Community Based Knowledge, Attitude And Practice Of Rabies In Injibara Town And Its Surroundings, Awi Zone, Amhara Regional State, North-Western Ethiopia

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Abstract: Rabies is a viral disease of all warm blooded animals, which causes acute fatal encephalitis, with almost 100% case fatality rate. It is caused by rabies virus (genus Lyssa virus) which is mainly transmitted by rabid animal bites. This disease occurs in more than 150 countries and territories and about 55,000 people die of rabies every year, mostly in developing world despite that it is preventable disease by vaccination. Ethiopia is highly endemic for rabies; yet, a nationwide data on rabies has not been gathered to reveal the actual magnitude of the problem and public awareness levels. With a conviction that a handful of works on public knowledge, attitude and practice (KAP) in rabies be done to plan, execute any control and/or eradication programs, this study was conducted in Injibara town and its surroundings from November, 2015 to April, 2016 to assess the knowledge, attitudes and practices (KAP) on rabies and related factors. The design was: ccommunity-based retrospective, quantitative study design to assess the KAP on rabies and related factors. The entire three kebeles of the town and its surrounding rural kebeles were considered in the study. Moreover, focus group discussions were held with professional in the public and animal health facilities and information obtained was triangulated. In the 360 households interviewed, 298 (71.1%) of them were males and 102 (28.3%) females and 244 (67.8%) of subjects were between 15-35 years old and 53.3% owned dogs, only 10% of whom had responded ever vaccinating dogs. The majority of the respondents (95%) were Orthodox followed by protestant (2.8%). The total population who had good KAP was 51.1%, lower than some previous works in Ethiopia. Only 43.9% were aware that virus is the cause of rabies while 61.7% knew the appropriate transmission. About 90% were aware of its zoonotic nature, but only 68.9% were aware of the principal source- the dog. Seventy three per cent of the study subjects recognized its incurability in man and animals. About 63.3% accepted killing of stray dogs. On the other hand, 83.9% reported to have never gotten any training. About 47.2% believed visiting herbal medication was best first aid following bites. There was no statistically significant differences in KAP level and sex, educational status, religion, occupation and residence ($p>0.05$). However, there was strong association between KAP scores and dog presence ($\chi2=12.073$, $p=0.001$). Information obtained from health facilities showed an extremely poor move and commitment from authorities in combating the problem, particularly the animal health side. The result calls for an integrated public health education, prevention of the disease via dog vaccination and population management by availing resources like PEP in the vicinity to minimize further damage.

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1. Introduction

Rabies is a viral disease of all warm blooded animals, which causes acute fatal encephalitis, with almost 100% case fatality rate. It is an acute encephalitis illness caused by rabies virus. Rabies virus is the prototype species of the genus Lyssavirus in the family of Rhabdoviridae (Jackson *et al.*, 2007). Rabies virus infection most commonly occurs when a rabid animal bites an animal or a person. Rabies saliva from a rabid animal contaminates an open wound also occurs when infected a scratch or skin abrasion, or a mucous membrane (Rupprecht *et al.*, 2006).

This disease occurs in more than 150 countries and territories and about 55 000 people die of rabies every year, mostly in Africa, Asia, and South America even though it is a vaccine preventable disease (WHO, 2006). Forty percent of people who are bitten by suspected rabid animals are children under 15 years of age and dogs are the source of 99% of human rabies deaths Every year, more than 15 million people worldwide receive a post-exposure preventive regimen to avert the disease; this is estimated to prevent 327 000 rabies deaths annually (WHO, 2010).

Rabies is endemic in developing countries of Africa and Asia, and most human deaths from the disease occur in these endemic countries and is often misdiagnosed, under-diagnosed and under-reported (Ehizibolo *et al.,* 2011). Human mortality from

endemic canine rabies was estimated to be 55, 000 deaths per year and was responsible for 1.74 million disability adjusted life years (DALYs) losses each year. The annual cost of rabies in Africa and Asia was estimated at US$ 583.5 million most of which is due to cost of post exposure prophylaxis (PEP) (Knobel *et al.*, 2005).

In domestic animals, the incubation period is generally 3-12 weeks but can range from several days to months, rarely exceeding 6 months (Cleaveland *et al., 2002;* Alan, 2005). Clinical signs of this disease appear following migration of the virus from the bite site to the central nervous system, the duration of which is highly variable depending on several factors including the distance of the bite site to the brain (Parry *et al*., 2004). The virus affects virtually all mammals and infected species invariably die from the disease once clinical signs are manifested (Jackson *et al*., 2007).

Treatment is not successful once clinical signs have commenced, but the first survivor from clinical rabies without pre- or post-exposure prophylaxis (PEP) for rabies has been documented (Willoughby *et al*., 2007). Although, canine rabies is under control throughout most of the developed world, it still remains a significant burden in developing countries, particularly in Africa and Asia. Rabies is controlled principally by vaccination of dogs in order to achieve population immunity levels; sufficient to inhibit rabies transmission (Fitzpatrick, *et al*., 2010).

In Ethiopia individuals who are exposed to rabies virus often see traditional healers for the diagnosis and treatment of the disease. These widespread traditional practices of handling rabies cases are believed to interfere with timely seeking of PEP. Rabies victims especially from rural areas seek PEP treatment after exhausting the traditional medicinal intervention and usually after a loss of life from family members. 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 (Deressa *et al*., 2010).

Poor public awareness towards rabies is considered as one of the bottle necks for the prevention and control of the disease in Ethiopia especially in town endemic fore canine rabies like Injibara. Understanding communities' perceptions of 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 planned activities in the future. Therefore, this study was designed to assess the level of knowledge, attitude and practices of urban and per urban communities in Injibara town on prevention and control of rabies.

General Objectives

- ✓ To assess knowledge, attitude and practices (KAP) about rabies and associated factors among the community of Injibara town and per urban residents.

Specific objectives

- ✓ To assess knowledge, attitude and practice of the community about Causes, transmission, prevention and control of rabies.
- ✓ Evaluate the various independent variables potentially associated with differences in KAP level.
- ✓ Investigate the existing cause's arrangement and preparedness on the sides of health facilities in combating rabies in the study area.

2. Materials And Methods

2.1 Study Area Description:

A retrospective study was conducted by cross-sectional study from November, 2015 to April, 2016 in Injibara town, the capital of the administrative center of the Agew Awi Zone in the Amhara Region, Ethiopia. It is located, at the junction of Highway 3 from Addis Ababa to Bahir Dar and the road leading west towards Chagni. The older town of Injibara is situated approximately 5 km north of Modern Injibaraat 10°59′N 36°55′E, at a 2660-meter elevation. Entering the town by the Bahir Dar road, it is impossible not to notice the great Mount Zerehi to the right, one of many massive stone monoliths found in the area. Another geographical feature of the area is the Zengena Crater Lake just south of the town. Injibara town and its surroundg is one of Administrative town in Banja shekudadworeda. The 2014 census, Banja shekudadworeda has an estimated total population of 133,368 of whom 66,458 are males and 66,910 arefemales (CSA, 2014).

There is no available data on the population of dog in the town proper as well as the peri urban vicinities. It is, however, possible to mention that the vast majority of town inhabitants do have the practice of keeping dogs in attempt to safeguard families and belongings. We observed that rural and peri-urban communities do have a lower practice of keeping dogs as compared to urban residents.

2.2. Study Design:

A community based cross-sectional, quantitative study design was used to retrospectively gather piece of information that would help assess the knowledge, attitudes and practices (KAP) on rabies and related factors among the community in Injibara and its surroundings. Critical observation of existing arrangements in combating the problem was at health facilities.

The Community of Injibara town living in the entire three kebeles and a total of 360 respondents

were taken for the study. Available data from sources was triangulated and analyzed.

2.3. Sampling Method, Data Collection Tools and Procedures

2.3.1 Questionnaire

The semi-structured questionnaire was designed to collect information about the respondents' knowledge of the disease, its cause, means of transmission, treatment and prevention practices. The respondents' knowledge was validated based on their description of the diseases' typical clinical and epidemiological features like neurological signs, salivation, and primarily a disease of dog that is transmissible to human.

For this respondents aged greater than fifteen years and households who lived at least one year were considered. The age of respondents were grouped as young (15-35), adult (36-45) and old (>46).

The questionnaire was first developed in English and then translated in to Amharic language (native language) for appropriateness and easiness in approaching the study participants. The study subjects to be includes in the survey were systematically clustered in to various composition of the communities in the study area. Thus, the semi-structured (close and open ended) interviews were distributed and/or interviewed in residents (high schoolers, a private college, randomly interviewed residents along the roadsides, hotels and cafeterias). Moreover, a handful house-to-house survey of residents in all kebeles as well as significant clients visiting veterinary clinic for any service was included. The entire three kebeles of Injibara town and periurban communities were also randomly selected for the study since the kebeles were few in number.

2.4. Data Management and Analysis

After collecting, the data were cleaned and checked for its completeness. Those incomplete and inconsistent were corrected when possible and removed otherwise. After complete check-up the data were coded and entered to Microsoft Excel and transported to SPSS version 16.0 statistical packages for windows and analysis made. The frequency distribution of both dependent and independent variables were worked out by using descriptive statics techniques (Frequencies, mean, SD and percentage). Association between independent variables and KAP scores on rabies was calculated using Pearson's Chi square.

From the total twenty seven questions, the list of questions considered as response (dependant) variable which were twenty-one number were administered to each respondent regarding cause, sources, mode of transmissions, clinical signs, prevention practices and treatment measures of rabies. This would result in a response of either "choose the correct answer" (had got one mark) or "wrong answer" (had got zero mark) for each question. The number of questions for which the respondent gave correct responses was counted and scored. The score was then pooled together and the mean score was computed to determine the overall KAP of respondents, and in effect respondents who had scored greater than or equal to the mean value for the specific independent variable sub-components and then recorded as "Good KAP" as or less than the mean value as "Poor KAP" score.

Results

Socio-Demographic Characteristics of the respondents

A total of 360 respondents were interviewed to the questionnaire and the majority of respondents 204(56.7%) from Urban, 114(31.7%) from per urban, When we come to sex majority are male258 (71.1%) and females 102 (28.3%). Regarding age group, 244 (67.8%) of the study participants were between 15-35 years old. The majority of the respondents 342(95%) were Orthodox followed by protestant 10(2.8%) and Muslim 8(2.2%). Concerning educational status, 114(31.8%) of the participants were illiterate, 98 (27.2%) at collage level, high school 82(22.8%) and 38(10.6%) were first degree. From the total respondents about 132(36.1%) were students, 94(26.1%) unemployed, 70(19.4%) government employs, 50(13, 9%) merchants and 14(3.9%) were private employ (Table1).

Knowledge on cause, mode of transmissions, clinical sign, and host range

As the data indicates, almost all respondents were familiar to the disease. Among the participant, 158(43.9%) were aware that virus is the cause of rabies and 222(61.7%) knew that bite, scratch and licking of open wound or mucous membrane are mode of transmission from animal to human or other animals, on the other hand 262(72.8%) of respondents had responded that starvation and thrust, bite and change in behaviour, paralysis, salivation and anorexia are the clinical signs. Among the respondents 324 (90%) were aware that rabies is transmissible from animal to human and 248 (68.9%) respondents were aware that dog is the most common source of rabies. Moreover the 262 (72.8%) respondents know difficulty to cure the disease after commencement of clinical sign. Majority from respondents' response 150(52.8%) were children those who are more risky in community. From the total respondents 330(91.7%) had reported that rabies is highly fatal disease (Table 2).

Attitudes, and Practices on Prevention and Control

In the study, indicate that about 192 (53.3%) respondents had a dog and 44(12.2%) of them control their dogs in secured cage, 92(25.6%) tie in the

compound and 46(12.8%) lie free. Out of the total dog owners, 36(10%) had vaccinated their dog. From the whole respondents, 158(43.9%) control stray dog by contact owner for restrain, 104(18.9%) take killing measure. About 228(63.3%) of respondents believe in depopulation of stray dogs, 236(65.6%) killing action for rabid dog or animal. About 294(81.7%) had positive attitude for anti-rabies vaccine in dog. From total dog owner 162(45%) hadn't vaccinated their dogs. The dog, 82(22.8%) believed the vaccine was unreliable due to unreliable on efficacy of vaccine (Table 3).

Almost all respondents 302(83.9%) didn't got training on rabies.54 (15%) was bitten by rabid dog following these 170(47.2%) see herbal medication as first aid measure at bit.300 (83.3%) were aware of taking anti-rabies vaccine immediately after a suspected animal/dog bite can bring effective prevention. 218 (60.6%) know traditional healer available in the town (Table4).

Table 1: Socio-demographic information of the study participants in Injibara town and its surrounding (N= 360), 2016

Residency		**Sex**		**Age**		Religion		**Education**		**Occupation**	
Option	No (%)	Option	No (%)	Option	No (%)	Option	No (%)	Option	No (%)	Option	No (%)
Peri urban	114 (31.7)	Male	258(71.7)	15-35	244(67.8)	Orthodox	342(95)	Illiterate	114(31.7)	Gov't employee	70(19.4)
Urban	204(56.7)	Female	102(28.3)	36-45	92(25,6)	Muslim	8(2.2)	Elementary	28(7.8)	Private employ	14(3.9)
				Over 46	24(6.7)	Protestant	10(2.8)	High school	82(22.8)	merchant	50(13.9)
								Collage	98(27.2)	Unemployed	94(26)
								First degree	38(10.6)	Student	132(36.1)

Table 2: Knowledge of participants regarding to cause, mode of transmissions, clinical sign, fatal nature and host range of rabies in Injibara town and its surrounding (N=360), 2016.

Cause		**Transmission**		**Zoonotic Possibility**		**Clinical Sign**		**Easily curable after clinical Sign**		**Fatality**		**Animal Source**		**Community at Risk**	
Option	**No (%)**	**Option**	**No (%)**	**Option**	**No (%)**	**Options**	**No (%)**	**Option**	**No (%)**	**Option**	**No (%)**	**Option**	**No (%)**	**Options**	**No (%)**
Virus	158(43.9	Biting	56(15.6)	Yes	324(90.0)	Behavioural change	22(5.6))	Yes	98(11.27.2)	Yes	330 (91.7)	Dogs	248(68.9)	Children	190 (52.8)
Starvation + thrust	148(41.1)	Scratching	6(1.7)	No	36 (10)	Refuse feeding & drinking	46(23)	No	262 (72.8)	No	30(8.3)	Wild animal & bat	64(17.8)	Old people	36(10)
Psychological problem	4(1.1)	Open wound lick	76 (21.7)			Salivation	22(6.1)					Cat	48(13.3)	All	134 (37.2)
Associated with spirit	4(1.1)	All mentioned	222(61.7)			Paralysis	6(1.7)								
Do not know	46(12.8)					All	264(73.3)								

Table 3: Attitudes, practice, Prevent and control rabies among study respondents of Injibara town and its surrounding (N=360), 2016

Dog owning		**Dog control**		**Control of stray dog**		**Do you favour depopulation**		**Action taken to rabid dog**		**Attitude on vaccination**		**Ever vaccinated dog**		**Why not vaccinate**	
Option	No (%)	Option	No (%)	Option	No (%)	Options	No (%)	Option	No (%)	Option	No (%)	Option	No (%)	Options	No (%)
Yes	192(53.3)	In secure e cage	44(12.2)	Killing	104(28.9)	Yes	132(63.3)	Do nothing	621(17.2)	Support	294(81.7))	Yes	36(10)	Cost of the vaccine	14(3.9)
No	168(46.7)	Tie in compound	92(25.6)	Birth control	68(18.9)	No	224(36.7)	Restraint	62 (17.2)	Not suppose	66(18.3)	No	162(45)	No awareness	18(5)
		Lie free	46(12.8)	Contact owner	158(43.9)			Killing	236(65.6)					Unreliable on efficacy	82(22.8)
														Vaccine inaccessible	42(11.7)

Table 4: Attitudes, practice, Prevent and control rabies among study respondents of Injibara town and its surrounding (N=360), 2016

Ever got training		**Ever bitten by rabid animal**		**First aid measure at bit**		**Time of PEP efficacy**		**Traditional healer availability in town**	
Option	**No (%)**	**Option**	**No (%)**	**Option**	**No (%)**	**Option**	**No (%)**	**Option No (%)**	
Yes	58(16.1)	Yes	54(15)	Bandage with cloth	72(20)	Immediately	280(77.8)	Yes	218(60.6)
No	302(83.9)	No	306(83)	Herbal medication	170(47.2)	Later	46 (12.8)	No	142(39.4)
				Wash with water and soap	118(32.8)	Any time	34(9.4)		

Factors Associated with Community KAP on Rabies

Association between independent variables and KAP scores on rabies was calculated using Pearson's Chi square (Table 5). There was no association between KAP scores and sex (X^2 = 0.273, p = 0.601). Although the scores were higher in female (56.9%) than male (48.8%). Educational level had no significant association with KAP scores (X^2 = 1.388, p= 0.846). Respondents with first degrees (52.6%) had no higher percentages of good KAP knowledge compared with high school (51.2%), Illiterates (43.1%), elementary (42.9%) and collage (41.7%).

Occupation had statistically no significant association with KAP score (X^2 = 3.206, p=0.524) with the highest KAP score levels were observed in private employee (71.4%) while the lowest was among unemployed (42.6%). Residency though had no statically significant association with KAP (X^2=0.273, p=0.601). High KAP score level was observed in urban (52.4%) than periurban (48.2%). On the other hand There was strong association between KAP scores and dog presence (X^2=12.073, p=0.001). Although the difference was higher in respondents who have not dog (48.8%) than dog owner (24%) (Table 5).

Table 5: Relationships between KAP scores about rabies and some keyindependent variables among study respondents of Injibara town and its surrounding (N=360), 2016

Variables	KAP score			
	Good	Poor	χ^2	P value
Residence	54(48.2%)	58(51.8%)		
Per-urban urban	130(52.4%)	108(47.6%)	0.273	0.601
Sex				
Male	126(48.8%)	132(51.2%)		
Female	58(56.9%)	44(41.3%)	0.942	0.332
Age				
15-35	134(54.9%)	110(45.1%)		
36-45	38(41.3%)	54(58.7%)	3.905	0.142
>46	8(33.3%)	16(66.7%)		
Educational status				
First degree	20(52.6%)	18(47.4%)		
College	40(41.7%)	56(58.3%)		
High school (9-12)	42(51.2%)	40(48.8%)	1.388	0.846
Elementary (1-8)	12(42.9%)	16(57.1%)		
Illiterate	50(43.1%)	66(56.9%)		
Occupation				
Government employed	30(42.9%)	40(57.1%)		
Private employee	10(71.4%)	4(28.6%)		
Merchant	28(56.0%)	22(44.0%)	3.206	0.524
Unemployed	40(42.6%)	54(57.4%)		
student	66(50%)	66(50%)		
Dog ownership				
Dog owners	46(24%)	146(76.0%)	12.075	0.001
None dog owners	82(48.8%)	86(51.2%)		
Religion				
Orthodox	170(50.9%)	164(49.1%)		
Protestant	4(40.0%)	6(60%)	0.232	0.972
Muslim	4(50%)	4(50%)		
Catholic	4(50%)	4(50%)		

Results of Focus Group Discussion

In the couple of FGDs were executed with animal and public health professionals, a thorough discussion on issues related with rabies were held on the existing experiences and arrangements in preventing and treating cases and practiced interventions.

Discussions with public health personnel showed that:

✓ Dog bite cases of humans were pretty common for primary/ first aid and wound management (washed by water and iodine.).

✓ They reported they (professionals) would have never thought and practiced contacting veterinarians for consultation and overlooking of the dogs that inflicted the wound.

✓ They would advise the owners to restrain the dog for a week or so to peruse a whether or not a mandatory PEP vaccine was to be commenced. Nonetheless, the Health Center had no any experience of delivering PEP and thus they would be referred to Bahir Dar.

On the other hand, we also had a thorough discussion with professionals at animal health facilities. The overall conclusive remarks gathered by this convention were:

✓ People was not morally initiated to take the training even if some were aware of the risk of rabies.

✓ A sporadic foci of outbreak of rabies are not uncommon in Injibara and its surrounding.

✓ Canine rabies vaccination and certification has for long been unimplemented in the woreda. Reason: fear of the costs that may be incurred and thus financial burden on therapeutic services delivered to clients.

✓ Many people don't see the dog as a valuable domestic animal as they do for other livestock.

✓ They have observed that people don't have adequate awareness on the canine rabies vaccine and thus visit traditional healers.

✓ Vaccination and certification of for dog is has not been practiced.

✓ If the cases of rabies suspect are presented with clinical sign, they would recommend the affected dogs to put to rest the dog, but if the dog bites livestock or humans, then they would be given relevant recommendation to quarantine the dog as per WHO guideline..

Discussions

The findings of this study indicated that, about 51.1% of the respondents had good level of knowledge, attitude and practices about rabies and remaining of about 49% had poor level of knowledge. In disagreement to this finding, higher knowledge, more positive attitudes and higher scores in practice indicators regarding rabies was reported from Bahir Dar by Tadesse et al (2014) which recorded a magnitude of about 64% good KAP. Similarly, in a study by Mekonnin (2015) in Assosa, it was reported that almost all respondent had previously heard about rabies from different sources and 70.6% of the respondents had good level of knowledge, attitude and practices (KAP) about rabies. Likewise, same even higher figure was reported from Sri Lanka by Gino et al (2009) and rural community of Gujarat, India, by Singh and Choudhary (2005). This difference probably is explained by the lack of health education programs about rabies in in the current setting particularly, as very significant proportion of respondents (83.9%) had never got training about rabies in the study area.

In our study, there was no a statistically significant difference between residence categories (urban and peri-urban) in the level of KAP score of respondents ($\chi 2=0.273$, $p=0.601$) even though, as one might expect, a slightly higher KAP score level was observed in urban (52.4%) than per urban (48.2%) communities. This may be that access to schools and media are accessible in urban areas that would inevitably increase awareness of the people.

In our study, it was a surprise finding that presence of dogs in families was identified to be significantly associated with KAP on rabies. Thus, statistically significant association ($p<0.050$) was observed where owners with no dog had higher KAP scores (48.8%) than those that keep dogs indoor (24%). This might sound a bizarre finding, yet a belief that, for a fear of rabies that could happen if dogs were kept, people might have preferred to live without a dog.

Sex-wise comparison of scores in this study indicated that good scores were slightly higher in female (56.9%) than male (48.8%) though no statistically significant differences between the sexes was recorded ($p>0.05$). This was in contrast to report from Assosa town by Mekonnen, 2015) in which the results had showed otherwise and were statistically significant. Other factors identified to have shown no statistically significant association in KAP were independent variables like educational status and occupation of study subjects.

In the present study, (52.8%) respondents reported that children were more risky group to the problem than other age groups which is in agreement with finding of Kassawu *et al. (*2014) who reported that 98.6% group of population more risky to the disease were children. This could be due to that children doabscond playing with dogs.

In this work, only about 43.9% of respondents knew virus as the cause of rabies. This would disagree with the result reported by Noden *et al*., (2014), reported in two north Namibia towns as 53% KAP on the issue. Likewise, a KAP level of 60.1% on this specific question was recorded from Bihar Dar, Ethiopia, by (Tadesse *et al*., (2014). The difference may be lack of information and veterinary service. On the contrary, our score was higher when compared with the result 18% obtained from nearby Gondar town, North West Ethiopia by (Kassaw *et al*., 2014). It is probably due to difference in community knowledge and the educational status of the respondents in related with sample size and/or the design.

On the other hand, about 61.7% respondents knew the correct mode of transmission in our study which is consistent with the finding of Lai *et al*. (2005) who reported that 49.2% answered correctly concerning transmission. The presence of traditional healers who have sold rabies traditional medicine on the street occasionally in our study area may make the respondents be well aware of the disease. However, the study conducted in Mana and Limmukosa Districts of Jimma Zone, South West Ethiopia by (Worku *et al*., 2013) indicated that higher proportion of study participants 92.2% had correct responses regarding the mode of transmission compared to the result found in this study which could be due to better source of information.

The finding of the current study show that 91.7% of respondents were aware that rabies is a highly dangerous and fatal disease, 73.3% knew the correct and common clinical signs, 90% participants also knew that rabies can transmitted from animal to human. These findings are contrast with findings of Tadesse *et al*., (2014) from Bihar Dar who recorded respondents believing: 94.9% as a fatal disease, 76.8% knew common clinical signs, 94.9% were aware that

rabies can transmit from animal to human which reported. This difference could emanate from difference in target population, sample size and Assessment of veterinary public health activities regarding animals' related risk in human between professionals group in the study area suggests communication between physicians and veterinarians is largely poor.

Dogs were identified as a common source of rabies by 68.9% of respondents in our study which disagrees with a study conducted in the city of New York, USA by Edison *et al.* (2004) that reported 73.5% to same question. This may be due to that the countries where public health veterinarians are not the first line professionals in the public health institutions. The result also disagreed with 71.3%from Bihar Dar, by Tadesse *et al*. (2014), 96.3% respondents aware dogs as a reservoirs on the study of knowledge and practice of resident in two Namibia town with regard to rabies and pet care by (Noden *et al*., 2014) and 83.4% reported from In and nearby Gondar town, North West Ethiopia (Kassaw *et al.,* 2014). these may be due to low level of community awareness andknowledge of veterinarians' role and educational statuses could be attributed to more educated people access the information easily and school is also other source where they acquire the information.

As the study result found that, 32.8% of the respondents knew that wound washing is immediate action after rabid dog oranimal bite. This result highly lower than studies done in Bhutan (Tenzin and bir, 2013). This difference might be due to respondents believed that the infection could be treated with traditional medicine and tie the wound with cloth in attempting to prevent bleeding. Additionally most of respondents practiced that they burn the fresh dog bite wound by applying butter, animal fat or honey on the wound to prevent infection and when the rabid dog was bitten a person, he/she can cure from rabies if they touch the blood of the dog. In agreement with India's surveyed population (42%) preferred household treatment such as chili application (Agarwal and Reddaiah, 2003) 47.2% participantsof this study had strong belief on traditional medicine. Even though most respondents use traditional medicine as treatment. These may be due to frequency of outbreak.

The majority of the respondents about 63.3% indicated depopulation of stray dogs is effective measure for controlling the disease in Injibara town. This finding was consistence with results recorded in Sir Lanka in which the majority of the participants were in favour of rabies control programs that mainly focused on stray dog population control (Gino *et al*., 2009). Dog vaccination practice was generally very low in Injibara why because there is unreliable on efficacy (22.8%) and vaccine in accessibility (11.7%) is indicated as major problem. Raising awareness about dog vaccination and improving access and affordability of the vaccine should be considered in control of the disease as dogs are the main reservoir of the disease.

Conclusion And Recommendations

The results of this study indicate: The total population who had good KAP was only 51.1%, lower than some previous works in Ethiopia. Though about half of the study subjects owned dogs, most had never vaccinating dogs. Majority of Injibara and surrounding inhabitants practice visiting traditional healers than modern health facilities following to dog bites. Absence of strong department and professional group in public health centers that work on zoonoses and lack of communications between veterinarians and physicians in the area which are key elements of veterinary public health activities. There was no statistically significant differences in KAP level and sex, educational status, religion, occupation and residence There was strong association between KAP scores and dog presence ($\chi 2=12.073$, $p=0.001$). Based on these, the following points are recommended:

- ✓ Rabies education campaigns and awareness creation programs should be implemented in the study area.
- ✓ The livestock bureau should launch a regular dog vaccination and certification schemes as quickly as possible.
- ✓ The Amhara Regional Health Bureau should give due emphasis and allocate adequate resources for possible stray dog management, dog population management.
- ✓ Integrated One Health approaches (public and animal health compressions) need to be in place to combat the danger of outbreaks.
- ✓ More robust studies with multiple tools accompanied by laboratory investigation have to be done to gather more profound and accurate data.

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