

**KNOWLEDGE, ATTITUDE AND PRACTICE RELATED TO DOG BITE VICTIMS
ATTENDING AT ANTI-RABIES POST EXPOSURE VACCINE TAKER IN POLY HEALTH
CENTER IN GONDAR TOWN, AMHARA REGION, NORTHWEST ETHIOPIA.**

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ABSTRACT: Rabies is a neglected worst infectious disease with high case fatality rate, human deaths and economic losses. The virus affects all warm blooded animals including humans and invariably dies from the disease once clinical signs are manifested. A cross-sectional study was conducted from January 2023 to March 2024 in Gondar town, Amhara Region, Northwest Ethiopia, with the objectives to investigate their knowledge, attitudes, and practices (KAP) of dog bite victims using questionnaire survey. Simple random sampling procedure was used for recruiting study participants. A total of 384 study participants were selected through face to face interview using pretested structured questionnaires. The quantitative KAP score were dichotomized as adequate and inadequate knowledge, desirable and undesirable attitude, and good and poor practice. Descriptive statics and mixed effect logistic regression considering individual dog bite victims as a random effect was used to see the association of predictor variables towards adequate knowledge, desirable attitude and good practice. The Majority of respondents (64.3%) were males and 49.7% were aged greater than 45 years. About (80.02%) the respondents were married and 41% of respondents were illiterate. About 82.6% of the respondents have adequate knowledge. About 100% the respondent were heard about rabies. From a source of information for rabies 53.65%, 26.56%, 11.72% and 8.02% of the dog bite victims were heard about rabies from health practioners, mass media, conference meeting and personal efforts respectively. All (100%) of the respondents knew that the main source of transmission for rabies in humans is dog bites. About 88.02% of dog bite victims believed that rabies cannot be treated after the onset of clinical signs. About 10.42% of the respondents do not practice immediate washing the wound with water at the site of infection. Majority of the study participant (44.3%) dog bite victims were used traditional treatment as the best option for dog bites. The study revealed that the dog bite victims have good knowledge and desired attitude and high-risk behavioral practices which call for awareness creation and education towards rabies transmission and control and prevention practices.

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Key words: Dog bite victims, Ethiopia, Gondar town, KAP, Rabies, Risk factors

1. INTRODUCTION

1.1. Background

Rabies is one of the worst infectious diseases, which has a 100% case fatality rate [1]. It is a negative-sense, single-stranded Lyssa virus (genotype 1) with a roughly 12-kb genome. The genus Lyssa virus, which belongs to the Rhabdo viridae family, is the cause of rabies. Clinically, it manifests as meningoencephalitis or acute incurable viral encephalitis [2].

It infects all warm-blooded animals and Domestic dog bites are the predominant source of infection to humans, Up to 99% of human infections with the rabies virus occur in endemic areas and are mostly caused by domestic dog bites [3]. Animals, especially carnivores like canids, are the carriers of this virus [4]. Instances where saliva, cerebral or spinal fluid, tears, or

nervous tissues from an animal or person suspected or confirmed to be rabid enter an open wound, are transplanted into, or come into contact with the mucous membrane of another animal or person, are the most frequent ways that infections are spread [5].

It is a neglected and underreported disease of developing countries where the majority of human deaths and economic losses associated with rabies are recorded [6, 7]. Globally, the annual impact of rabies is quantified as a cause of the death of 59,000 people, 3.7 million disability adjusted life years (DALYs) and economic loss of US \$8.6 billion per year due to premature death and costs for post exposure treatment [8].

Vaccination of dogs at risk and treatment of humans with pre- and post-exposure vaccine can readily reduce diseases in humans [9]. There are problems associated with the use of post-exposure prophylaxis (PEP) in developing countries, for example, a study in Senegal indicates with good public awareness on its dangerous and fatal nature of rabies; only half of the patients completed the full schedule of PEP [10]. This indicates the need for repeated awareness creation about preventive measures of the disease and cautions to be taken on the appropriate time to seek treatment options and the need to complete full scheme of the treatment [11].

Some rabies knowledge, attitude and practice (KAP) studies are available in Ethiopia [12, 13, 14]. A study in South Gondar, Ethiopia, indicated low public awareness hindered the use of rabies preventive measures [15]. These studies showed that rabies is familiar for most members of the community but have gaps in knowledge and practice in terms of its prevention and control. However, these studies were limited to small geographic areas (mostly to a single district) and only describing the proportion of respondents in terms of certain rabies related knowledge and practices. The current study was conducted to comprehensively assess community Rabies KAP and their drivers in a country Ethiopia.

Vaccination, wound care, and the injection of rabies immunoglobulin are examples of preventive methods. However, in many developing countries, where canine rabies causes the majority of human cases, deaths occur mostly due to a lack of access to affordable biological agents needed for effective post-exposure prophylaxis. A reduction in the number of human deaths due to rabies has to begin with the elimination of canine rabies. The feasibility of eliminating canine rabies in Africa is predicated on understanding and counteracting the many reasons that canine rabies control has failed in Africa. Domestic dog vaccination offers a cost-effective strategy for the prevention and elimination of human rabies mortality, and it is epidemiologically and practically feasible to eradicate canine rabies through mass vaccination of domestic dogs [16].

The WHO has established the "zero by 30" global strategy plan, which aims to eradicate

endemic rabies globally by 2030 by preventing human deaths caused by dog-mediated rabies [17]. Even though widespread vaccination is the most well-known and effective strategy, there is still a lot that can be done to make it even more effective. Economic, cultural, social, educational, and technological issues must also be considered, particularly in Asia and Africa, where the rabies burden is significant, including Ethiopia [18].

Ethiopia ranks fourth on the globe and has the second-highest number of rabies mortality rates on the African continent, after Nigeria [19]. Due to a large dog population that is poorly managed, rabies has been recognized as the most common disease in Ethiopia for many centuries [20]. It is primarily a disease of dogs in the country because access to suspected domestic canids and pets is not controlled indoors or by immunization. In the past two decades, a high number of animal rabies cases have been confirmed in Addis Ababa, the capital city of Ethiopia, and the majority of rabies cases were confirmed in dogs [21].

Understanding communities' perceptions of 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, determining the level of implementation of planned activities in the future, and creating responsible pet ownership, routine veterinary care and vaccination, and professional continuing education [22]. Poor public awareness of rabies is considered one of the challenges to disease prevention and control in Ethiopia, including the study area.

Knowledge and attitude are promotes people to take protective measures at work and actively participate in disease control programs, thus greatly assisting the development of rabies control strategies. So far, in Ethiopia, different studies have been done on the prevalence, knowledge, attitude, and practice about rabies among the public. However, the findings of these different studies show that there is a high variability in the level of the knowledge, attitude, and practice across the regions of the country and unclear. The general objective of this study was to undertake to estimate the level of knowledge, attitude and practice of peoples towards rabies in Ethiopia.

1.2. Statement of the Problem

Rabies is one of the neglected tropical diseases (NTDs), accounting for over 80% of human cases and primarily affecting poor and vulnerable communities [23]. Domestic dog bites are the predominant source of infection to humans; 99% of human cases are originated from dog bite [3]. This disease causes the major impediments to human health and economic losses mainly in developing countries [6, 7]. Globally, it causes the death of 59,000 people, 3.7 million disability adjusted life years (DALYs) and an economical loss of \$8.6 billion due to premature death and costs for post exposure treatment. In low-income countries where the majority of economic losses and human deaths associated with rabies are recorded [11]

In Ethiopia, large number of dogs and their wider use as home pets in towns and as an important guard for livestock and home in many areas of the countries. In addition the country has limited laboratory capacity and human rabies management. Some rabies knowledge, attitude and practice (KAP) studies are available in Ethiopia [12, 13, 14]. These studies showed that rabies is familiar for most members of the community but have a limited gap in knowledge, attitude and practice in terms of its prevention and control. However, in order to address the above problems, a study is required to fill the gaps in knowledge, attitude and control practice about the rabies disease and its reservoirs in order to create baseline information that can be used to develop efficient disease control and prevention program. So, because of these problems the following research questions are formulated.

1.3. Research Questions

This research work was attempted to answer the following research questions.

- ✓ What are the levels of knowledge, attitude, and control practices in dog bite victims in the study areas?
- ✓ What are the associated risk factors in dog bite victims in the study area?

1.4. Objectives

1.4.1. General objective

- The aim of this study was conducted comprehensively to assess the KAP of

dog bite victims their drivers in Gondar town poly health center, Amhara region, Northwest Ethiopia.

1.4.2. Specific objectives

The specific objectives of this study are:

- To measure the level of dog bite victims' knowledge and control practices towards rabies in the study area.
- To determine the associated risk factors in dog bite victims in the study area.

1.5. Significance of the Study

Poor public awareness of rabies is considered one of the challenges to disease prevention and control in Ethiopia, including the study area. This study would be used conducted comprehensively to assess about dog bite victims' knowledge and control practices towards rabies in the study area. To update the required bodies about the important risk factors responsible for the occurrence of rabies in the communities. The study would be promoted to future researchers to use the gap for further investigating the occurrence of rabies. It measured the level of dog bite victim's perceptions about rabies about the cause, mode of transmission, symptoms, treatment and possible intervention measures of rabies in communities. It also an important step towards to determining the level of implementation of planned activities in the future, and creating responsible pet ownership, routine veterinary care and vaccination and professional continuing education. Therefore, this study would facilitate zonal and regional health sectors used to designing and implementing effective control and prevention strategies of rabies diseases.

3. MATERIALS AND METHODS

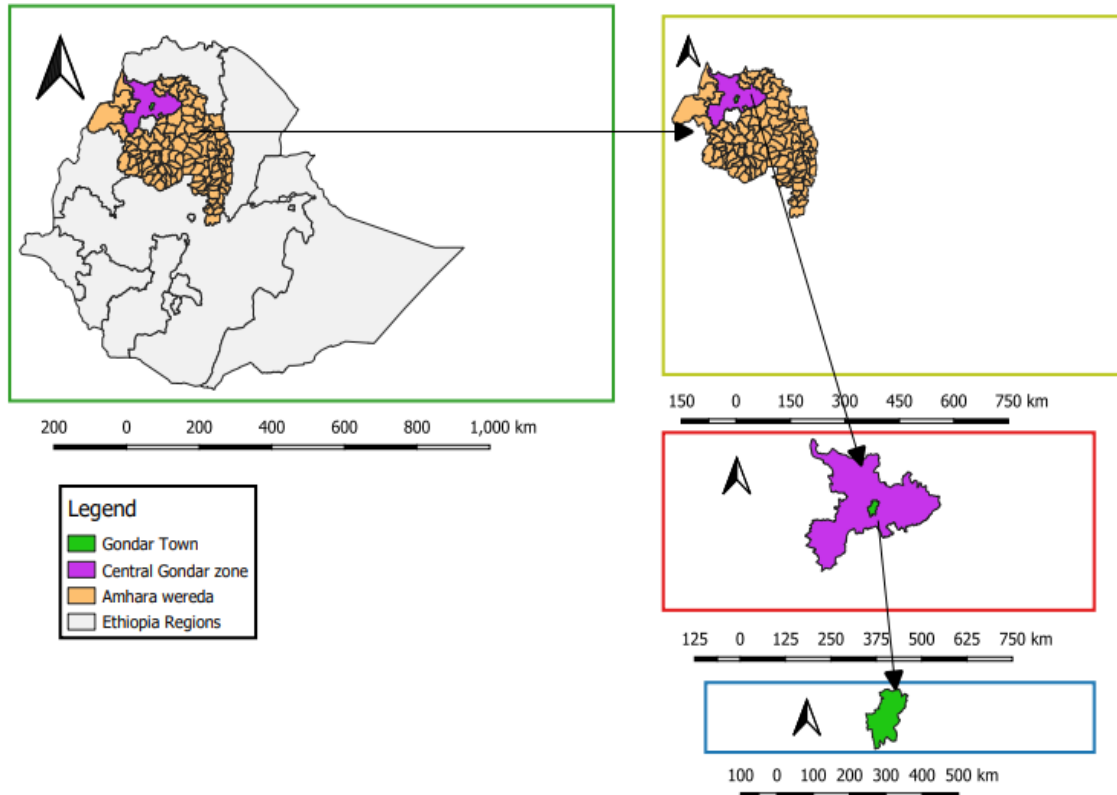
3.1. Study Area

The study was conducted in Gondar town poly health center in Amhara region, Northwest Ethiopia from January 2023 to March 2024. The study area was selected purposively based on the ir availability of post exposure nervous tissue vaccines in poly health center in Gondar town. Gondar town is found in northwestern part of Ethiopia at 748km away from Addis Ababa and 180km from Bahir Dar the administrative center of Amhara region. The estimated human

population is of the estimated to be 230,315 and the total area of the city covers 5560 hectare [24].

Gondar town is located between 12° 36' North latitude and 27° 2' East longitude. The annual mean minimum and maximum temperature vary

between 12.3–17.7°C and 22–30°C, respectively, with an annual average temperature of 19.7°C. It is located 749 kilo-meters away from Addis Ababa, the capital city of the country, and 207 kilo-meters away from Bahir Dar, the capital city of the region [25].



Sources: QGIS software version 3.22
 Figure 1: Maps of the study area

3.2. Study design and data collection

A cross sectional study was conducted over a period of three months from September to November 2023 among dog bite cases attending Gondar town poly health center using a semi-structured questionnaire. The questionnaire was designed to collect quantitative data on dog bite victims' knowledge, attitude and practice related to rabies (Annex 1).

The questionnaire had 4 sections such as socio-demographic characteristics, knowledge, attitude and practices of respondents regarding on dog bites and rabies. Depending on the option of each questionnaire sections in related questions about knowledge and practice, respondents were asked to answer 'yes' or 'no' or to choose from a list of options provided. Attitude questions were developed by Likert's

scale having five components, strongly disagree, disagree, uncertain, agree and strongly agree. The socio-demographic questions included were respondents' sex, age, socioeconomic status, marital status and educational status. Age class of the respondents was classified to three groups as less than 30 years, 30–45 years and greater than 45 years following previous recommendations for social science research [14]. Before collecting the actual data, it was pre-tested and corrected based on the feedback of pre-test. The pilot testing was primarily targeted to test clarity of questions, to estimate the time needed to administer the questions and enough to acquire the required information. The final questionnaire was administered by face-to-face interviews using the local language (Amharic). The selected victims were individually interviewed using questionnaire. Both open and

closed ended questions were included in the questionnaire.

3.3. Sampling methods and sample size determination

Simple random sampling was used to select study participants. First, administrative zones and the study area were selected purposively based on their ease of accessibility and availability of nervous tissue vaccines. Next Individuals within health center were selected purposively targeting household heads having dog bite victims. Individual having dog bite victims in the health center were selected randomly using computer based random numbers. Individual in the vicinity were substituted when no one is unwilling to participate.

Sample size was calculated using the method described by [26].

$$n = \frac{1.96^2 P (1-P)}{D^2} = \frac{1.96^2 0.5(1-0.5)}{0.5^2} = 384$$

Where:

n = sample size

P = expected prevalence

D = standard error

We used 50% expected prevalence (P) and a 5% standard error (d), which were estimated using formula above. Therefore, 384 sample sizes were considered for this study.

3.7. Data Analysis

The collected data was entered into Microsoft Excel, coded and summarized using descriptive statistics. All statistical analyses was done using Stata 17 statistical software. A mixed effect logistic regression model (dog bite victims was taken as random effect). Correlation, confounding and interaction tests were checked.

The socio-demographic questions were included respondents' sex, age category, educational status, marital status, religion, dog ownership and rabies knowledge level (for desirable attitude and good practice) were the predictor variables where associations were examined. Factors with a p-value of less than 0.25 in the univariable analysis were incorporated into the full multivariable mixedeffect logistic regression mode. In the multivariable mixed effect logistic regression, P-value < 0.05 was considered as cut off for

statistical significance and odds ratio (OR) and 95% CI were also calculated. Age class of the respondents was classified to three groups as less than 30 years, 30–45 years and greater than 45 years following previous recommendations for social science research [14].

The responses for KAP questions were given scores and dichotomized using cut off 50% of the maximum obtainable score reflecting good and poor KAP levels. The binary knowledge questions were given score of 1 when correctly answered 0 when answered incorrectly. Respondents who scored yes and/correct responses were considered as having adequate knowledge and those who scored no and/incorrect responses were considered as having inadequate knowledge. Similarly, respondents who scored yes and/correct responses were categorized as having good practice and individuals scored no and/ incorrect responses as having poor practice. The attitude questions were set in Likert scale and were scored as 1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree and 5 = strongly agree which depends on the nature of the statement. A dog bite victims attitude were determined good attitude as a proportion of agree and strongly agree greater than 50%, poor attitude as a proportion of disagree and strongly disagree less than 50% and neutral attitude based on the scores by respondents given for questions measuring attitude by Likert scale.

4. RESULTS

4.1. Socio-demographic Characteristics of the Respondents

A total of 384 dog bite victims were interviewed during the study period. Majority of respondents (64.3%) were males and 49.7% were aged greater than 45 years. About (80.02%) the respondents were married and 41% of respondents were illiterate. Besides, 73.7% of the study respondents were farmers and 76.6% were from rural areas. Most of the respondents were Christians. Two third of the study participants were lived in rural areas. About 81.5% of the respondent owned dogs (Table 1).

Table 1: Socio-demographic characteristics of the respondents

Variables	Categories'	Proportion (%)
Sex	Male	247 (64.3)
	Female	137 (35.7)
Age	<30 year	40 (10.42)
	30-45 year	153 (39.84)
	>45 year	191 (49.74)
Marital status	Single	37 (9.6)
	Married	338 (88.02)
	Divorced	6 (1.56)
	Windowed	3 (0.78)
Level of educated	Illiterate	157 (41)
	read and write	110 (28.65)
	1- 4 grades	67 (17.45)
	5-8 grades	36 (9.38)
	9-12 grades	10 (2.6)
	college/university	4 (1.04)
Religion	Christians	316 (82.29)
	Muslim	65 (16.93)
	Protestant	3 (0.78)
Occupational status	Farmer	283 (73.7)
	Merchant	52 (13.5)
	Labor	41 (10.7)
	Student	6 (1.6)
	Gov't employer	2 (0.5)
Residence	Rural	294 (76.6)
	Urban	90 (23.4)
Dog ownership	Yes	313 (81.5)
	No	71 (18.5)

4.2. Assessment of knowledge's for dog bites victims' response on rabies.

About 100% of the participants heard about rabies virus. Regarding source of information for rabies, 53.65% of respondent's perceived health practioners are the most information sources followed by mass media, conference meeting and personal effort with a proportion of 26.56%, 11.72% and 8.07%, respectively. About 73.3% of the participants reflected that rabies is zoonotic and 68.5% of them caused by virus. Regarding susceptible animal species, about 100% of the participants knew dog and cat and humans highly susceptible to rabies virus.

Regarding transmission, 100% of respondents knew dog bite is the main means of transmission and 68.23% and 20.6% of them perceived that wound contact with dog saliva and skin scratches, respectively were also routes for the transmission of rabies. About 98.44% of the participants knew that aggressiveness the most of the clinical signs associated with rabies followed by profuse salivation, dropping of tail and head, abnormal eating habit, hydrophobia, difficulty of swallowing and paralysis with a proportions of 81.77%, 61.2%, 44.01%, 6.77%, 4.95% and 2.86% respectively. About 88.8% of the participants perceived that rabies were not curable after developing overt clinical signs (Table 2).

Table 2: Assessment of knowledge questions for dog bite victims response on rabies.

Variables	Category	Proportion (%)
Heard about rabies virus	Yes	384 (100)
	No	0(0)
Source of information for rabies	Health practioners	206(53.65)

	Mass media	102(26.56)
	Conference meeting	45(11.72)
	Personal effort	31(8.07)
rabies is a zoonotic disease	Yes	344 (89.58)
	No	40(10.42)
Causes of Rabies virus	virus	263 (68.5)
	Bacteria	97 (25.26)
	Parasites	24 (6.25)
susceptible animal species	Dog and cat	384 (100)
	Human	384(100)
	Cattle	367 (95.6)
	Equine	284 (73.96)
	Shoat	276 (71.88)
mode of rabies transmission	Bite	384 (100)
	Contact with dog saliva	262 (68.23)
	Skin scratch	79(20.6)
	Others	35(9.11)
clinical signs observed	Aggressiveness	378 (98.44)
	Profuse salivation	314 (81.77)
	Dropping of tail and head	235 (61.2)
	Eating of abnormal items	169 (44.01)
	Hydrophobia	26 (6.77)
	Difficulty in swallowing	19 (4.95)
	Paralysis	11(2.86)
curable after clinical Signs observed	Yes	36 (9.4)
	No	341 (88.8)
	Don't know	7 (1.82)
source of rabies infection	Stray dog	304 (79.17)
	Free ranging dog	291 (75.78)
	Red fox	93 (24.22)
rabies control measures applied	Vaccination	347 (90.36)
	Treatment	155 (40.36)
	traditional remedies	357 (92.97)
	Don't know	24 (6.25)
Actions taken immediately after dog bite	Washing wound with soap	278 (72.4)
	use traditional medicine	357(92.97)
	Immediate came to health center	84(21.88)
	Nothing done	17(4.43)

4.3. Assessment of Attitudes for dog bites victims' response on rabies.

Over 88% of the participants perceived as rabies can be a fatal diseases. Over 93% of the participants were agreed that rabies were notifiable diseases. About 88.02% of the

respondents were agreed with that rabies is not treatable after onset of clinical signs. Over 81% of participants believed that habit of eating dead animal meats are a source of infections for rabies virus (Table 3).

Table 3: Summary of respondents' for attitude questions

Attitude Questions	Response categories n (%)						
	Negative attitude		Proportion (%)	Uncertain	Positive attitude		Proportion (%)
	Strongly disagree	Disagree			Agree	Strongly Agree	

Rabies is fatal.	11 (2.86)	17 (4.43)	28 (7.29)	18 (4.69)	142 (37)	196 (51.04)	338 (88.02)
Rabies is notifiable diseases	7 (1.82)	11 (2.86)	17 (4.43)	8 (2.08)	160 (41.67)	198 (51.56)	358 (93.23)
Rabies is not treatable after onset of clinical signs	18 (4.7)	22 (5.73)	40 (10.42)	6 (1.56)	138 (35.94)	200 (52.08)	338 (88.02)
Habit of eating dead animal meats are a source of infections for rabies	26 (6.8)	33 (8.6)	59 (15.56)	23 (6)	118 (30.73)	184 (47.92)	312 (81.25)
Vaccination of human and dogs are a better method for rabies control measures.	18 (4.7)	20 (5.21)	38 (9.9)	18 (4.7)	132 (34.38)	196 (51.04)	328 (85.42)
Crossing river within 40 days of bite inactivate the effect of PEP/traditional treatment	110 (28.65)	132 (34.38)	242 (63.02)	51 (13.28)	47 (12.24)	44 (11.46)	91 (23.7)

4.4. Assessment of practice for dog bites victims’ response on rabies.

About 56.25% of the participants practiced that the purpose of owning dogs for guarding and 63.8% of dog owner uses outdoor dog

management system. Regarding vaccination, about 65.9% of the participants do not vaccinate their dogs once per year unless the rabies virus outbreaks were epidemic in the area (Table 4).

Table 4: Assessment of practice questions for dog bite victims response on rabies.

Variables	Category	Proportion (%)
purpose of owning dogs	Guarding	216 (56.25)
	Hunting	153 (39.84)
	Don’t know	15(3.91)
Dog management system	Indoor	98 (25.52)
	Outdoor	245 (63.8)
	Nothing done	31 (8.07)
Can your Dogs vaccinate per year	Yes	131 (34.11)
	No	253 (65.9)
avoid contact from unknown dogs or wild animals	Yes	162 (42.2)
	No	222(57.81)
take any safety measure for caring your dogs	Yes	48 (12.5)
	No	336 (87.5)
Safty measures applied	no use safety measures	336 (87.5)
	Protect from bite	32 (8.33)
	Avoid contact with saliva	16 (4.17)
take actions after rabid dog bites	Yes	286 (74.48)
	No	68 (17.71)
	Don’t know	30 (7.81)
actions applied after rabid dog bites	Immediate washing the wound	40 (10.42)
	killed immediately	134 (35)
	came to health center	30 (13.02)
	use herbal Rx	170 (44.3)

5. DISSCUSSION

A community-based cross-sectional study was conducted to assess rabies prevention and control

practices and associated factors among Dog bite victims in poly health center in Gondar Town, Amhara region, North West Ethiopia. A total of

384 dog bite victims were selected using simple random sampling methods. In the present study, most of the respondents had good knowledge and a desirable attitude towards rabies, whereas their preventive practice was poor. About 82.6% of the respondents have adequate knowledge.

The current study is consistent with reports in previous studies reported by [27, 13] who reported 83% and 90.8% of having adequate knowledge from Addis Ababa and Gondar, respectively. However, it was higher than 64.1% reported from Bahir Dar by [12] and 56.1% from Mekelle by [28]. The result in the current study is roughly similar reports in the previous studies conducted by [29, 30, 31] who reported 82.6%, 82% and 86% from Indonesia, Guatemala and Tanzania respectively. The study indicates the disease is endemic in the study area and there is adequate knowledge in dog bite victims.

The present study revealed that (100%) were heard about rabies and this was in agreement with the previous studies reported by [32, 11, 30] respectively. The present finding was disagree with the previous study reported by [33, 27, 34] which is 75.2%, 73%, 76.5% in Sri Lanka, Ethiopia and Bangladesh respectively. These differences could be due to the information access and awareness level of the dog bite victims in its community. Regarding the source of information for rabies 53.65%, 26.56%, 11.72% and 8.02% of the dog bite victims were heard about rabies from health practioners, mass media, conference meeting and personal efforts respectively. This difference is most likely explained by low media coverage and other awareness creation sources in the community in the study district.

In the present study, 89.58% of respondents recognize rabies as a zoonotic disease. The current finding was in line with the study conducted in Bahir Dar town (94.5%) by [35] and New York, USA (94.1%) by [36]. However, this result was disagreed with the study reports 30.97% from Addis Ababa by [27]. The main reason for the difference could be nearest approach to animal health practioners and health worker, so that they could consult animal health practioners and health workers for the health care to community for rabies zoonosis.

In this study, all (100%) of the respondents knew that the main source of transmission for rabies in humans is dog bites. This is in agreement with

the WHO report that 99% of rabies in humans is from rabid dog bites [37]. Non negligible numbers (15.7%) of respondents believe that species other than a dog can never be a threat for human rabies. This is not consistent with the epidemiology of the disease as it can also be contracted from other rabies susceptible species [38]. This suggests the need for creating awareness about the potential sources of rabies to humans other than dogs.

About 98.9% of the respondents knew the clinical signs of rabies in dogs. Among this aggressiveness, profuse salivation and dropping of tail and head were the most clinical signs observed in dogs with a proportion of 98.44%, 81.77% and 61.2% respectively. Most of the dog bite victims were identify clinical signs of the rabies disease in dogs because humans living with dogs in home and observed the signs in their day to day life.

About 88.02% of dog bite victims believed that rabies cannot be treated after the onset of clinical signs. This is consistent with the facts that once the clinical signs are seen there is no way for recovery [6]. This is due the fact that the dog bite victims observe up to date once animals and humans can not treated after onset of clinical signs developed.

Majority of the present study participants (81.25%) believed consumption of meat from an animal that died of rabies is a source of infection. This could be taken as a good attitude to minimize risk of rabies.

In this study, most of (85.42%) the respondents believed that vaccinating their dogs are a better method for rabies control measures. The present finding was agree with the previous studies reported by [39, 40, 28] which is 71.1%, 79% and 85.3% in Adigrat, Mekelle and chiro towns. The present study was disagreement with the study conducted by [13, 20, 41] which is 18%, 36.8% and 60.83% in Shone, Jima and Mersa town in Ethiopia respectively. The variation may be due to the availability of vaccines or lack of awareness in the communities in the study area.

About 10.42% of the respondents do not practice immediate washing the wound with water at the site of infection. The result is in agreement with previous studies in Ethiopia reported by [13, 11]

where proper wound washing after a dog bite was not practiced. The WHO recommends that an immediate washing at the site of bite is the first and most important component of PEP [38]; wound washing and flushing reduces the impact of the disease by five folds [37]. The low-level wound washing practice in this study indicates the important and easily accessible portion of the PEP is missed. Therefore, the community needs detailed training awareness about proper washing with soap after immediate dog bites.

About 35% of the respondents practice an immediate killing of the dog when they encounter a bite of human. This finding is in agreement with previous reports in Ethiopia reported by [42,43] which is 42% and (47.7%) respectively. However, it contradicts the recommended measure that a dog bitten a human should be tied for ten days and monitored to see overt clinical signs [44].

The present finding indicates that 44.3% dog bite victims were used traditional treatment as the best option for dog bites. The present finding was consistent with the previous study conducted by [32, 45, 46] from Ethiopia, India and Bangladesh respectively. This is due to negative beliefs among respondents associated with dog bite management and lack of education about post exposure vaccine in health center and financial limitations of dog bite victims for accessing vaccines in hospital.

6. CONCLUSION AND RECOMMENDATIONS

Rabies is a fatal viral zoonotic disease and had a serious public health problem. The present study revealed that there is a good level of knowledge and attitude whereas the level of preventive practice was low in the study area. The majority of animal and human exposures to rabies can be prevented by raising awareness about community on rabies transmission and avoiding contact with wildlife. The communities should be killing stray dogs in order to reducing risk of rabies disease outbreak in their locations. Attention should be given by public health authority to create awareness in the community about simple but important rabies preventive measures such as immediate washing of wound following dog bite and quarantine of the biting dog. However, it should be give high focusing points when they are washing their hands after touching their dogs. Generally, play a principal role in mass

vaccination of dogs, proper post exposure management, appropriate surveillance system, and increasing the awareness of the community about the disease needs special attention for prevention and control of the disease.

Based on the above conclusions the following recommendations are forwarded;

- Strategic rabies control measures should be carried out mainly stray and free-ranging dogs.
- Post exposure treatment should be given after immediately exposure to dog bite or scratch by rabid animals.
- The public health and economic impacts of rabies should be further studied at zonal and regional level.
- Further research works should be carried out.

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