

Assessment of Community Knowledge, Attitude and Practice on Rabies in and Around Mendi Town, West Wollega, Oromia, Ethiopia

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Abstract: Rabies is one of the oldest recognized infectious diseases which affect all mammals. The study was conducted in and around Mendi town, which is found in western Wollega zone of Oromia regional state, Ethiopia. Non observational study type consisting of purposive study was used and a cross-sectional quantitative study was conducted from January - March 2021 to assess the knowledge, attitude and practices on rabies and associated factors. A pre-tested structured questionnaire consisting of closed and open ended. The majority of the respondents in the study were males 247(64%), while the number of females was 137(36). About 290(76%) of the respondents were heard about rabies. 384 respondents majority of them 216(56%) responded humans and other domestic animals as the species affected by rabies. Regarding the preferred action taken for bitten human, traditional treatment was responded by 204(53%). Among 384 respondents only 30(7.8%) of them vaccinate their dogs. The present study revealed that the majority of the respondents were heard about rabies. However there is a big gap on KAP level related to transmission, clinical sign, vaccination of their dogs, Prevention methods after suspected animal bite, action taken in home after bitten by a suspected animals. Therefore, Community based education program with emphasis on transmission, clinical sign, vaccination of their dogs, Prevention methods after suspected animal bite, action taken in home after bitten by a suspected animals is very important.

Key words: Knowledge • Attitude • Practice • Rabies • Mendi • Menesibu

INTRODUCTION

Rabies is one of the oldest recognized infectious diseases which affect all mammals [1]. The etiologic agent of this disease is the rabies virus belonging to the genus *Lyssa* virus and family *Rhabdoviridae* [2]. Rabies is one of the most serious zoonotic diseases. Once the clinical signs develop, it is almost 100% fatal disease [3].

Rabies is the most widely recognized example of salivary transmission of viruses. Inoculation of infected saliva through the bite of a rabid animal appears to be the predominant mode of rabies viral entry although contamination of broken skin and mucous membrane such as mouth, nasal cavity or eyes by fresh saliva or neurological tissues may result in infection [4]. Worldwide, an estimated 29 million people receive post-exposure prophylaxis (PEP) for rabies each year and more

than 59 000 people die of rabies, primarily due to poor rabies control measures [5-6].

Rabies is endemic in developing countries of Africa and Asia and most human deaths from the disease occur in these endemic countries. Africa, next to Asia, is the second continent most affected by rabies with an estimated 24,000 (44 %) of the 55,000 annual rabies deaths. Domestic dogs are considered to be the main sources (>90%) of human rabies in Africa and more than 88% of the exposure cases in Ethiopia were due to dog bites. The pooled estimate of rabies in Ethiopia was 32% (95% CI: 19-46%) [7].

Despite it is a fatal disease, rabies could be prevented by the timely application of appropriate prophylaxis [8]. The knowledge gap among the community should be assessed for subsequent intervention to increase awareness appropriately and to take other targeted

interventions. An increase of knowledge about rabies and public awareness in general will first aid what kind of measures to take after dog bites. [9], suggested that an increased knowledge about dog behavior and how to avoid getting bitten by dogs are methods to prevent rabies in humans.

Although rabies is primarily a disease of dogs in Ethiopia including Mendi town and its surrounding villages of West Wollega zone, no adequate research has been done to address the knowledge gap about the disease through assessing the knowledge, attitude and practice of the community. Therefore, the main aim behind the present study is to address the existing knowledge, attitude and practice gaps in the study area through conducting in depth assessment thereof which eventually contribute for efficient and effective control of the disease.

MATERIALS AND METHODS

Study Area: The study was conducted in and around Mendi town, which is found in western Wollega zone of Oromia regional state, Ethiopia. This area has a latitude and longitude of 9°04'N and 35°06'E respectively and an elevation of 1583 meters above sea level. It is the administrative center of Manasibu Woreda. Manasibu is bordered on the south by Jarso, on the South West by Begi on the North by the Benishangul Gumuz Region and on the southwest by Nedjo. The town is approximately 596 km away from Addis Ababa to the west direction [10].

Study Population: The study population comprises people living in and around Mendi town. Roughly an estimated number of 4746 males and 4377 females inhabit in the town and its surroundings. The target population however entails the entire Manasibu woreda inhabitants containing an estimated number 86476 male and 82710 females.

Study Design and Methodology: The study was conducted from January - March 2021. Non observational study type consisting of purposive study was used. A questionnaire was administered to assess their knowledge, attitude and practices (KAP) on rabies and associated factors. To this end, a structured questionnaire was developed.

Sample Size Determination: The sample size has been determined considering the worst case scenario where 50% of the population (P) is assumed to have gap in

knowledge, attitude and practice (KAP). In addition, 95% confidence level (CL), 5% desired precision were considered to calculate the sample size according to Thursfield, [11].

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

when: n=required sample size; P_{exp}= expected prevalence
d= desired absolute precision. Hence, by using this formula, the sample size was calculated to be 384.

Data Collection: A pre-tested structured questionnaire consisting of closed and open ended questions was used for this study. The questionnaire consisted of resident profile (age, sex, education, religion) and question concerning knowledge, attitude and practice. The questions were read out to the respondents in their local language (Afan Oromo) by the interviewer and their answers were recorded in English.

Data Management and Analysis: After collection, the data was cleaned and checked for its completeness. Those incomplete and inconsistent were corrected when possible and removed otherwise. After a complete check-up, the data were coded and entered into Microsoft Excel and exported to SPSS version 20 statistical packages for Windows and analysis made. The frequency distribution of both dependent and independent variables was worked out by using descriptive statistical techniques (Frequencies and percentages). The association between independent variables and KAP scores on rabies was calculated using Pearson's Chi-square. Statistical significance was set at P<0.05.

RESULTS

A total of 384 community members were interviewed during the study period. Table 1 shows the profile of respondents from urban and peri-urban. The majority of the respondent's age groups were included in the range of (35 to 50 and 51-60). Regarding the educational status of the respondents, 94(24%) were cannot read and write, 98(26%) read.

About 290(76%) of the respondents have heard about rabies. Majority of the respondents 190(49%) described a virus as the cause of the disease and 108(28%) of the respondents responded that they do not know the causative agent. Among 384 respondents majority of them 216(56%) responded humans and other domestic animals as the species affected by rabies.

Table 1: Socio-demographic characteristics of the study participants in and around Mendi town (N = 384)

Socio-demographic variables	Frequency	Percent	Cum. Percent
Residence			
Urban	216	56%	56%
Peri-urban	168	44%	100%
SEX			
Male	247	64%	64%
Female	137	36%	100%
AGE			
18-34	102	27%	27%
35-50	132	34%	61%
51-65	111	29%	90%
≥ 60	39	10%	100%
EDUCATION			
Cannot read and write	94	24%	24%
Read and write only	98	26%	50%
Primary school	96	25%	75%
Secondary school	66	17%	92%
Higher Education	30	8%	100%
OCCUPATION			
Health professionals	12	3%	3%
Veterinarian	14	4%	7%
Farmer	111	29%	36%
Merchant	33	9%	44%
Jobless	60	16%	60%
House wife	65	17%	77%
Other	89	23%	100%
RELIGIOUS			
Orthodox	110	29%	29%
Protestant	188	49%	78%
Muslim	52	14%	91%
Others	34	9%	100%

Most of the respondents 226(56%) replied bite and contact with open wound as transmission method. Dog bite has been replied only by 80(21%) respondents as a mechanism for disease transmission. Among 384 respondents 135 (35%) replied that sudden change in behavior was the obvious clinical manifestation of rabies while 193(50%) were aware that rabies can be prevented by vaccine.

This study revealed that 244(63.5%) of respondents said that stray dogs are dangerous and 134(34.9) were willing to register their pets. 192(50) of respondents said killing prevents rabies.

As indicated in Table 3, 130(33.85) of respondents kill the animal after being rabid. Regarding the preferred action taken for bitten human, 204(53%) of participants preferred traditional treatment whereas, post exposure vaccination was preferred by 86(24%) of participants. Moreover, 68(7.8%) of respondents reported that they would wash the wound using soap and water. Among 384 respondents only 30(7.8%) of them vaccinate their dogs.

DISCUSSION

The present study revealed that the majority of the respondents (76%) were heard about rabies and this was in agreement with the reports of Matibag *et al.* [12], Ali *et al.* [13], Sumon *et al.* [14] and Reuben Christopher Rine *et al.* [15] which is 75.2%, 73%, 76.5% in srilanka, Ethiopia, Bangladesh and Nigeria respectively. This finding is lower than the reports of 96.4% and 99.0% reported by Shumuye *et al.*[11] in Ethiopia and Moran *et al.* [16] in Guatemala respectively. However the present finding is higher than the reports of Mucheru *et al.* [17] in Kenya, Sambo *et al.* [18] in Tanzania with the reports of 49% and 27% respectively. These differences could be associated with awareness level of the community, educational status, information access.

Among the study participants, only 30% of the respondents vaccinated their dog once through their life time by the support of Wollegga University in urban area. This study is in line with the study conducted in Kenya

Table 2: knowledge of the study participants towards rabies in and around mendi town (N = 384)

Knowledge related variables	Frequency	Percent	Cum. Percent
about rabies disease			
HEARD			
Yes	290	76%	76%
NO	94	24%	100%
RABIES CAUSE			
Virus	190	49%	49%
Bacterium	63	16%	66%
Starvation and thirst	23	6%	72%
I don't know	108	28%	100%
SPECIES ARE AFFECTED BY RABIES			
Dogs only	58	15%	15%
Human only	35	9%	24%
Dog and Human	75	20%	44%
Human and other domestic animals	216	56%	100%
TRANSMISSION			
Bite only	80	21%	21%
Contact with saliva only	36	9%	30%
Bite and contact with open wound	226	59%	89%
Infected meat and others	42	11%	100%
SYMPTOMS			
Salivation only	128	33%	33%
Sudden change in behavior	135	35%	68%
Loss of appetite	61	16%	84%
Sudden death	60	16%	100%
VACCINE PREVENT			
Yes	193	50%	50%
No	191	50%	100%
INFORMATION SOURCE			
Health worker	100	26%	26%
Television	40	10%	36%
Radio	48	13%	49%
Livestock officers	73	19%	68%
Others	123	32%	100%
VACCINE SOURCE			
General hospital	157	41%	41%
Private hospital/pharmacy	60	16%	57%
teaching/ specialized hospital	48	13%	69%
Livestock departments	119	31%	100%

(35%) reported by Mucheru *et al.* [17]. However this finding is much lower than with the study conducted in Indonesia (74%) and Sri Lanka (76%) reported by Matibag *et al.* [12] and Reta *et al.* [19] respectively. This may be attributed to a number of factors that include availability of animal vaccines, the study times and good information sharing and lack of rabies control programs in this study area.

This study showed all respondents (100%) in peri urban area did not vaccinate their dogs. This is in agreement with Shumuye *et al.* [11] in north Gondar Ethiopia who noted that dog vaccination practice in

Table 3: Attitude and Practice of study participant in and around Mendi town (N=384)

Attitude and Practice related variables	Frequency	Percent	Cum. Percent
STRAY DOG DANGEROUS			
Agree	244	63.54	0.6354
Disagree	140	36.46	1
RABIES IS PROBLEM			
Agree	132	34.38	0.3438
Disagree	252	65.63	1
KILLING AS PREVENTION			
Agree	192	50	0.5
Disagree	192	50	1
REGISTER PETS			
Agree	134	34.9	0.349
Disagree	250	65.1	1
OWN DOG			
Yes	134	34.9	0.349
No	250	65.1	1
MANAGEMENT			
Indoor	19	4.95	0.0495
Free	116	30.21	0.3516
Has no dog	249	64.84	1
ACTION ON ANIMALS BITTEN BY RABID DOG			
Killing	130	33.85	0.3385
No action	82	21.35	0.5521
Treatment	172	44.79	1
ACTION TAKEN AFTER BITE OF HUMANS BY RABID ANIMAL			
Washing with soap and water	68	17.71	0.1771
use traditional healer	204	53.13	0.7083
Visit health institution	86	22.4	0.9323
Do nothing	26	6.77	1
VACCINATED			
Yes	30	7.81	0.0781
No	105	27.34	0.3516
Has no dog	249	64.84	1
PURPOSE OF OWNING DOG			
Guarding	198	51.56	0.5156
Hunting	99	25.78	0.7734
Guading and Hunting	87	22.66	1
FAMILY HISTORY OF RABIES INFECTION			
Yes	112	29.17	0.2917
No	272	70.83	1
BITTEN HISTORY			
Yes	47	12.24	0.1224
No	337	87.76	1

peri-urban practice was generally very low and totally nonexistent in rural district. This is due to large dependency of the respondents in peri urban area on the traditional treatment using herbs, limitation of availability and high cost of vaccine.

The present finding indicate that Majority of the respondents 204(53.3%) used traditional treatment as the best option for dog bites. The respondents from peri urban areas were more likely to seek treatment from traditional healers than those from urban areas. This could be attributed to the low level of education and awareness of the respondents which is in consistent

with the report of Shumuye *et al.* [11], Sekhon *et al.* [20], Sudarshan *et al.* [21] and Rumana *et al.* [22]. These types of treatment seeking behavior may be the outcome of persisting many myths and false beliefs among respondents associated with dog bite management and lack of education regarding effective prevention of rabies. Furthermore financial constraint, insufficient vaccine and immunoglobulin supply to the government hospitals, distance from the dog bite victim place of government hospitals may be responsible for the low vaccine coverage among dog bite victims in the study area.

In the current study, only 17.7% of respondents would wash the wound using soap and water as first aid for bitten humans bitten by rabid animals. This finding is much lower than the report of Yalamebrat *et al.* [23] in Debark District of Ethiopia and Shumuye *et al.* [11] in Gondar zuria with the report of 76.4%, 49.6% and 30.7% respectively. This difference could be associated with awareness level of the community. Washing of rabies infected wound with soap and water can increase survival by 50 % [23].

CONCLUSIONS

In conclusion the present study revealed that the majority of the respondents were heard about rabies. However there is a big gap on KAP level related to transmissions, clinical sign, vaccination of their dogs, Prevention methods after suspected animal bite, action taken in home after bitten by a suspected animals. Residence, sex, age, education of respondents was the variables found to be significantly associated with KAP of respondents about rabies.

Based on the above conclusion the following recommendations are forwarded:

- Community based education program with emphasis on transmissions, clinical sign, vaccination of their dogs, prevention methods after suspected animal bite, action taken in home after bitten by a suspected animals.
- Public healthy sectors, veterinary sectors and other stake holders should work together to prevent and control the public health and economic impact of rabies
- The Government should work with information source like radio, TV, newspaper and others to provide adequate information for the livestock owners in order to prevent their animals from exposure.

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