample size was 384. out of 41 Peasant Association in the town, five Peasant Association were purposively selected and finally, simple random sampling was used in selecting the houses hold and from each selected household, the individuals or respondents were again further selected by simple random sampling technique and interviewed. The respondents were informed about the objective and purpose of the study and verbal consent was obtained from each respondent. Confidentiality of the information was maintained and data collection process was started based on individuals' willingness to take part in the study with their informed consent.

Data Collection

A pretested structured questionnaire consisting of closed ended questions was used for this study. The data were collected via interview. The questionnaire was first developed in English and then translated in to Afaan Oromoo language (regional working language) for appropriateness and

easiness in approaching the study participants.

Data Analysis

After collection of the data, it was cleaned and checked for its completeness. Those incomplete and inconsistent were corrected when possible and removed otherwise. After complete check-up the data was coded and entered to the Microsoft Excel 2007 and imported to SPSS version 20.0 for analysis.

RESULTS

Socio-Demographic Characteristics: A total of 384 respondents were asked and responded to the questioner, in which more than half, 201 (52.3%) of the interviewed were females. Regarding age group, about 177(46.1%) of the study participants were between 31-50 years old. Concerning educational status of the respondents, 110 (28.6%), 97(25.3%), 69(18%),59(15.4%), 49(12.8%) of the participants were high school, Informal, higher education, illiterate and elementary school respectively. The majority of the respondents were engaged in different activities (occupations) including being farmers 127 (33.1%) followed by merchant 117 (30.5%), and about 62(16.1%) government worker, health worker and veterinarian and others like shoeshine boy and students 78(20.3%).

Knowledge of Participants Related to the Cause, Mode of Transmissions and Host Range of Rabies: From the total number of respondents, 269 (70.1%) respondents knew that the cause of rabies and about 115(29.9%) of them didn't know the causative agent of rabies. Regarding with the mode of transmission of the disease, 208 (54.2%) of the respondents responded that bite and 128(33.3%) of respondent respond that contact of saliva with open wound with the observation. In this study, 257(66.9%) of the respondents answered that dog is the

most common source of rabies followed by all domestic and wild animals 115 (29.9%). Based on the clinical sign observed in rabid animals' majority of the respondents answered that sudden changed behavior, continues with salivation and photophobia with the percentage of 43.2%, 33.6% and 9.1% respectively.

Knowledge of respondents related to curable, prevention of rabies in animals

From the total number of respondent's majority of them were asked about whether rabid animals are curable or not. About 206 (53.6%) of the respondents answered no and the remaining of them 178(46.4%) answered yes. Majority respondent 189(49.2%) respond that eliminating stray dogs for prevention method and most 124(32.3%) but not all provided vaccination.

Knowledge of respondents related to the rabies affect human, symptoms treatment and outcome of person exposed to rabies

Regarding the effect of rabies in human most of participants responded it is highly fatal and danger within a short period of time. Many respondents 174(45.3%) provided that they observed certain symptoms of rabies like fever and about 98(25.5%) of them were respond headache, 156(40.6%) of them also respond that the method of treatment as using herbal remedies, and 89(23.2%) as praying for the patient. Regarding the outcome of exposure of rabies left untreated, 225(58.6%) responded as most of exposed were die and others 93(24.2%) were answered as they may be healed but won't be the same as before .

The attitude of respondents towards rabies

The respondents also raised that certain constraints of controlling rabies in the study

area were insufficient budget, lack of trained professionals, lack of rabies vaccine with the percentage of 50%, 39.8% and 6.5% respectively.

Practices and Attitudes to Prevent Rabies after a Suspected Animal/dog Bite

In the study area concerning with the management of their pet when the bite another animal, majority of them report

when certain abnormality was observed on animals with the percentage of 29.7% and followed by report to the health center, 29.2%. From the total number of observation the respondents recommended that they chose killing of the dog is the best option to decrease the spread of rabies and seeking medical treatment and wash the wound properly as 26.8%, 20.1% 17.2% respectively.

Table 1: Socio-demographic information of the respondents in Guduru district (N=384)

Socio demographic characteristics	Frequencies	Percent
Sex		
Male	183	47.7
Female	201	52.3
Age		
15-30	142	37
31-50	177	46.1
>50	65	16.9
Educational level		
Illiterate	59	15.4
Informal	97	25.3
Elementary	49	12.8
High school	110	28.6
Higher education	69	18
Occupation		
Farmer	127	33.1
Merchant	117	30.5
Government worker	21	5.5
Health worker	22	5.7
Veterinarian	19	4.9
Other	78	20.3

Table 2: Knowledge of respondents related to the cause, mode of transmission and host range of rabies clinical sign observed in rabid animals in Guduru district (N=384)

Responses	Frequencies	Percentage
Causes of rabies		
Virus	177	46.1
Thirst and starvation	49	12.8
Bad spirit	43	11.2
Don't know	115	29.9
Species of animals affected by rabies		
Dogs	257	66.9
Cats	12	3.1
Domestic and wild animals	115	29.9
Mode of transmission		
Biting/scratching	208	54.2
Contact of saliva with open wound	128	33.3
Saliva contact only	23	6
Don't know	25	6.5
Clinical sign observed in rabid animals		
Salivation	129	33.6
Sudden changed in behavior	166	43.2
Photophobia	35	9.1
Hydrophobia	17	4.4
Paralysis	11	2.9
Pawing at ground	26	6.8

Table 3: Knowledge of respondents related to the curable, prevention of rabies in animals (N=384)

Items	Frequencies	Percent
Whether rabies is treatable or curable in animals		
Yes	178	46.4
No	206	53.6
Prevention of rabies in		

animals

Eliminate stray dogs	189	49.2
Herbal remedies	37	9.6
Vaccination	124	32.3
Don't know	34	8.9

Table 4 Knowledge of respondents related to the rabies affect human, symptoms treatment and outcome of person exposed to rabies (N=384)

Items	Frequencies	Percent
Can rabies affect human		
Yes	351	91.4
No	33	8.6
Symptoms of rabies in human		
Fever	174	45.3
Headache	98	25.5
Muscle pain	93	24.2
Photophobia	9	2.3
Altered mental status	10	2.6
Treatment		
Herbal remedies	156	40.6
Praying	89	23.2
Vaccination	65	16.9
Holy water	74	19.3
Outcome of person exposed to rabies		
person survives	25	6.5
person heals but won't be the same as before die	93	24.2
don't know	225	58.6
	41	10.7

Table 5: The attitude of respondents towards rabies

Items	Frequencies	Percent
Is rabies patient can be completely cured?		
Yes	141	36.7
No	243	63.3

Constraints of control rabies		
Insufficient budget	192	50
Lack of trained professional	153	39.8
Lack of appropriate legislation	5	1.3
Lack of awareness	9	2.3
Lack of rabies vaccine	25	6.5

Table 6: Common practice that should be done in prevention and control rabies

Items	Frequencies	Percent
What do you do if your pet bite another animal?		
Check to see if your pet vaccinations are up-to date	100	26
Report to health center	112	29.2
Report any usually abnormality	114	29.7
Give the pet away	58	15.1
What did you did immediately on wound exposure?		
Wash the wound	66	17.2
Consult with tradition healers	72	18.8
Seeking medical treatment	77	20.1
Summit the dog for disease testing	66	17.2
Killing the dog	103	26.8

Table 7: Association between KAP scores about rabies and some key independent variables among study respondents of Guduru district (N=384)

Variables	Good	Poor	χ^2	p-value
Sex				
Male	124(67.8%)	59(32.2%)	0.00	0.984
Female	136(67.7%)	65(33.3%)		
Age				

15-30	95(66.9%)	47(33.1%)	1.126	0.569
31-50	124(70.1%)	53(29.9%)		
>50	41(63.1%)	24(36.9%)		
Educational status				
Illiterate	36(61%)	23(39%)		
Informal	64(66%)	33(34%)	2.092	0.719
Elementary	35(71.4%)	14(28.6%)		
High school	76(69.1%)	34(30.9%)		
Higher education	49(71%)	20(29%)		
Occupation				
Farmer	91(71.7%)	36(28.3%)		
Merchant	72(61.5%)	45(38.5%)	3.347	0.647
Government worker	14(66.7%)	7(33.3%)		
Health worker	15(68.2%)	7(31.8%)		
Veterinarian	14(73.7%)	5(26.3%)		
Other	54(69.2%)	24(30.8%)		
Religion				
Muslim	89(73%)	33(27%)	2.388	0.303
Orthodox	83(66.4%)	42(33.6)		
Protestant	88(64.2%)	49(35.8%)		

DISCUSSION

In this study, almost all respondents had heard about rabies from different sources. This finding was closely related with report done (67.7%) in a survey of knowledge, attitudes and practices about animal bite and rabies in general community in India and in Zimbabwe that was 68.7%, Ichhupujani *et al* (2006). This finding is lower than the finding of Awoke *et al.* (2015) with a record of 100%. However; it is higher when it is compared with that of the proportions, 81%,

81.1% and 68.7% in the surveys of the knowledge, attitudes and practices about rabies in the general community of Arada Sub City, Addis Ababa by Eyob *et al.*, (2016), respectively, but the KAP levels in those studies were higher. This might be because of the fact associated with the source of information determining the appropriateness of the knowledge that was transferred.

In this study about 52.3% of study populations were female and 47.7% were males and the study shows relatively the

same good scores in males (67.8%) females (67.7%). There is no statistically significant difference ($P>0.005$) in KAP score between males and females. Regarding the age of respondents majority of them were categorized between the age of 31-50(46.1%) followed by 15-30(37%). This result was disagree with result of *tadesse et al* 2014 in which good score were 53.7% in female and 10.7% in males. Considering educational level 15.4% were illiterates, 25.3% had informal education, 12.8% had completed elementary and about 28.6% had high school but this result was less than the report of Chandan N *et al*(2016)85% were male and 15% of study population were female. Considering education 11.75% were illiterates, 34.5% had completed primary education, 43.75% had completed high school, 8% up to PUC (12th standard) and only 2% had completed their graduation. Within the present study regarding religious status, majority of them were protestant followed by orthodox and Muslim with the percentage of 35.7%, 32.6% and 31.8% respectively.

The current study showed that, 67.7% respondents knew the correct mode of transmission which differ from the finding of *Laiet al* (2005), who reported that 49.2% answered correctly concerning transmission. This is due to the fact study participants had correct responses regarding the route of exposure compared to the result found in this study which could be due to better source of information. This KAP analysis revealed that 29.9% of respondents know that all warm blooded animals are susceptible to rabies and 66.9% aware that dogs are the most common source of rabies. This result is consistent with a study conducted in the New York, USA reported that 73.5% of the respondents identified that dogs are major sources for the spread of rabies in human population *Eidson et al* (2004). About 67.7% of the respondents

knew common clinical signs of rabies in animals. This finding is closely related with the study done in Nigeria *Asabe, et al* (2012).

In the current study, 62.6% of the respondents knew that rabid animals were treatable and curable. In this study, eliminating stray dogs and vaccination of animals were mentioned as the best options to control rabies in animals/dogs almost with equal proportion of the respondents as 49.2% and 32.3%, respectively. This finding was not consistence with results recorded in Debretabor by *Awoke et al*, (2015) where the majority of the respondents indicated that regular vaccination of dogs is effective measure for controlling the disease.

This finding was not also consistence with the results recorded in Sir Lanka *Matibag et al*(2007) and BahirDar *Tadesse et al* (2014) in which the majority of the participants were in favor of rabies control programs that mainly focused only on stray dog population control. This could be the because of mismanagement practice and lack getting awareness about disease.

The present study showed most of the respondents took measure on by killing rabid dog followed by summit the dog for disease testing with the percentage of 29.2% and 18.5% respectively. The majority of the respondents indicated depopulation of stray dogs is effective measure for controlling the disease in Guduru. This result agrees with the report in Sir Lanka in which the majority of the participants were in favor of rabies control programs that mainly focused on stray dog population control *Gino et al*(2009). This finding was consistence with this result is highly lower than the findings of the studies done in Debretabor as 25% by *Awoke et al*. (2015) and in Addis Ababa as 46.1%.

The good scores were not differ in the sex of human as it is indicated in current result .Therefore, statistically insignificant among sex, based on the above conclusion the following ($P>0.05$) in KAP score between males and females due to increased activity of males in their daily life compared with females and better chance of acquiring correct information about rabies. The other factor that to should be insignificantly associated with knowledge on rabies and provide accurate on rabies was educational status. Statistically insignificantly association ($P>0.05$) was observed between KAP score educational level, housewives or females more and educational levels where by higher levels educations were associated with higher knowledge scores. All respondents with first degree and above had good KAP of rabies. The possible explanation educated person could have been better information access and can easily understand the disease.

The good scores were observed among the age of categories under 31-50 by 70.1%. This is due to the fact that at this stage majority of the respondents were identified certain sources of disease. But statistically insignificant among the age groups ($p>0.05$). Among the occupation of the respondent's majority of them were farmers but there was no difference among them that means statistically insignificant ($p>0.05$). The association of religion within the good scores, there was no difference observed.

CONCLUSSION AND RECOMMENDATION

In conclusion, this study has shown that the community level KAP about rabies is good in the study area, despite this fact, still there are some KAP gaps in the community regarding the modes of rabies transmission clinical signs of rabies, prevention methods after suspected animal bite, the first action

taken in the home after bitten by a suspected animal (wound washing with soap and water) and attitude to anti-rabies vaccine. Sex, age, educational status, occupational status and house hold size of the respondents were the variables found to be significantly associated with KAP on rabies. Therefore, periodic education to raise the community's knowledge on rabies, especially by targeting the people who have lower educational level should be provided and urgent community based rabies education programs by giving emphasis on the cause, mode of transmission, clinical signs and immediate benefits of wound management and need for anti-rabies vaccine following a dog bite. In addition disseminating information related to rabies using the mass media and public gatherings to enhance the level of knowledge on the disease as a nationwide.

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