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Assessment of Knowledge, Attitudes and Practices of the Community towards Rabies in East Dembiya District, Central Gondar Zone, Northwest Ethiopia

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Abstract

Rabies is a highly fatal viral disease of all warm-blooded animals including humans. In developing countries, dogs remain the principal host transmitting infection to humans. Even though rabies is a highly fatal disease, it is a preventable disease. Community awareness about rabies is one of the key components for prevention. The objective of the study was to assess the knowledge, attitudes, and practices of a rural community in East Dembiya District, Ethiopia. A cross-sectional study was conducted from January 2022 to March 2023. A structured questionnaire was used to collect the data through face-to-face interviews among 100 respondents. In this study, 98 % of respondents were aware of the disease rabies. About 94 % of the respondents believe that rabies is a fatal disease whereas 34% believe that it is a treatable disease. Ninety-three percent of respondents know that dogs are a primary source of infection for humans. Eighty-five percent of the respondents didn't know the accurate cause of the disease and only 15% answered that the causative agent is the virus. Based on the respondents, 67% of them responded that the disease was transmitted through biting, scratching, and licking open wounds. Seventy-seven percent of the respondents have stray dogs in their immediate neighborhood. Of these respondents, actions were performed to control stray dogs by killing 62.3% (n = 48), aware the owner 27.3% (n = 21), ting 10.4% (n = 8), and birth control 2.6% (n =2). Thirty percent of all respondents prefer traditional treatment to medical treatment when exposed to rabies. Only 24% of respondents vaccinate their dogs against rabies. In this study, the overall KAP score recorded indicated a low level of overall awareness. Thus, close collaboration and integration of public health, the veterinary sector, and local authorities is a key element for preventing this fatal incurable disease.

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East Denbyia, Knowledge, Practices, Rabies, Survey.

Introduction

Rabies is a highly fatal viral disease of all warm-blooded animals including humans. It is widely distributed across the globe, with only a few countries (mainly islands and peninsulas) being free of the disease. In developing countries, dogs remain the principal host for transmitting the infection to humans Coetzer *et al.,* (2016). Rabies is an endemic disease in Ethiopia, and dogs, cats, and wildlife species are known to transmit Rabies virus (RV) to both humans and livestock (Tefera *et al.,* 2002). However, the dog is the most important animal that transmits the virus to humans in Ethiopia. Among people who presented to the Ethiopian Public Health Institute (EPHI) Rabies Diagnosis Center from 2009 to 2011, about 88.2% were exposed to the virus by dog bite. The global annual burden of rabies is estimated to reach 55,000 human lives lost on average, about 56% of which occur in Asia and 44% in Africa, particularly in rural areas on both continents (Coetzer *et al.,* 2016).

Rabies is a prime example of a neglected tropical disease that mostly affects poor communities, children and elderly people suffering from inequitable health care. In Africa, the highest recorded human death due to the disease for the year 1998 was reported from Ethiopia. The magnitude of the problem is higher in big cities like Addis Ababa linked to the presence of a large population of stray dogs and associated factors (3, 4). According to the national rabies survey conducted in 2012, about 1440 human rabies deaths and 10,800 Exposure cases were estimated to occur annually in Ethiopia (Coetzer *et al.,* 2016).

Even though rabies is a highly fatal disease, it is a preventable disease. Community awareness about rabies is one of the key components for prevention and control (Expert, 2005). Knowledge, attitudes and practices (KAP) surveys of the community have been undertaken in Ethiopia mainly in and around urban areas (EDdldo, 2021). However, a community-based KAP study with their associated risk factors has not been carried out in East Dembiya District, yet. Hence, this study aimed to assess the knowledge, attitudes and practices of a rural community in East Denbiya District, Northwest Ethiopia. Thereby helping in the planning and implementation of the rabies control program.

Materials and Methods

Study Area

The study was conducted from January 2022 to March 2023 in East Dembiya District, Northwest Ethiopia. East Dembiya is found in the Central Gondar administrative zone, Amhara national regional state and is located 35km away from Gondar town and 729km from Addis Ababa (the capital of Ethiopia).

Geographically, the area lies between 12.5^{o} latitude and 37.1^{o} longitude with an altitude of approximately 1700 to 2700 m.a.s.l; and it is bounded by Lay Armachiho in North, Lake Tana in South, Gondar Zuria district in East and Chilga district in West and also West Denbiya district in Southwest.

The average annual rainfall varies from 700-1160mm and the mean annual temperature varies from 18 to 28^{O}C. Denbiya district has 34 kebeles, 30 of which are rural and the remaining 4 are urban with an estimated human population of 206,398 from which 102,655 are male and 103,743 female (of this only 25,831 live in urban) (EDdldo, 2021).

The district has a livestock population of cattle (113844), sheep (55058), goats (12015), mules (93), horses (63), donkeys (16576), poultry (228962) and bee colonies are kept in three categories of bee hives: traditional (12024), transitional (434) and modern (487) bee hives (EDdldo, 2021).

Study Design

A cross-sectional questionnaire survey was conducted using a structured questionnaire by face-to-face interviews with 100 randomly selected respondents to assess the community awareness and practices towards rabies 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 selected respondents were selected based on their willingness and oral informed consent. The questionnaire, originally prepared in English was translated to the local language, Amharic. This questionnaire was administered to 100 randomly selected individuals in the study area to check the understandability and comprehension of the questions. Ambiguous words were made clearer based on the feedback.

Data Management and Analysis

The data collected from the questionnaire survey was entered into a Microsoft Excel 2007 spreadsheet. The data was cleaned and the data generated were analyzed to carry out descriptive analysis like percentages.

Results and Discussion

Demographic characteristics of the respondents show that 82 (82%) of the respondents were males and 18(18%) were females. The majority of the respondents' age groups were included in the range of 30-45 and >45 years and 61% of the respondents attended were illiterates, whereas 23% of respondents were from Primary school (1-8) education level (Table 1).

Ninety-nine percent of the respondents were Orthodox Christians in this survey study. Of the participating respondents 98 % had heard of rabies. Most of them got the information from society (42%), traditional healers (20%), veterinarians (15%), health institutes/personnel (8%), radio/TV (3%) and books (2%). Fifty-five percent (n = 55) of respondents get training on rabies. Of those

individuals who got training 14 of them (25.5%) got training about rabies twice a year, 58.2% (n = 32) occasionally, 10.9% (n = 6) more than twice a year and 7.3% (n = 4) once a year.

Seventy-eight percent of the respondents didn't know the accurate cause of the disease and only 15% answered that the causative agent is the virus. Based on the respondents, 67% of them responded that it is transmitted through biting, scratching and licking open wounds; but 30%, 2% and 1% of them responded that the virus is transmitted by biting, licking open wounds and scratching respectively. Species of animals affected by rabies were dogs (7%), cats (2%), sheep and goats (1%) and all (90%). Source of rabies in humans, where come from dogs (93%), sheep and goats (4%), cattle (2%) and equine (1%).

Thirty-four per cent responded that rabies can be easily treated after the onset of clinical signs. And 94% of the respondents know the fatal nature of the disease.

Based on the respondents immediately (68%), at any time (17%), and later (4%) stage application of anti-rabies vaccine is effectively preventable after a suspected animal bite; but 11% of them didn't know when to apply effectively prevent the disease.

Seventy-six percent and 24% of the respondents kill and tie rabid animals, respectively. Seventy-seven per cent of the respondents have stray dogs in their immediate neighbourhood; and from these respondents, actions should performed to control stray dogs are 62.3% (n = 48) killing, 27.3% (n = 21) aware of the owner, 10.4% (n = 8) ting, and 2.6% (n =2) animal birth control. Thirty-nine percent of the respondents in their household bitten by an animal; and 74.4% (n = 29) of them know the rabid animal.

Sixty percent (60%) of the respondents practice indoor management of their dogs and 30 % of respondents who participated in this study preferred traditional treatment to medical treatment when exposed to rabies. Only 24% of the participants vaccinate their dogs against rabies. And, 80% of the respondents take any safety measures when they take care of rabies-suspected patients.

The current study revealed that almost all respondents were aware of rabies. This provides a good opportunity to implement rabies prevention, control and elimination programs. In line with this report, (Jemberu *et al.,* 2013) also reported a high (98 %) level of awareness about rabies in Gondar Zone, Ethiopia. However, the current report is higher than other reports from Addis Ababa, Ethiopia which reported 83% (Abraham Ali *et al.,* 2013). The reason for the discrepancy could be due to a real difference in the incidence of rabies in the study areas.

The current study revealed the importance of rabies in the study area. The questionnaire survey on public awareness indicated that the community is familiar with the disease, but fallacies regarding the cause were observed.

Starvation and thirst were mentioned as the cause of disease by most of the respondents (78%). The idea could probably explained by the opinion of asymptomatic rabies carrier dogs in which stressors like starvation and thirst might induce the development of clinical rabies in these carrier dogs. However the idea of asymptomatic rabies carrier dogs by itself is a controversial issue (Asefa Deressa *et al.,* 2010), and the association of stressors to the development of clinical rabies might be an implausible claim.

Dogs were mentioned as the source of infection for humans by 93% of respondents. Few (7%) individuals mentioned other species of animals as a source for transmission of rabies to humans. Dogs are known to be responsible for more than 90 % of all human rabies cases worldwide (WHO, 2000). Therefore 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.

The current finding showed that 76% of the respondent in the study area did not vaccinate their dogs. Low dog vaccination practice in the study area might be due to their dependency on the traditional treatment, limitation on availability and high cost of vaccine. This agrees with Eshetu Yimer *et al.,* (2002) who noted that dog vaccination practice was generally very low in rural districts.

Nearly 39 % of the respondents had experienced dog bites, and following the dog bite 75% had practised washing the wounds with soap and water as a first aid to prevent rabies.

This is cheap, readily available, and feasible for all to apply. Washing of rabies-infected wounds with soap and water can increase survival by 50 % (Constable *et al.,* 2016).

Table.1 Demographic characteristics of the respondent

Variables with categories	Frequency	Percentage
Sex		
Male	82	82%
Female	18	18%
Age		
15-29	21	21%
30-45	46	46%
>45	33	33%
Household size		
1-3	30	30%
4-6	48	48%
>6	22	22%
Educational status		
Illiterate	61	61%
Primary school (1-8)	23	23%
Secondary school (9-10)	4	4%
College	9	9%
First degree and above	3	3%
Occupation		
Government employees	12	12%
Private employees	3	3%
Merchant	1	1%
Unemployed	4	4%
Housewife	10	10%
Farmer	67	67%
Others	3	3%

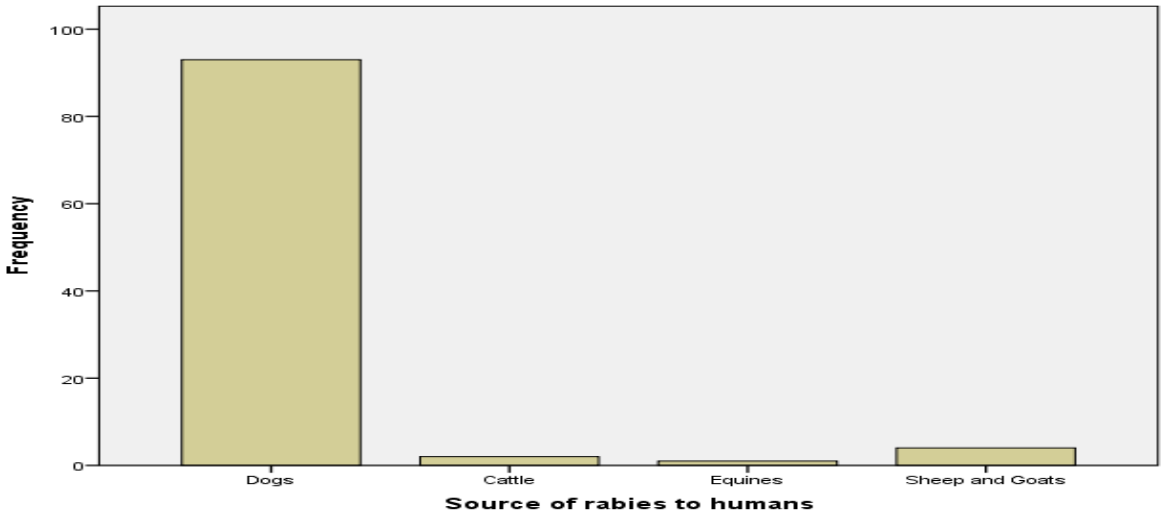
Table.2 Knowledge level of the respondents towards the rabies

Variables with categories	Frequency	Percentage
Signs observed		
Stops eating and drinking	2	2%
Biting and change in behaviour	6	6%
Paralysis	5	5%
Salivation	7	7%
Hydrophobia	2	2%
All of these	78	78%
The immediate action after the bite of a rabid animal at home		
Tie the wound with a cloth	24	24%
Wash with water and soap	75	75%
Apply herbal extract	1	1%
Total	100	100%
Where do you go after a bite of a rabid animal?		
Health center	61	61%
Traditional healer	26	26%
Holly water	13	13%

Table.3 Attitude of respondents towards rabies disease

Variables	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
Consumption of meat of an animal dead of rabies is preventive against rabies	15	33	26	21	5
Consulting a traditional healer is sufficient when exposed to rabies	17	48	20	14	1
Traditional healers are more preferable than modern medicine for rabies treatment	11	53	10	21	5
Crossing the river before 40 days will make traditional and or modern medicine ineffective	8	29	36	22	5
If you have been bitten by a dog, you will consult health professionals immediately	2	9	18	56	15
Rabies can be controlled through the elimination of stray dogs and vaccination-owned dogs	4	3	10	61	22
The killing of a dog encountered with a bite of a person suspected of having rabies is an appropriate measure of management.	0	4	2	67	27

Figure.1 Sources of rabies to humans with different species of animals



Conclusion and Recommendations

In conclusion, rabies was considered a disease of both veterinary and public health importance in the study area. The result of the current study indicates the existence of the disease incidence in the study area and the low level of awareness of the community especially on the cause of the disease, curability after onset of clinical signs, and effective time for post-exposure prophylaxis. Dogs are the primary source of infection to humans as well as animals. The presence of low vaccination practice in the study area was well indicated. This might pose a health hazard and make it difficult the control rabies in the area. Generally, the overall KAP score recorded in this study is an indication of a low level of overall awareness. Thus, awareness creation in the community about rabies has to be done to control the disease.

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