

Parasites Associated with Dog bites: Occurrence, Risks, and Public Health Implications

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ABSTRACT:

This study assessed awareness of parasitic risks associated with dog bites, identified common canine parasites, and examined contributing risk factors. Respondents aged >20 and <51 years included dog owners, bite victims, healthcare workers, and veterinary staff. 100% of the respondents were aware that parasites could be transmitted through dog bites, with most associating bites only with rabies. Common parasites identified in dogs included fleas and ticks (100%), *Toxocara canis* (97.2%), *Ancylostoma caninum* (75.6%), *Sarcoptes scabiei* (52.8%) and *Dipylidium caninum* (39.6%). Key risk factors included Outdoor defecation by dogs (95.6%), Poor dog restraint practices (88.4%), irregular deworming and vaccination (82.8%) High stray dog population (78.4%) and Children playing with infected dogs (39.2%). The findings highlight low awareness of parasitic transmission and the need for improved public education and veterinary care to reduce infection risks, especially among children.

Keywords: Parasites, Dog bites: Occurrence, Risks, Public Health Implications

INTRODUCTION:

Dog bites are common worldwide especially among the pediatric population and thus pose a major public health challenge worldwide (Eslahi *et al.*, 2022; O'Hara, 2024; Ramgopal *et al.*, 2018). While rabies remains the most feared consequence of dog bites, dogs also harbor a wide range of parasites, endo parasites and ectoparasites, which may be transmitted to humans through bites or through contamination of bite wounds. These parasites include helminths like *Toxocaracanis*, *Ancylostoma caninum*, *Dipylidium caninum*, protozoa such as *Giardia duodenalis*, and ectoparasites such as fleas, ticks, and mites (Gebremedhin *et al.*, 2021; Kohansal *et al.*, 2017; Kostopoulou *et al.*, 2017). This is a bigger concern especially in underdeveloped countries where stray dogs roam around and are likely unvaccinated (Massei *et al.*, 2017). Apart from the fact that stray dogs are prevalent in low resource areas, limited veterinary care, poor sanitation, and low public awareness create additional problems. Parasitic infections acquired through dog bites may be often overlooked, misdiagnosed, or mistaken for purely bacterial wound infections, allowing them to cause chronic conditions.

Despite widespread dog ownership and the frequency of dog bites, awareness about the parasitic infections

associated with these bites remains low (Kohansal *et al.*, 2017). Many dog owners do not deworm their pets regularly, and healthcare workers tend to focus primarily on rabies prophylaxis and bacterial infection control. As a result, parasitic transmission remains a neglected component of dog-bite treatment. This ignorance predisposes victims to complications such as cutaneous larva migrans, visceral larva migrans, ocular toxocariasis, scabies, and even hydatid disease. Failure to address parasitic infections may lead to delayed recovery and increase the burden on healthcare systems.

METHODOLOGY:

Study Area:

The study was conducted in Orji community, located in Owerri North Local Government Area. The area is semi-urban, with a significant population of both owned and stray dogs. Veterinary facilities are limited, and dog vaccination and deworming rates are generally low.

Study Population:

The target population included Dog owners, Veterinary practitioners, Dog bite victims who visited local hospitals, Medical personnel involved in wound care and Community residents with experience handling dogs

Sample Size and Sampling Technique:

A sample size of 250 respondents was selected using a simple random sampling technique to ensure equal representation. Purposive sampling was used to select veterinarians and hospital staff due to their expertise.

Data Collection:

Data were collected using a well Structured questionnaires and Indepth Interview

Research Design:

A descriptive research design was adopted to examine the prevalence and types of parasites associated with dog bites. Both qualitative and quantitative approaches were used.

Questionnaire Administration:

Researchers visited households, veterinary clinics, and hospitals. Questionnaires were administered in person to ensure high response rate. Interviews were conducted with professionals to gather technical information.

Data Analysis:

Quantitative data were analyzed using descriptive statistics (percentages, frequency tables, charts).

RESULTS:

Demographic characteristics of the Respondents (Table 1) showed that female respondents (59.6%) were higher than

male respondents (40.4%). Age wise showed that people of the age group 31-40 years recorded the highest respondents followed by 41-50 years (26.8%) while >20 years (10.8%) recorded the least respondents. Also people that had tertiary education (60.8%) recorded the highest respondents followed by secondary education (34.8) while primary education (4.4%) recorded the least respondents. However, Health workers (34.8%) recorded the highest respondents in occupation followed by Others (Artisans, Traders, Farmers etc) (17.2%) while civil servants (7.6%) recorded the least respondents. Table 2 shows Respondents awareness of parasitic risks and source of information. From the table 100% of the respondents are aware of parasitic risks with 68.8% of the respondents gained their information from Veterinary staff/Health workers, 12.4% from Family and friends while 11.2% gained their information from radio/TV. Table 3 depicts common parasites identified in Dogs. From the table, the most identified parasite was Fleas and ticks (100.0%) followed by *Toxocara canis* (97.2%), *Ancylostoma caninum* (75.6%), *Sarcoptes scabiei* (52.8%) while *Dipylidium caninum* (39.6%) recorded the least respondents. Risk factors identified by the respondents (Table 4) showed that Outdoor defecation by dogs (95.6%) recorded the highest respondents followed by Poor dog restraint practices (88.4%), irregular deworming and vaccination (82.8%) while Children playing with infected dogs (39.2%) recorded the least respondents.

Table 1: Demographic characteristics of the Respondents

Variables	Respondents (%)
Sex	
Male	101 (40.4)
Female	149 (59.6)
Age (years)	
>20	27 (10.8)
21-30	49 (19.6)
31-40	74 (29.6)
41-50	67 (26.8)
<51	33 (13.2)
Education	
Primary	11 (4.4)
Secondary	87 (34.8)
Tertiary	152 (60.8)
Occupation	
Health workers	82 (34.8)
Students	43 (17.2)
Civil servants	19 (7.6)
Veterinary staff	32 (12.8)
Others	69 (27.6)

Table 2: Respondents awareness of parasitic risks and source of information

Variables	Respondents (%)
Awareness of parasitic risks	
Yes	250 (100.0)
No	0 (0.0)
Source of information	
Radio/TV	28 (11.2)
Newspapers	19 (7.6)
Family/Friends	31 (12.4)
Veterinary staff/Health workers	172 (68.8)

Table 3 common parasites identified in Dogs

Common parasites	Respondents (%)
<i>Toxocara canis</i>	243 (97.2)
<i>Ancylostoma caninum</i>	189 (75.6)
<i>Dipylidium caninum</i>	99 (39.6)
Fleas and ticks	250 (100.0)
<i>Sarcoptes scabiei</i>	132 (52.8)

Table 4: Risk factors identified by the respondents

Risk factors	Respondents (%)
High stray dog population	196 (78.4)
Irregular deworming and vaccination	207 (82.8)
Children playing with infected dogs	98 (39.2)
Outdoor defecation by dogs	239 (95.6)
Poor dog restraint practices	221 (88.4)

DISCUSSION:

This study examined parasites associated with dog bites, identified common parasites in dogs, explored transmission routes, assessed public awareness, and provided preventive recommendations. Results show that dog parasites are widespread, and that awareness is low. Transmission occurs through saliva, wound contamination, and ectoparasites. Children are the most affected group. The findings align with (Overgaauw and van Knapen, 2013) who stated that up to 70% of dogs in low-resource settings carry zoonotic parasites. The low awareness level mirrors global observations that parasitic infections are neglected in dog bite management (O’Hara, 2024). Parasitic infections such as toxocariasis and

hookworm disease pose serious health risks (Kohansal et al 2017). Children are most vulnerable due to close contact with dogs and poorer hygiene habits. It can be inferred that poor sanitation and inadequate veterinary care significantly contribute to parasitic transmission Hotez *et al* (2008). Public awareness programs are crucial in reducing parasitic transmission (Kohansal et al 2017). Many respondents expressed interest in learning more about proper dog care, showing potential for successful education campaigns. Parasites associated with dog bites constitute an often-overlooked yet significant public health problem. Effective control requires attention from healthcare workers, veterinarians, dog owners, and government agencies. Proper deworming, public

education, and improved dog management practices can drastically reduce parasitic transmission.

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