



## A retrospective study of parasitic diseases of dogs and cats in Jalingo, North-Eastern Nigeria between 1998 and 2008

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### Abstract

A retrospective study was conducted to analyze the parasitic diseases diagnosed in dogs and cats at the Jalingo Veterinary Hospital, between 1998 and 2008. Of the 6088 cases examined within the study period, helminthosis had the highest occurrence of 3041 (49.95%) which was statistically significant ( $p < 0.05$ ). This was followed by Ectoparasites and Haemoparasites (babesiosis) having 1922 (31.57%) and 1125 (18.48%) respectively. Yearly analysis showed, 1998 had 1204 (19.78%) number of cases which was the highest. This was followed by 1999 with 1146 (18.82%) and 2002 with 832 (13.66%). The year 2008 recorded 598 (9.82%) followed by 2003 with 561 (9.21%), then 2004 with 446 (7.33%), 2000 with 359 (5.90%) and 2005 with 322 (5.29%). The years 2001 and 2007 had the lowest number of cases and were 314 (5.16%) and 306 (5.03%) respectively. The differences between yearly distribution of the cases was statistically significant ( $p < 0.05$ ). Dogs and cats recorded 6077 (99.18%) and 11 (0.18%) number of cases respectively. Among dogs, 2663 (43.82%) of the parasitic diseases were encountered in adults while 3414 (56.18%) of the diseases were in young. In cats, 4 (36.36%) of the diseases occurred in adults while 7 (63.64%) occurred in the young. Based on sex 2104 (34.62%) of the cases occurred in male dogs while 3973 (65.38%) occurred in females. In cats, 2 (18.18%) of the cases occurred in male cats while 9 (81.82%) of the cases were in female. The differences in the distribution of cases in relation to age and sex were statistically insignificant ( $p > 0.05$ ).

**Keywords:** Cat, dog, Jalingo, parasitic diseases, public health.

### Introduction

In Nigeria, dogs are increasingly kept as pet, for security, hunting and breeding (Kamani *et al.*, 2010). Unlike the dog however, cats are kept principally as pets. In general, dog and cats contribute to the general well being of their owners particularly children (Robertson *et al.*, 2000). Despite these benefits to man, some endoparasitic infections and ectoparasitic infestations of dogs and cats pose a great threat to public health due to the zoonotic problems associated with their occurrence.

Parasitic diseases of dogs and cats cause ocular larva migrans (Schantz *et al.*, 1980), neurologic (Marmor *et al.*, 1987), dermatologic (Malgor *et al.*, 1996), respiratory (Buijs *et al.*, 1997), and enteric disorders (Khoshoo *et al.*, 1994) in man. Rural areas have been implicated as a factor in the spread of these zoonotic parasites (Okaeme, 1985). However, factors such as biotic potential, high stocking density and suppressed immune level favour the spread of parasitic diseases (Urquhart *et al.*, 1987).

Reports on the epidemiology of diseases from various regions of Nigeria suggest that parasitic diseases are the most prevalent diseases reported (Ugochukwu and Ephraim, 1985; Williams *et al.*, 2000; Salihu *et al.*, 2005). Regardless of this, there is paucity of information on the

prevalence of parasitic disease of dogs in North-eastern Nigeria, except those reported by Nwosu *et al.* (1990) and Mbaya *et al.* (2008) who analyzed the prevalence of parasitic diseases of dogs in Maiduguri. This study will therefore provide information that will assist government in formulating policies on the parasitic diseases of dog and cats prevalent in the study area as well as their zoonotic implications and public awareness to the community residing in the area.

### Materials and Methods

The study was conducted by collecting clinical records of all diagnosed and confirmed cases of parasitic diseases of dogs and cats presented to the State Veterinary Hospital Jalingo from January 1998 – December 2008. Diagnosis of each disease was carried out in the clinic in the conventional way by the use of case history and clinical signs (Genchi *et al.*, 2007) while, cases were confirmed in the laboratory by collecting blood and faecal samples and examining them with the help of a light microscope (Genchi *et al.*, 2007) for the presence of different parasites. The data generated were analyzed demographically using descriptive statistics such as percentages and frequency (Gomez and Gomez, 1984).

The differences in the distribution of cases based on disease, year, age, and sex were compared using Chi square test. Values of  $p < 0.05$  were considered significant.

### Results

Of the 6088 cases encountered within the study period, helminthosis had the highest occurrence of 3041 (49.95%) followed by Ectoparasites and Haemoparasites (Babesiosis) with 1922 (31.57%) and 1125 (18.48%) number of cases respectively (Table 1). Based on years, 1998 had the highest occurrence of 1204 (19.78%) followed by 1999 with 1146 (18.82%) and 2002 with 832 (13.66%). It was followed by 2008 with 598 (9.82%), 2003

with 561 (9.21%), 2004 with 446 (7.33%), 2000 with 359 (5.90%) and 2005 with 322 (5.29%). The year 2001 and 2007 had the lowest occurrence of 314 (5.16%) and 306 (5.03%) respectively. Dogs had the highest occurrence of 6077 (99.18%) while cats had 11 (0.18%) as shown in table 2. Among dogs, 2663 (43.82%) of the parasitic diseases occurred in adults while 3414 (56.18%) were in the young. In cats, 4 (36.36%) of this diseases occurred in adults while 7 (63.64%) occurred in the young (Table 3). Based on sex 2104 (34.62%) of the cases occurred in male dogs while 3973 (65.38%) occurred in females. Among cats, 2 (18.18%) of the cases occurred in male cats while, 9 (81.82%) occurred in females.

**Table 1:** Distribution of parasitic diseases in dog and cats presented to the State Veterinary Hospital Jalingo between 1998 and 2008.

Disease	dog	cat	Total	Prevalence rate (%)
Babesiosis	1125	0	1125	18.48
Ectoparasitism	1922	0	1922	31.57
Helminthosis	3030	11	3041	49.95
Total	6077	11	6088	100.00

(P value = 0.0115,  $X^2 = 11.04$ , df = 3)  
( $X^2$  = Chi square, df = degree of freedom)

**Table 2:** Yearly distribution of parasitic diseases in dogs and cats presented to the State Veterinary Hospital Jalingo between 1998 and 2008.

Year	dogs	Cats	Total	Prevalence (%)
1998	1204	0	1202	19.78
1999	1146	0	1146	18.82
2000	359	0	359	5.90
2001	314	0	314	5.16
2002	830	2	832	13.66
2003	559	2	561	9.21
2004	439	7	446	7.33
2005	322	0	322	5.29
2006	NA	NA	NA	NA
2007	306	0	306	5.03
2008	598	0	598	9.82
Total	6077	11	6088	100.00
Prevalence	99.82	0.18	100	

(P value < 0.0001,  $X^2 = 56.51$ , df = 10)

N/A- Not available: Records were incomplete, ambiguous or were not available as at the time of this report.

**Table 3:** Age distribution of parasitic diseases in dogs and cats presented to the State Veterinary Hospital Jalingo between 1998 and 2008

Animal specie	No. examined	Age group	
		Adult	Young
dogs	6077 (100%)	2663 (43.82%)	3414 (56.18%)
cats	11 (100%)	4 (36.36%)	7 (63.64%)
total	6088	2667	3421

(P value = 0.8462,  $X^2 = 0.03761$ , df = 1)

Young – puppies and kittens for dogs and cats respectively.

### Discussion

The high prevalence of helminthosis recorded in this study is similar to earlier reports about the disease in dogs in Maiduguri (Nwosu *et al.* 1990) and in Nsukka

(Anene *et al.* 1996). However, it is lower than the report of Ezeokoli *et al.* (1984) in Zaria and the report of Mbaya *et al.* (2008) in Maiduguri despite the fact that Maiduguri and Jalingo fall within the North-eastern region. This may

be attributed to low level of Veterinary services available in Jalingo. Pet owners rely solely on the State Veterinary hospital for Veterinary services giving room for quacks to proliferate. The Ectoparasites recorded in this study are higher than earlier reports in Maiduguri (Mbaya *et al.*, 2008), probably due to poor management such as irregular chemical bath and dusting of dogs and cats. A total of 1125 (18.48%) cases of babesiosis were encountered during the study. The high density of infected vectors in Jalingo (Karshima and Adeyeye, 2010) may be responsible for this.

The pattern of the disease decreased from 1204 (19.78%) in 1998 to 314 (5.16%) in 2001. This is similar to the reports of Karshima and Adeyeye (2010) in livestock in Jalingo. The disease rose to 832 (13.66%) in 2002 but decreased gradually until it rose again to 598 (9.83%) in 2008. The rise may probably be due to high cost of Veterinary services which deter pet owners from presenting their animals for treatment. A total of 6077 (99.82%) cases were encountered in dogs against 11 (0.18%) encountered in cats which is consistent with the reports of Ebbo *et al.* (2003) in Sokoto. The choice of dogs as pet *in-lieu* of cats may be responsible for this. Puppies and kittens had higher number of cases of 3414 (56.18%) and 7 (63.64%) respectively when compared to adult dogs and cats. The high occurrence of parasitic diseases in this age group may be attributed to similar reasons of age susceptibility and immunity outlined by

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- Mbaya *et al.* (2008) in dogs in Maiduguri. Young animals are generally more susceptible to disease than older animals.
- Female dogs and cats had higher number of cases when compared with the male counterparts. This contradicts the report of Mbaya *et al.* (2008) in Maiduguri. The stress the females undergo during pregnancy and parturition might reduce their immune status and thus may be responsible for this finding.
- The study showed high occurrence of parasitic diseases in dogs and cats within the study area. Parasites of zoonotic importance have been reported in dogs and cats in Nigeria (Okaeme, 1985; Ugbomoiko *et al.*, 2008) Considering the public health implication, measures should be taken to reduce the risk of transmission to humans particularly children. Regular public awareness through health education targeting school children will go a long way to reduce the risk of infection. Government should also formulate policies that will encourage pet owners to vaccinate and adequately care for their pets as well as patronized qualified Veterinary Doctors.

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