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Research Article

Prevalence of Clinical Conditions in Dogs and Cats at Teaching Veterinary Hospital (TVH) in Chittagong Veterinary and Animal Sciences University, Bangladesh

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ABSTRACT

The study was conducted to estimate the prevalence of clinical conditions in dogs and cats admitted at Teaching Veterinary Hospital (TVH) in Chittagong Veterinary and Animal Sciences University (CVASU) during the period of January to December 2012. A total of 424 clinical cases, 324 (76.42%) dogs and 100 (23.58%) cats were observed with different clinical conditions. These conditions were primarily categorized as medicinal cases, surgical cases and vaccination and health check up. Medicinal cases occupied highest number in dogs 167 (51.54%) and cats 54 (54%) followed by surgical cases 77(23.76%) in dogs and 29 (29%) in cats and vaccination and health check up 80 (24.69%) in dogs and 17(17%) in cats. Among of the medicinal cases parasitic diseases occupied highest prevalence 51 (15.74%) in dogs. Prevalence of clinical conditions was analyzed on the basis of age, sex, breed and season. Prevalence of ectoparasitic and infectious diseases in dogs was higher in winter with significant P-value ($P \leq 0.05$). Prevalence of clinical conditions in response to age, sex and breed were not significant ($P > 0.05$). Keeping in view these findings, an appropriate control strategy could be designed and applied, which helps to prevent of these disease conditions in study area.

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INTRODUCTION

There are many pet animals throughout the world, especially dogs and cats play an important role in the societies of Chittagong in Bangladesh. They are important companions in many households, contributing to the physical, social and mental development of children and the well-being of their owners (Robertson et al., 2000). Pet owners are reported to less visit doctor, use fewer medicines and maintain normal blood pressure and cholesterol levels than non-pet owners (Headey and Krause, 1999). Dogs and cats offer significant benefits to our society like companionship, play with children, guard the house and alert the owner from any adverse condition, used as gift to special one and economic purpose. However, in spite of the beneficial effects, some health hazards associated with owning a pet. Dogs and cats reared in the same environmental condition so there is a possibility to transmit various zoonotic diseases. Animal bites and allergy to pets are the commonest health hazards, however a diverse range of infections, including parasitic, bacterial, fungal and viral diseases are transmitted to humans from domestic pets (Plant et al., 1996; Geffray, 1999).

Therefore, the objective of this study to determine the prevalence of clinical conditions in dogs and cats presented at Teaching Veterinary Hospital (TVH) in Chittagong district of Bangladesh. These data are helpful for the veterinary industry and the pet owners to take the necessary preventive measure to control these diseases among dogs, cats and these data also useful for control of different types of zoonotic diseases like rabies control program. The pet food, pharmaceutical and pet accessories industries are also interested in knowing where to focus their marketing strategies, and this demographic information are very much important for this marketing policy.

MATERIALS AND METHODS

Study area and population

The study was conducted from January to December 2012, at Teaching Veterinary Hospital in Chittagong Veterinary and Animal Sciences University, Chittagong district of Bangladesh. A total of 424 pets were admitted where 324 dogs and 100 cats.

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Clinical Case investigation record

The pets were admitted TVH with specific individual case registration number having full history of vaccination, clinical and physical examination, diagnosis, treatments, advice and prognosis. In case of health check up clinical examination was performed on the pets for soundness. Age of the dog was categorized as young (≤ 6month), adult (7-20 month) and old (> 21 month) and in case of cat young (≤6) month), adult (7-12 month) and old (>13 month) according to the different age of puberty. Breed of the dogs and cats were determined by "The Pedigree® guide to the dog breeds of the world" and "Cat Breeds of the world, Whiskas®". The year was divided into three seasons namely summer (March to June), rainy (July to October) and winter (November to February) according to the climate of Bangladesh. Clinical conditions were categorized as medicinal, surgical and vaccination and health checkup. Medicinal cases were subcategorized as disease of digestive and respiratory system, parasitic disease, infectious and non infectious diseases and special sense organ. Surgical cases were subcategorized as general surgery include abscess, myiasis, accidental injury, wound, trauma, hematoma, tumor and nail trimming, special surgery include castration, ligation, ovariectomy, hernia and laparotomy and orthopedic surgery.

Statistical analysis

Data were collected from clinical case investigation record to Microsoft Excel 2007@ ® spread sheet stored separately and exported to analytical software STATA 11.2® 2011. Using 2X2 table and measures of association was determined using Chi-square test, values of $p \leq 0.05$ were considered significant.

Table-1: Prevalence of clinical conditions in dogs and cats admitted to the Teaching Veterinary Hospital (TVH) in CVASU during the year of 2012

Parameters of clinical conditions	Number of dogs (%)	Number of cats (%)
Digestive disorder	19 (5.86)	4 (4)
Loss of appetite	21 (6.48)	10 (10)
Digestive system	**40 (12.34%)**	**14 (14)**
Upper respiratory tract infection	12(3.70)	3 (3)
Pneumonia	4(1.23)	4(4)
Respiratory System	**16(4.94)**	**7(7)**
Ectoparasite	29(8.95)	7(7)
Endoparasitic	22(6.79)	4(4)
Parasitic diseases	**51 (15.74%)**	**11(11)**
Infectious diseases	15(4.62)	5(5)
Noninfectious diseases	10(3.08)	9(9)
Infectious and non infectious diseases	**25 (7.72%)**	**14(14)**
Eye disorders	5(1.54)	4(4)
Ear infection	8(2.47)	0(0)
Skin diseases	22(6.79)	4(4)
Special sense organ	**35 (10.80%)**	**8(8)**
General surgery	56(17.28)	14(14)
Special surgery	9(2.77)	7(7)
Orthopedic surgery	12(3.70)	8(8)
2. Surgical cases	**77 (23.76%)**	**29(29)**
3. Vaccination & Health check up	**80 (24.69%)**	**17(17)**
1.Total Medicinal cases	**167(51.54)**	**54 (54)**
Total conditions of dogs and cats	**324 (100%)**	**100 (100)**

*URTI-Upper Respiratory Tract Infection [1]Diseases

RESULTS

A total of 424 cases of different clinical conditions were encountered during the study period 2012, among of them dogs and cats were 76.42% and 23.58%. Medicinal cases comprise highest percentage (dogs 51.54% and cats 54%) in compare to surgical cases (dogs 23.76% and cats 29%) and vaccination and health check up (dogs 24.69% and cats 17%). Among of the medicinal cases highest prevalence was found in parasitic diseases 15.74% in dogs. Ectoparasitic diseases showed higher prevalence (dogs 8.95% and cats 7%) in compare to endoparasitic diseases. After that diseases prevalence of digestive system (dogs 12.34% and cats 14%), within the digestive system loss of appetite (dogs 6.48% and cats 10%).

Disease prevalence of special sense organ (dogs 10.80% and cats 8%). Prevalence of clinical diseases were found in skin problem (dogs 6.79% and cats 4%), infectious diseases (dogs 4.62% and cats 5%), non infectious diseases (dogs 3.08% and cats 9%), upper respiratory tract infection (dogs 3.7% and cat 3%), pneumonia (dogs 1.23% and cat 4%), general surgery (dogs 17.28% and cats 14%), special surgery (dog 2.77% and cat 7%) and orthopedics (dog 3.7% and cat 8%) **(Table-1).**

Dogs and cats were divided into age groups as young, adult and old. Result showed that the prevalence of clinical conditions were highest in young age 117 (36.1%) in dogs and 47(47%) in cats. Prevalence of clinical condition also high in old pets were 115 (35.5%) in dogs and 32(32%) in cats, but lowest prevalence found in adult pets as 92 (28.4%) in dog and 21(21%) in cats. So that prevalence of clinical conditions was higher in young and old pets than

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adult one. Prevalence of clinical conditions in dogs and cats according to age group are shown in the **graph-1.**

Table-2: Prevalence of clinical conditions in dogs and cats according to the season

Parameters	Total number of Dog N=324				Total number of Cat N=100			
	Summer	Rainy	Winter	P- Value	Summer	Rainy	Winter	P-Value
	No (%)				No and (%) are same			
Digestive[1]	3(0.92)	5(1.54)	11(3.4)	0.456	0	2	2	0.627
Loss of appetite	5(1.54)	8(2.47)	8(2.47)		2	4	4	
*URTI	5(1.54)	5(1.54)	2(0.61)	0.076	0	1	2	0.233
Pneumonia	0(00)	1(0.30)	3(0.92)		2	0	2	
Ectoparasitic[1]	5(1.54)	5(1.54)	19(5.9)	0.05*	4	1	2	0.410
Endoparasitic[1]	9(2.77)	6(1.85)	7(2.16)		1	2	1	
Infectious[1]	5(1.54)	1(0.30)	9(2.77)	0.04*	0	1	4	0.163
Noninfectious[1]	2(0.61)	5(1.54)	3(0.92)		4	2	3	
Eye disorders	1(0.30)	0(00)	4(1.23)	0.618	2	1	1	0.513
Ear infection	3(0.92)	2(0.61)	3(0.92)		0	0	0	
Skin diseases	6(1.85)	5(1.54)	11(3.4)		2	2	0	
General surgery	19 (5.9)	18(5.6)	19 (5.9)	0.177	6	3	5	0.220
Special surgery	6(1.85)	1(0.30)	2(0.61)		1	2	4	
Orthopedics	7(2.16)	1(0.30)	4(1.23)		6	1	1	
Vaccination and Health check up	27(8.3)	32(9.9)	21(6.5)		2	5	10	
Total 324 (100)	**103(31.8)**	**95(29.3)**	**126(38.9)**		**32**	**27**	**41**	**100**

*Upper Respiratory Tract Infection. [1]Diseases *Significant P ≤ 0.05

Table-3: Prevalence of clinical conditions in dogs and cats according to the Breeds

Parameters	Local Breed	German Shepherd	Spitz	Samoyed	Spaniel	Others Exotic	P-Value	Local cat	Exotic cat	P-Value
Digestive[1]	9(2.8)	2(0.6)	3(0.9)	1(0.3)	0(00)	4(1.23)	0.106	5	5	1.00
Loss of appetite	7(2.2)	9(2.8)	0(00)	1(0.3)	0(00)	4(1.23)		2	2	
URTI*	5(1.5)	1(0.3)	0(00)	0(0)	2(0.6)	4(1.2)	0.630	3	0	0.350
Pneumonia	3(0.9)	0(00)	0(00)	0(0)	0(00)	1(0.30)		3	1	
Ectoparasite	16(4.9)	3(0.9)	4(1.3)	1(0.3)	0(00)	5(1.54)	0.246	4	3	0.819
Endoparasite	8(2.47)	6(1.9)	1(0.3)	1(0.3)	2(0.6)	4(1.23)		2	2	
Infectious[1]	9(2.77)	0(00)	3(0.9)	0(00)	1(0.3)	2(0.61)	0.323	4	1	0.649
Noninfectious[1]	6(1.85)	1(0.3)	0(00)	1(0.3)	0(00)	2(0.61)		8	1	
Eye disorders	2(0.61)	2(0.6)	0(00)	0(00)	0(00)	1(0.30)	0.719	4	0	0.285
Ear infection	3(0.92)	2(0.6)	1(0.3)	0(00)	1(0.3)	1(0.30)		0	0	
Skin diseases	8(2.47)	3(0.9)	4(1.2)	1(0.3)	0(00)	6(1.85)		3	1	
General surgery	33(10)	9(2.7)	4(1.2)	4(1.2)	0(00)	6(1.85)	0.313	10	4	0.792
Special surgery	6(1.85)	0(00)	1(0.3)	1(0.3)	0(00)	1(0.30)		4	3	
Orthopedics	8(2.47)	0(00)	0(00)	0(00)	0(00)	4(1.23)		5	3	
Vaccination & Health checkup	41 (12.65)	9 (2.77)	12 (3.70)	2 (0.6)	4 (1.23)	12 (3.7)		7	10	
Total 324 (100)	**164 (50.61)**	**47 (14.5)**	**33 (10.2)**	**13 (4.01)**	**10 (3.08)**	**57 (17.6)**		**64**	**36**	**100**

*URTI-Upper Respiratory Tract Infection [1]Diseases

Prevalence of clinical conditions in dogs and cats in relation with their sex revealed that highest numbers of male pets were admitted TVH. Based on sex 234(72.2%) of the clinical cases occurred in male dogs while 90 (27.8%) occurred in female dogs. In cats 60 (60%) of the cases occurred in male cat, 40(40%) occurred in female cats. So that result revealed that there was highest and significant number male dogs and cats admitted at TVH over the female dogs and cats. Prevalence of clinical conditions in dogs and cats according to their sex are shown in the **graph-2.**

Prevalence of clinical conditions in dogs and cats due to seasonal variation revealed that highest prevalence was found in winter season. Based on seasonal variation 126(38.9%) cases occurred in dogs and 41 (41%) occurred in cats during the winter season, in summer 103 (31.8%) in dogs and 32(32%) in cats on the other hand lowest prevalence was found in rainy season 95(29.3%) in dogs and 27 (27%) in cats. **(Table-2)**

Among of the medicinal cases highest prevalence was found in parasitic disease in dogs 51 (15.74%). The prevalence of ectoparasitic diseases 19 (5.9%) in the season of winter which is highest in number over the rainy and

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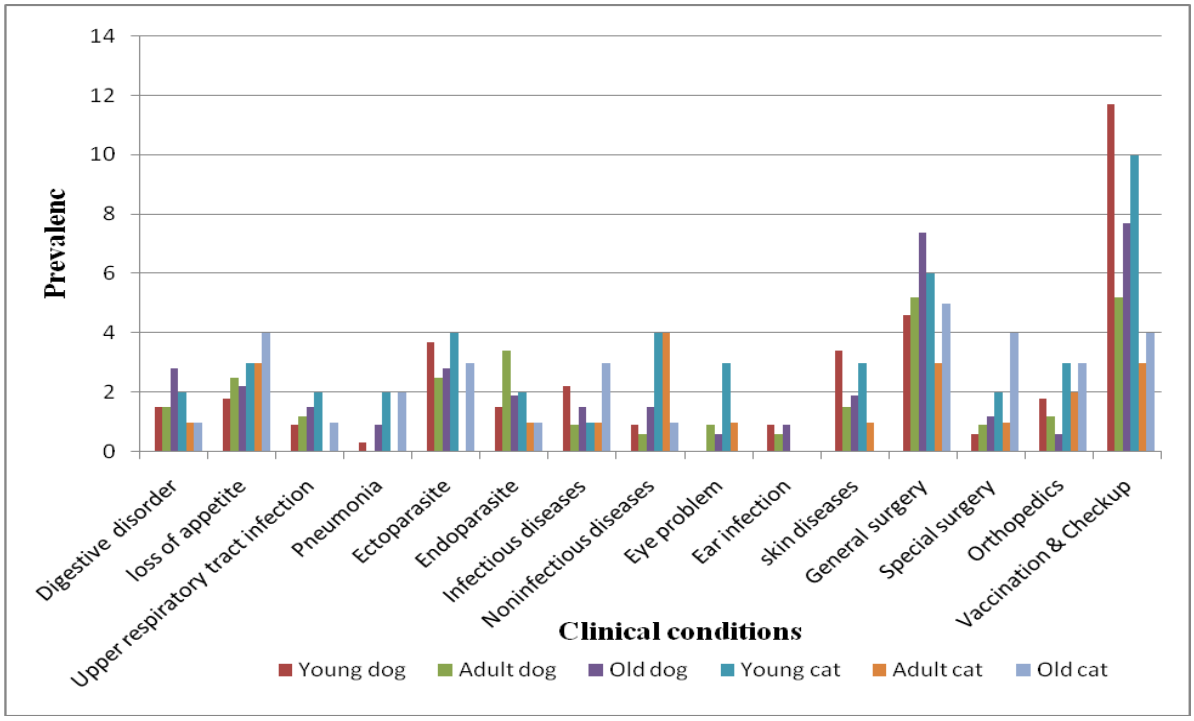
summer season with significant P value (P ≤ 0.05). In winter season pet owners reared dogs with long hair coat which protect them from cold thus enhanced the prevalence of ectoparasitic diseases. Prevalence of infectious disease in winter was significantly higher in compare to summer and rainy season with significant P value (P ≤ 0.05). Prevalence of clinical conditions in dogs and cats in relation with the breed revealed that the highest clinical conditions were found 164 (50.61%) in the local dog breed and 64 (64%) in the local cat breed. In exotic cat prevalence of clinical conditions were 36(36%) while exotic dogs breed occurred 160 (49.39%), among of these exotic dog breed prevalence of clinical conditions were found German shepherd 47 (14.5%), Spitz 33 (10.2%), Samoyed 13 (4.01%), Spaniel 10 (3.08%) and others exotic breeds and cross breed 57 (17.6%). **(Table-3)**

Graph-1: Prevalence of Clinical conditions in dogs and cats according to age group.



DISCUSSION

The documented total clinical conditions 424, among of them 76.42% dogs and 23.58% cats were observed of the present study agreed with the result of Chaudhari and Atsanda (2002) who observed 76.74% dogs and 23.26% cats. In medicinal cases highest prevalence of parasitic diseases were recorded 15.74% during the study period similarity with the findings of Chaudhari and Atsanda (2002) who reported that highest prevalence of parasitic diseases in dog and cats.

The prevalence of ectoparasitic diseases 8.95% in dogs in contrary with the result higher prevalence recorded by Chaudhari and Atsanda (2002) but in cats similar prevalence were reported 7%.Present study showed that the prevalence of endoparasitic diseases 6.79% in dog and 4% in cat, contrarily higher prevalence reported by (Chaudhari and Atsanda , 2002; Edosomwan, Chinweuba , 2012; Subhagata et al., 2012) who observed 19.19% in dog and 26.67% in cat; 28% in dog and 95% in dog respectively. Disease prevalence of the respiratory system in the present study was 16(4.94%) in dogs and 7 (7%) in cats, contrasting with the results of (Tarafder and Samad, 2010; Chaudhari and Atsanda, 2002) who reported respiratory infection 6.70% in dogs; 1.68% in dog and 12% in cat.

The reported prevalence of digestive disorder 5.86% in dogs similarity with the results of Chaudhari and Atsanda (2002) 6.73% diarrhea in dogs but in case of cats it was higher than present study. Prevalence of loss appetite 6.48% in dogs in contrast with the result lower prevalence recorded by Chaudhari and Atsanda (2002) 2.69% anorexia in dogs.

In the present study, the prevalence of infectious disease was found 4.62% in dogs and 5% in cats, but lower prevalence of infectious diseases recorded by Freeman et al., (2006). This variation may be due to different geographical region and period. The prevalence of non infectious diseases of this study was 3.08 % agreed with the results of (Tarafder and Samad, 2010) who recorded prevalence as metabolic and nutritional diseases 3.13%.

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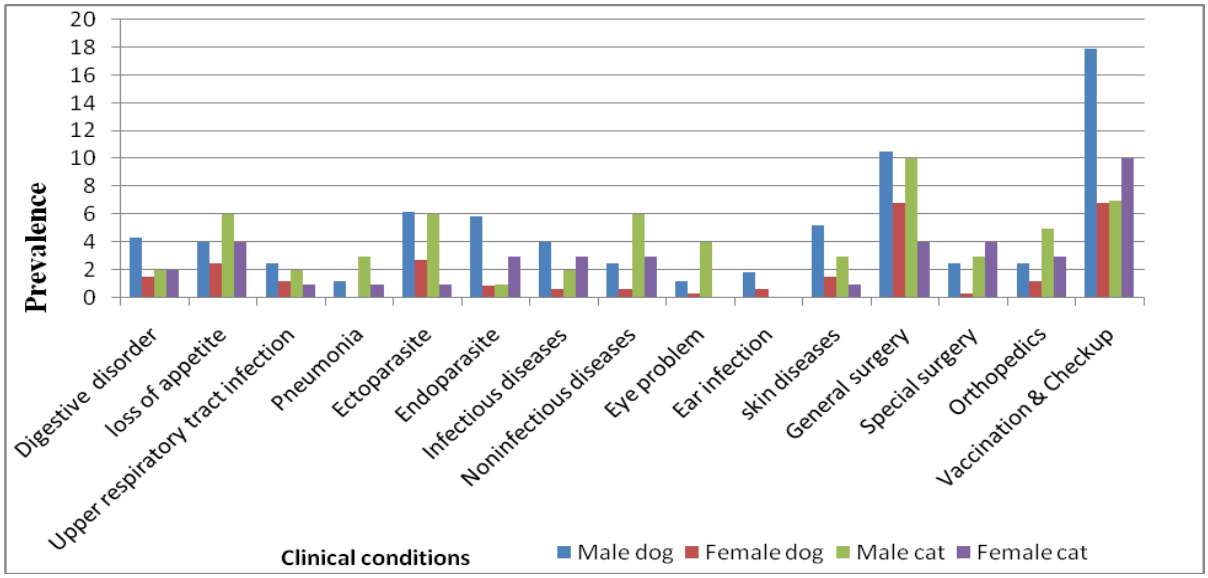

Graph-2: Prevalence of Clinical conditions in dogs and cats based on their sex

The recorded prevalence of skin disease was 6.79% agreed with the results of (Tarafder and Samad, 2010) and disagreed with the results of Freeman et al., (2006) and Chaudhari and Atsanda (2002) who reported lower prevalence 1.26 % and 3.70% in dogs. The reported prevalence of eye problem was 1.54% in dogs agreed with results of Freeman et al., (2006) and combined eye and ear problem of this report agreed with the results of (Tarafder and Samad, 2010).

Prevalence of clinical conditions according to age group in this study was similarity with the results of (Tarafder and Samad, 2010) in old one but dissimilarities with young and adult one. Higher prevalence of clinical conditions was found in local dog breed and German shepherd agreed with the findings of (Tarafder and Samad, 2010). Prevalence of clinical conditions due to seasonal variation highest number was found in winter and summer agreed with the results of (Tarafder and Samad, 2010). Present study showed that dogs (72.2% male and 27.8% female) and cats (60% male and 40% female) were admitted TVH with their clinical conditions, thus the pet owner had their tendency to rear the male pet animal rather than female one due to pet owners unaware about the reproductive physiology of female dogs and cats.

High prevalence of ectopasitic diseases in dogs and cats among different age groups were found in young and old pets over the adult pets, consistency with findings of Sardar et al., (2008). In present study prevalence of ectoparasitic diseases was high and significant ($P \leq 0.05$) in winter season over the summer and rainy season in contrast with the results of Sardar et al., (2008) who reported that lowest prevalence of ectoparasitic diseases in winter due to low temperature and high humidity. This variation may be due to different geographical distribution of the region, but in winter season the pet owners want to protect their animal from cold without clipping. Thus long hair may provide good environmental conditions for the ectoparasitic diseases in dogs and cats.

However the present study provides valuable information of disease prevalence in dogs and cats for the pet owners and veterinarian that parasitic and digestive diseases are widely prevalent health problems in pet animal. Age, sex, season and breed wise prevalence of clinical condition revealed that young and old pets were more prone to diseases than adult pet. Most of the pet owners reared male pet rather than female pets due to different reproductive physiology. Prevalence of ectoparasitic and infectious disease was significantly higher in winter season over the rainy and summer season.

Local dogs and cats breed showed higher prevalence in compare to other exotic breed. So that proper management, vaccination, awareness makes among the pet owners for the prevention and control of these disease conditions in dogs, cats and human.

CONCLUSION

The result of this study has given an overall idea about the prevalence of clinical conditions of dogs and cats at the study area. However, this study would provide foundations for further extensive studies related to these clinical conditions which are necessary to design preventive and control measures against this clinical conditions in Bangladesh.

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CONFLICT OF INTEREST

No conflict of interest

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