



**A Cross-sectional study on Rabies Prevention Practice and Associated Factor
among Residents in Addis Ababa, Ethiopia, 2023**

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Ababa, Ethiopia, 2023**

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ABSTRACT

Introduction - Rabies is a neglected zoonotic tropical disease that usually affects the poorest communities. Currently, it remains an ongoing threat to human populations and animals in many parts of the world. Next to Asia, Africa is the most affected continent by rabies with an estimated 24,000 (44%) of the annual rabies deaths worldwide. Canine rabies is endemic in Ethiopia.

Despite this burden few studies are conducted on Rabies prevention practice in Addis Ababa city.

Objective- To assess Rabies prevention Practices and associated factors among Residents in Addis Ababa, Ethiopia from May 21 to July 21 in 2022

Method and Material- Cross-sectional study was conducted from May 21 to July 21 in 2022 on 598-household heads in Addis Ababa, Ethiopia. The study respondents were selected randomly using the house hold number as sampling frame. Data was collected by trained person' through face-to-face interview using structured questioner. Data was entered to Epi.info version 7 and exported to SPSS version 25 software for analysis. Bi-variable logistic regressions and Multivariable logistic regression was computed to identify factors associated with prevention practice and the strength of association was interpreted using adjusted odds ratio, confidence interval and (P-value < 0.05).

Result: A total of 560 respondents were involved in the study with 93.7% a response rate. The age of the respondents ranges from 18-66 years. 311(55.5) of respondents were female and 366 (60%) of respondents were married. About 367(65.5%), 296(52.9%) and 312(55.%) have had good knowledge, positive attitude and good practice. Dog ownership (AOR= 11.1; 95% CI: 6.88-18.1), having good knowledge (AOR= 2.51; 95% CI: 1.57- 4.02) and positive attitude (AOR= 3.12; 95% CI: 2.02-4.83) have showed significant association with rabies disease prevention practice.

Conclusion and Recommendation: This study revealed that the limited understanding and inconsistent attitudes towards rabies had contributed for poor preventive practices. Hence provision of health education to community that improve awareness, attitude and prevention practice towards rabies disease is mandatory.

Key words- Practice, Rabies, Residents, Addis Ababa

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LIST OF ABBREVIATIONS

BC	-----	Before Christ
CHIS	-----	Community Health Information System
DC	-----	Data Collector
EPHI	-----	Ethiopian Public Health Institution
FRD	-----	Free Roaming Dogs
HCPs	-----	Health Care Providers
HRIG	-----	Human Rabies Immune Globulin
KAP	-----	Knowledge, Attitude and Practice
MOH	-----	Ministry of Health
NGO	-----	Non-Governmental Organizations
NTV	-----	Nerve Tissue Vaccine
PEP	-----	Post Exposure Prophylaxis
PI	-----	Principal Investigator
SPSS	-----	Statistical Package for Social Science
US	-----	United State
WHO	-----	World Health Organization

1. INTRODUCTION

1.1 Background

Many animals, including warm-blooded, fur-bearing species like humans, are susceptible to the fatal viral virus rabies. Domestic dogs account for more than 99% of rabies-related fatalities in people(1). The disease is typically spread via a mad animal's bite. Via transdermal inoculation or direct contact with infected substances including saliva, cerebrospinal fluid, and nerve tissue on mucous membranes or skin sores, the virus enters the body. Viruses cannot enter healthy skin. When symptoms first appear, the virus quickly replicates after it has entered the CNS and quickly spreads throughout the body. (2). The typical duration of the illness is no longer than 10 days, and the fatality rate reach 100%.(1). Almost 59,000 people die from rabies each year in different parts of the world. (3).

With the exception of Antarctica, rabies is endemic on all continents. Of the tens of thousands of deaths occurring annually due to rabies, 95% of cases are reported in Asia and Africa(4)

Regardless of the time between exposure and treatment, Post exposure prophylaxis should always involve the delivery of both Human Rabies Immune Globulin and rabies vaccines, which are recommended for both bite and non-bite exposures. Although pre-exposure vaccination does not eliminate the need for extra treatment after a rabies infection, it does make management easier by removing the requirement for rabies immune globulin and reducing the number of vaccine doses required (2, 3).

The three pillars of an effective rabies control program, as defined by the WHO, have major components. One of the pillars is a health educational intervention on rabies-related knowledge that is effective for improving people's knowledge attitudes and rabies prevention practices (2). Raising rabies awareness in the community is critical for prevention and control (3).

Attitude and prevention practice of Rabies research has been widely undertaken and used all around the world, and the knowledge gathered has aided in altering attitudes and adopting suitable measures to reduce the disease's spread (4). In public health, KAP research are based on the idea that expanding knowledge can change attitudes, promote good behavior, and can help to identify weaknesses in existing disease control programs and aid to improve their effectiveness by addressing the flaws (5). As a result, the goal of this study on rabies Prevention practice is to uncover knowledge gaps, cultural beliefs, and behavioral patterns that can help design and implement prevention practice by identifying needs, issues, and impediments.

1.2 Statement of the problem

The rabies burden is composed of a number of components, including mortality and morbidity from nerve tissue vaccines (NTVs), as well as psychological effects of exposure (1).

Despite substantial efforts to contain rabies infection, such as increased control plans and general awareness campaigns, Asia still has over 35000 cases and 8.6 billion dollars economic loss annually due to premature death (2). In Africa and Asia, the annual cost of rabies is expected to be US\$ 583.5 million, with post-exposure prophylaxis accounting for the majority of this (3). Africa bears a disproportionately high burden of this disease: an estimated 21,000 individuals die of rabies each year in Sub-Saharan Africa alone. Nearly all human instances of canine rabies are caused by bites from infected dogs (2).

Rabies is extremely common in Ethiopia, where thousands of people are infected each year and an estimated 2,700 people die, making it one of the countries with the worst rabies fatality rates on the planet (3). In Gondar, a one-year follow-up based only on clinical diagnosis revealed a 2.3/100,000 annual incidence rate (4). The true number of rabies-related deaths is unknown in the country because underreporting, low health seeking behavior and higher preferring to go to traditional healers (5). In addition to this in the population where, there are certain rabies knowledge and attitude gaps, including routes of rabies transmission, clinical indications of rabies, and preventative techniques following a suspected animal bite also there is low public awareness and prevention practice (1,2 ,3). Access to proper services was also cited as a critical factor in the low level of rabies community prevention practice (6). This is the primary reason why people do not have their dogs vaccinated, requiring more emphasis to be paid to boosting community awareness on rabies (7).

Ethiopian government is implementing rabies disease control program by incorporating it in the national neglected tropical diseases strategic plan and rabies is currently included under surveillance, as immediately reportable disease (8). One health approach is also one of the intervention approach being implemented in Ethiopia through the collaboration of different sectors especially with veterinary sectors. Even though rabies prevention strategies are accessible, there is a lack of information about them and thus the burden of the disease is high in the country. Despite this there is also a paucity of evidence in the country on rabies disease prevention practices and its associated factors especially in the study area (9). Therefore this study tried to

access the level of rabies disease prevention practices and identify its associated factors among the residents of Addis Ababa city, Ethiopia.

1.3 Rationale of the study

Poor public attitudes concerning rabies are a key barrier to any rabies prevention and control plan, especially in rabies-endemic nations like Ethiopia. Health organizations can use information on rabies perception and practice to better evaluate and prepare for a more efficient and effective rabies control program.

Understanding community awareness of rabies' source, route of transmission, symptoms, treatment, and prospective intervention measures is a critical step toward creating disease-control strategies and defining the level of implementation of future efforts. Identify information gaps about rabies; analyze activities that may have contributed to the disease's persistence; assess community attitudes; and assess dog owners' views. So the finding from this study may be important for decision makers and program implementers in identifying the gaps in practicing rabies prevention and its determinants so as they use the information in their program implementation policy or decision.

Beside the study intended to bridge gap related with rabies prevention practice, it will have academic significance; serve as secondary source of information for research inspired to engage in academic and other issue, helps the higher institution government and NGOs to know their role and responsibility.

2. LITERATURE REVIEW

Most of the human death cases caused by rabies occur in Asian and African countries. Of these countries, Ethiopia is one of the worst affected and domestic dogs being the major sources of the infection to humans (10). In Ethiopia the disease is endemic and in some parts of the country it happens as epidemic. However, there is a paucity of information on dog demography and ecology, as well as genuine rabies incidence in dogs and people. Estimates and extrapolations, small-scale research, and limited record assessments provide the data. Due to a lack of precise statistics and underreporting of cases, the rabies incidence is likely to be significantly higher.

2.1 Knowledge and Attitude on Rabies Prevention practice

Due to improved health care facilities and better avenues for information dissemination, urban inhabitants should have a higher degree of awareness about rabies and how to treat dog bite wounds. Different studies conducted elsewhere in the world and in Ethiopia showed that one of the primary factors contributing to underreporting of human rabies death is a general lack of knowledge about the disease (11). It is beneficial to plan and run rabies awareness campaigns for populations such as those with lower socioeconomic level, dog owners, and others. Materials in the curriculum must be included in educational institutions to expand understanding and change community perceptions (11).

The descriptive study conducted in Azerbaijan showed that almost all participants had heard of about rabies, (94 percent). According to study in Abuja, Nigeria 82% respondents were aware that rabies is spread through a bite from a rabid dog, that dogs are the main reservoir of rabies, and that 88.8% knew the signs and symptoms of a rabid dog. Only 55-70 percent of those polled were aware of the dog's possible role in rabies transmission (11).

The majority (98.5 percent) claimed to know about rabies in a cross-sectional study done in the Awash Basin, Eastern Ethiopia, however 79.2 percent claimed to have no understanding how dogs got rabies. Water scarcity, wind, and eating bad food were all mentioned as possible causes. The symptoms of rabies in dogs and humans were unknown to 33% of respondents (12). In Rwanda, 85.4 percent of people correctly identified how rabies is spread between dogs, and 70% correctly identified rabid dog clinical symptoms (13).

According to a study conducted in the Awash Basin, 66.8% of people believe that rabies can be prevented by vaccination (PEP) and this vaccine can be purchased from a government institution

(69.8%). They said that rabies diseases can be treated (67.6%) and 80.1 percent are aware that their dogs are at risk for rabies if they do not vaccinate them (12). The survey conducted in Kigali shows, just 43.1 percent of respondents were aware that it is invariably fatal, while 42.3 percent felt clinical rabies could be successfully cured and 14.6 percent were unaware of the human rabies' outcome. This study is similar to one conducted in the Awash Basin in Eastern Ethiopia, where 47.5 percent of participants were unaware of the fatality. In contrast to China and Nigeria, where practically everyone knows rabies is fatal (14). In a cross-sectional study conducted in Bahir Dar in 2014, 94.5 percent of respondents identified rabies as a dangerous and lethal disease (15).

It is scientifically proven that washing a dog bite wound with soup and water for 15 minutes reduces the risk of contracting the disease (16). Only 8.57 percent of Kisumu residents and 26.38 percent of Siaya residents in Kenya are aware that bathing a bitten wound with soup and water can reduce the risk of rabies. In a cross-sectional survey in south Gonder, Ethiopia, 8.9% of participants were aware of treating wounds with soap and water as first aid can prevent rabies (17).

Attitude on Rabies Prevention practice

This section illustrates community reactions to rabies-related attitudes and behaviors. In Kisumu and Siaya, Kenya, 71 percent and 78 percent of respondents suggested eradication of free roaming dogs for rabies disease control and prevention, respectively (18). Similarly, 5.9% study in Kigali city, Rwanda 2019, 62.2 percent study in Awash Basin, Ethiopia 2016, and 75% research done in Abuja, Nigeria 2018 feel that eradicating rabies can prevent the disease (19). In contrast, respondents in a survey conducted in South Gondar, North West Ethiopia, suggest that vaccination may be preferable than stray dog depopulation (17). Almost every dog owner (96.2%) expressed an interest in registering their pet (20).

A cross sectional study conducted in Meda-Welabu Ethiopia, revealed that 47.8% respondents had negative attitude toward rabies vaccination for dogs (10). Regarding to treatment method of choice holly water would be preferred by 49 percent, while 68.6% said they would take the sufferer to the hospital before doing anything (12, 13). According to a study in Mozambique, 95.3 percent of people would seek medical or veterinary assistance if bitten by a suspected rabid dog (20). A study conducted in Desse, Ethiopia, traditional methods of therapy were cited as the best option for treating dog bite victims by the majority of respondents from both urban and peri-

urban areas (21) . A study conducted in Ethiopia's Meda Welabu district, the majority of participants (85%) had a negative attitude toward reporting dog bites to authorities, while a lesser percentage had a positive attitude (15 percent) (10).

2.2 Prevention practice on Rabies

In Ethiopian dogs act as protectors, companions, and friends in many households (22). Dogs are kept in close contact to humans and other livestock for security purposes, which could allow the virus to spread and perpetuate itself in the population (23). According to a 2020 survey in Mekelle, 60.5 percent of individuals had ever petted dogs or cats, but only 55.5 percent wash their hands afterward (24).

Dogs are more typically considered of as family members in New York, yet only 49% of dogs kept in the city were vaccinated (25). In Kenya, just 20.4 percent and 19.4 percent of dog owners vaccinated their dogs in Kisumu and Siaya, respectively (18). Almost all respondents (95.3%) in the per-urban area of Desse did not vaccinate their dogs (21). Dogs were kept in cages or kennels by 72.2 percent of study participants from Nigeria and 65 percent from Mekelle (12, 25).

Infection is a possibility with all dog bites, but prompt and thorough irrigation can dramatically reduce that risk. In the case of dog bites, determining the risk of tetanus and rabies virus infection, as well as selecting prophylactic drugs, is critical. The dog bite injury should be reported to the appropriate authorities, and information about the victims and the dog should be kept on file. Physicians should teach their patients how to avoid dog bites (26).

When attacked by an animal, 75% sought conventional medical treatment, while 16.6% chose traditional therapy as their first line of treatment in Kenya in 2016 (18).

When attacked by a dog, 87.5 percent of respondents from study in Nigeria and 92.2 percent from study in Mekelle said that they alerted the local authority (11), (24).To control stray dogs, tactics such as incarceration (43.1%) and mass killing (32.9%) were used (19).

2.3 Factors Associated with Prevention Practice on rabies

Socio demographic factors associated with prevention practice of rabies

Age of participants and Educational status of participants : Study in china revealed that, since younger population prefer to play with animals resulting in more contact and opportunity to be

bitten. Older people were more likely to show proper behaviors, age group 31–60 and age group >60 are associated with good prevention Practice(27).

Survey in Nepal revealed educational status is a crucial determinant of knowledge and practice at the same time they had greater learning opportunities and a better ability to practice standard preventative methods as their educational level increased (28).

Dog related Factors Associated with prevention practice of rabies

Owning a dog and Exposure of family to dog bite: Dog ownership was statistically linked to practice (28). Dog owners were 11.85 times more likely than non-dog owners to have adequate rabies prevention practices (24). Those with familial exposure have 5.25 times more beneficial practice than those who do not (19).

Behavioral Factor associated with Rabies prevention practice:

Knowledge and Attitude factors: According to a study conducted in Addis Ababa, Ethiopia, there is a high positive link between knowledge with practice and attitude with practice scores. This shows that having a strong understanding of rabies leads to a positive attitude and practice in rabies prevention. Knowledge has an impact on an individual's behavior, and having more knowledge improves healthy behaviors. Similarly, promoting attitude improves individual practice in disease prevention because attitude influences all elements of one's conduct (29).

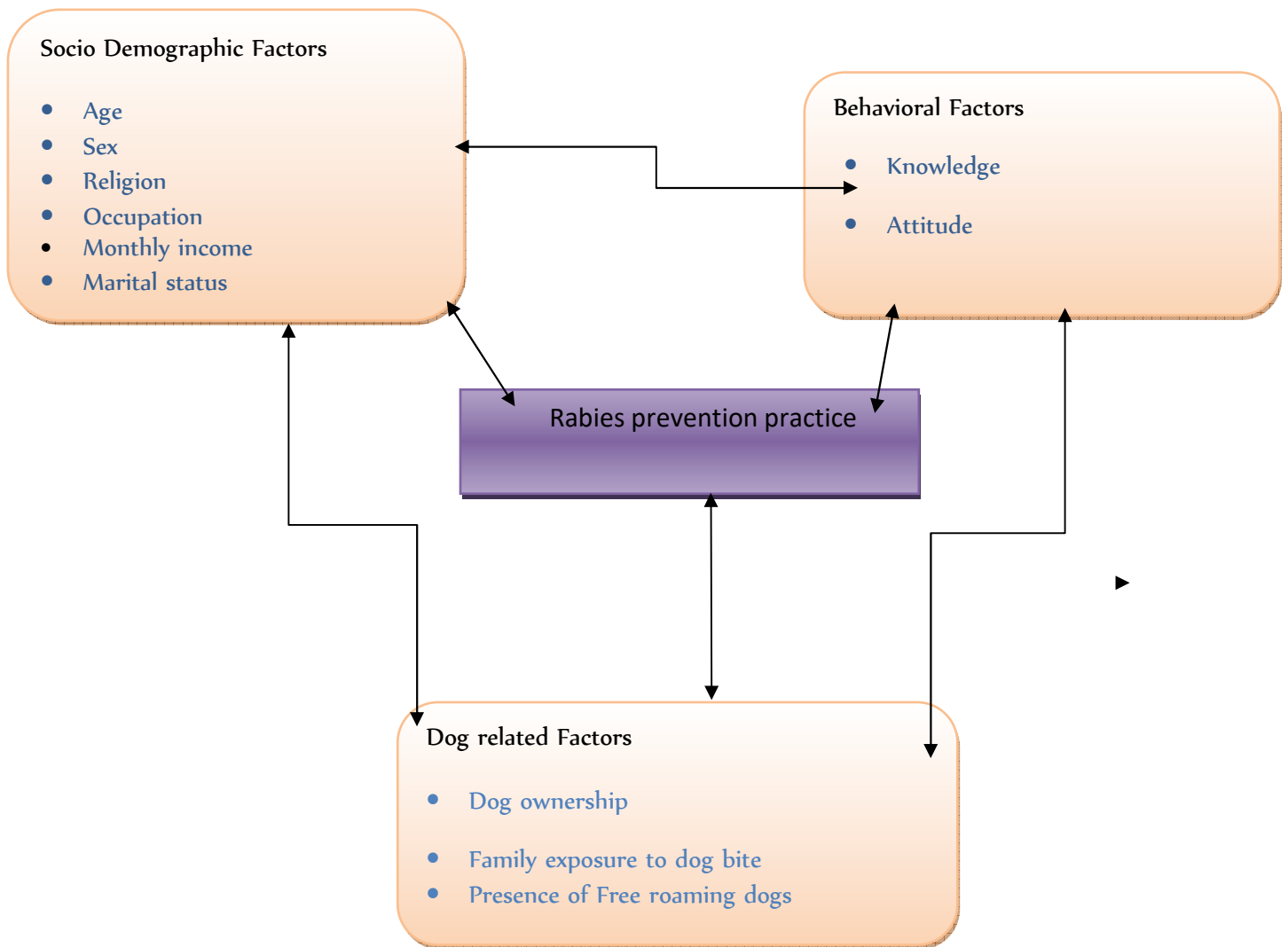


Figure 1 : Conceptual frame work source adapted based on literature review (19)

3. OBJECTIVE

3.1 General objective

The general objective of this study was to assess rabies disease prevention practices and associated factors among Residents in Addis Ababa, Ethiopia from May 21 to July 21 in 2022.

3.2 Specific objectives

1. To determine the level of rabies prevention practice among resident of Addis Ababa, Ethiopia from May 21 to July 21 in 2022
2. To identify factors associated with prevention practice of Rabies, among resident of Addis Ababa, Ethiopia from May 21 to July 21 in 2022

4. METHODS AND MATERIAL

4.1 Study area and Period

This study was conducted in Addis Ababa - the capital city of the country. Addis Ababa is diplomatic city of Africa largely due to the fact that it hosts various international organizations such as the African union (AU), United Nation Economic Commission for Africa (UNECA) and also a seat for more than 100 embassies and commissions, making it a diplomatic political and economic hub of the country since 1886 (30).

It has 5,288,000 total populations that account 3.6 % of total population as central statistics agency reported, in which 51.6% is female and 48.4% is male. It is divided in to 11 sub-cities and 121 woredas (the lowest governmental administrative) (30).

The Ethiopian Public Health Institute tests suspect rabid animals that had contact with humans to provide information to healthcare providers, local veterinary staff, and policy makers that may impact treatment and management decisions of bite victims, mass canine vaccination campaign planning, and disease burden data (31). There are two regional laboratories recently established in the Amhara and Tigray regional states by the joint planning and financial aid of the Center for Disease Control which the laboratories are not currently functioning in their full capacity Due to certain logistical issues (32).

All government owned Health centers found in the city managed dog bite by registering on veterinary log book or line list. Health professionals can adequately manage case then refer for PEP which is available in selected one health center in each sub-city. Study Period was from May 21/2022 up to July 21/2022

4.2 Study design

A community based cross-sectional study was conducted which was suitable design in conducting this research to collect a relevant data accordingly.

4.3 Source Population

The source population of this study was all residents of Addis Ababa city.

4.4 Study population

The study population was all household members selected randomly from nine woredas of the 3 sub cities (addis ketema, areda and yeka) and who were available at home during data collection period.

4.5 Study Unit/Element

Study unit for this study was the house hold heads or their spouse of each randomly selected households from the nine woredas of the selected 3 sub cities.

4.6 Eligibility criteria

4.6.1 Inclusion criteria

Respondents in the house hold who lived at least 6 months as the permanent resident in the study area was included in this study.

4.6.2 Exclusion Criteria

Respondents in the households who cannot communicate and under 18 years was excluded from this study.

4.7 Sample size determination

The sample size required for this study was calculated based on both objective. The sample size required for first objective of this study was determined by using the formula for single population proportion formula. Assuming 5% marginal error (d), 95% confidence level (alpha = 0.05), and using p (61.3%) indicating proportion of residents having good rabies preventive practice from previous study done at Mekelle city (24).

$$n = \frac{(Z_{\alpha/2})^2 P(1-P)}{d^2} = 362$$

Whereas:

n= the required sample size

P=prevalence of practice (0.613)

Z $\alpha/2$ = the critical value at 95% confidence interval of certainty (1.96)

d= the margin of error between the sample and population (0.05)

By adding 10% non-response rate and 1.5 design effect the final sample size required was **598**.

The sample size for the second objective was calculated by using EPI INFO version 7.2 by considering some determinants to assess the associated factors of rabies prevention practice among residents of Addis Ababa as indicated below.

Table 1: The sample size calculation for the last objective using Epi info

Variables /factors	assumptions	Calculated sample size	10% non-response rate	Final sample size with 1.5 design effect	reference
Dog ownership(Yes/No)	AOR=11.8 Power=80 CI=95% Ratio (unex:exp)=1.5 Outcome proportion among unexposed=41.1	35	39	59	(24)
Family exposure to dog bite(yes/no)	AOR=5.2 Power=80 CI=95% Ratio (unex:exp)=6 Outcome proportion among unexposed=56.1	163	180	270	(24)

The final sample size required for this study was 598 that is the largest sample size calculated for first objective.

4.8. Sampling procedure

A multi stage sampling technique was used. Three sub-cities selected randomly by lottery method from eleven sub cities that are found in Addis Ababa, then three woreda randomly selected from each selected sub-cities which was total of nine woredas. House hold from this woredas was also selected randomly by lottery method using community health information system (CHIS) data. We use the family folder number as sampling frame that was collected by health extension workers or family health team in each woreda and accordingly each house hold in the woreda has its own unique folder number.

We allocated required number of samples from each woreda proportionally based on house hold population number per each woreda as shown in formula and table below.

$$n_j = \frac{n}{N} \times N_j$$

Where

- n_j = Sample size of interview the j th woreda
- N_j = Total number of households j th woreda
- n = Total number of respondents to be selected from each woreda (total sample size=598)
- N = Total number of households in selected woredas (69,401)

Table 2: selected woreda and households with their proportional allocation sample

s.no	Selected Sub-cities	Number of population in selected woredas	Household number from CHIS	Proportional allocated Household sample size
1	Addis Ketema	Woreda 4=27,016	6,589	58
2		Woreda 8=33290	8,120	70
3		Woreda 13=34918	8,517	73
4	Arada	Woreda 2=32,163	7,845	67
5		Woreda 3=19,272	4,700	40
6		Woreda 6=33146	8,084	70
7	Yeka	Woreda 3=22,436	5,473	47
8		Woreda 10=36,606	8,928	77
9		Woreda 9=45,693	11,145	96
Total number			69,401	598

Using this base line information, a proportional number of study subjects was interviewed after randomly selected by lottery method.

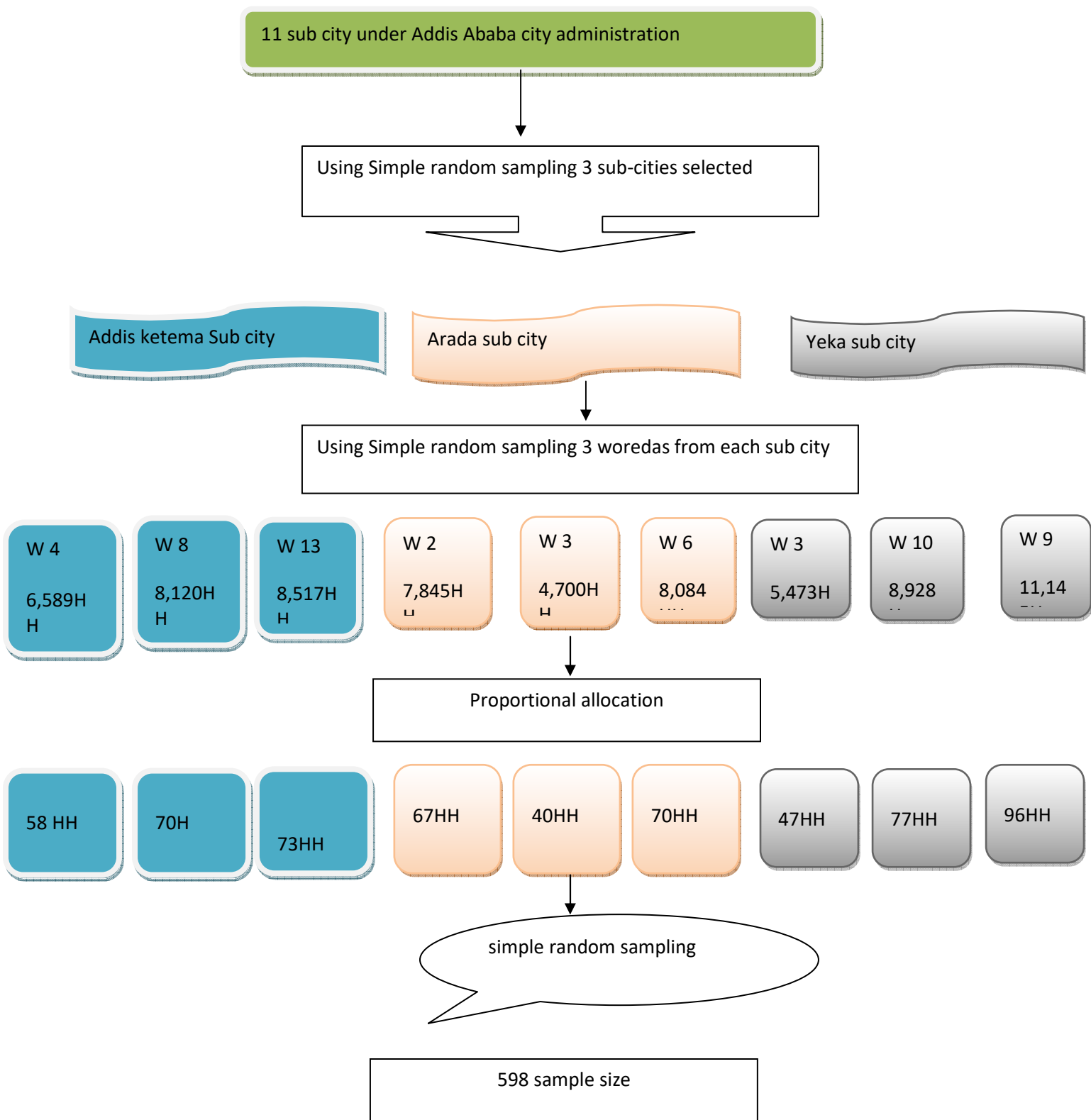


Figure 2 : Schematic representation of the sampling procedure

4.9 Data collection tool and Procedure

Structured questioner was developed based on the information gathered from literature which has four parts the first part has 11 questions assessing about socio-demographic and economic characteristics and family member interactions with dogs (24, 33-35). The second part consists of 15 questions that are assessing the knowledge level of the respondents. The third part of the questioners has 7 questions assessing the attitudes while the fourth part consists of 9 questions prepared for assessing the practice level of the respondents towards rabies prevention. It was developed in English language and translated to Amharic then back converted to English to check consistency by a person who can speak fluently both languages.

The questions to assess knowledge and practice were in type of a response of either “Yes” or “No” and drop down list options for each question. To compute knowledge and practice score of the respondents, 9 knowledge assessing questions and 8 practice assessing questions has binary response (yes/no) were used. Whereas for attitude questions, the likert scale method with a five points scale (strongly disagree, disagree, no opinion, agree, strongly agree) was used for all 7 questions. To compute the attitude score it was converted to binary response for all 7 questions as responses with strongly agree and agree got one mark, disagree and strongly disagree got zero mark. A response of “no opinion”, was exclude the question from the summing of the overall score for the participant. Score for knowledge, attitude and practice was counted, computed from 100 and their mean score was calculated separately (24, 33). Two health extension workers from each woreda totally 18 HEW were collected the data by face to face interviewing technique. Also one supervisor that are supervising the routine HEW from each selected sub city were also participated in supervising the data collection. The one day training or orientation on data collection tools and the objective of the study were provided for data collectors and supervisors.

4.10 Study variable

4.10.1 Dependent variable

The dependent variable in this study was the rabies prevention practice level. Those who have had rabies prevention practice score above or equal to the mean value was considered to have good practice and those who have had practice score below the mean value was considered to have poor rabies disease prevention practice (24).

4.10.2 Independent variable

The independent variables in this study includes socio demographic and economic variables and other variables related to rabies knowledge and attitude factors. These are age, sex, occupation, marital status, monthly income, educational status, religion, dog ownership, presence of exposed family to dog bite, attitude and knowledge level

4.11 Operational Definition

Good knowledge: respondents who scored points at mean and above for the knowledge questions prepared was referred to had good knowledge otherwise not (24).

Positive attitude: respondents who scored points at mean and above for the attitude questions was referred to had a positive attitude otherwise not (24).

Good practice: respondents who scored points at mean and above for the practice questions was referred to had a good practice otherwise not (24).

Free roaming dogs: any dogs seen in public areas that are not confined to its owner's house or property and are not currently under direct human control (36).

PEP- dose of human rabies immune globulin (HRIG) and rabies vaccines given on days 3,7 and 14 (3).

4.12 Data Quality Management

The acceptability of the study and the time required to complete it was examined by Preliminary test on 5% sample size outside of the study area. It was conducted in lemi kura sub city woreda 10. The questionnaire was prepared in English language and translated to Amharic then back to English by another individual to check its consistency. Training on purpose of the study, principle, ethical consideration and step by step content of questioner of the data collection process was provided for data collectors and supervisors by principal investigator. During data collection the questionnaires were reviewed for completeness, accuracy and consistency by supervisors every day along with principal investigator. Data collection was supervised daily by a person who has degree in health professional and working at sub city level. Skip pattern was used for an alteration in the sequential flow on answers to prior question(s) in the questionnaire. After data collection and entry encoding and recoding of data was performed using SPSS.

4.13 Data Analysis Method

The collected data was coded and entered into a computer using Epi info version 7.2 and exported to SPSS version 25 for analysis. Descriptive statistics like frequencies and percentage was computed for both dependent and independent variables. Using simple binary logistic regression model, Bi-variable logistic regression was carried out to see the association of each independent variable with dependent variable (prevention practice). Multivariable logistic regressions were done using logistic regression analysis of all independent variable with dependent. The magnitude of the association between the independent variables in relation to prevention practice was measured using adjusted odds ratios (AOR) and 95% confidence interval (CI) and variables with P-values below 0.05 was considered to be statistically significant.

4.14 Ethical Consideration

Ethical clearance was obtained from institutional research ethical review board of St. Paul's Hospital Millennium Medical College and Addis Ababa Health Bureau. Formal letter that explains the objective and rationale of the study was written to the respective sub city and woreda. Then purpose of this study explained to those individual who were participants of the study and written informed consent was obtained from each Participants. Participants who were unwilling to participate in the study and those who wish to quit their participation at any stage were informed to do so without any restriction. Moreover, Confidentiality of the information was assured through using anonymous questionnaire and keeping the data in secured place.

4.15 Dissemination of Results

The finding from this study will be submitted to St. Paulo's Hospital Millennium medical college, EPHI Rabies control directorate, Addis Ababa City Administrative Health Bureau, sub city health office, urban agriculture and stake holders working on animal health service area. It would be tried to be presented on scientific conference and an attempt would also be made to publish the study findings on a reputable journal in future.

5. RESULT

5.1 Demographic and Socio-economic Characteristics of Respondents

A total of 560 respondents were involved in the study with 93.7% a response rate. The age of the respondents ranges from 18 to 66 years with 33.34 mean and 12.35 standard deviation. 276(49.6%) of the respondents were in age category of < 30 years. Female respondents were 311(55.5%) and 366 (60%) of respondents were married. 289(51.6%) of respondents complete higher education and 439 (78.3%) were orthodox Christian. About 151 (27%) were employed in private organization followed by 132(23.2%) housewife in occupation. The household monthly income of the respondents ranges from 1500 to 12, 000 birr with the mean of 5349.11 and standard deviation of 2470.36. About 292(52.2%) of the respondents have had household monthly income of < 5000 birr. Regarding to the dog owner ship 347(62.1%) of the respondents own dog and about 359(64.1%) complain that there was free roaming dogs in their village. From the respondents about 214(38.2%) have family history of exposure to dog bite (table 3).

Table 3: Demographic and Socio-Economic Characteristics of Respondents, Addis Ababa, Ethiopia, 2022

Variables	Category	Frequency	Percent	Total
Age category	<=30 years	278	49.6	560(100%)
	31-40 years	129	23.0	
	41-50 years	64	11.4	
	51-60 years	66	11.8	
	>=60	23	4.1	
Sex	Female	311	55.5	560(100%)
	Male	249	44.5	
Marital status	Divorced	18	3.2	560(100%)
	Married	336	60.0	
	Unmarried	201	35.9	
	Widowed	5	.9	
Educational status	can't read and write	42	7.5	560(100%)
	read and write	53	9.5	
	primary school	90	16.1	
	secondary school	86	15.4	
	Diploma and above	289	51.6	
Religion	Catholic	42	7.5	560(100%)
	Muslim	49	8.8	
	Orthodox	439	78.4	
	Protestant	30	5.4	
Occupation	government employee	77	13.8	560(100%)
	house wife	132	23.6	
	Merchant	67	12.0	
	private employee	151	27.0	
	Student	56	10.0	
	Unemployed	77	13.8	
Monthly household income level in birr	< 2500 birr	62	11.1	560(100%)
	2500-5000 birr	230	41.1	
	5001-7500 birr	171	30.5	
	7501-10,000 birr	67	12.0	
	>10,000 birr	30	5.4	
Dog ownership	No	213	38.0	560(100%)
	Yes	347	62.0	
Family member dog bite exposure history	No	346	61.8	560(100%)
	Yes	214	38.2	
Number of dog bite exposure	no exposure	346	61.8	560(100%)
	1-2 exposure	208	37.1	
	>=3 exposure	6	1.1	
Presence of free roaming dog	No	201	35.9	560(100%)
	Yes	359	64.1	

5.2 Rabies Prevention Practice of Participants

From total respondents 239(42.7%) had ever touch dog or cat while 230(41.1%) wash their hands after touching them. From those (347) who owned dog about 237(68.3%) of participants vaccinate their dog and from this 196 (82.7%) of them have dog vaccination certificate. About 164(47.3%) and 71(20.5) of the respondents keep their dog in housed cage and tied respectively. About 122(21.8%) of respondents had ever bitten by a dog and from this only 88(72.1%) go to health institution while the rest go for traditional healers and stayed at home. About 60 (49.1%) of this respondents who were bitten by a dog informed to health authority. The measurements that was taken by respondents to control street dogs were 351 (62.7%) giving awareness to owners, 355(63.1%) incarceration and killing stray dogs 161(28.8%) (Table 4).

Table 4: Practice of Participants on Rabies Prevention in Addis Ababa Ethiopia, 2022

Variables	response category	Frequency	Percent
Do Your family members touch dogs and cats saliva before vaccinating	No	321	57.3
	Yes	239	42.7
Do Your family members wash their hands after touching dog/cat	No	330	58.9
	Yes	230	41.1
Have you Vaccinated your dog	No	110	31.7
	Yes	237	68.3
Do you have dog vaccination certificate of your dog	No	41	17.3
	Yes	196	82.7
Have you Ever been bitten by a dog	No	438	78.2
	Yes	122	21.8
When you get bit where did you go first/What you do	health institution	88	72.1
	stay at home	12	9.8
	traditional healer	22	18.1
Do you inform to health authority when bitten by dog	No	62	50.8
	Yes	60	49.2
How do you care for your dog	housed in cage	164	47.3
	tied outside house	71	20.4
	free living inside house	66	19.0
	free roam around	46	13.2
Measures taken to control stray dogs	Yes	393	70.2
	No	167	29.8
what measure have you taken to control stray dog (more than one response is possible)	Aware the owner	351	62.7
	killing	161	28.8
	Animal birth control	341	60.9
	incarceration	355	63.4

Rabies prevention practice score was performed for 8 questions having binary response except the incident of dog bite variable and those questions having above two possible response were converted to binary response. Accordingly care of dog was categorized as housed in cage and tied as one group while the rest is other group. Similarly visiting health institution after bite was one category and visiting traditional healer or stay at home is the other category. The rabies prevention practice of the respondents was computed and converted from 100% showed that the minimum and maximum score of 12.5 and 75 respectively. The mean of the rabies prevention practice score was 37.5.

The prevalence good rabies prevention practice among respondents were 312(55.71%) (figure 3).

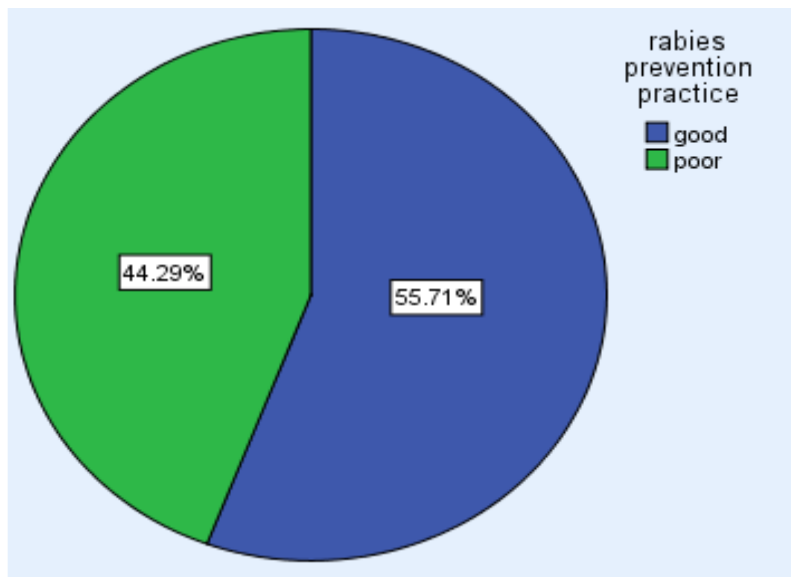


Figure 3: Level of practice on Rabies Disease of respondents found in Addis Abeba, 2022

5.2 Knowledge of Participants on Rabies

About 530(94.6%) of respondents have heard about rabies and 452(80.7%) know main reservoir of rabies is dog. About 496(88.6%) and 495 (88.4%) of respondents said that rabies vaccine could be obtained from governmental institution and this vaccine for dog can prevent rabies disease respectively. About 467 (83.7%) of respondents know that post exposure prophylaxis can prevent rabies while 349(62.3%) of respondents know 100% fatality nature of rabies disease. 287(51.7%) of respondents said that transmission of rabies to dog is bite of rabid animal while

the main way of transmission to human explained by respondents were 530(94%) by animal bite and 414 (73.9%) by contact of saliva with broken skin (table 5)

The main symptoms of rabies in animal responded by the study subject were 124(22.1%), 112(20%) and 94(16.8%) that are water phobia, paralysis and sudden behavioral change respectively. The main symptoms of rabies in human were water phobia 512(91.4%), paralysis 500(89.3%) and light phobia 445(79.5%) . the main source of information for rabies in our study were formal communication media like TV, radio and others in about 203(36.3%) while about 198(35.4%) were informal source like friends, neighbor or teachers(table 5).

The knowledge score of respondents on rabies disease was computed for nine questions having yes or no response only that was described in the table below. The rabies knowledge score of the respondents computed and converted from 100% showed that the minimum and maximum knowledge score of 11.11 and 100 respectively. The mean of the knowledge score were 74.1 and 367(65.5%) have had good knowledge scoring above the mean while the rest 193(34.5%) scored poor knowledge related to rabies disease cause, transmission and preventions.

Table 5 : computed knowledge level variables and other knowledge assessing variables of Respondents, Addis Ababa, Ethiopia, 2022

Variables	Category/Response	Frequency	Percent
Have you heard about rabies before	Yes	530	94.6
	No	30	5.4
Do you know that rabies can affect all warm blooded animals including human beings?	Yes	452	80.7
	No	108	19.3
Do you know that dog rabies vaccine could be obtained from authorized government offices?	Yes	496	88.6
	No	64	11.4
Does/Can Rabies prevented by vaccination	Yes	495	88.4
	No	65	11.6
Can Rabid dog exposed human treated by Post Exposure Prophylaxis	Yes	467	83.4
	No	93	16.6
Do you know about the almost 100% fatal nature of rabies once the clinical signs develop/ developed?	Yes	349	62.3
	No	211	37.7
Do you know that you and your family are at risk of getting rabies if the dog is not vaccinated?	Yes	385	68.8
	No	175	31.2
do you know that rabies can't be easily treated after onset of clinical sign	Yes	377	67.3
	No	183	32.7
Do you know that washing dog bite wound with water and soap immediately is good to prevent rabies	Yes	347	62.0
	No	213	38
Source of information	Formal(TV, radio and newspaper)	203	36.3
	Informal	198	35.4
	Mixed source	83	14.8
	no information about rabies	76	13.5
Animal you know as reservoir for rabies	Cat	44	7.9
	Dog	428	76.4
	other, specify	18	3.2
Transmission way to dog	Bite	287	51.3
	water shortage	82	14.6
	contaminated food	29	5.2
	by wind or air	63	11.3
Transmission way to human	animal bite	530	94.6
	animal saliva contact	414	73.9
	by wind or air	494	88.2
	by any contact	474	84.6
Clinical symptoms in rabid dog	sudden behavioral change	94	16.8
	aggression	83	14.8
	Hyper-salivation	71	12.7
	water phobia	124	22.1
	paralysis	112	20.0
Clinical symptoms in rabid human	Madness/aggression	396	70.7
	water phobia	512	91.4
	light phobia	445	79.5
	Paralysis	500	89.3
	Hallucination	444	79.3
	puppy movement in stomach	458	81.8

Other: hyena, wolf

5.4 Attitude of Participants on Rabies

From total respondents 287 (51.3%) and 202(36.1%) agree and strongly agree that stray dogs are dangerous respectively while 318(56.8%) and 76(13.6%) agree and strongly agree with killing of this stray dogs can prevent rabies disease. About 342(61.1%), 278(49.6%) and 205(36.6%) of respondents agreed that incarceration, vaccination and health education can prevent rabies effectively (table 6).

The attitude of the respondents towards rabies was computed and converted from 100% showed that the minimum and maximum attitude score of 25.6 and 100 respectively. The mean of the attitude score was 75.8 and 296(52.9%) have had positive attitude, scoring above the mean while the rest 264(47.1%) scored negative attitude level.

Table 6: Attitude of participants on Rabies prevention in Addis Ababa Ethiopia, 2022

Variables	Response category :frequency number (proportion)					
	strongly disagree	disagree	no opinion	agree	strongly agree	Total
Stray dog are dangerous	47(8.4)	24(4.3)		287(51.3)	202(36.1)	560(100)
Incarceration can prevent rabies effectively	59(10.5)	82(14.6)		342(61.1)	77(13.8)	560(100)
Killing stray dog can prevent rabies effectively	65(11.6)	95(17)	6(1.1)	318(56.8)	76(13.6)	560(100)
Vaccination can prevent rabies effectively	42(7.5)	23(4.1)		278(49.6)	217(38.8)	560(100)
Are you willing to register your pet	48(8.6)	94(16.8)		325(58)	93(16.6)	560(100)
Do you think health education can prevent rabies effectively	128(22.9)	152(27.1)	6(1.1)	205(36.6)	69(12.3)	560(100)
holy water cannot treat rabies	30(5.4)	42(7.5)		459(82)	29(5.2)	560(100)

5.5 Factor associated with prevention practice of Rabies Disease

To identify factors associated with rabies prevention practice all variables were checked with binary logistic regression and those variables that have showed association at $p \text{ value} \leq 0.2$ were included in final multivariable logistic regression. Accordingly age category, educational status, dog ownership, family member exposure to dog bite history, attitude and knowledge level towards rabies were those variables that have showed association at $p \text{ value} \leq 0.2$.

During multivariable logistic regression three variables that are dog ownership ($p \text{ value} = 0.0001$), knowledge level (0.001) and attitude (0.0001) towards rabies showed statistically significant association with rabies prevention practice. Hence being dog ownership (AOR= 11.1; 95% CI: 6.88-18.1), having good knowledge (AOR= 2.51; 95% CI: 1.57- 4.02) and having positive attitude (AOR= 3.12; 95% CI: 2.02-4.83) to rabies prevention practice were factors that showed significant association in this study(table 7)

Table 7: Factor associated with prevention practice level on rabies in Addis Ababa, Ethiopia 2022 (N=560)

Variable	Category of Variable	Practice		COR(95% CI)	AOR (95% CI)	P Value
		good	poor			
Educational status	Can't read and write	18(5.8)	24(9.7)	1	1	0.086
	Read and write	24(7.7)	29(11.7)	1.1(0.48,2.49)	0.5(0.18,1.35)	0.176
	Primary school	39(12.5)	51(20.6)	1.02(0.48,2.13)	0.29(0.12,1.02)	0.060
	Secondary school	58(18.6)	28(11.3)	2.76(1.29, 5.9)	0.69(0.26,1.83)	0.462
	Diploma and above	173(55.4)	116(46.8)	1.98(1.03,3.82)	0.49(0.22,1.12)	0.092
Age category	<=30 years	149(47.8)	129(52)	1	1	0.657
	31-40 years	65(20.8)	64(25.8)	0.87(0.57,1.33)	0.86(0.5,1.47)	0.585
	41-50 years	36(11.5)	28(11.3)	1.11(0.64,1.92)	1.01(0.49,2.01)	0.964
	51-60 years	44(14.1)	22(8.9)	1.73(0.98, 3)	1.54(0.77,3.07)	0.218
	>=60	18(5.8)	5(2)	3.11(1.12,8.63)	1.14(0.35, 3.64)	0.822
Dog ownership	No	53(17)	160(64.5)	1	1	
	Yes	259(83)	88(35.5)	8.88(5.99, 13.17)	11.1(6.88,18.1)	0.0001*
Dog bite exposure	No	217(69.6)	129(52)	1	1	
	Yes	95(30.4)	119(48)	0.47(0.33, 0.67)	0.92(0.57,1.5)	0.754
Knowledge	poor	93(29.8)	100(40.3)	1		
	good	219(70.2)	148(59.7)	1.59(1.12, 2.26)	2.51(1.57,4.02)	0.001*
Attitude	positive	105(33.7)	159(64.1)	1	1	
	negative	207(66.3)	89(35.9)	3.52(2.48, 4.99)	3.12(2.02, 4.83)	0.0001*

* Statistical significance at p value <0.05 with 95% Confidence interval

Variables like educational status, age category and dog bite exposure history have showed significant association at p value <=0.05 during binary logistic regression and became insignificant at multivariable logistic regression.

6. DISCUSSION

This study tried to assess the prevention practice level towards rabies diseases and identifying factors associated with it among residents of Addis Ababa city. In this study, only 72% of participants seek treatment for a dog attack at a medical facility, whereas the rest preferred to seek treatment from a traditional healer or stay at home. This finding shows low health seeking practice of the peoples resulting in delayed case management and increase fatality rate however, it is higher than the finding from the study performed in south Gondar Northwest Ethiopia, where only 30.1% preferred health institution the majority prefer using traditional healers treat dog bites (37). This discrepancy can be explained by the different study environments: while the study in south Gondar, was conducted in a rural context, our study was conducted in an urban setting.

Dog vaccination against rabies has been shown dramatically reduce the number of cases in dogs, incidence of human animal bite injuries and demand for costly PEP. In our study 68.3% of participants give their dog vaccinations which is low that could increase risk for rabies disease. Inline to this, study in Mekelle showed that 75% of dogs kept in the city had vaccinations (24) .However, this finding is higher compared study in Amhara region showing 50.2% dogs vaccinated (33). This dog vaccination rate difference could be attributed to limited vaccine availability at certain sites and a lack of community awareness about where to obtain this vaccine.(18) Notifying the local authorities after a dog attack is crucial for follow-up action and surveillance purposes. According to a study conducted in Nigeria, 87.5% of people who are bitten by a dog report it to the local authorities. However, in our study only 49.1% of study participants did so, which may account for the underreporting of rabies cases. Low awareness of the advantages of reporting a situation to the local government may be to blame for this (38).

The finding from this study revealed that about 55.7% of the respondents have good rabies disease prevention practice which is low as study done in urban city that that had different awareness gaining mechanism and increase rabies incidence. This finding is similar with the finding from the study conducted in south Gondar, north west Ethiopia that showed 51% of rabies prevention practice (17). On the other hand it is lower than the finding from the study conducted in Mekelle city (61.3%) (24) Addis Ababa (67%) (29) and Kombolcha southern wello (89%) (39). But it is higher than the findings from the study conducted in Amhara region

(43%) (33). The difference could be due to the difference in study area, study period, sample size difference, socio economic and awareness level towards rabies.

The second aim of this study was also to identify factors associated with rabies prevention practices. Accordingly respondents who owned dog were 11.1 times more likely to have good rabies prevention practices compared to those who have no dog. This could be justified that those who have dog were probably got more information regarding to prevention practices during vaccinating their dog and give attention to the diseases since they have the reservoir of the disease at their home. This finding is supported with the finding from the study conducted in Mekelle city and Amhara region (24) (33).

This study also revealed that the respondents who have good knowledge were 2.5 times more likely to have good rabies prevention practice compared to their counter parts. This suggests that good knowledge on rabies lead to good practice in prevention of rabies. This finding is also supported with finding from the study conducted in Addis Ababa and Amhara region (29) (33) . Similarly, respondents who have positive attitude towards rabies have 3.12 times more likely to have good rabies prevention practices compared to their counterparts. Our results are consistent with research from Addis Ababa, which indicates that good knowledge and good attitude are important for effective prevention of rabies diseases (34). Therefore, it is likely that prevention practices will be effective as knowledge and attitudes about the disease increase.

In contrast to a study conducted in Nepal that found a statistically significant association between rabies prevention and educational status, the results of this study show no such variation in regard to rabies prevention in different educational categories (28). But it showed significant association during binary logistic regression and became insignificant during multivariable regression analysis. Despite the study conducted in Kombolcha wello and Mekelle city showing significant association between prevention practice with age and dog bite exposures in this study both age and dog bite exposure showed significant association during bivariate and became insignificant with multivariable analysis (39) (24).

6.1 Strength and Limitation of the study

The community based nature of the study make it easy to generalize finding to the general population could be the strength of this study. The main limitation of this study was the cross-sectional nature of the survey thus unable establishes causal association and since the data collectors were health extension workers there may be social desirable bias. In addition, this study might not give the exact figure of the rabies diseases prevention practice due to a recall bias and being self-reported.

7. CONCLUSION AND RECOMMENDATION

7.1 Conclusion

This study showed that the rabies disease prevention practice of Addis Ababa residents was relatively low. Dog ownership, knowledge, and attitude level towards rabies were identified to be factors affecting rabies disease prevention practice. Thus this study comes to the conclusion that the limited understanding and inconsistent attitudes towards rabies had contributed for poor preventive practices.

7.2 Recommendation

We show that a sizable section of the population is rabies vulnerable due to inadequate awareness of rabies prevention and an issue that has to be addressed to save unwanted deaths. For the population to effectively manage and prevent rabies there is a great need to spread information from multidisciplinary initiatives thus their awareness and preventive practice improve. FMOH, EPHI and other stakeholders that are at decision making level needs to give due attention to ways of improving the limited understanding practice of the whole community on rabies disease preventive practices.

Addis Ababa Health Bureau and Zonal Health Office: based on their level of responsibility; they should give attention on awareness-raising campaigns focusing on information about the risks associated with rabies, availability of vaccine and correct behavior to minimize risks and unnecessary deaths.

Health extension workers: should address the majority of communities, who had limited understanding of critical rabies-related issues including its prevention, control and Treatment methods.

Dog owners: should give proper care and attention for their pets by preparing clean house and vaccinating their dogs based on the schedule

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i

ii

Assurance of Principal Investigator

I the undersigned agree to accept all responsibilities for the scientific and ethical conduct of the research project. I will provide timely progress report to my advisor and seek the necessary advice and approval from my primary advisors in the course of the research. I will communicate timely to my advisors all stakeholders involved in the study including any source of funding for this research.

Name of the student:

Signature:

Date:

Approval of the Primary Advisor

Name of the primary advisor:

Signature:

Date:

Approval of the Co-Advisor

Name of the primary advisor:

Signature:

Date:

APPENDIX

ANNEX I - CONSENT FORM

St Paulo's Hospital Millennium Medical college, a study on knowledge attitude practice and associated factor of prevention practice towards rabies in Addis Ababa Ethiopia, 2022.

Good morning/Good afternoon, my name is _____. I am working with Mrs. Beza Kibret who is doing a research as partial fulfillment for the requirement of Epidemiology at St Paulo's Hospital Millennium Medical College. We are conducting a study on knowledge, attitude, practice and associated factor of prevention practice towards rabies in Addis Ababa. The study is aimed to fulfill the information gap and provide evidence for program planners, implementers and decision makers. It also assists in the development of a system for improving the quality life of residents. There are no risks or direct benefits to you from participating in the study but your participation will contribute to improve awareness and other health service related to rabies. Please be assured that the information will be confidential and you may choose to stop your participation at any time or refrain from answering any questions. Your name will not be used or made public and this question will take about 20-30 minutes.

Do I have your agreement to participate? 1. Yes 2. No. Stop

For any information you can contact:

1, Mrs. Beza Kibret (BSC): St Paulo's Hospital Millennium Medical College.

. Tel: 0912479948

Email: bezikibret@gmail.com.

2, Mr. Samson Zegeye (MPH.)

Email: samsonhenon@gmail.com

CONSENT FORM

I have read/listen the information sheet above and clearly understood the purpose and anticipated benefit of the research. I hereby need to assure with my signature below that without any forceful act by the research team. I have decided to voluntarily participate in the study to contribute my part in the effort being made.

Client unique ID No _____ Signature _____ Date _____

Interviewer's name _____ Signature _____ Date _____

Date of interview _____ Time started _____ Time finished _____

Supervisor's Name _____ Signature _____ Date _____

For any information you can contact:

Mrs. Beza Kibret (BSC); Tel: 0912479948; Email: bezikibret@gmail.com.

I thank you for your cooperation!

I thank you for your cooperation!!!

ANNEX II: Questionnaires

Part I: Socio-demography, economic characteristics and environment and access to health information of participants			
S.no	Questions	Response	Remark
101	Age of respondents in years	-----	
102	Sex of respondent	1. Male	
		2. Female	
103	Marital status	1. Married	
		2. Unmarried	
		3. Divorced	
		4. Widowed	
104	Educational status	1. Do not read and write	
		2. Read and write	
		3. Primary school complete	
		4. Secondary school complete	
		5. Diploma and above	
105	Religion	1. Orthodox-Christian	
		2. Muslim	
		3. Catholic	
		4. protestant	
106	Occupation	1. Government employee	
		2. Private employee	
		3. Merchant	
		4. House wife	
		5. Student	
		6. Unemployed	
107	Average monthly income of household in birr	-----	
108	Dog ownership	1. No	
		2. Yes	
109	Family member exposure history to dog bite	1. No	
		2. Yes	
110	Number exposure to dog bite in number	_____	
111	presence of free roaming dog in your village	1. No	
		2. Yes	
Part II: Practice of respondents towards rabies			
201	Do Your family members touch dogs and	1. No	

	cats saliva before vaccinating	2. Yes	
202	Do Your family members wash their hands after touching dog/cat	1. No	
		2. Yes	
203	Have you Vaccinated your dog	1. No	
		2. Yes	
204	Do you have dog vaccination certificate of your dog	1. No	
		2. Yes	
205	Have you Ever been bitten by a dog	1. No	
		2. Yes	
206	When you get bitten where did you go first/What you done	1. Stay at home	
		2. To health institution	
		3. To traditional Healers	
207	Would you informed health authority when bitten by dog	1. No	
		2. Yes	
208	What Measure do you taken to control stray dogs around your village	1. Aware the owner	
		2. inform to authority	
		3. no action taken	
209	How do you care for your dog	1. Housed in cages	
		2. Tied outside the house	
		3. Free living inside the house	
		4. Free to roam around	

Part III: Knowledge towards rabies related to cause, mode of transmissions and host range, clinical signs, prevention & control, treatment and fatal nature of rabies

301	Have you Heard about rabies disease	1. No	
		2. Yes	
302	Source of information about rabies	1. Formal (Newspaper, TV/radio)	
		2. Informal(friends, neighbor or teachers)	
		3. Mixed Source	
		4. no information	
303	Which is the main reservoir/source of rabies?	1. Dog	
		2. Cat	
		3. other, specify	
304	Do you know that rabies can affect all warm blooded animals including human beings?	1. No	
		2. Yes	
305	Do you know that dog rabies vaccine could be obtained from authorized government offices?	1. No	
		2. Yes	
306	Does/Can Rabies prevented by vaccination	1. No	
		2. Yes	

307	Can Rabid dog exposed human treated by Post Exposure Prophylaxis	1. No	
		2.Yes	
308	Do you know about the almost 100% fatal nature of rabies once the clinical signs develop/ developed?	1. No	
		2.Yes	
309	Do you know that you and your family are at risk of getting rabies if the dog is not vaccinated?	1. No	
		2.Yes	
310	Do you know that rabies Cannot be Easily treated after onset of clinical sign	1. No	
		2.Yes	
311	Do you know that washing dog bite wounds immediately after bite with soap and water is good?	1. No	
		2.Yes	
312	What are ways of Rabies transmission to dog	1. Bite	
		2. Water shortage	
		3. contaminated Food	
		4. Win or air	
313	What is the mode of transmission of rabies from rabid animal to human?	1. Animal bite	
		2. animal Saliva contact	
		3. Saliva contaminated objects	
		4. Contact (unspecific) with dogs	
314	What are the clinical sign and symptoms Rabies in dogs	1. Sudden behavioral change	
		2. Aggression	
		3. Hyper salivation	
		4. Water phobia	
		5. Paralysis	
315	What are the clinical sign and symptoms of rabies in humans?	1. Madness/agitation	
		2. Water phobia	
		3. light phobia	
		4. Paralysis	
		5. Hallucination	
		6. Puppy movement in the stomach	
Part IV: Attitude of respondents towards rabies			
401	Stray dogs are dangerous	1. Strongly disagree	
		2. Disagree	
		3. No opinion	
		4. Agree	
		5. Strongly agree	
402	Incarceration of dogs can prevent rabies disease effectively	1. Strongly disagree	
		2. Disagree	
		3. No opinion	

		4. Agree	
		5. Strongly agree	
403	Rabies can be effectively prevented by killing stray dogs	1. Strongly disagree	
		2. Disagree	
		3. No opinion	
		4. Agree	
		5. Strongly agree	
404	Vaccination can prevent rabies effectively	1. Strongly disagree	
		2. Disagree	
		3. No opinion	
		4. Agree	
		5. Strongly agree	
405	Are you willing to register your pets	1. Strongly disagree	
		2. Disagree	
		3. No opinion	
		4. Agree	
		5. Strongly agree	
406	Rabies can be prevented by educating people about the disease	1. Strongly disagree	
		2. Disagree	
		3. No opinion	
		4. Agree	
		5. Strongly agree	
407	Do you believe holly water can treat rabies disease?	1. Strongly disagree	
		2. Disagree	
		3. No opinion	
		4. Agree	
		5. Strongly agree	

ANNEX III- Consent form (Amharic version)

ቅዱስ ፓውሎስ ሆስፒታል ሚሊኒየም ሜዲካል ኮሌጅ

የጥናቱ አጠቃላይ መረጃ የፈቃደኝነት መጠየቂያና ቃለመጠይቅ

ይህ መጠይቅ በአዲስ አበባ የሚኖሩ ነዋሪዎች ስለ የእብድ ውሻ በሽታ ያላቸውን እውቀት፣ ኦሞለካክት እና የልምድ/ተግባር ሁኔታ እንዲሁም ከሱ ጋር ተያያዥ የሆኑ ነገሮችን ለማጥናት የተዘጋጀ ነው።

እንደምን አደሩ ስሜ _____ ይባላል። በአሁኑ ሰአት ቅዱስ ፓውሎስ ሆስፒታል ሚሊኒየም ሜዲካል ኮሌጅ የማስተርስ ዲግሪ የመመረቂያ ዕሁፋቸውን ከሚያዘጋጁት ከወ/ሮ ቤዛ ክብረት ጋር በመሆን በአዲስ አበባ የሚኖሩ ነዋሪዎች ስለ የእብድ ውሻ በሽታ ያላቸውን እውቀት፣ ኦሞለካክት እና የልምድ ሁኔታ እንዲሁም ከሱ ጋር ተያያዥ ነገሮችን ለመለየት ለሚደረገው ጥናት መረጃ በመስጠትህህ ላይ እገኛለሁ።

የዚህ ጥናት አላማ በአዲስ አበባ የሚኖሩ ነዋሪዎች ስለ የእብድ ውሻ በሽታ ያላቸውን እውቀት፣ ኦሞለካክት እና የልምድ/ገቢር ሁኔታ እንዲሁም ከሱ ጋር በተያያዘ ያለውን የመረጃ ክፍተት ለማወቅና ጥናቱ ለፕሮግራም አውጭዎች፣ አስፈጻሚዎች እንዲሁም ለውሳኔ ሰጪዎች መረጃ በመስጠት የአገልግሎት ጥራት ለማሻሻል ጉልህ አስተዋፅዖ ያደርጋል።

በዚህ ቃለመጠይቅ የእርስዎ በፍቃደኝነት መሳተፍና ትብብር ምንም አይነት ጉዳትም ሆነ ቀጥተኛ ጥቅም የሌለው ሲሆን በበሽታው ዙሪያ ያሉትን ችግሮች ለመለየትና ለማሻሻል ግን ከፍተኛ የሆነ ጠቀሜታ አለው። በተጨማሪም የሚሰጡት መረጃ ከተባሉት ጉዳይ ውጪ የማይውልና ሚስጥራዊነቱ የተጠበቀ ነው። ስምዎትም ሆነ ሌላ የእርሶን ማንነት የሚገልፅ በዚህ ጥናት ሂደት ውስጥ የማንጠቀም መሆኑን አረጋግጣለሁ። በዚህ ጥናት ላይ መሳተፍ በእርሶ ፍቃደኝነት ላይ የተመሰረተ ሲሆን መመለስ የማይፈልጉትን ማንኛውም ጥያቄ አለመመለስ ይችላሉ። በቃለመጠይቁ ምቹት ካልተሰማዎት በማንኛውም ሰአት መጠይቁን ማቋረጥ ይችላሉ። ይህም በመሆኑ ምንም አይነት ተፅእኖ እንደሌለው ልገልፅሎት እወዳለሁ። ቃለመጠይቁ ከ20 እስከ 30 ደቂቃ ሊወስድ ይችላል።

ወደ መጠይቁ መቀጠል እንድንችል ፍቃደኛ ነዎት?

1. አዎን

2. አይደለሁም

መረጃ ካስፈለግዎ

የጥናት አድራጊዎ ስም ቤዛ ክብረት ቅዱስ ፓውሎስ ሆስፒታል ሚሊኒየም ሜዲካል ኮሌጅ
bezikibret@gmail.com ስልክቁጥር: +251912479948

የጥናቱ አማካሪ ስም አቶ ሳምሶን ዘገየ ቅዱስ ፓውሎስ ሆስፒታል ሚሊኒየም ሜዲካል ኮሌጅ
የፕብሊክ ኸልዝ ትምህርት ክፍል መምህር ኢ.ሜይሌ: samsonhenon@gmail.com

የስምምነት ቅጽ

ከላይ የተጻፈውን የመረጃ ቅፅ አንብቤ ወይም ተነቦልኝ የጥናቱን አላማና ጥቅም በግልፅ
ተረድቻለሁ። በዚህም መሰረት ያለጥናት ቡድኑ አባላት ተፅእኖ በሙሉ ፍቃደኝነት በዚህ
ጥናት ለመሳተፍ ክፍቱን ለማሻሻል በሚደረገው ጥረት ውስጥ የሚጠበቅብኝን አስተዋፅኦ
ለማበርከት መወሰኔን በፋርማዬ አረጋግጣለሁ።

የተገልጋይ መለያ ቁጥር _____ ፊርማ _____ ቀን _____

የመረጃ ሰብሳቢ ስም _____ ፊርማ _____ ቀን _____

የተጀመረበት ሠዓት _____ ያለቀበት ሰዓት _____

የተቆጣጣሪ ሥም _____ ፊርማ _____ ቀን _____

መረጃ ካስፈለግዎ:- ቤዛ ክብረት፣ ኢ.ሜይሌ: bezikibret@gmail.com

ስልክቁጥር: +251912479948

ስለትብብርዎ ከፍተኛ ምስጋና አቀርባለሁ።

ክፍል 1 የማህበራዊ መረጃዎችን መሰብሰቢያ ጥያቄዎች		
ተ.ቁ	ጥያቄዎች	የመልስ አማራጮች
1	እድሜ	
2	ፆታ	1. ወንድ 2. ሴት
3	የጋብቻ ሁኔታ	1. ያገባ 2. ያላገባ 3. የፈታ 4. በሞት የተለያየ/የተለየች
4	የትምህርት ደረጃ	1. ማንበብ እና መጻፍ የማይችል 2. ማንበብ እና መጻፍ የሚችል/የምትችል 3. የመጀመሪያ ደረጃ ትምህርት ያጠናቀቀ/ች 4. ሁለተኛ ደረጃ ያጠናቀቀ/ች 5. ከዚያ በላይ
5	ሀይማኖት	1. ክርስቲያን 2. ሙስሊም 3. ካቶሊክ
6	የስራ ሁኔታ	1. የመንግስት 2. የግል 3. ነጋዴ 4. የቤት አመቤት 5. ተማሪ 6. ስራ የለኝም
7	አማካኝ የወር ገቢ	
8	የውሻ ባለቤት ነዎት	1.አዎ 2.አይደለሁም
9	ከቤተሰብዎ አባላት መካከል ለውሻ ንክሻ የተጋለጠ ሰው አለ	1.አዎ 2.የለም
10	ስንት ጊዜ ለውሻ ንክሻ ተጋላጭ ሆነዋል	-----
11	ባለቤት አልባ ውሻዎች በአካባቢዎት አሉ	1.አዎ 2.አይ

ክፍል 2 የእብድ ውሻ በሽታ ጋር በተያያዘ የልማድ/የገቢር መለኪያ ጥያቄዎች

ተ.ቁ	ጥያቄዎች	መልስ አማራጮች	ምርምራ
1	እርሶ/የቤተሰብ አባላቶች ከውሻ/ ድመት ምራቅ ወይም የሰውነት ፈሳሽ ጋር ንክኪ ያደርጋሉ	1. አዎ 2. አይ	
2	እርሶ/የቤተሰብ አባላቶች ከውሻ/ ድመት ጋር በእጅ ንክኪ ካደረጋቸ በኋላ እጃችሁን ትጣጠባላችሁ	1. አዎ 2. አይ	
3	ውሻዎችን አስከትበዋል	1. አዎ 2. አይ	መልሶ አይ ከሆነ ወደ ጥያቄ ቁጥር 5 ይሂዱ
4	ውሻው መከተቡን የሚያረጋግጥ የምስክር ወረቀት አለዎ	1. አዎ 2. አይ	
5	ከዚህ በፊት በውሻ ተነክሰው ያውቀሉ	1. አዎ 2. አይ	መልሶ አይ ከሆነ ወደ ጥያቄ ቁጥር 7 ይሂዱ
6	በውሻ በተነከሱ ወቅት ወዴት ሄዱ/ም አደረጉ	1. ቤት ቆየሁ 2. ወደ ጤና ተቀም ሄድኩ 4. ወደ ባህል ሀኪም ሄድኩ	
7	በውሻ በተነከሱ ወቅት ለሚመለከተው የመንግስት አካል አሳውቀዋል	1. አዎ 2. አይ	
8	ባለቤት አልባ ውሻዎችን ለመቆጣጠር ምን አደረጉ	1. ባለቤት ካለው ለባለቤቱ ማሳወቅ 2. መግደል 3. እንስሳት ወሊድ መቆጣጠሪያ ለውሻዎቹ መስጠት 4. ለሚመለከተው አካል ማሳወቅ	
9	ለውሻዎች ምን ዓይነት እንክብካቤ ያደርጋሉ	1. ለውሻ በተሰራ ቤት ውስጥ ማኖር 2. ከቤት ውጭ በግቢ ውስጥ ማሰር 3. በግቢ ውስጥ ሳይታሰር ማኖር 4. ሳያስሩ ከግቢ ውጭም ከግቢ ውስጥም ማኖር	

ክፍል 3 የእብድ ውሻን በተመለከተ እውቀት መለኪያ ጥያቄዎች

ተ.ቁ	ጥያቄዎች	የመልስ አማራጮች
1	ስለ እብድ ውሻ በሽታ ሰምተው ያውቃሉ	1. አውቃለሁ 2. አላውቅም
2	ስለ እብድ ውሻ በሽታ የመረጃ ምንጭዎ ምንድን ነው	1. መደበኛ (ሬድዮ፣ ቲቪ፣ ጋዜጣ...) 2. ኢ-መደበኛ (ጎረቤት፣ ጓደኛ...) 3. ከላይ ከተጠቀሱት ከሁለቱም 4. መረጃ የለኝም
3	የእብድ ውሻ በሽታ መነሻ ምን ይመስሉታል	1. ውሻ 2. ድመት 3. ሌላ ካለ ይጥቀሱ
4	የእብድ ውሻ በሽታ ከትባት ከመንግስት ጤና ተቋማት ማግኘት እንደሚቻል ያውቃሉ	1. አዎ 2. አይ
5.	የእብድ ውሻ በሽታን ደመ ሞቃት እንስሳትን ፣ ሠውን ጨምሮ እንደሚያጠቃ ያውቃሉ	1. አዎ 2. አይ
6	የእብድ ውሻ በሽታ መከላከያ ከትባት ከመንግስት ተቋማት ሊገኝ እንደሚችል ያውቃሉ	1. አዎ 2. አይ
7	የእብድ ውሻ በሽታን በከትባት መከላከል እንደምንችል ያውቃሉ	1. አዎ 2. አይ
8	ሰዎች ለውሻ ንክሻ ከተጋለጥን በሀላ በሚሰጥ ከተባት የእብድ ውሻ በሽታን ማከም እንደምንችል ያውቃሉ	1. አዎ 2. አይ
9	የእብድ ውሻ በሽታ ሙሉ በሙሉ ገዳይ እንደሆነ ያውቃሉ	1. አዎ 2. አይ
10	ውሻዎችን ካላስከተቡ እርሶ እና ቤተሰብዎ ለእብድ ውሻ በሽታ ተጋላጭ እንደሆኑ ያውቃሉ	1. አዎ 2. አይ
11	የእብድ ውሻ በሽታን ምልክቱ ከታየ በኋላ በቀላሉ መዳን እንደማይቻል ያውቃሉ	1. አዎ 2. አይ
12	ከውሻ ንክሻ በኋላ ወዲያው በውሀ እና በሳሙና መታጠብ አስፈላጊ እንደሆነ ያውቃሉ	1. አዎ 2. አይ
13	የእብድ ውሻ በሽታ ከውሻ ወደ ውሻ በምን ዘዴ ይተላለፋል	1. በንክሻ 2. የውሀ እጥረት/ድርቅ 3. በተበላሸ ምግብ 4. በአየር/ በትንፋሽ

14	የእብድ ውሻ በሽታ በሽተው ከያዘው እንስሳ/ሰው ወደ ሰው በምን ዘዴ ይተላለፋል	1. በእንስሳት ንክሻ 2. ከፍተኛ ባለው የሰውነት ቆዳ እና የተበከለ ምራቅ ንክኪ 3. በአየር/በነፋስ 4. ከውሻ ጋር ባለን ንክኪ
15	በውሻ ላይ የሚታይ የእብድ ውሻ በሽታ ምልክቶች የቱ ነው	1. ድንገተኛ የባህሪ ለውጥ 2. መተናኮል/መናከስ 3. የምራቅ መዘረከረክ 4. ውሀ መፍራት/መሸሸ 5. ሽባ መሆን
16	በሰው ላይ የሚታይ የእብድ ውሻ በሽታ ምልክቶች የቱ ነው	1. እብደት 2. ውሀ መፍራት/ መሸሸ 3. ብርሀን መፍራት/መሸሸ 4. ሽባነት 5. መቃዠት 6. የሆድ ህመም

ክፍል 4 ከእብድ ውሻ በሽታ ጋር በተያያዘ አመለካከትን መለኪያ ጥያቄዎች		
ተ.ቁ	ጥያቄዎች	ምላሽ አማራጮች
1	ባለቤት አልባ ውሻዎችን አደገኞች ናቸው ብለው ያምናሉ	1. በፍፁም አልስማማም 2. አልስማማም 3. አላውቅም 4. እስማማለሁ 5. በደንብ እስማማለሁ
2	ውሻዎችን በግቢ ውስጥ ማሰር የእብድ ውሻ በሽታ ይከላል ብለው ያምናሉ	1. በፍፁም አልስማማም 2. አልስማማም 3. አላውቅም 4. እስማማለሁ 5. በደንብ እስማማለሁ
3	ባለቤት አልባ ውሻዎችን በመግደል የእብድ ውሻ በሽታ መከላል እንችላለን ብለው ያምናሉ	1. በፍፁም አልስማማም 2. አልስማማም 3. አላውቅም 4. እስማማለሁ

		5. በደንብ እስማማለው
4	ውሻዎችን በመከተብ የእብድ ውሻ በሽታ መከላከል እንችላለን ብለው ያምናሉ	1. በፍፁም አልስማማም 2. አልስማማም 3.አላውቅም 4. እስማማለው 5. በደንብ እስማማለው
5	ውሻዎችን በማስመዝገብ ባለቤትነትዎችን ለማረጋገጥ ፈቃደኛ ነዎት	1. በፍፁም አልስማማም 2. አልስማማም 3.አላውቅም 4. እስማማለው 5. በደንብ እስማማለው
6	የጤና ትምህርት በመስጠት የእብድ ውሻ በሽታን ለመከላከል መፍትሄ ይሆናሉ ብለው ያምናሉ	1. በፍፁም አልስማማም 2. አልስማማም 3.አላውቅም 4. እስማማለው 5. በደንብ እስማማለው
7	ጸበል መጠቀም የእብድ ውሻ በሽታ መዳን አይቻልም ብለው ያምናሉ	1. በፍፁም አልስማማም 2. አልስማማም 3.አላውቅም 4. እስማማለው 5. በደንብ እስማማለው