Knowledge, Attitudes, and Practices Relating to Leptospirosis among the Rural Communities in Bungoma County, Kenya

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ABSTRACT

Leptospirosis is a bacterial zoonosis of worldwide public health importance but is endemic in the tropics. Leptospirosis is enzootic in Kenya, and there was an outbreak in Bungoma County in 2004 with serious public health consequences. A cross-sectional study was conducted in Bungoma County to assess the knowledge, attitude, and practices of the rural community in relation to leptospirosis. A validated questionnaire encompassing demographics, knowledge, attitude, and practice in relation to leptospirosis was administered to 388 respondents. The study shows that 85.5% of the residents are aware of the disease, while 54.1% have basic knowledge about leptospirosis. The majority of the respondents lack comprehensive knowledge about leptospirosis, especially with regard to its cause, mode of transmission, and the fact that it is zoonotic in nature. This study shows that there are knowledge gaps, beliefs, and practices that exacerbate the spread of leptospirosis in the rural communities of Bungoma County. It is therefore recommended that community health education for leptospirosis be initiated to enhance knowledge, foster a positive attitude, and discourage risky practices in Bungoma County.

Keywords: Attitude, Bungoma County, Knowledge, Leptospirosis, Practices

I. INTRODUCTION

Leptospirosis is a neglected bacterial zoonosis of global distribution, with more cases reported in the tropics (Navegantes de Araújo et al., 2013). The condition affects both domestic and wild animals, which then serve as a source of infection for humans (World Health Organization [WHO], 2003). The most common mode of transmission for both humans and animals is through contact with water and soil contaminated by infected animals' urine (WHO, 2003).

Leptospirosis is recognized as an emerging disease of epidemic potential that has great public health impact in many parts of the world (WHO, 2011; Schneider et al., 2013). Recent estimates indicate that there are 1.03 million annual cases of leptospirosis, with 58,900 deaths globally (Costa et al., 2015). In humans, the condition is characterized by symptoms ranging from flu-like illness to severe life-threatening manifestations such as pulmonary hemorrhages with mortalities of more than 10% (McBride et al., 2005; Schneider et al., 2013). The disease is more prevalent in the tropics (WHO, 2011; Crump et al., 2013).

In Africa, the prevalence of leptospirosis in humans ranges from 2.3% to 19.8% (Allan et al., 2015). This pattern is associated with the environmental and social conditions that influence the abundance of reservoir animals, the survival of bacteria in the soil and surface water, and the risk of human exposures (Reis et al., 2008; Felzemburgh et al., 2014). In Kenya, leptospirosis is listed among the top twenty priority zoonotic diseases (Munyua et al., 2015), and studies have shown that in 1987, people in Nyanza and coastal regions had leptospira antibodies (de Vries et al., 2014). A cross-sectional survey involving slaughterhouse workers in Western Kenya done in 2012 indicated a seroprevalence of 13.4% (Cook et al., 2017). In Kenya, there was an outbreak of leptospirosis in Bungoma County in 2004 with 859 confirmed cases and twelve fatalities (Government of Kenya [GoK], 2018).

Leptospirosis outbreaks are closely linked with natural disasters and floods, as reported in Nicaragua in 1995, Peru and Ecuador in 1998, Orissa in 1999, Malaysia in 2000, Jakarta in 2002, Mumbai in 2000 and 2005, and The Philippines in 2009 (Trevejo et al., 1995; Johnson et al., 2004; Pappas et al., 2008; Sehgal et al., 2002; Karande et al., 2003; Victoriano et al., 2009; Amilasan et al., 2012). The role of the environment in leptospirosis outbreaks is not fully understood (Schneider et al., 2013). However, there is evidence that suggests a strong correlation between climate change and leptospirosis outbreaks (Schneider et al., 2012).

Leptospirosis affects a wide variety of populations, including those residing in urban areas, remote rural villages, and poor, vulnerable populations. It is also reported as an occupational disease for both crop and livestock farmers, veterinarians, butchers, sewer workers, and gold mining workers (Ko et al., 1999; Maciel et al., 2008; Lau et al., 2012; Schneider et al., 2012). Despite the increasing number of cases and outbreaks, leptospirosis has been neglected, thereby making it suffer a severe lack of awareness at both global and national levels (Hartskeerl, 2006).

1.1 Problem Statement

Leptospirosis is an emerging zoonosis with severe public health consequences. Effective management of the disease requires a comprehensive understanding of the knowledge, attitude, and behavioural practices (KAP) of the communities at risk.

1.2 Research Objective

The objective of this study was to examine knowledge, attitude, and practices (KAP) in relation to leptospirosis among the rural populations of Bungoma County, Kenya. In addition, the study documented the influence of socio-demographic factors on knowledge of leptospirosis in a rural setting.

II. METHODOLOGY

2.1 Study Sites

The study was carried out in four wards of Kimilili Sub-County and Kaptama Ward of Mt. Elgon Sub-County, Bungoma County, Kenya. Two main ethnic communities occupy the study area: the Sabaot, who occupy the eastern slopes of Mt. Elgon, and the Bukusu, a Luhya sub-tribe, who occupy the lower region of Kimilili Sub-County. The county has an area of 2,403.2 km2, of which 1,922.56 km^2 is arable (Bungoma County Government, 2012). Bungoma County enjoys good weather conditions with high amounts of rainfall (County Director of Meteorological Services [CDMS], 2016). Rain-fed agriculture is the mainstay of Bungoma County's communities. The main crops in the county include maize, beans, millet, potatoes, and assorted vegetables. Sugarcane is the main cash crop (Bungoma County Government, 2012). The main livestock kept in the county include cattle, sheep, goats, donkeys, pigs, and poultry. Other domestic animals include dogs and cats (County Director of Veterinary Services [CDVS], 2017).

2.2 Research Design and Sampling Strategy

In this study, a cross-sectional survey was conducted in the Kimilili and Mt. Elgon sub-counties of Bungoma County. The two sub-counties were sampled purposefully based on the foci of the leptospirosis outbreak of 2004. The two sub-counties were then stratified into the five wards of Kibingei, Kamukuywa, Maeni, Kimilili, and Kaptama, and further into the various locations and sub-locations. The sub-locations were selected purposefully based on the level of exposure to the outbreak. The study team then visited the selected areas with the assistance of community leaders. Households were selected randomly for interviews and questionnaires administered to the head of the household. Thursfield (2005) provided the formula for determining the sample size of households.

$n=Z^2 \times P \times (1-P)/d^2$ where n the required sample size, Z=1.96, the normal deviate at 5% level of significance and 50% sero-prevalence P=0.5, =1-P(0.5) and d is the precision of the estimate, 5%.

$n=1.96^2 \times 0.5 \times 0.5/(0.05)^2$

=384 households.

2.3 Data Collection

The study utilized both secondary and primary data. Pretested and validated questionnaires were administered to the respondents in each household to determine their demographics, awareness, knowledge, attitude, and practice in relation to leptospirosis. The demographics considered in this study included the following; gender, age, level of formal education, occupation, marital status and size of the household.

2.3.1 Knowledge about Leptospirosis

Knowledge of leptospirosis among the households was assessed to establish how it conforms to known biomedical information. The study was based on their understanding of basic facts about leptospirosis, which included the following: cause of leptospirosis, risk factors of the disease, role of rats in the transmission of the disease, knowledge of leptospirosis as a zoonosis, and the clinical signs of leptospirosis. The respondents were classified as knowledgeable based on having a correct understanding of any of the two facts stated above.

2.3.2 Attitude towards Leptospirosis

An assessment of the attitude of the community towards leptospirosis was adopted from Ul Haq et al. (2012). A score of 1 was assigned to positive and 0 to negative, with a range of 2 and 0. A score greater than 1 was classified as a positive attitude, and a score a score equal or less than 1 was a negative attitude.

Table 1

Items for Assessing Attitude of Respondents towards Leptospirosis

	ATTITUDE ITEM	RESPONSES	ATTITUDE
1	Do you think you can get leptospirosis	Yes	Positive
		No	Negative
2	What would be your reaction if you found that you have leptospirosis?	Shame	Negative
		Fear	Positive
3	Would you talk to someone about your illness?	Yes	Positive
		No	Negative
4	What will you do if you think that you have symptoms of leptospirosis?	Go to Health facility	Positive
		Seek alternative ways of healing: Divine or traditional	
		Just stay at home	Negative
5	If you had symptoms of leptospirosis, at what stage you will go to the health facility?	Soon as I realize the symptoms	Positive
		Own treatment fails	
		Will not go to physician	Negative
6	How expensive do you think is the diagnosis and treatment of leptospirosis?	Affordable	Positive
		Expensive	
		Don't know	Negative
7	What worries you most if you will be diagnosed with leptospirosis?	Fear of death	Positive
		Cost of treatment	
		Isolation from the society	Negative

2.3.3 Assessment of some Practices which are Linked to Leptospirosis

Practices that could have a bearing on leptospirosis were examined and isolated through key informant interviews (KII) and focus group discussions (FGDs). Attention was then laid on the practices associated with circumcision and funeral ceremonies. Other practices considered in this study included the purchase of animals for slaughter during traditional ceremonies, the slaughter of animals in homes, the consumption of non-inspected meat, the use of protective gear such as gumboots while working on farms, and the boiling of water before consumption. The FGD and KII were also used to reveal some beliefs about the disease among the residents.

2.4 Data Analysis

The completed questionnaires were reviewed and the data entered into an electronic database using an Excel computer programme. After validation, the data was exported to the Statistical Package for Social Science (SPSS) software. Descriptive statistics were performed, and chi square (X^2) was used to compare the data, whereby a "P" value of 0.05 or less was considered to be statistically significant.

III. FINDINGS & DISCUSSIONS

3.1 Gender of Household Heads

A total of 388 households were enrolled in a study with a response rate of 100%. The results on gender distribution among the respondents in each household showed that 54.9% were male while 45.1% were female (n=388).

3.2 Age Distribution of Household Heads

The household heads were asked to state their ages in years, and Figure 1 gives a summary of their percentage age distribution (n = 388). The highest proportion of the respondents was in the 36–50 age group, while the lowest proportion was in the 65 and above age group. A Chi square test on this variable gave $X^2 = 76.763^{\alpha}$ and showed highly significant variation in age groups (P<0.05).

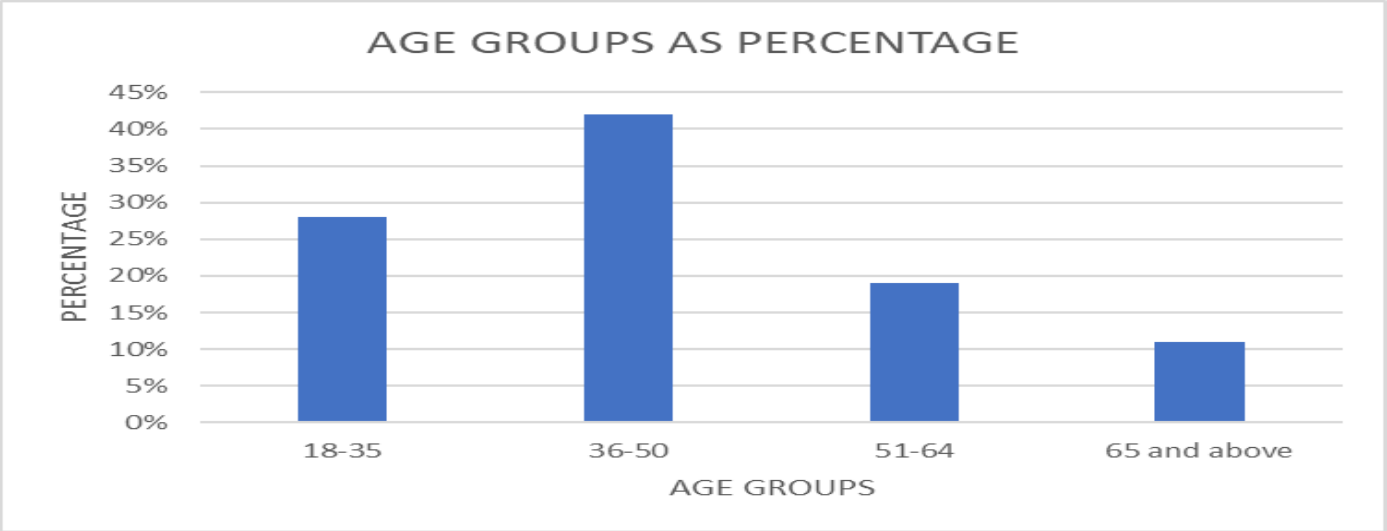

Figure 1

Percentage Age Distribution of Household Heads in Kimilili and Mt Elgon Sub-Counties in Bungoma, Kenya

Similar observations were made for participants in Key Informant Interviews and Focused Group Discussions.

3.3 Level of Formal Education of the Household Heads

When asked about their level of formal education, it was observed that only a small proportion of the household heads (6.2%, n=388) had not attained any formal education. The highest percentage of the household heads (36.6%, n=388) had attained primary level education. The FGD and Key Informants pointed out that there were those that fell in the age bracket of 60 and above. It was noted that even without the formal education, they were relied upon as opinion leaders on important issues and decisions in their respective communities. The formal education level of household heads is shown in Figure 2.

A Chi square test showed that the educational groupings were highly significant ($X^2 = 137.979^{\alpha}$ and P<0.01).

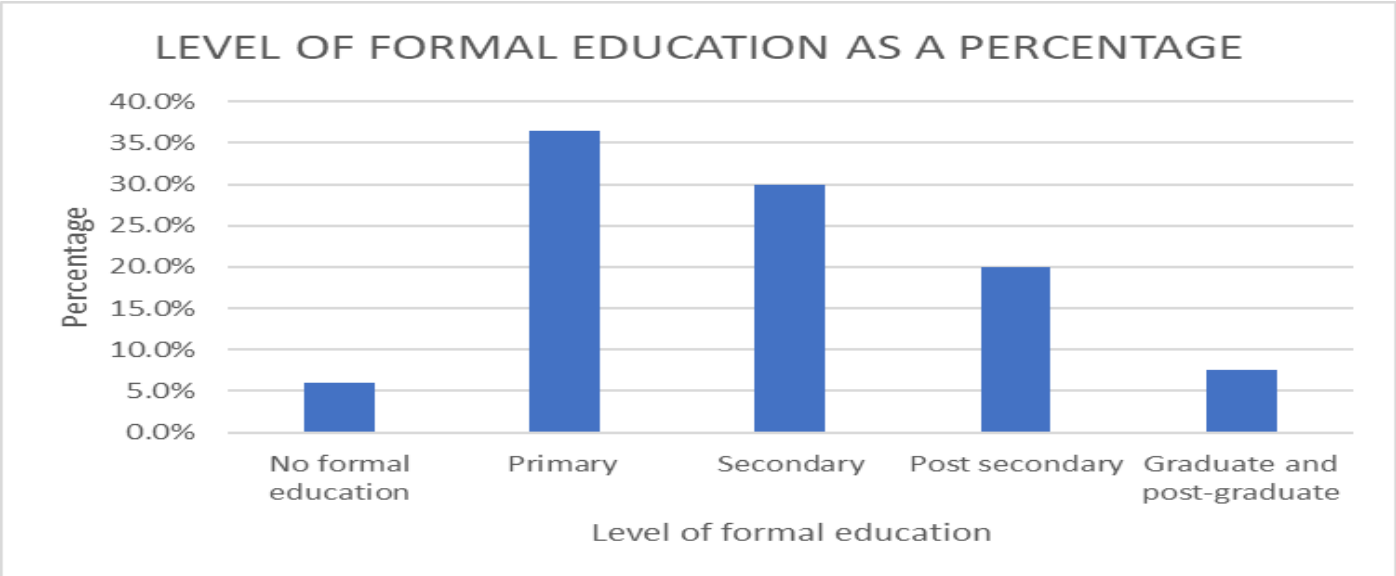

Figure 2

Level of Formal Education of Respondents at the Study Site, Bungoma County, Kenya

3.4 Occupation of the Household Heads

The occupation of the household heads is as shown in Figure 3. Most of the household heads (58.2%) are farmers (n=388). Farming in this questionnaire was meant to capture those dealing in both crop and livestock production. A Chi square test was performed on this variable and gave X^2 =2.566E2$^{\alpha}$ and showed significant variation (P<0.01) in the number of household heads in the different occupations.

Studies have demonstrated that *Leptospirosis* as a human disease is a result of an interaction between humans, animals and the environment (de Vries *et al*., 2014). And this puts the crop and livestock producers at a higher risk of contracting *Leptospirosis*. This group is at a higher risk to *Leptospirosis* as farmers deal in soils which if contaminated, they contract the disease.

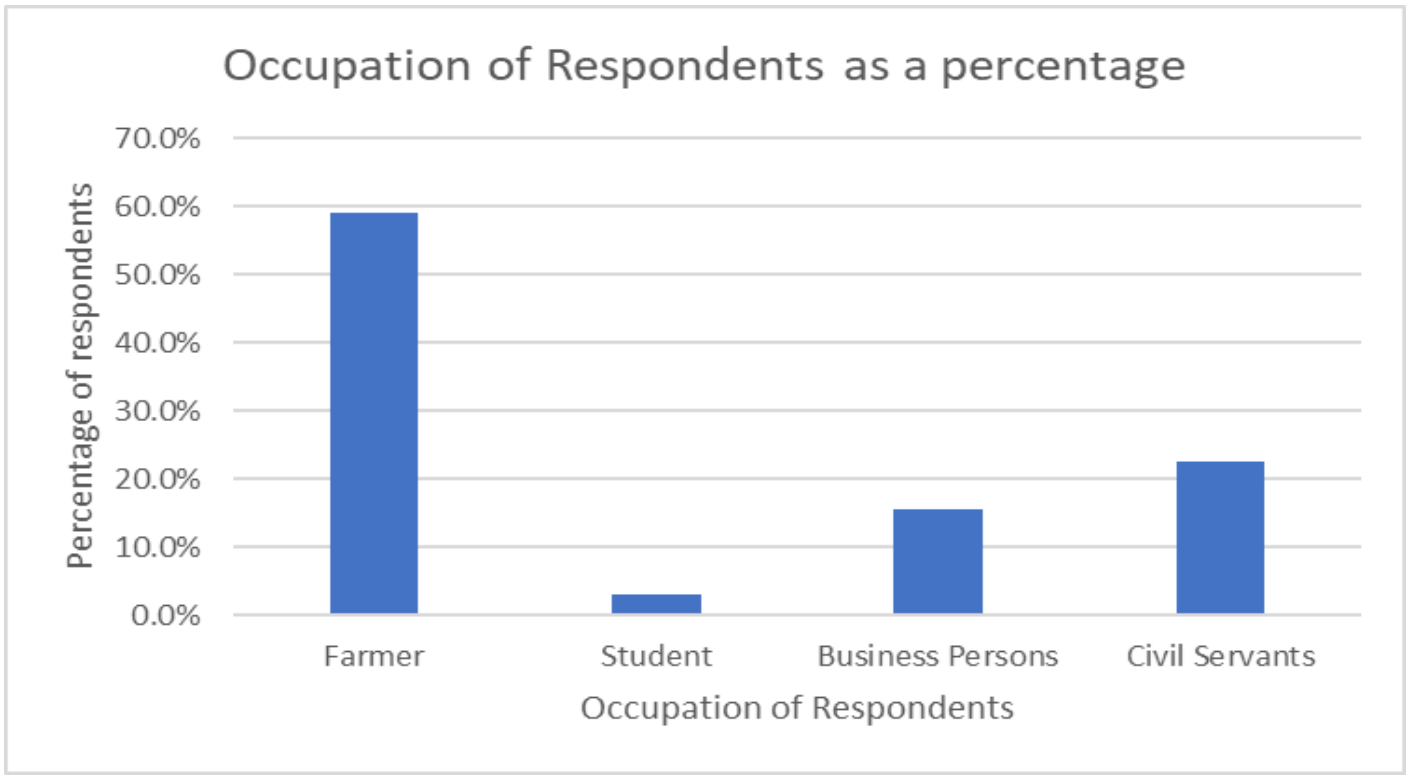

Figure 3

Distribution of the Occupation of Household Heads in Kimilili and Mt Elgon Sub-Counties in Bungoma County, Kenya

3.5 Marital Status of the Household Heads

When the household heads were asked to state their marital status, it was observed that 84.8% of the respondents were married while 15.2% were single (n=388). Those categorized as single included the following: those who had never married, divorced or separated and widowed). A Chi square test was performed on this variable and gave X^2 =1.879E2$^{\alpha}$ showing highly significant variation (P<0.01) in marital status distribution. It was also observed that 98% of the Key informants were married while 100% of the Focused Group Discussion members were married.

3.6 Household Size

The household heads were asked to state the size of their households and the results are given on Figure 4. The highest household had six or more members (31.4%, n=388) followed by four to five (29.6%) and the lowest is the household with one member at 3.6%. A Chi square test was performed on this variable and gave X^2 =1.085E2$^{\alpha}$ with a highly significant (P<0.01) showing that the number of respondents with the different household sizes were significantly different.

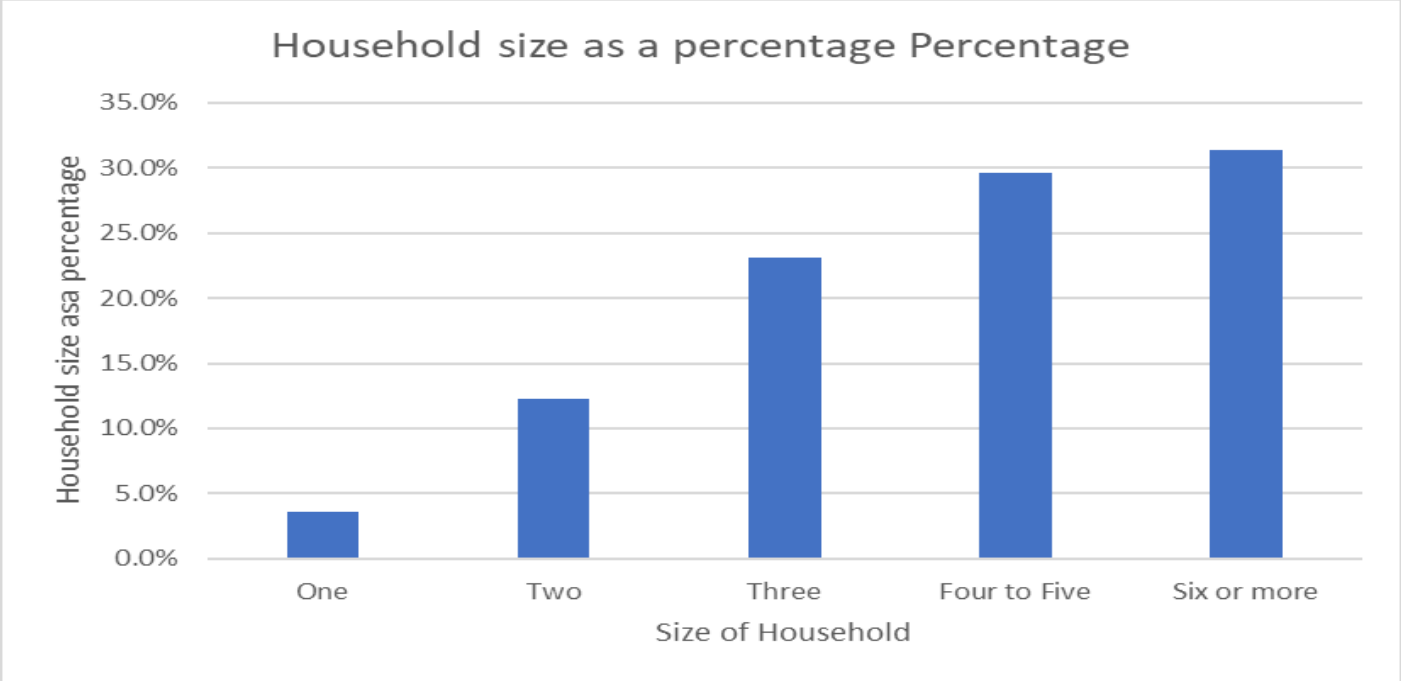

Figure 4
Household Size in Kimilili and Mt Elgon Sub-Counties of Bungoma County, Kenya

3.7 Awareness of Leptospirosis

Most of the household heads (85.8%, n=388) reported to be aware of the leptospirosis. They referred to it by its nickname "*Chesamisi fever*" associating it with the leptospirosis outbreak around Chesamisi area in 2004 with very severe consequences. A study conducted in Jamaica showed similar findings where 97% of the respondents in a particular community were aware of leptospirosis because of its high prevalence in the area (Allwood et al., 2014). Another study carried out in Trinidad and Tobago found that only 25% of the respondents had ever heard of the disease (Mohan & Chadee, 2011). In addition, a different study conducted among town service workers in northeastern Malaysia showed a low awareness of 13% (Sulong et al., 2011). The communities which have been directly affected by the disease appear to have a higher level of awareness as opposed to the population which has not been exposed to the disease. Awareness raising efforts should therefore be stepped up among communities who are at high risk of leptospirosis.

3.8 Knowledge about Leptospirosis

The study revealed that 54.1% (n=388) of the respondents have some basic understanding of leptospirosis and they could identify the condition by giving the correct clinical signs in humans. The remaining 45.9% (n=388) did not have any knowledge about leptospirosis. A Chi-square test on this variable gave $X^2 = 2.639^{\alpha}$ with no significant variation (P>0.05) in the number of households with knowledge of leptospirosis and those without the knowledge.

This finding corroborates with the Focused Group Discussions which showed that despite the high number of those indicating to be aware of the disease, still many respondents could not tell the cause of the disease, mode of transmission and method of managing the condition. They also could not tell the relationship of the disease in humans with livestock. The study reveals that overall; there is a lack of comprehensive knowledge about leptospirosis and its cause, transmission, risk factors, the role of rodents, treatment and the fact that it is a zoonotic disease.

3.8.1 Cause of Leptospirosis

The household heads were asked to state the cause of leptospirosis and the responses are presented in Figure 5 (n=388). Being an open ended question, multiple responses were given as shown. The highest proportion of the respondents (28%, n=388) said leptospirosis is caused by contaminated water, followed by those who said it is caused by contaminated food (16%, n=388) while the rest mentioned poor hygiene, raw sewage, rodent infestation, infected meat and poor grain storage in that order.

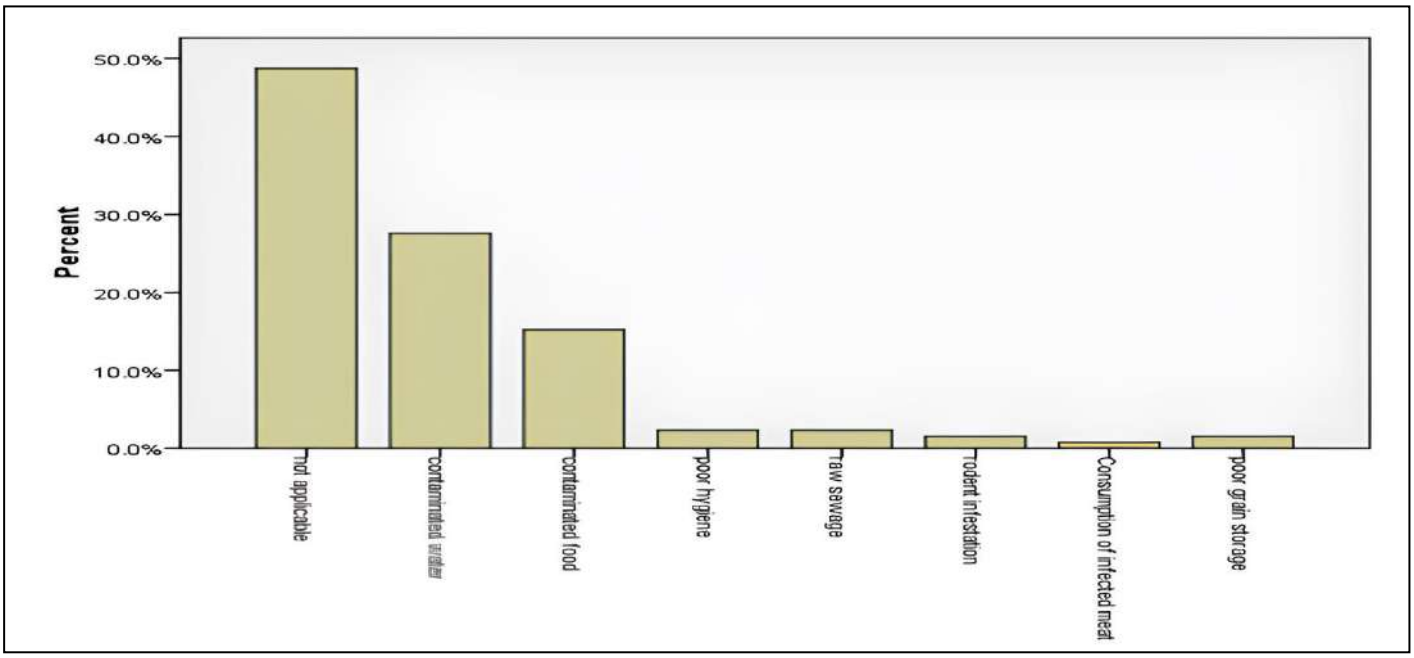

Figure 5
Responses on "Cause of Leptospirosis" by Household Heads in Kimilili and Mt Elgon Sub Counties, Bungoma County, Kenya

A Chi-square test on this variable gave X^2 =6.614E2$^{\alpha}$ showed a highly significant (P<0.05) variation indicating that the number of respondents enumerating the different causes of leptospirosis are significantly different.

3.8.2 Clinical Signs of Leptospirosis

The clinical signs of leptospirosis in humans was enumerated as indicated in the Figure 6 (n=388) below. Most of the household heads (22.7%) named digestive disorders as the most pronounced clinical signs, followed by nervous signs (17.8%), fever (10.1%) and sudden death, anemia, respiratory distress, general body weakness, headache and sudden death in that order. A Chi-square test on this variable gave X^2 =7.556E2$^{\alpha}$ with a highly significant (P<0.05) variation showing that the number of respondents enumerating the different clinical signs are significantly different.

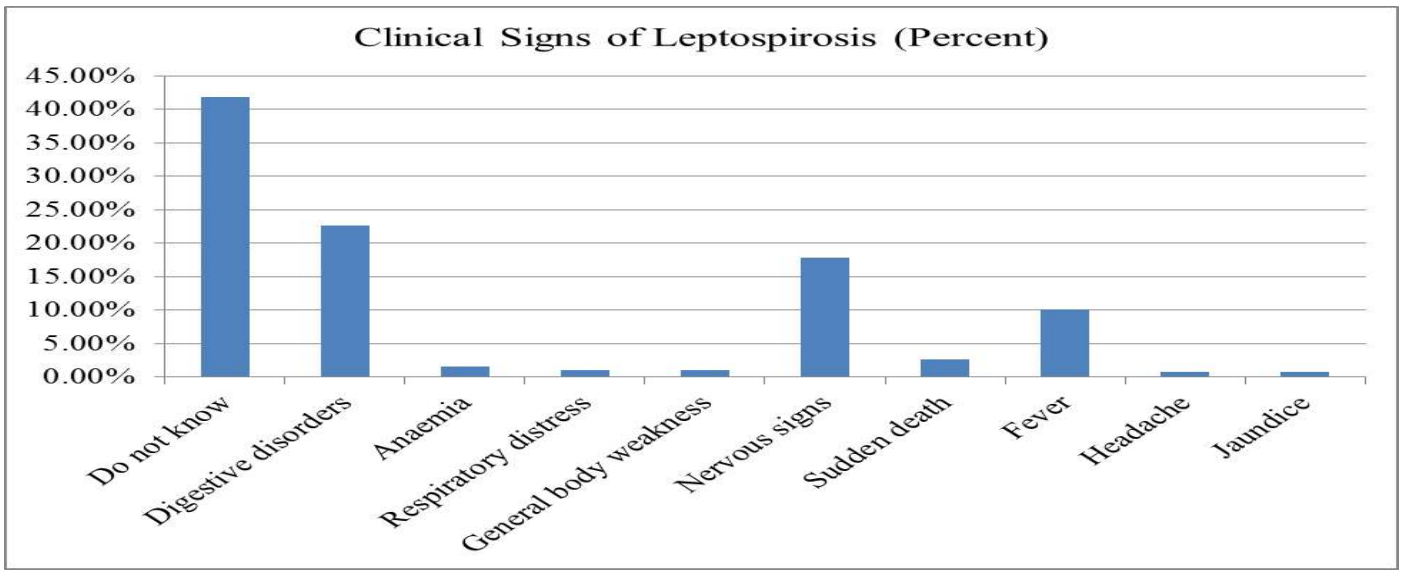

Figure 6
Responses on "Clinical Signs of Leptospirosis" by Household Heads in Kimilili and Mt Elgon Sub-Counties, Bungoma County, Kenya

3.8.3 Knowledge of Leptospirosis as a Zoonosis

The level of awareness of diseases transmissible between livestock and humans (zoonoses) amongst the respondents was assessed. Majority of the respondents (65.5%, n=388) were aware about zoonoses.

A Chi-square test on this variable gave X^2 =37.113$^{\alpha}$ with a highly significant (P<0.05) variation between those who know about zoonoses compared to those who do not.

The respondents who reported to know zoonotic diseases were further probed to identify the common zoonotic diseases in the study area and the responses are presented in Figure 7.

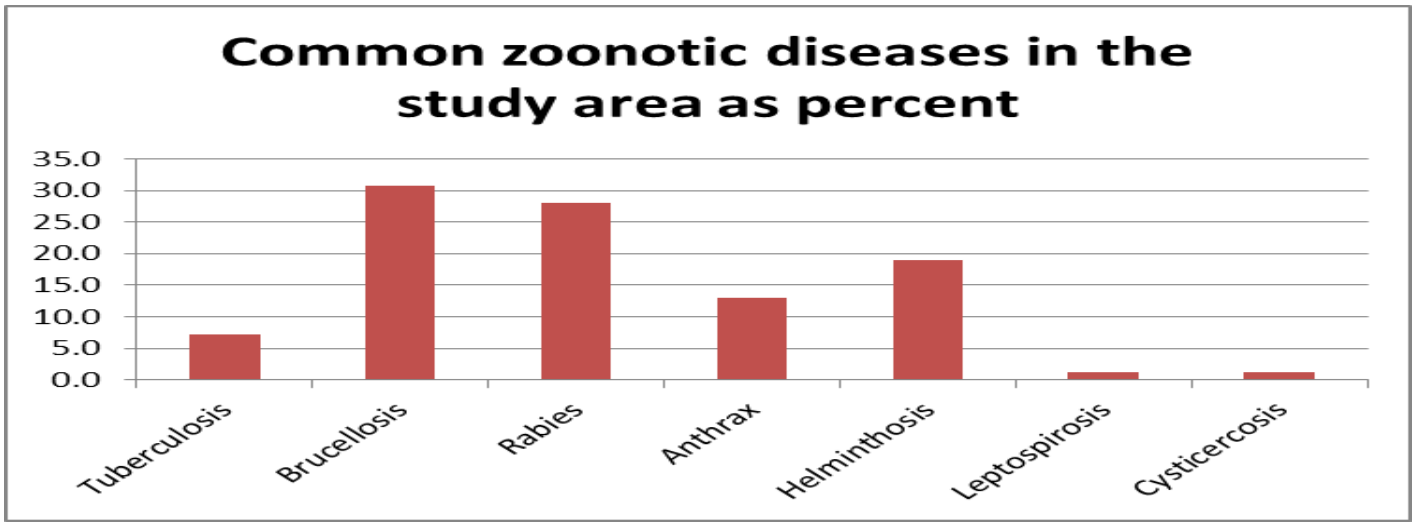

Figure 7

Common Zoonoses Reported by Household Heads in Kimilili and Mt Elgon Sub-Counties, Bungoma County, Kenya

This findings show that the highest number of respondents mentioned brucellosis (31%, n=388) followed by rabies (28%, n=388) while only 1.2% (n=388) knew leptospirosis as a zoonotic disease. The findings are in agreement with Key Informant Interviews which showed that the common zoonoses are brucellosis, rabies and anthrax.

3.8.4 Association of Rodents to Leptospirosis Disease

It was noted that 92.3% (n=388) of the respondents reported to have rodent infestation in their homes. However, when asked if they could associate rodents with any disease in humans, only 29.6% reported to the affirmative.

A chi-square test on this variable revealed that there was a significant difference between respondents who associate rodents to disease compared to those who do not (P<0.05).

Those respondents who associated rodents to disease were further asked to name the diseases/conditions that could be attributed to rodents. The responses are as indicated in Figure 8.

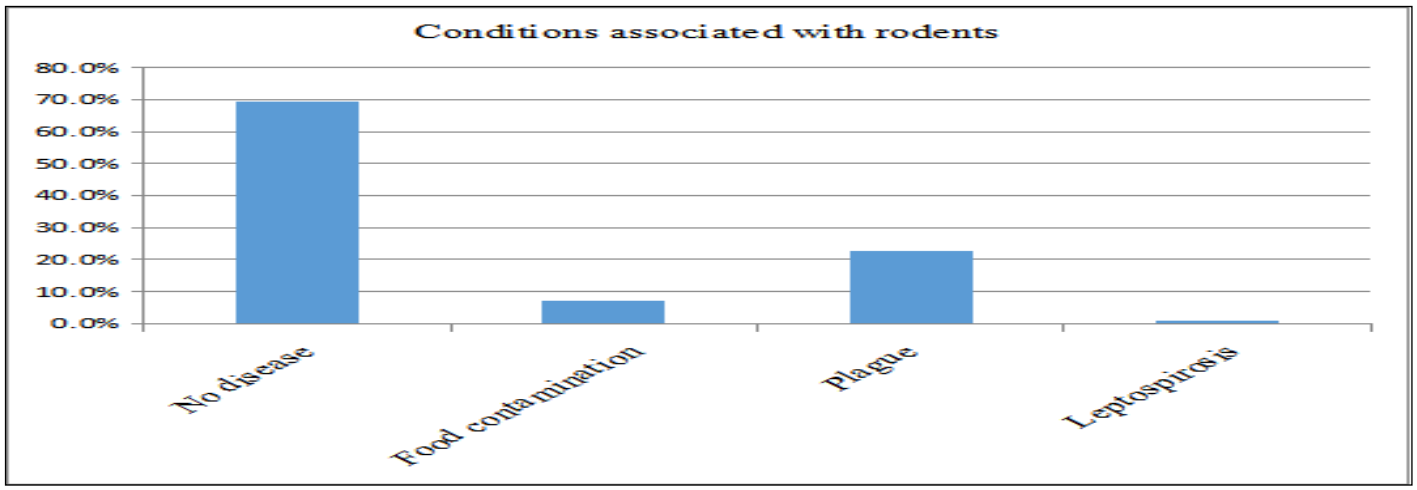

Figure 8

Conditions Association with Rodents among Household Heads in Kimilili and Mt Elgon Sub Counties, Bungoma County, Kenya

A Chi-square test revealed gave X^2 =450.990$^{\alpha}$ at 3 degrees of freedom with a significance level of (P<0.05) showing that there is a significant difference in the number of different conditions associated with rodent infestation.

3.9 Level of Contact between Farmers and veterinary Extension Staff

Figure 9 shows the level of contact with of the respondents with veterinary extension staff.

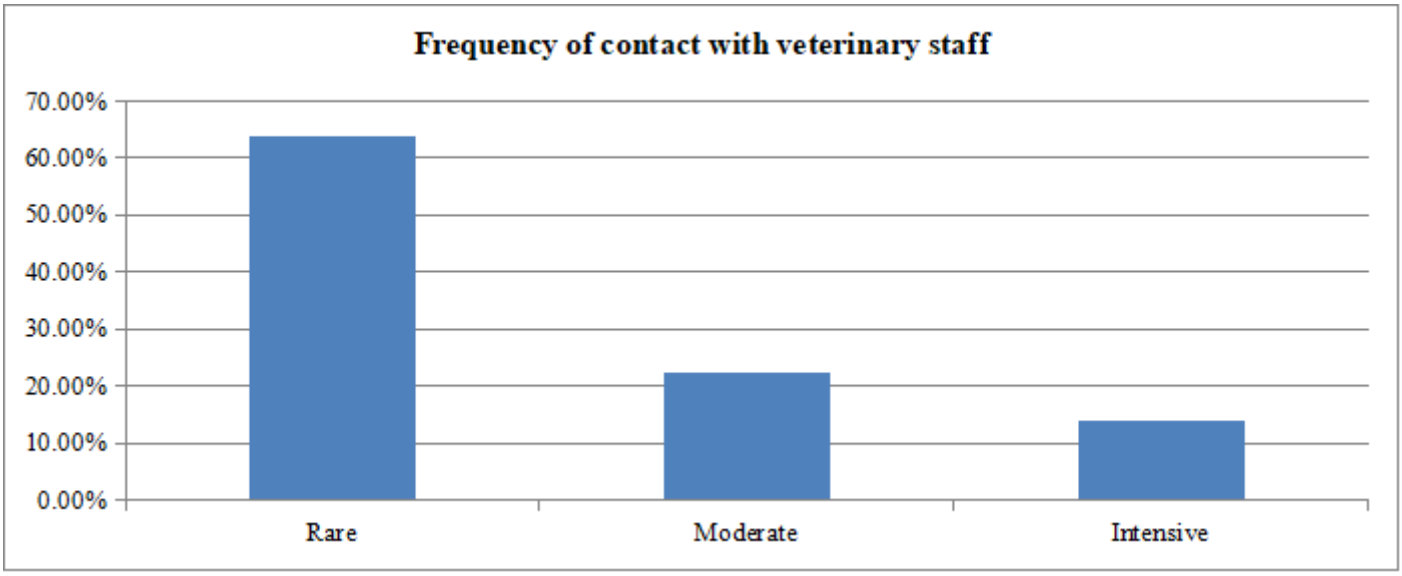

Figure 9

Frequency of Contact of the Households with Veterinary Staff in Kimilili and Mt Elgon Sub-Counties, Bungoma County, Kenya

It was shown that 63.7% (n=388) of the households reported none or rare which denotes less than two visits in the last one year. A Chi square test showed that the level of contact between respondents and veterinary extension staff has highly significantly variation (X^2 =164.789$^{\alpha}$). Veterinary extension staff provide an avenue of reaching out to the farmers and informing them about common diseases and their management. Only 13.9% (n=388) of the households reported intensive contact with extension staff which corresponds to more than four contacts in the last one year. The remaining 22.4% (n=388) of the households recorded moderate contact with extension staff which corresponds to three to four contacts in the last one year. The limited contact between veterinary extension staff and farmers explains the poor knowledge and understanding of *leptospirosis* and other livestock diseases in the study area.

3.10 Factors Affecting Knowledge of the Leptospirosis

Univariate regression analysis was carried out on the demographic factors such as gender, age, educational levels, marital status, household size, occupation and contact with extension staff. This was done in order to understand how these demographics influence knowledge of leptospirosis among the respondents. The dependent variable was knowledge of leptospirosis and the level of significance was calculated at 95% confidence interval. The results are as shown on Table 2.

Table 2

Factors Affecting Knowledge of the Leptospirosis

SERIAL NUMBER	INDEPENDENT VARIABLE	DEGREES OF FREEDOM (df)	SIGNIFICANCE LEVEL (P-value)	STANDARD ERROR
1.	Gender	1	0.954	0.205
2.	Age	3	0.737	0.027
3.	Education Level	4	0.154	0.024
4.	Marital Status	1	0.385	0.071
5.	Household size	4	0.058	0.022
6.	Occupation	3	0.004	0.020
7.	Contact with extension staff	2	0.002	0.030

3.10.1 Gender of the Respondents

It was observed that gender gave a no significant association with knowledge of leptospirosis (P=0.954). This therefore means that gender does not influence knowledge of leptospirosis in the study area. This is probably due to the fact that leptospirosis occurred as an outbreak in the area affecting the population across all the gender.

3.10.2 Age of the Respondents

Results for univariate regression analysis for age gives a non-significant result (P=0.737). Age is therefore not significant in determining knowledge about leptospirosis. This is probably because the condition was affecting the area for the first time. A study by de Vries et al., (2014) has demonstrated that the rate of infection increases with age.

3.10.3 Education Levels of the Respondents

Results for univariate regression analysis on educational levels gave a non-significant (P=0.154) regression coefficient. This implies that there is no association between education level and knowledge about leptospirosis. Similar studies have revealed that educational levels have an influence on the knowledge of infectious diseases including leptospirosis (Wiwanitkit, 2006; Dias, 2007; Brown et al., 2011; Dhimal et al., 2014). This is probably suggests that leptospirosis being an emerging/re-emerging disease, there appears not to be fully understood by the educated just as much as the less educated are. Community education on leptospirosis should therefore be addressed to all members irrespective of the educational levels.

3.10.4 Marital Status of the Respondents

The study shows that marital status is not significant variable in in determining knowledge about leptospirosis (P=0.385).

3.10.5 Household Size of the Respondents

The study shows that the size of the household is not significant in determining if one has knowledge of leptospirosis (P=0.058) at 95% confidence interval.

3.10.6 Occupation of the Respondents

Univariate regression analysis showed that there is an association between occupation and knowledge about leptospirosis (P=0.004). A similar study conducted among non-paramedical students revealed that occupation has a significant association with knowledge of leptospirosis (Sridevi et al., 2022). This is an expected observation given that farmers both crop and livestock and veterinarians are known to be at a higher risk of contracting leptospirosis.

3.10.7 Contact with Extension Staff

Univariate regression analysis for contact with extension staff showed that there is a strong association and knowledge about leptospirosis (P=0.002). A similar study reveals that improved access to veterinary services has a positive influence on knowledge, attitude and practices for anthrax (Kulpiisova et al., 2024). Public health education by field extension staff is a critical element in enhancing knowledge, attitude and preventive practices for leptospirosis in the community. This should be embraced with focus on cause, clinical signs, transmission, rodent management and treatment of leptospirosis.

3.11 Attitude

Respondents were asked seven questions to help understand their attitude towards leptospirosis prevention and the responses recorded as indicated in Table 3. Each question was labeled positive or negative attitude depending on the responses made. It was observed that 81% (n=388) believed that they can never get infected with leptospirosis. 41% of the respondents stated that they would be ashamed to get infected with leptospirosis. Majority of the respondents (62%) indicated that they would use alternative systems of healthcare when infected with leptospirosis as opposed to 38% who would visit a health facility. Overall, the respondents had negative attitude to leptospirosis. Positive attitude towards leptospirosis is critical in the control and prevention of the disease (Samsudin et al., 2020).

Table 3

Responses for Assessing Attitude of Respondents Towards Leptospirosis in Kimilili and Mt Elgon sub-Counties in Bungoma County, Kenya

	ATTITUDE ITEM	RESPONSES	PERCENT	ATTITUDE
1	Do you think you can get *Leptospirosis*	Yes	19%	Positive
		No	81%	Negative
2	What would be your reaction if you found that you have *Leptospirosis*?	Shame	65%	Negative
		Fear	35%	Positive
3	Would you talk to someone about your illness?	Yes	65%	Positive
		No	35%	Negative
4	What will you do if you think that you have symptoms of *Leptospirosis*?	Go to Health facility	38%	Positive
		Seek divine or traditional intervention	32%	
		Just stay at home	30	Negative
5	If you had symptoms of *Leptospirosis*, at what stage you will go to the health facility?	Soon as I realize the symptoms are of *Leptospirosis*	14%	Positive
		Own treatment fails	72%	
		Will not go to physician	14%	Negative
6	How expensive do you think is the diagnosis and treatment of *Leptospirosis*?	Affordable	33%	Positive
		Expensive	52%	
		Don't know	17%	Negative
7	What worries you most if you will be diagnosed with *Leptospirosis*?	Fear of death	47%	Positive
		Cost of treatment	21%	
		Isolation from the society	32%	Negative

3.12 Practices which Pose a Risk to Leptospirosis Infection

Circumcision is a rite of passage for young Bukusu boys and is commonly performed in August biennially. During such ceremonies, there is celebration, feasting and slaughter of animals. Resources for the elaborate ceremony were mobilised well in advance, with the bulls for slaughter being purchased then. At that time, animals are purchased without taking into consideration the source, and this is a risky practice for introducing livestock diseases into clean herds. Animals from West Pokot and Turkana counties are preferred for this purpose since they are relatively cheap.

Key informant interviews revealed that during the ceremony, one bull is slaughtered by the uncles of the initiate, usually without inspecting the meat. After slaughtering the animal, part of the meat is put around the boy's neck, which he carries to his home. This is another risky practice that has the potential to introduce disease if the initiate has open wounds on his body. The second animal is slaughtered at the home of the initiator, and this one, in most cases, is not inspected.

The other risky practice is the smearing of mud from swamps, marshes, and wetlands on the supposed initiate just prior to the surgical operation by the traditional practitioners (Wanyama & Egesah, 2015). Such swampy areas, which are considered sacred, are bushy, and rodent infestation is a possibility (Wanyama & Egesah, 2015). This practice therefore has the potential to introduce leptospirosis to the initiate if the mud is contaminated (Baharom et al., 2023). Ogundipe (2020), in his study, identified such cultural practices in Africa that have no scientific basis but instead pose negative health consequences.

Funeral rituals and traditional wedding ceremonies are characterised by feasting, whereby cattle are slaughtered. The slaughtered animals are rarely inspected, and this practice poses a risk for the spread of zoonotic diseases (Heuer et al., 2010).

Focused group discussions revealed that the practice of farmers and livestock using protective clothing such as gumboots and gloves is not widely practiced. Studies have shown that non-compliance with the use of protective equipment poses a high risk for leptospirosis (Saputra et al., 2021). This is a very risky practice, especially for livestock farmers, when cleaning the livestock sheds to dispose of the dung and urine. Similarly, the crop farmers go

to the farms without protective clothing, thereby increasing their chances of infection when in contact with contaminated soils.

It was also reported that boiling water is rarely practiced, despite the fact that sharing water points between livestock and humans is common in the study area. A similar study on anthrax, which is a zoonosis like leptospirosis, has shown that human behaviour is crucial in its epidemiology (Kulpiisova et al., 2024). Another study has linked socio-cultural practices involving slaughter, consumption or handling of meat, improper disposal of dead carcasses, or having close contact with animals or contaminated materials to high cases of zoonotic diseases in developing countries (Zorigt et al., 2021; Islam et al., 2024).

IV. CONCLUSIONS & RECOMMENDATIONS

4.1 Conclusions

The knowledge of leptospirosis among the respondents is low, the attitude is negative and practices towards leptospirosis poor. This study has also shown that socio-demographic variables in communities have an influence on the knowledge, attitude and practices towards leptospirosis.

4.2 Recommendations

Community health education and other interventions for leptospirosis control should be directed towards enhancing the knowledge, improving the attitude and promoting preventive practices in the community.

Conflict Of Interest Statement

The authors declare no conflict of interest in this study.

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