

Research Article

Study on Community Knowledge, Attitude and Practice of Rabies in and Around Dessie City

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Received: February 26, 2016; **Accepted:** April 04, 2016; **Published:** April 06, 2016**Abstract**

Rabies is one of the disastrous diseases for both animal and human beings. Questionary survey was conducted in and around Dessie town from November 2013 to June 2014. A semi-structured questionnaire was administered to 139 respondents comprised of 96 from urban and 43 from peri-urban areas to assess knowledge, attitude and practice of community about rabies. The current study generally illustrate the presence of significant difference on knowledge, and practice of the respondent from urban and peri-urban areas ($P < 0.05$). Although more than (96%) of the respondents were familiar with the disease, there is mis-perception about the cause and means of transmission of the disease. Starvation and thirst were mentioned by (49.6%) of the respondents as causes of the disease in dogs and 21.6% of them stated any type of contact (irrespective of the skin condition) with saliva of affected individual can transmit the diseases. The result also established that 124(91.9%) of the respondents were aware that human and other different species of domestic animals can be affected by rabies. However, all respondents (100%) in peri-urban area perceived dog as the only source of infection for human being. Traditional medicine was stated as method of treatment in case of dog bite by 46% of the respondents whereas, 41.7% of respondent used post exposure vaccination. Only 35.8% of the respondent did vaccinate their dogs and level of low vaccination practice was higher in peri-urban area. Raising awareness about dog vaccination and improving access and affordability of the vaccine should be considered in control of the disease.

Keywords: Attitude; Dog; Knowledge; Practice; Rabies**Introduction**

Rabies is a deadly disease for both animal and human beings. Rabies is a viral disease transmitted by the bite or scratch from a rabid animal [1]. Rabies virus infects the central nervous system, causing encephalopathy and ultimately death. The virus is a single stranded RNA virus belonging to the genus *Lyssavirus* of the family Rhabdoviridae [2].

Rabid dogs are the principal source for transmission to human [3]. The virus is present in the saliva of the biting rabid mammal. Transmission almost always occurs by an animal bite that inoculates virus into wounds. Virus inoculated into a wound does not enter the bloodstream but is taken up at a nerve synapse to travel to the brain, where it causes encephalitis. The virus may enter the nervous system fairly rapidly or may remain at the bite site for an extended period before gaining access to the nervous system. The approximate density of nerve endings in the region of the bite may increase the risk of developing encephalitis more rapidly. Rarely, the virus can be transmitted by exposures other than bites that introduce the agent into open wounds or mucous membranes [2].

It is manifested by motor irritation with clinical signs of mania and an attack complex, salivation, inability to swallow and by a progressive ascending paralysis beginning in the pelvic limbs and moving forward to the trunk and thoracic limbs and death [4]. Diagnosis of rabies can be made based on history of bite, clinical signs and laboratory investigations [5]. The method of laboratory

investigation of rabies virus comprises isolation and identification of the agent, immune-chemical testes, serological testes and molecular techniques [6].

Rabies is endemic in developing countries of Africa and Asia. The disease causes heavy losses in human and livestock population in the endemic region. Rabies infection has a case fatality rate of almost 100 %, it accounts for over 55,000 human deaths annually, with most cases in Asia and Africa [1]. About 98 % of human rabies deaths have been documented to have been caused by almost and always bite of a rabid dog [7].

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) [8]. In Ethiopia, rabies remains to be one of the most feared highly endemic infectious diseases. The annual death due to rabies was estimated to be 10,000, which makes it to be one of the worst affected countries in the world [8]. The presence of high population of dogs with poor management contributes for high endemicity of canine rabies in Ethiopia. In canine rabies endemic countries like Ethiopia, rabies has also significant economic importance by its effect on livestock and in Africa and Asia, the annual cost of livestock losses as a result of rabies is estimated to be US\$12.3 million [8].

Prevention and control can be achieved by strict quarantine measures, elimination of stray dogs, extension program, control of rabies in wild life, registration of dogs and prophylactic vaccination

Table 1: Demographic features of respondents.

	Number and parentage of respondent		
	Total (%)	Urban (%)	Peri-urban (%)
Sex			
Male	108(77.7)	65(67.7)	43(100)
Female	31(22.3)	31(32.3)	0(0)
Age			
15-35	65(6.8)	45(46.9)	20(46.5)
36-55	65(46.8)	46(47.9)	19(44.2)
56-85	9(6.5)	5(5.2)	4(9.3)
Education			
Illiterate	28(20.4)	10(10.6)	18(41.9)
Primary school	54(39.4)	33(35.1)	21(48.8)
Informal	2(1.5)	2(2.1)	0(0)
Secondary School	26(19)	22(23.4)	4(9.3)
Higher education	27(19.7)	27(28.7)	0(0)
Occupation			
Heath Profession	3(2.2)	27(28.7)	0(0)
Veterinarian	10(7.2)	10(10.4)	0(0)
Farmer	44(31.7)	11(11.5)	33(76.7)
Merchant	10(7.2)	10(10.4)	0(0)
Job less	14(10.1)	11(11.5)	0(0)
House wife	4(2.92)	4(4.2)	0(0)
Others	54(38.8)	44(45.8)	10(23.3)

[4]. Quantitative information of the disease both in animal and human and community participation plays a crucial role to control the disease. However, there is lack of information on the situation of human and animal rabies the level community awareness about the disease was not or little known.

The objective of this thesis is:-

- To assess the community awareness of rabies.
- To assess the societies fillings and practice towards rabies

Materials and Methods

Study area

The study was conducted from 10 November 2014 to 15 April 2015 in Dessie city administrative, Ethiopia. Dessie city is placed 401 kilometers north east of Addis Ababa which it lies in waina dega zone at altitude of 2500 meter above sea level. The average maximum and minimum temperature of the area vary between 22°C-30.7°C and 12.3°C-17.1°C respectively. The region receives a bimodal rain fall, the average annual precipitation being 1300 milliliters. The short rain occurs during the month of March, April and May, while the long extends from June to September.

Study design

Questionnaire survey was conducted using semi-structured questionnaire by face to face interview to 139 randomly selected respondents to assess the public awareness and practices about the disease. The questionnaire was designed to collect information

about the respondents' knowledge of the disease, treatment and prevention practices as well as household information. The total of the respondent 96 from Dessie town and 43 from its surrounding peasants were selected based on willingness and informed consent.

Data management and analysis

The data collected from questionnaire survey was entered into Microsoft Excel 2007 spread sheet. The data was cleaned and data generated were analyzed using the Statistical Package for Social Science (SPSS) Version 16.0 to carryout descriptive analysis like percentage. Chi-square was used to evaluate the statistical significance of the differences in responses between the respondent from the urban and peri-urban areas. A p value < 0.05 were considered significant.

Results

Questionnaire survey result

Demographic characteristics of the respondent: (Table 1) shows the profile of respondents from urban and peri-urban areas. 108(77.7%) of the respondents were males and 31(22.3%) were females. The majority of the respondents age groups included in the range of (15-35 and 36-55 year) and 39.4% of the respondents attended the primary school. More than 31% of respondents were farmers.

Knowledge, attitude and practice on rabies

The current study has demonstrated the presence of statistically significant difference on different types; knowledge, attitude and practice of respondent from urban and peri-urban area (Table 2 and 3). Among respondent 96.4% of them were familiar with the disease. Majority (49.6%) of the respondents described starvation and thirst as causes of the disease in dogs and 65(46.8%) respondents who know the disease mentioned bite and saliva as a means of transmission, while 30(21.6%) of the perceived any type of contact (irrespective of the skin condition) with saliva of rabid individual as source of infection. Among the 139 respondents, 89.2% of them were aware that, human and other different species of domestic animals can be affected by rabies. 89(64%) of interviewers said that the sign of rabid animals was salivation and 50(36%) have claimed sudden change in behavior. The majority of the respondents (83.4%) stated that dog only can transmit rabies to human and more than 92% of interviewers had never get training on rabies disease (Table 2).

As indicated in (Table 3), 125(89.9%) of respondents kill the animal after being rabid. The study showed that only 41.7% of respondents for those peoples exposed to rabies used post exposure vaccination. Conversely, 64(46.1%) of interviewers sought traditional methods of treatment which employs the use of herbs. The respondents from the peri-urban areas were more likely to seek treatment from traditional healers than those from urban areas. 78(56.1%) of respondents kill the animal which was exposed to rabies. Out of 139 respondents 88(63.3%) of them state the presence of dog vaccination. However, only 36% of the respondents vaccinate their dogs. 75(54%) of interviewer said that the availability of vaccination in different clinics was sometimes. 102(73.4%) of respondents were managing their dogs by kept indoor and tied them. However, the respondents from peri-urban areas less likely inclined to do so. Most (98.6%) of respondents stated that children are more affected by rabies.

Table 2: Knowledge of rabies in urban and peri-urban areas.

	Number and percentage of respondent			P-value
	Total (%) N=139	Urban (%) N=96	Peri-urban (%) N=43	
Awareness about rabies				
Yes	134(96.4)	94(97.9)	39(90.7)	0.127
No	5(3.6)	1(2.1)	4(9.3)	
Cause of rabies				
Virus	25(18)	21(21.9)	4(9.3)	0.076
Starvation and thirst	69(49.6)	42(43.8)	27(62.8)	
I don't know	45 (32.4)	33(34.4)	12(27.9)	
Species affected by rabies				
Dog only	6(4.3)	6(6.1)	0(0)	0.002
Dog and human	9(6.4)	9(9.2)	2(4.7)	
Human and other domestic animal	124(89.2)	83(84.7)	41(95.3)	
Means of transmission				
Bite only	35(25.2)	27(28.1)	8(18.6)	0.032
Contact with Saliva only	30(21.6)	22(22.9)	8(18.6)	
Bite and saliva	65(46.8)	38(39.6)	27(62.8)	
Infected meat and others	9(6.5)	9(9.4)	0(0)	
Animal species Transmit rabies to human				
Dog only	116(83.4)	73(76)	43(100)	0.002
Dog and cat	20(14.4)	20(21.3)	0 (0)	
Other domestic animals	3(2.1)	3(3.1)	0(0)	
Sign of the disease				
Salivation	89(64)	55(57.3)	34(79.1)	0.013
Sudden change in behavior	50(36)	41(42.7)	9(20.9)	
Have you ever get training				
Yes	11(7.9)	11(11.5)	0(0)	0.021
No	128(92.1)	85(88.5)	43(100)	

Discussion

The result of current study has revealed that the importance of rabies in the study area. The questionnaire survey on public awareness indicated that the community is familiar with the disease, but, many fallacies regarding the cause and means and source transmission were observed. Bite was correctly indicated as a means of transmission of the disease by majority of respondents, however, large proportion of the respondents (21.6%) also believed that, any direct or indirect saliva contact (irrespective of skin condition) could serve as means of transmission. However, a simple contact of saliva with intact skin does not pose risk of rabies virus exposure. Starvation and thirst were mentioned as the cause of disease by most of respondents (49.6%). This idea could probably explained by the opinion of asymptomatic rabies carrier dogs in which stressors like starvation and thirst might induce development of clinical rabies in these carrier dogs. But the idea of asymptomatic rabies carrier dogs by itself is a controversial issue [10], and the association of stressors to the development of clinical rabies might be an implausible claim.

A traditional method of treatment was mentioned as the best

option for treatment for victims of dog bites in most of the respondent both from urban and peri-urban areas. This could be attributed to the low level of education and awareness of the respondents. The practice of traditional treatment was also explained by [11,12]. This exclusively demonstrated the importance of extensive public education and improving the accesses to modern treatment to reduce the high dependency of victims on traditional treatment.

Dogs were mentioned as the cause of infection for most fatal human rabies cases and cat also mention as second important source of human infection. In addition, rabies in other domestic animals like cattle, sheep, goats, and equines were also mentioned as risk for human. These findings were also reported by [13]. Domestic dogs have been reservoir of rabies and a source of rabies infection to humans and other animals [14,15]. In many parts of the world, especially in Africa and Asia, 85-95% of human rabies cases being caused by dog bite [16,17].

According to the response from majority of the respondents (98.6%), group of populations more risky to the disease were children. This could be due to the fact that children are closely playing with dog

Table 3: Attitude and Practice of the respondents.

	Number and percentage of respondent			
	Total (%) N=139	Urban (%) N=96	Peri-urban (%) N=43	P- value
Action for rabid animal				
Tie	8(5.8)	2(2.1)	6(14)	0.002
Killing	125(89.9)	92(95.8)	33(76.7)	
Do nothing	6(4.3)	2(2.1)	4(9.3)	
Action taken for bitten man				
Post exposure vaccine	58(41.7)	50(52.1)	8(18.6)	0.001
Traditional treatment	64(46.1)	36(37.5)	28(65.1)	
Both	17(12.2)	10(10.4)	7(16.3)	
Action taken for bitten animal				
Killing	78(56.1)	65(67.7)	13(30.2)	0.0001
No action	4(2.9)	2(2.1)	2(4.7)	
Treatment	57(41)	29(30.2)	28(65.1)	
Did you know vaccine campaign in your area				
Yes	88(63.3)	72(75)	16(37.2)	0.0001
No	51(36.7)	24(25)	27(62.8)	
Did you vaccinate your dog				
Yes	50(36)	48(50)	2(4.7)	0.0001
No	89(64)	48(50)	41(95.3)	
Availability of vaccine				
Yes always	26(18.7)	18(18.8)	0(0)	0.0001
Sometimes	75(54)	63(65.6)	12(27.9)	
No	38(27.3)	15(15.6)	31(72.1)	
Dog management practice				
Let free	37(26.6)	20(20.8)	17(39.5)	
Kept indoor	102(73.4)	76(79.2)	26(60.5)	
More risky population				
Children	137(98.6)	96(100)	41(95.3)	0.033
Old people	2(1.4)	0	2(4.7)	

at home and even in streets. In addition elders are well aware of the danger of rabies and look for medical care than children [18].

The current finding showed that almost all respondent (95.3) in per-urban area did not vaccinate their dogs. The reason for low dog vaccination practice in per-urban area could be due to large dependency on the traditional treatment using herbs, limitation of on availability, and high cost of vaccine. This is in agreement with [12] who noted that, dog vaccination practice was generally very low and totally nonexistent in rural district of the current study area. Relatively high percentages (50%) of the respondent from urban areas were found to have a habit of vaccination. But the vaccination program did not meet the expected level. The management system of most respondents in urban areas were kept in door where as almost half of respondents from peri-urban areas were let free their dogs.

This all indicates that the presence of high risk of rabies. On the other hand, the current study illustrated that training on rabies related aspect has not been given at community level. Therefore public

extensive education about rabies should be given to community to increase their awareness. Raising community awareness level has been mentioned as important tool to control rabies by many scholars [13,19,12]. 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

Rabies though a vaccine preventable disease, it is a serious public health problem in which children are more affected. The result of the current study indicates the existence of high risk of the disease and low level of awareness of the community. Dogs were mentioned as primary source of infection to human as well as animals. The presence of low vaccination coverage and high dependency on traditional medicine especially in the peri-urban area, were also well indicated. Such type of activities pose a health hazard and makes difficult the control of rabies in the area. Generally there is a difference on the level of awareness of rabies and receptiveness to rabies control measures

between urban and peri urban areas. Low level of knowledge and mal practice would hinder community participation in rabies control. However, control of the disease can be best achieved combination of vaccination, killing of stray dogs and training of community.

In light of the above conclusion the following recommendations are forwarded:

- Increasing awareness of the community about the disease should be considered for controlling the disease.
- Scientific evaluation of the herbs used for treatment and prophylaxis purpose should be done.
- Regular intervention targeted at controlling stray dogs and vaccination of dogs should be employed to control the disease.
- For human victims, proper post exposure treatment should be performed.

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