

Factors Influencing the Burden of Dog Bites among Households: A Cross-Sectional Study in Siaya County, Kenya

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ABSTRACT

Dog bites are a considerable public health issue in many countries around the world posing major physical, psychological, and economic burdens. This analytical cross-sectional study was conducted in Siaya County, Kenya. The objective was to determine individual and community factors associated with dog bite occurrence. Systematic random sampling was used to select 421 primary respondents while purposive sampling was used to select key informants who had resided in Siaya County for a period of at least 12 months. Descriptive statistics was analyzed using percentages and proportions while chi square tests and binomial logistic regression were used to establish the association between the independent and dependent variables. Statistical significance level of 0.05 was established. Ethical clearance was obtained from the University of Eastern Africa, Baraton (UEAB) Ethics Review Committee and permission to collect data was sought from Maseno University School of Graduate Studies (SGS), National Commission for Science, Technology and Innovation (NACOSTI) and Siaya County. Regarding individual and community factors, knowledge level was significantly associated with dog bite occurrence ($\chi^2 = 20.99$, $df = 1$, $p = 0.001$). Households with inadequate knowledge had higher odds of experiencing dog bites compared with those with adequate knowledge (OR = 5.61, 95% CI: 2.49–12.62). Effectiveness of animal control services was also significantly associated with dog bite occurrence ($\chi^2 = 12.33$, $df = 2$, $p = 0.002$), with households reporting ineffective animal control services having higher odds of dog bite occurrence than those reporting effective services (OR = 3.24, 95% CI: 1.80–5.85). Dog bite occurrence in Siaya County is influenced primarily by knowledge levels and the effectiveness of animal control services, highlighting the importance of community-based education, responsible dog management, and strengthened One Health interventions in reducing dog bites.

Keywords: Dog bite, Dog ownership, Household, Knowledge score, Roaming dogs

INTRODUCTION

Dog bites are a considerable public health issue in many countries around the world, and they have major physical, psychological, and economic burdens. Dog bite injuries represent a major global public health concern, contributing to millions of injuries annually, with children disproportionately affected. While there are no global estimates of the rates of dog bite injury, the United States has reported around 4.5 million annual dog bite cases (World Health Organisation, 2024) whereas approximately 740 people per 100,000 population get bitten by dogs annually in the United Kingdom. India, Pakistan and Bangladesh are among the top five rabies endemic countries in the world (Khan et al., 2023).

Studies consistently report low to moderate awareness of rabies prevention globally and locally. In Wuhan, China, only 56.85% of respondents knew rabies was infectious and over 20% believed dog vaccination was

unnecessary (Li, et al., 2021). Li et al., (2021) found that inadequate knowledge regarding the fatality of rabies was associated with increased odds of severe animal bites.

An elevated number of dog bite cases are as a result of improper solid waste management, unrestricted movement of dogs, factors encouraging hostility in dogs, partial knowledge, practice of relying on dogs for security purposes, ineffective management dog population and living in informal settlements. Globally, various strategies have been used to regulate the population of dogs. These approaches include euthanizing dogs, controlling their fertility, sheltering them or a combination of them (Alfahad et al.,2023).

In low- and middle-income countries, like Kenya, dogs account for 76.94 % of the animal bite injuries (World Health Organisation, 2024). There are limited studies on incidences of dog bite injuries in Kenya mainly due to uncoordinated surveillance systems and inadequate resources. Nevertheless, a study conducted retrospectively between 2011 and 2016 by Kung'u revealed that the incidence of the bites from animals in the eastern and western parts of Kenya was roughly 289 bites per 100,000 population yearly. The study found out that 72% of bites were imposed by domesticated dogs with male children under the age of 15 years having an increased probability of experiencing animal bite injuries (Kungu & Brodbelt, 2023).

Siaya County has significantly low 19.1% dog vaccination coverage in Siaya County and largely unregulated dog population density of 54 dogs per km². A dog population study conducted in Asembo, Siaya County, found that approximately 38% of households owned at least one dog, with an average of 1.7 dogs per dog-owning household and an estimated dog to human ratio of 1:6.9. While ownership may increase familiarity with dogs, it may also increase opportunities for dog-human interactions and exposure to bites, particularly when dogs are inadequately restrained or vaccinated. Furthermore, studies have reported that many dogs in rural western Kenya are allowed to roam freely within communities, increasing contact between owned dogs, stray dogs, and community members (Kwoba, 2019). The challenges stem from insufficient health infrastructure, inadequate vaccines supply, and lack of health literacy programs. To come up with targeted interventions, it is important to comprehend the prevalence of dog bites and its predisposing factors. This study aims at determining factors influencing the burden of dog bites among households in Siaya County with a view of informing policy development and enhancing safety in the community.

MATERIALS AND METHODS

This was an analytical cross-sectional study. Household structured questionnaires and key informant interview guides were used to collect data. Systematic random sampling was used to select and collect data from a total of 421 households whereas purposive sampling was used to select key informants that met the inclusion criteria. Those included consented and had lived or worked in Siaya County for at least twelve months. Those who were sick and absent during data collection were excluded.

Dependent variable: Dog bite occurrence

Independent variables: Dog ownership, Knowledge level on dog bite, Household waste disposal method, Dogs roaming freely, Cultural beliefs, Children playing with dogs, Effectiveness of animal control services.

Validity

To strengthen data validity, data collection tools were developed based on the study objectives while research assistants received training on the study objectives, interpretation and administration. In addition, the data collection tools were subjected to expert review by University supervisors before the data collection process commenced.

Data was entered and analyzed by using SPSS version 26. Descriptive statistics was analyzed using percentages and proportions for categorical variables while Pearson chi square test and logistic regression were used to establish the association between the independent and dependent variables. Statistical significance level of 0.05 was established.

Calculation of knowledge score

Knowledge regarding dog bite prevention was assessed using seven statements measured on a five-point Likert scale: Strongly disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly agree (5). Each response was assigned a numerical score ranging from 1 to 5, with higher scores indicating greater knowledge. The scores for the seven items were summed to obtain an overall knowledge score for each respondent. The minimum possible score was 7 with the maximum possible score was 35. The total knowledge scores were converted into percentage scores using the formula:

$$\text{Knowledge score (\%)} = (\text{Observed score} / 35) * 100$$

Knowledge levels were then categorized as follows:

- i. Inadequate knowledge: Below 50% (score <18)
- ii. Adequate knowledge: 50% and above (score 18-35)

Ethical considerations

Ethical clearance was obtained from the University of Eastern Africa, Baraton (UEAB) Ethics Review Committee and permission to collect data was sought from Maseno University School of Graduate Studies (SGS), National Commission for Science, Technology and Innovation (NACOSTI) and Siaya County.

RESULT

The majority of respondents were female 243(57.7%), while males constituted the smaller proportion 178(42.3%). Regarding education, most respondents had attained primary education 182(43.2%), whereas the fewest had no formal education 36(8.6%). The largest age group was 18–30 years 151(35.9%), while respondents aged above 60 years formed the smallest age category 67(15.9%). Most households comprised 5–6 members 153(36.3%), whereas households with seven or more members were the least common 65(15.4%). In terms of occupation, the majority of respondents were engaged in informal employment 305(72.4%), while formal employment was the least reported occupation category 24(5.7%). By sub-county, most respondents were from Alego Usonga 168(39.9%), while Rarieda contributed the lowest proportion 117(27.8%). Similarly, Siaya Township Ward had the highest number of respondents 168(39.9%), whereas Rarieda Ward had the lowest 117(27.8%). At the Community Health Unit level, Mulaha CHU contributed the highest proportion of respondents 85(20.2%), while Madiany CHU contributed the lowest proportion 58(13.8%) (Table 1)

Table 1 Sociodemographic characteristics of respondents

Variable	Category	Frequency	Percentage
Sex	Female	243	57.7
	Male	178	42.3
Education level	No formal education	36	8.6
	Primary	182	43.2
	Secondary	153	36.3
	College/University	50	11.9
Age group	18–30	151	35.9

	31–45	131	31.1
	46–60	72	17.1
	Above 60	67	15.9
Household size	1–2 members	81	19.2
	3–4 members	122	29
	5–6 members	153	36.3
	7 or more members	65	15.4
Occupation	Unemployed	54	12.9
	Employed (formal)	24	5.7
	Employed (informal)	305	72.4
	Student	38	9
Sub County	Alego Usonga	168	39.9
	Gem	136	32.3
	Rarieda	117	27.8
Ward	Siaya Township	168	39.9
	Yala Township	136	32.3
	Rarieda	117	27.8
CHU	Mulaha	85	20.2
	Karapul	83	19.7
	Nyamninia	69	16.4
	Sauri	67	15.9
	Madiany	58	13.8
	Naya	59	14

Figure 1 shows the spatial distribution of households reporting dog bites in Yala Township Ward. Red points represent households where at least one member had experienced a dog bite, while green points represent households with no reported dog bite in the past 12 months. Dog bite cases were not uniformly distributed across the area. They appeared to cluster in several locations, particularly close to River Yala while households without reported dog bites were more dispersed.

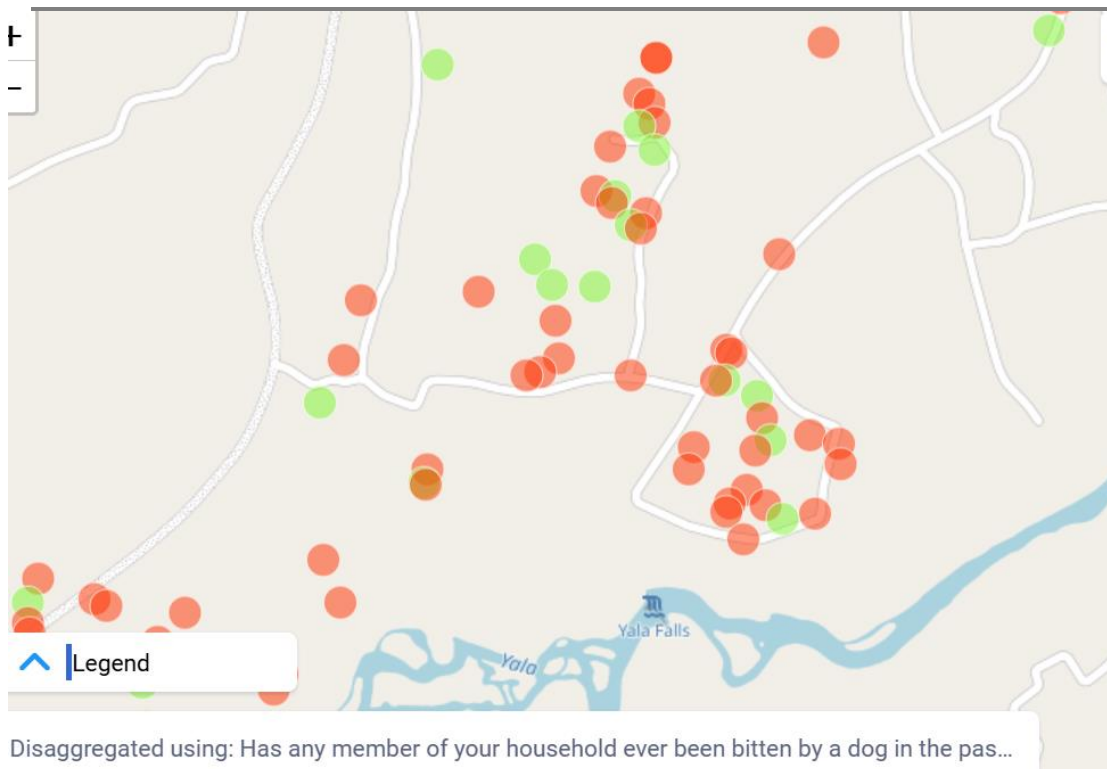


Figure 1 Spatial distribution of households reporting dog bite incidents in Yala Township Ward

Among households assessed for dog ownership, 202 (46.0%) owned dogs while 219 (54.0%) did not. Dog bite occurrence was reported among 74 (36.6%) dog owners compared with 73 (33.3%) non-dog owners. Dog ownership was not significantly associated with dog bite occurrence ($\chi^2 = 0.50$, $df = 1$, $p = 0.480$). Dog owners had slightly higher odds of experiencing a dog bite compared with non-dog owners (OR = 1.16, 95% CI: 0.79–1.72), although the association was not statistically significant. Regarding knowledge level, the majority of households had inadequate knowledge 354 (84.1%), while 67 (15.9%) had adequate knowledge. Dog bite occurrence was reported among 140 (24.1%) households with inadequate knowledge and 7 (35.9%) households with adequate knowledge. Knowledge level was significantly associated with dog bite occurrence ($\chi^2 = 20.99$, $df = 1$, $p = 0.001$). Households with inadequate knowledge had significantly higher odds of experiencing dog bites compared with those with adequate knowledge (OR = 5.61, 95% CI: 2.49–12.62), indicating that inadequate knowledge may increase vulnerability to dog bite occurrence (Table 2)

Table 2 Individual factors associated with dog bite occurrence

Variable	Category	Dog Bite Yes n (%)	Dog Bite No n (%)	OR (95% CI)	χ^2	df	p-value
Dog ownership	No	73 (33.3)	146 (66.7)	Ref	0.50	1	0.480
	Yes	74 (36.6)	128 (63.4)	1.16 (0.79–1.72)			
Knowledge level	Adequate (18–35)	7 (10.4)	60 (89.6)	Ref	20.99	1	0.001
	Inadequate (0–17)	140 (39.5)	214 (60.5)	5.61(2.49–12.62)			

Regarding household waste disposal methods, the most commonly reported practice was open dumping, reported by 274 households (65.1%), followed by burning 111 (26.4%). Other methods included burying 16 (3.8%), other disposal methods 15 (3.6%), dumping in bushes/rivers 3 (0.7%), and collection by county/private services 2 (0.5%). However, household waste disposal method was not significantly associated with dog bite occurrence ($\chi^2 = 7.17$, $df = 5$, $p = 0.209$). Compared with households practicing burning, those practicing open dumping had slightly higher odds of dog bite occurrence (OR = 1.33, 95% CI: 0.82–2.15).

“Open dumping sites provide a reliable source of food, attracting both owned and unowned dogs. This increases opportunities for interaction between dogs and community members.” K.I.I 2

For stray dogs scavenging in waste disposal areas, the most common response was that this occurred frequently 185 (43.9%), followed by sometimes 129 (30.6%), rarely 49 (11.6%), and never 58 (13.8%). Dog bite occurrence was highest among households reporting frequent scavenging by stray dogs (40.0%). However, the frequency of stray dogs scavenging in waste disposal areas was not significantly associated with dog bite occurrence ($\chi^2 = 3.45$, $df = 3$, $p = 0.327$).

Regarding whether poor waste management attracts stray dogs, most household heads agreed that it does 384 (91.2%), while 36 (8.6%) disagreed. Dog bite occurrence was reported among 36.2% of households agreeing that poor waste management attracts stray dogs compared with 22.2% among those who disagreed. This association was not statistically significant ($\chi^2 = 2.36$, $df = 1$, $p = 0.124$). Households that reported poor waste management attracts stray dogs had higher odds of dog bite occurrence compared with those who disagreed (OR = 0.50, 95% CI: 0.22–1.15).

For dog roaming behaviour, most households reported that dogs roamed freely 225 (53.4%), followed by those reporting dogs roaming sometimes 101 (24.0%) and those reporting dogs did not roam freely 95 (22.6%). Dog bite occurrence was highest among households reporting free-roaming dogs (41.3%), compared with sometimes roaming (23.8%) and no roaming (31.6%). Dog roaming behaviour was not significantly associated with dog bite occurrence ($\chi^2 = 5.45$, $df = 2$, $p = 0.066$). Households reporting dogs roaming sometimes had lower odds of dog bite occurrence compared with those reporting free roaming (OR = 0.44, 95% CI: 0.27–0.74).

Regarding cultural beliefs related to dogs, most households reported no such beliefs 260 (61.8%), followed by those who were unsure 115 (27.3%) and those who reported having cultural beliefs 46 (10.9%). Dog bite occurrence was highest among households reporting cultural beliefs (45.7%) compared with those unsure (31.3%) and those without beliefs (34.6%). However, cultural beliefs were not significantly associated with dog bite occurrence ($\chi^2 = 1.44$, $df = 2$, $p = 0.487$).

For children playing with dogs in the community, 206 households (48.9%) reported that children played with dogs, while 215 (51.1%) reported that children did not. Dog bite occurrence was higher among households where children played with dogs (39.8%) compared with households where children did not (30.2%). This association was not statistically significant ($\chi^2 = 3.17$, $df = 1$, $p = 0.075$).

“Children are naturally curious and may approach dogs without understanding the risks involved. In some cases, children unintentionally provoke dogs while playing, which increases the likelihood of bites” K.I.I 5

Regarding effectiveness of animal control services, the largest proportion of households considered services very effective 249 (59.1%), followed by not effective 70 (16.6%) and effective 102 (24.2%). Dog bite occurrence was highest among households reporting that animal control services were not effective (62.9%), compared with those reporting effective services (34.3%) and very effective services (27.3%). Effectiveness of animal control services was significantly associated with dog bite occurrence ($\chi^2 = 12.33$, $df = 2$, $p = 0.002$). Households reporting ineffective animal control services had more than three times higher odds of dog bite occurrence compared with households reporting effective services (OR = 3.24, 95% CI: 1.80–5.85) (Table 3)

Table 3 Community factors associated with dog bite occurrence

Variable	Category	Dog Bite Yes n (%)	Dog Bite No n (%)	OR (95% CI)	χ^2	df	p-value
Household waste disposal method	Burning	32 (28.8)	79 (71.2)	Ref	7.17	5	0.209

	Burying	8 (50.0)	8 (50.0)	2.47 (0.83–7.36)			
	Collected by county/private service	2 (100.0)	0 (0.0)	—			
	Dumping in bushes/river	1 (33.3)	2 (66.7)	1.23 (0.10–14.92)			
	Open dumping	96 (35.0)	178 (65.0)	1.33 (0.82–2.15)			
	Other	8 (53.3)	7 (46.7)	2.83 (0.91–8.79)			
Dogs roaming freely	Yes	93 (41.3)	132 (58.7)	Ref	5.45	2	0.066
	Sometimes	24 (23.8)	77 (76.2)	0.44 (0.27–0.74)			
	No	30 (31.6)	65 (68.4)	0.65 (0.40–1.07)			
Cultural beliefs	Yes	21 (45.7)	25 (54.3)	Ref	1.44	2	0.487
	Not sure	36 (31.3)	79 (68.7)	0.54 (0.25–1.16)			
	No	90 (34.6)	170 (65.4)	0.63 (0.31–1.27)			
Children play with dogs	Yes	82 (39.8)	124 (60.2)	Ref	3.17	1	0.075
	No	65 (30.2)	150 (69.8)	0.65 (0.43–0.99)			
Effectiveness of animal control services	Effective	35 (34.3)	67 (65.7)	Ref	12.33	2	0.002
	Not effective	44 (62.9)	26 (37.1)	3.24 (1.80–5.85)			
	Very effective	68 (27.3)	181 (72.7)	0.72 (0.45–1.15)			

Logistic Regression Analysis

The binomial logistic regression analysis showed that knowledge level was a significant predictor of dog bite occurrence. Respondents with inadequate knowledge had significantly higher odds of experiencing dog bites compared to those with adequate knowledge ($p < 0.001$). Specifically, individuals with inadequate knowledge were approximately 5.66 times more likely to report dog bites than those with adequate knowledge (OR = 5.66; 95% CI: 2.3–13.7). (Table 4)

Table 4 Knowledge level vs. dog bite occurrence

						95% Confidence Interval	
Predictor	Estimate	SE	Z	p	Odds ratio	Lower	Upper
Intercept	-0.587	0.09	-6.52	<0.001			
Knowledge level							
Adequate – Inadequate	1.734	0.446	3.89	<0.001	5.66	2.3	13.7
Note. Estimates represent the log odds of "Dog bite = Yes" vs. "Dog bite = No"							

Households that reported that children commonly play with dogs in the community had a regression coefficient of 0.423 (SE = 0.206, $p = 0.040$) with an odds ratio of 1.526 (95% CI: 1.020–2.284). This indicates that households in communities where children commonly play with dogs were 1.5 times more likely to report dog bite incidents compared to households where children do not commonly play with dogs. The association was statistically significant ($p < 0.05$), suggesting that interaction between children and dogs may increase the risk of dog bites. (Table 5)

Table 5 Children playing with dogs vs. dog bite occurrence

						95% Confidence Interval	
Predictor	Estimate	SE	Z	p	Odds ratio	Lower	Upper
Intercept	-0.836	0.148	-5.63	<.001	0.433	0.324	0.58
Do children in your community commonly play with dogs?:							
Yes – No	0.423	0.206	2.05	0.04	1.526	1.02	2.284

Note. Estimates represent the log odds of "Dog bite = Yes" vs. "Dog bite = No"

Respondents who perceived animal control services as effective had an estimate of -1.168 (SE = 0.590, $p = 0.048$) with an odds ratio of 0.311 (95% CI: 0.098–0.989). This indicates that households perceiving animal control services as effective were about 69% less likely to report dog bite incidents compared to those who perceived the services as not effective. The association was statistically significant ($p < 0.05$).

Respondents who perceived animal control services as very effective had an estimate of -1.518 (SE = 0.523, $p = 0.004$) with an odds ratio of 0.219 (95% CI: 0.079–0.610). This suggests that households perceiving animal control services as very effective were approximately 78% less likely to experience dog bites compared to those who perceived them as not effective. This association was highly statistically significant ($p < 0.01$). (Table 6)

Table 6 Effectiveness of animal control services vs. dog bite occurrence

						95% Confidence Interval	
Predictor	Estimate	SE	Z	p	Odds ratio	Lower	Upper
Intercept	0.762	0.458	1.67	0.096	2.143	0.8737	5.256

How effective are animal control services in managing stray dogs?:							
Effective – Not effective	-1.168	0.59	-1.98	0.048	0.311	0.0978	0.989
Very effective – Not effective	-1.518	0.523	-2.9	0.004	0.219	0.0786	0.61

Note. Estimates represent the log odds of "Dog bite = Yes" vs. "Dog bite = No"

Participants from communities where dogs were *sometimes* allowed to roam freely had significantly higher odds of not experiencing dog bites compared to those from communities where dogs were always allowed to roam freely (OR = 2.26, 95% CI: 1.33–3.84, $p = 0.003$). This indicates that partial restriction of dog movement was associated with a lower likelihood of dog bite occurrence. Since the confidence interval does not include 1 and the p -value is less than 0.05, the association was statistically significant.

Table 7 Are dogs in your community usually allowed to roam freely vs. dog bite occurrence

						95% Confidence Interval	
Predictor	Estimate	SE	Z	p	Odds ratio	Lower	Upper
Intercept	0.35	0.135	2.59	0.01	1.42	1.089	1.85
Are dogs in your community usually allowed to roam freely?:							
No – Yes	0.423	0.259	1.63	0.102	1.53	0.919	2.54
Sometimes – Yes	0.816	0.27	3.02	0.003	2.26	1.331	3.84

Note. Estimates represent the log odds of "Dog bite = No" vs. "Dog bite = Yes"

DISCUSSION

Dog ownership was not significantly associated with dog bite occurrence, although households that owned dogs had slightly higher odds of reporting dog bites compared with households that did not own dogs. This finding differs from studies conducted in Brazil and other settings which have reported dog ownership as an important risk factor for dog bite occurrence because increased contact with dogs creates more opportunities for bites (Constantino et al., 2023; Westgarth, 2020). However, the finding is consistent with evidence suggesting that dog bites may occur regardless of ownership status, particularly in communities where free-roaming and community dogs are common (Alberghina, 2024). In Siaya County, non-dog-owning households may still experience substantial exposure to dogs through interactions with neighbors' dogs, community dogs, and stray dogs, thereby reducing the difference in risk between dog-owning and non-dog-owning households.

Knowledge level was significantly associated with dog bite occurrence. Households with inadequate knowledge had substantially higher odds of reporting dog bites compared with households that had adequate knowledge. This finding supports previous studies that identified knowledge and awareness as important determinants of dog bite prevention practices (Li et al., 2021). Individuals with inadequate knowledge may be less likely to recognize risky interactions with dogs, supervise children appropriately around dogs, or implement preventive measures that reduce exposure. The qualitative findings further supported this observation, with key informants reporting considerable variation in community awareness regarding dog bite prevention. Although many

community members were aware that dog bites could be dangerous, gaps remained regarding practical prevention measures and appropriate responses following exposure. These findings highlight the importance of continuous community education and risk communication as part of rabies prevention programs.

Dog roaming behaviour was not significantly associated with dog bite occurrence, although households reporting freely roaming dogs experienced the highest proportion of dog bites. A previous study has identified free-roaming dogs as a major risk factor for dog bites (Khan et al., 2023). However it contrasts with a study that revealed that risk was not from wandering dogs but rather from owned dogs (Reese & Vertalka, 2020). One possible explanation is that free-roaming dogs are common throughout the study area, resulting in relatively uniform exposure across households. Additionally, responsible dog ownership practices may vary among households, reducing the direct effect of roaming behaviour on bite occurrence. Nonetheless, the higher proportion of dog bites among households reporting free-roaming dogs suggests that interventions promoting responsible dog confinement could contribute to reducing bite risk.

Cultural beliefs related to dogs were not significantly associated with dog bite occurrence. Although households reporting cultural beliefs had a higher proportion of dog bites than those without such beliefs, the association was not statistically significant. This finding suggests that cultural perceptions may influence attitudes toward dogs but may not directly affect exposure to dog bites. Similar observations have been reported in studies where behavioural and environmental factors were found to play a greater role in determining dog bite risk than cultural beliefs alone (Westgarth, 2020).

Households reporting that children in the community play with dogs experienced a higher proportion of dog bites compared with those reporting that children did not play with dogs, although the association was not statistically significant. This finding is consistent with evidence indicating that children are particularly vulnerable to dog bites because they frequently interact with dogs and may be unable to recognize signs of aggression (Westgarth, 2020). Qualitative findings from key informants further highlighted that children often approach or play with dogs without appreciating the associated risks. Although statistical significance was not achieved, the observed trend reinforces the need for targeted educational interventions aimed at improving child safety around dogs.

The effectiveness of animal control services emerged as one of the most important community-level factors associated with dog bite occurrence. Households that perceived animal control services as ineffective had significantly higher odds of reporting dog bites compared with households that considered such services effective. This finding is consistent with a previous study emphasizing the importance of effective dog population management in reducing dog bite incidence (Alfahad et al., 2023). Effective animal control services help reduce the number of stray and uncontrolled dogs, improve vaccination coverage, and facilitate rapid response to reports of aggressive dogs. Qualitative findings indicated that animal control services in Siaya County face challenges related to limited resources and personnel, which may reduce their effectiveness. Strengthening animal control systems could therefore play a critical role in reducing dog bite occurrence and advancing rabies elimination efforts.

Limitation

Data on dog bites was based on respondent recall, which may have introduced recall bias. A prospective study design is recommended to address this bias.

CONCLUSION AND RECOMMENDATIONS

Knowledge level and effectiveness of animal control services were the key factors associated with dog bite occurrence among households in Siaya County. The county government should prioritize the implementation and enforcement of responsible dog ownership policies, including dog registration, routine rabies vaccination and measures to reduce the population of free-roaming dogs. Strengthening collaboration between the veterinary and public health sectors through a One Health approach would enhance coordinated surveillance and rapid response to dog bite incidents. Health education should be delivered through community health promoters, health facilities as well as mass media to increase awareness of responsible dog ownership and dog bite prevention.

Integrating these interventions with improved waste management, which reduces food sources for stray dogs, could further contribute to lowering the risk of dog bite incidents.

Recommendations for Further Research

1. Further studies should employ longitudinal study designs to estimate the relative risk of dog bites among different population groups in Siaya County
2. Further studies should employ a cross-sectional design covering both school holiday and non-holiday periods to determine whether school attendance patterns influence the occurrence of dog bites among households in Siaya County.

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Competing Interest

The authors declare no competing interests.

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