

## EPIDEMIOLOGICAL INVESTIGATION OF CLINICAL DISEASES AND CONDITIONS OF PET ANIMALS AT CHITTAGONG CITY AREA, BANGLADESH

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### ABSTRACT

This study was conducted to estimate the proportional prevalence of clinical diseases and conditions in pet animals (dog, cat, and rabbit) attended at S. A. Quaderi Teaching Veterinary Hospital, Chittagong Veterinary and Animal Sciences University (CVASU), Chittagong, Bangladesh. A total of 388 cases of different clinical diseases and conditions were recorded during the study period from October 2016 to January 2017. Among them the overall proportional prevalence of clinical diseases and conditions in dog, cat and rabbit were 44.32%, 34.28% and 21.39% respectively. The medicinal case comprises the highest percentage of diseases as 79.07% and 66.92% in dog and cat, respectively. Among the medicinal cases parasitic diseases were most frequently encountered both in dog (24.42%) and cat (23.31%). Whereas, prevalence of surgical cases were 16.28% in dog and 31.58% in cat and gynecological cases were 4.65% in dog and 1.50% in cat. In rabbit, prevalence of traumatic injuries and fractures were 16.87% followed by mange 12.06%. The parasitic cases were highest in all of the clinical diseases and conditions. So, proper prevention and therapeutic management should be taken to reduce the prevalence of parasitic diseases of pet animals. Immunoprophylaxis or vaccination and hygienic management should be performed to curb the infectious diseases. Further extensive epidemiologic, laboratory or molecular studies are also needed for the appropriate prevention and control measures of diseases and conditions of pet animals in study area.

**Key words:** Dog, cat, rabbit, prevalence, clinical diseases, Bangladesh.

### INTRODUCTION

Modern society is becoming more urbanized now a days. The tradition of keeping animal as pet is increasing day by day or even exotic creatures. Pets have become an integral part of the family and often considered to be extended family. The pet animals are kept by a significant percentage of people all over the world irrespective of their social status including Bangladesh. Having pet animals brings lot of benefit, such as psychological support, companionship and even good health practices. Even in many countries pets have become substitutes for childbearing and child care. In many households, pet animals contribute to physical, social and mental well-beings of children and their owners (Dohoo *et al.*, 1998; Robertson *et al.*, 2000). Dog and cat have significant benefits to our society like companionship, play with children, guard the house, and alerts the owner from any adverse condition, gift to special ones and economic purposes (Parvez *et al.*, 2014). Dogs are not only serving as a companion but also act as workers (Singh *et al.*, 2014). They have proven to be invaluable member of family with different roles including guide dogs for blind person, provide assistance to the disable, sniffers dogs used by police and customs and farm dogs used as shepherd. Rabbits have been kept as pets in western nations since 19<sup>th</sup> century. The rabbit makes mutual relationship with their owners by better understandings. A lot of diseases and clinical conditions are frequently observed in pet dog. Among the viral diseases rabies, infectious canine hepatitis, canine distemper, canine parvo viral infections are very common in Indian sub-continent like Bangladesh (Biswas *et al.*, 1996). Rabies is the most important zoonotic disease worldwide including Bangladesh (Biswas *et al.*, 1996) and approximately 90% of rabies in human results from dog bite. Almost all human deaths caused by rabies originated from Asia and Africa and there are an estimated 55,000 human deaths annually from rabies, with about 31000 in Asia and 24,000 in Africa (Samad, 2011). On the other hand, most common bacterial diseases include leptospirosis, brucellosis, kennel cough, clostridial infection etc. Rearing pet animals are usually connected with certain responsibilities like housing, control of diseases and responsibility of pet ownership with public health importance. Pet animals are the important reservoir of zoonotic diseases as they share the same environment with humans. Household pets also have been found to play a direct role in transmitting zoonosis (Kornblatt and Schantz 1980). Animal bites and allergic reaction originated from pets are the commonest health hazards in human. However, a diverse range of infections, include parasitic, bacterial, fungal and viral diseases are transmitted to humans from domestic pets (Plant *et al.*, 1996 and Geffray, 1999).

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The prevalence of infectious diseases and conditions of domestic animals and birds has already been performed in various regions of Bangladesh (Tarafder and Samad, 2010; Mahmud *et al.*, 2014). But very few studies have been reported on the prevalence of clinical diseases and conditions in pet animals ((Parvez *et al.*, 2014). Hossain and Kayesh (2014) reported the overall prevalence of clinical diseases at Dhaka city area in dog, cat and rabbit as 2.39%, 3.72% and 6.66%, respectively. It has been reported that ectoparasitic infestation (tick infestation 11.88%, flea infestation 9.84% and mange 3.76%) cases were highest among the all reported clinical diseases in pet dog (Tarafder and Samad, 2010). Mahmud *et al.* (2014) reported overall prevalence of protozoan diseases was 22.42% at Sirajganj, Bangladesh. So, this study was undertaken with the following objectives: to determine the overall prevalence of clinical diseases and conditions of pet animals at SAQVH, CVASU, Chittagong, Bangladesh; to know the prevalence of diseases and conditions in relation to age, sex, breed, affected systems of the body and etiology of pet animal's diseases (dog, cat and rabbit).

## MATERIALS AND METHODS

The study was conducted at S. A. Quaderi Teaching Veterinary Hospital during the period of October 2016 to January 2017 at Chittagong Veterinary and Animal Science University (CVASU), Chittagong, Bangladesh. A total of 388 sick pet animals (dog, cat and rabbit) were admitted in hospital. The clinical examination of diseased animal was performed on basis of owner's complaints, anamnesis and clinical examinations of patients.

**Owner's complaints:** Complaints of owner of patients were considered during animal examination.

**Anamnesis:** The history of clinical diseases and patients were collected from owners to identify the predisposing factors of diseases.

### Clinical examination of patient

- a) **Distant Inspection:** Firstly, the general attitude of the patient (alertness/ dullness/ depression) was carefully inspected. In addition, posture and gait (normal or defective) were examined according to the conditions of pet animals.
- b) **Close Inspection:** Following distant inspection, the patient was closely examined by visual examination. Parting of hair/fleece, light palpation and close direct inspection were performed to detect hair, coat and skin abnormalities. Skin lesions, nature of lesions (foul odorous discharge, crusts, scale and dandruff), location and distribution of those lesions were also studied. In addition, external parasites (tick, lice, flea, flies and larvae of flies) were individually identified during examination.

### Physical examination

Wounds were identified by inspection and further examined for more precise diagnosis to categorize the nature of the wound whether it might be septic, lacerated, incised, punctured, perforating, abrasions, avulsion or hematoma. Needle puncture was also performed if required. Temperature, pulse, respiratory rates were taken through clinical method. Mouth gag and general anesthesia were also used for restraining of the pet animals. In case of fracture, extension and flexion method were performed for pet animals.

### Laboratory diagnosis

Fecal samples and skin scrapings were examined with compound microscope. Blood and urine samples were collected for routine and specific diagnosis. X-Ray or imaging was performed to diagnose the musculo-skeletal and chest diseases. Dead animals were subjected to necropsy examination and gross lesions were recorded. The samples were collected to diagnose the etiology of diseases.

### Statistical analysis

The data collected from each patient were entered into MS excel (Microsoft office excel-2007, USA). Data management and descriptive analysis was done in Excel.

## RESULTS AND DISCUSSION

### Proportional prevalence of clinical diseases and conditions of pet animals in relation to affected system and etiology of diseases

A total of 388 cases of different clinical diseases and conditions were recorded during the study from July to December 2016. Among them the overall proportional prevalence of clinical diseases in dogs, cats and rabbits were 44.32%, 34.28 % and 21.39% (Table 1). About 79% and 67% of the total cases were medicinal in dogs and cats respectively (Tables 2 and 4). Among medicinal cases, the most frequently encountered disease was parasitic diseases both in dogs (24.42%) and cats (31.58%). Parvez *et al.* (2014) reported more parasitic cases in dogs (51.54%) and cats (54%). Sarker *et al.* (2015) reported that overall proportional prevalence of clinical diseases in dog and cat as 75% and 25%, respectively and prevalence of parasitic diseases were 14.77% in dogs and 13.33% in cats. Sarker *et al.* (2015) observed very low prevalence of parasitic disease because pet's owners were more concerned with deworming of pet dogs in studied area. The occurrence of clinical diseases of digestive system was 17.44% in dogs and 12.78% in cats. We observed relatively higher prevalence of digestive disorder in dogs (17.44%) which was in contrast with the results of Chaudhari and Atsanda, (2002) who reported only 6.73%. Parvez *et al.* (2014) recorded 12.64% digestive disorder in dogs. Prevalence of loss appetite 5.81% in dogs was in contrast with the result recorded by Chaudhari and Atsanda (2002) where it was only 2.69%. However, Sarker *et al.* (2015) reported similar level of loss of appetite (5.11%) in dogs. The prevalence of skin diseases were 7.6% in dog and 0.8% in cats. Similar finding was also reported by Tarafder and Samad, (2010) but other authors reported lower prevalence of skin disease (Freeman *et al.*, 2006; Chaudhari and Atsanda 2002) in dogs. The prevalence of disease in eyes and ear in dog and cat were 4.65%, 3.01%, respectively and the result were agreed with Freeman *et al.*, (2006) and Tarafder and Samad (2010). The prevalence of bacterial diseases was 5.8% in dogs and 3.0% in cats. The prevalence of viral diseases was 4.7% in dogs and 6.8% in cats. Our results were not in agreement with the result of Tarafder and Samad (2010) who reported lower prevalence (0.08% in dog and 1.96% in cat). This variation of the result might be due to different geographical locations and periods of study. The prevalence of metabolic diseases of this study were 1.16 % and 1.50% in dog and cat, respectively which disagreed with the results of Tarafder and Samad (2010) who reported higher prevalence of metabolic and nutritional diseases (3.13%) in pet dog. This variation might be due to small size of the sample studied. The prevalence of diseases of the respiratory system was 4.65% in dog and 4.51% in cat. Our results were in contrast with the findings of other authors who observed relatively higher prevalence in both dogs and cats (Tarafder and Samad, 2010; Chaudhari and Atsanda, 2002; Parvez *et al.*, 2014) Respiratory tract infections can be caused by viruses, bacteria and less often by fungi and sometimes from faulty medication. Prevalence of upper respiratory tract infections in dog and cat was 0.58% and 0.75%, respectively. The reported prevalence of fungal and protozoal diseases in dog was less than the result of Tarafder and Samad (2010) who enlisted protozoal diseases as 2.02% and fungal diseases as 3.30%. In rabbits, the prevalence of traumatic injuries and fracture was the highest as 16.87% followed by mange 12.06%.

Table 1. Overall prevalence of clinical diseases and conditions of pet animals (Dog, cat and rabbit)

Pet animals	Clinical diseases and conditions	Prevalence (%)
Dog	172	44.32
Cat	133	34.28
Rabbit	83	21.39
Total cases	388	100

### Sex wise prevalence of clinical diseases and conditions in pet animals

The proportional prevalence of clinical diseases and conditions in dog and cat in relation with their sex showed that male pets were most frequently admitted at SAQTVH. About 59 % of the clinical cases were recorded for male dog (Table 2). In case of cats, 58.65% of the clinical cases were recorded in male cat (Table 4). Similarly, 77.71% clinical cases were recorded in male rabbits (Table 5). Other authors also reported similar findings to our results (Sarker *et al.*, 2015; Parvez *et al.*, 2014). Usually the pet owner had the tendency to rear the male pet animals rather than female one to avoid the nuisance of reproductive behavior and difficulties arises from female dog, cat and rabbit.

Table 2. Sex and age-wise distribution of clinical diseases and conditions of pet dog attended at SAQTVH

Clinical Diseases and Conditions	Prevalence (%)	Sex		Age (Months)		
		Male	Female	<6	>7 to 36	>36
1. Loss of appetite	10(5.81)	6(3.49)	4(2.33)	5(2.91)	4(2.33)	1(0.58)
2. Diarrhea	4(2.33)	2(1.16)	2(1.16)	2(1.16)	2(1.16)	0(0.00)
3. Gastritis	8(4.65)	5(2.91)	3(1.74)	2(1.16)	4(2.33)	2(1.16)
4. Dental Disorder	2(1.16)	1(0.58)	1(0.58)	0(0.00)	1(0.58)	1(0.58)
5. Other digestive problems	6(3.49)	4(2.33)	2(1.16)	4(2.33)	1(0.58)	1(0.58)
<b>I. Digestive Disorders</b>	<b>30(17.44)</b>	<b>18(10.47)</b>	<b>12(6.97)</b>	<b>13(7.56)</b>	<b>12(6.98)</b>	<b>5(2.91)</b>
1. Pneumonia	2(2.33)	1(0.58)	1(0.58)	2(1.16)	0(0.00)	0(0.00)
2. Bronchitis	1(0.58)	0(0.00)	1(0.58)	0(0.00)	1(0.58)	0(0.00)
3. kennel cough	5(2.91)	3(1.74)	2(1.16)	3(1.74)	0(0.00)	2(1.16)
<b>II. Respiratory disorder</b>	<b>8(4.65)</b>	<b>4(2.33)</b>	<b>4(2.33)</b>	<b>5(2.91)</b>	<b>1(0.58)</b>	<b>2(1.16)</b>
<b>III. Urinary disorders</b>	<b>1(0.58)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>
<b>IV. Lameness</b>	<b>2(1.16)</b>	<b>1(0.58)</b>	<b>1(0.58)</b>	<b>1(0.58)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>
<b>V. Metabolic disorders</b>	<b>2(1.16)</b>	<b>2(1.16)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>	<b>1(0.58)</b>
1. Dermatitis	10(5.81)	6(3.49)	4(2.33)	2(1.16)	4(2.33)	4(2.33)
2. Alopecia	3(1.74)	2(1.16)	1(0.58)	0(0.00)	2(1.16)	1(0.58)
<b>VI. Skin disorders</b>	<b>13(7.56)</b>	<b>8(4.65)</b>	<b>5(2.91)</b>	<b>2(1.16)</b>	<b>6(3.49)</b>	<b>5(2.91)</b>
1. Conjunctivitis	4(2.33)	2(1.16)	2(1.16)	1(0.58)	2(1.16)	1(0.58)
2. Cataract	2(1.16)	2(1.16)	0(0.00)	0(0.00)	0(0.00)	2(1.16)
3. Otitis externa	2(1.16)	1(1.16)	1(1.16)	0(0.00)	2(1.16)	0(0.00)
<b>VII. Eyes and Ears disorders</b>	<b>8(4.65)</b>	<b>5(2.91)</b>	<b>3(1.74)</b>	<b>1(0.58)</b>	<b>4(2.33)</b>	<b>3(1.74)</b>
<b>VIII. Nervous system</b>	<b>5(2.91)</b>	<b>3(1.74)</b>	<b>2(1.16)</b>	<b>1(0.58)</b>	<b>3(1.74)</b>	<b>1(0.58)</b>
<b>IX. Others</b>	<b>5(2.91)</b>	<b>3(1.74)</b>	<b>2(1.16)</b>	<b>2(1.16)</b>	<b>0(0.00)</b>	<b>3(1.74)</b>
1. Canine distemper/hepatitis	3(1.74)	2(1.16)	0(0.00)	0(0.00)	2(1.16)	1(0.58)
2. Canine parvovirus	4(2.33)	2(1.16)	2(1.16)	4(2.33)	0(0.00)	0(0.00)
3. Pox/Herpes virus	1(0.58)	1(0.58)	1(0.58)	0(0.00)	1(0.58)	0(0.00)
<b>X. Viral diseases</b>	<b>8(4.65)</b>	<b>5(2.91)</b>	<b>3(1.74)</b>	<b>4(2.33)</b>	<b>3(1.74)</b>	<b>1(0.58)</b>
<b>XI. Bacterial diseases</b>	<b>8(4.65)</b>	<b>5(2.91)</b>	<b>3(1.74)</b>	<b>4(2.33)</b>	<b>3(1.74)</b>	<b>1(0.58)</b>
1. Ancylostomiasis	3(1.74)	2(1.16)	1(0.58)	2(1.16)	1(0.58)	0(0.00)
2. Unknown internal worms	7(4.07)	4(2.33)	3(1.74)	3(1.74)	2(1.16)	2(1.16)
3. Maggot infestation	11(11.05)	6(3.49)	5(2.91)	3(1.74)	5(2.91)	3(1.74)
4. Tick infestation	10(5.81)	5(2.91)	5(2.91)	3(1.74)	5(2.91)	2(1.16)
5. Flea infestation	6(3.49)	4(2.33)	2(2.33)	0(0.00)	4(2.33)	2(1.16)
6. Lice infestation	3(1.74)	2(1.16)	1(0.58)	0(0.00)	0(0.00)	3(1.74)
7. Mange	2(1.16)	1(0.58)	1(0.58)	2(1.16)	0(0.00)	0(0.00)
<b>XII. Parasitic infestation</b>	<b>42(24.42)</b>	<b>24(13.95)</b>	<b>18(10.47)</b>	<b>13(7.56)</b>	<b>17(9.88)</b>	<b>12(6.98)</b>
<b>XIII. Protozal diseases</b>	<b>1(0.58)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>
<b>XIV. Fungal diseases</b>	<b>3(1.74)</b>	<b>2(1.16)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>2(1.16)</b>	<b>1(0.58)</b>
<b>Total Medicinal cases</b>	<b>136(79.07)</b>	<b>82(47.67)</b>	<b>54(31.40)</b>	<b>46(26.74)</b>	<b>55(31.98)</b>	<b>35(20.35)</b>
1. Endometritis & pyometra	3(1.74)	0(0.00)	3(1.74)	0(0.00)	2(1.16)	1(0.58)
2. Paraphymosis	2(1.16)	2(1.16)	0(0.00)	0(0.00)	1(0.58)	1(0.58)
3. Pregnancy detection	3(1.74)	0(0.00)	3(1.74)	0(0.00)	2(1.16)	1(0.58)
<b>Total Gynecological cases</b>	<b>8(4.65)</b>	<b>2(1.16)</b>	<b>6(3.49)</b>	<b>0(0.00)</b>	<b>5(2.91)</b>	<b>3(1.74)</b>
1. Orthopedic surgery	10(5.81)	6(3.48)	4(2.33)	5(2.91)	2(1.16)	3(1.74)
2. Accidental wound /dog bite	12(6.98)	7(4.07)	5(2.91)	4(2.33)	4(2.33)	4(2.33)
3. Abscess	1(0.58)	1(0.58)	0(0.00)	0(0.00)	1(0.58)	0(0.00)
4. Spaying	3(1.74)	2(1.16)	1(0.58)	0(0.00)	1(0.58)	2(1.16)
5. Castration	2(1.16)	1(0.58)	1(0.58)	0(0.00)	1(0.58)	1(0.58)
<b>Total Surgical cases</b>	<b>28(16.28)</b>	<b>17(9.88)</b>	<b>11(6.40)</b>	<b>9(5.23)</b>	<b>9(5.23)</b>	<b>10(5.81)</b>
<b>Total cases</b>	<b>172(100)</b>	<b>101(58.72)</b>	<b>71(41.28)</b>	<b>55(31.98)</b>	<b>69(40.12)</b>	<b>48(27.91)</b>

*Clinical diseases and conditions of pet animals*

Table 3. Prevalence of clinical diseases and conditions in relation to different breed of pet dog

Clinical Diseases and Conditions	Local Breed	German Shepherd	Labrador	Spitz	Puddle	Samoyed	Crossbred
1. Loss of appetite	3(1.74)	5(2.91)	1(0.58)	0(0.00)	0(0.00)	1(0.58)	0(0.00)
2. Diarrhea	2(1.16)	0(0.00)	0(0.00)	1(0.58)	0(0.00)	0(0.00)	1(0.58)
3. Gastritis	2(1.16)	2(1.16)	0(0.00)	1(0.58)	1(0.58)	0(0.00)	2(1.16)
4. Dental Disorder	1(0.58)	0(0.00)	1(0.58)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
5. Others digestive problems	3(1.74)	0(0.00)	0(0.00)	2(1.16)	0(0.00)	0(0.00)	1(0.58)
<b>I. Digestive Disorders</b>	<b>11(6.40)</b>	<b>7(4.07)</b>	<b>2(1.16)</b>	<b>4(2.23)</b>	<b>1(0.58)</b>	<b>1(0.58)</b>	<b>4(2.23)</b>
1. Pneumonia	2(1.16)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
2. Bronchitis	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	1(0.58)
3. kennel cough	3(1.74)	0(0.00)	0(0.00)	0(0.00)	1(0.58)	0(0.00)	1(0.58)
<b>III. II . Respiratory disorder</b>	<b>5(2.91)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>2(1.16)</b>
<b>III . Urinary disorders</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>
<b>IV . Lameness</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>
<b>V . Metabolic disorders</b>	<b>0(0.00)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>
<b>1. Dermatitis</b>	<b>4(2.33)</b>	<b>4(2.33)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>
<b>2. Alopecia</b>	<b>2(1.16)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>
<b>VI. Skin disorders</b>	<b>6(3.49)</b>	<b>4(2.33)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>2(1.16)</b>
<b>1. Conjunctivitis</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>2(1.16)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>
2. Cataract	0(0.00)	0(0.00)	0(0.00)	2(1.16)	0(0.00)	0(0.00)	0(0.00)
3. Otitis	0(0.00)	1(0.58)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	1(0.58)
<b>VII. Eyes and Ears disorders</b>	<b>1(0.58)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>2(1.16)</b>	<b>2(1.16)</b>	<b>0(0.00)</b>	<b>2(1.16)</b>
<b>VIII. Nervous system</b>	<b>5(2.91)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>
<b>IX. Others</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>4(2.33)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>
1. Canine Distemper/hepatitis	2(1.16)	0(0.00)	1(0.58)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
2. Canine parvovirus	2(1.16)	0(0.00)	2(1.16)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
3. Pox/Herpes virus	0(0.00)	0(0.00)	0(0.00)	1(0.58)	0(0.00)	0(0.00)	0(0.00)
<b>X. Viral diseases</b>	<b>2(1.16)</b>	<b>0(0.00)</b>	<b>3(1.74)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>2(1.16)</b>	<b>0(0.00)</b>
<b>XI. Bacterial diseases</b>	<b>3(1.74)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>3(1.74)</b>	<b>0(0.00)</b>	<b>2(1.16)</b>
<b>1. Ancylostomiasis</b>	<b>1(0.58)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>
2. Unknown internal worms	5(2.91)	0(0.00)	2(1.16)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
3. Maggot infestation	5(2.91)	3(1.74)	1(0.58)	1(0.58)	0(0.00)	1(0.58)	0(0.00)
4. Tick infestation	5(2.91)	2(1.16)	1(0.58)	1(0.58)	0(0.00)	1(0.58)	0(0.00)
5. Flea infestation	4(2.33)	2(1.16)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
6. Lice infestation	1(0.58)	0(0.00)	0(0.00)	2(1.16)	0(0.00)	0(0.00)	0(0.00)
7. Mange	2(1.16)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
<b>XII. Parasitic infestation</b>	<b>23(13.37)</b>	<b>8(6.98)</b>	<b>4(2.33)</b>	<b>5(2.91)</b>	<b>0(0.00)</b>	<b>2(1.16)</b>	<b>0(0.00)</b>
<b>XIII. Protozoal diseases</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>
<b>XIV. Fungal diseases</b>	<b>1(0.58)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>
<b>Total Medicinal cases</b>	<b>59(34.30)</b>	<b>22(12.79)</b>	<b>10(5.81)</b>	<b>14(8.14)</b>	<b>11(6.40)</b>	<b>5(2.91)</b>	<b>15(8.72)</b>
1. Endometritis & pyomerta	0(0.00)	0(0.00)	1(0.58)	1(0.58)	0(0.00)	1(0.00)	0(0.00)
2. Paraphymosis	1(0.58)	1(0.58)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
3. Pregnancy detection	1(0.58)	0(0.00)	0(0.00)	2(1.16)	0(0.00)	0(0.00)	0(0.00)
<b>Total Gynaecological cases</b>	<b>2(1.16)</b>	<b>1(0.58)</b>	<b>1(0.58)</b>	<b>3(1.74)</b>	<b>0(0.00)</b>	<b>1(0.58)</b>	<b>0(0.00)</b>
1. Orthopedic surgery	4(2.33)	4(2.33)	1(0.58)	1(0.58)	0(0.00)	0(0.00)	0(0.00)
2. Accidental wound /dog bite	2(1.16)	4(2.33)	2(1.16)	2(1.16)	0(0.00)	0(0.00)	2(1.16)
3. Abscess	0(0.00)	0(0.00)	1(0.58)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
4. Spaying	1(0.58)	0(0.00)	2(1.16)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
5. Castration	0(0.00)	0(0.00)	2(1.16)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
<b>Total Surgical cases</b>	<b>7(4.07)</b>	<b>8(4.65)</b>	<b>8(4.65)</b>	<b>3(1.74)</b>	<b>0(0.00)</b>	<b>0(0.00)</b>	<b>2(1.16)</b>
<b>Total cases</b>	<b>68(39.53)</b>	<b>31(18.02)</b>	<b>19(11.05)</b>	<b>20(11.63)</b>	<b>11(6.40)</b>	<b>6(3.49)</b>	<b>17(9.88)</b>

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Table 4. Demographic distribution of clinical diseases and conditions of pet cat attended at SAQTVH

Clinical Diseases and conditions	Overall Prevalence	Sex		Breed			Age		
		Male	Female	Local breed	Persian	Bengal	<6 months	>7 to 24 months	>24 months
1. Diarrhoea	2(1.50)	0(0.00)	2(1.50)	2(1.50)	0(0.00)	0(0.00)	2(1.50)	0(0.00)	0(0.00)
2. Gastritis	3(2.26)	2(1.50)	1(0.75)	3(2.26)	0(0.00)	0(0.00)	3(2.26)	0(0.00)	0(0.00)
<b>3. Mega colon</b>	2(1.50)	0(0.00)	2(1.50)	0(0.00)	2(1.50)	0(0.00)	2(1.50)	0(0.00)	0(0.00)
4. Others digestive problems	10(7.52)	4(3.01)	6(4.51)	6(4.51)	3(2.26)	1(0.75)	7(5.26)	3(2.26)	0(0.00)
<b>I. Digestive Disorders</b>	17(12.78)	6(4.51)	11(8.27)	11(8.27)	5(3.76)	1(0.75)	14(10.53)	3(2.26)	0(0.00)
1. Pneumonia	5(3.76)	1(0.75)	4(3.01)	5(3.76)	0(0.00)	0(0.00)	3(2.26)	0(0.00)	2(1.50)
<b>2. Bronchitis</b>	1(0.75)	0(0.00)	1(0.75)	0(0.00)	0(0.00)	1(0.75)	0(0.00)	1(0.75)	0(0.00)
<b>Respiratory disorder</b>	6(4.51)	1(0.75)	5(3.76)	5(3.76)	0(0.00)	1(0.75)	3(2.26)	1(0.75)	2(1.50)
II. Urinary disorders	1(0.75)	1(0.75)	0(0.00)	1(0.75)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	1(0.75)
III. Lameness	3(2.26)	3(2.26)	0(0.00)	2(1.50)	1(0.75)	0(0.00)	3(2.26)	0(0.00)	0(0.00)
IV. Metabolic disorders	2(1.50)	2(1.50)	0(0.00)	1(0.75)	1(0.75)	0(0.00)	1(0.75)	1(0.75)	0(0.00)
V. Poisoning	4(3.01)	3(2.26)	1(0.75)	4(3.01)	0(0.00)	0(0.00)	3(2.26)	1(0.75)	0(0.00)
1. Dermatitis	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
<b>2. Alopecia</b>	1(0.75)	0(0.00)	1(0.75)	1(0.75)	0(0.00)	0(0.00)	0(0.00)	1(0.75)	0(0.00)
VI. Skin disorders	1(0.75)	0(0.00)	1(0.75)	1(0.75)	0(0.00)	0(0.00)	0(0.00)	1(0.75)	0(0.00)
<b>1. Conjunctivitis</b>	1(0.75)	0(0.00)	1(0.75)	1(0.75)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	1(0.75)
2. Cataract	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
3. Otitis	1(0.75)	1(0.75)	0(0.00)	0(0.00)	1(0.75)	0(0.00)	0(0.00)	1(0.75)	0(0.00)
<b>4. Protrusion of eye ball</b>	2(1.50)	2(1.50)	0(0.00)	2(1.50)	0(0.00)	0(0.00)	1(0.75)	1(0.75)	0(0.00)
VII. Eyes and Ears disorders	4(3.01)	3(2.26)	1(0.75)	3(2.26)	1(0.75)	0(0.00)	1(0.75)	2(1.50)	1(0.75)
VIII. Others	4(3.01)	1(0.75)	3(2.26)	3(2.26)	1(0.75)	0(0.00)	3(2.26)	0(0.00)	1(0.75)
IX. Bacterial diseases	4(3.01)	1(0.75)	3(2.26)	3(2.26)	1(0.75)	0(0.00)	3(2.26)	0(0.00)	1(0.75)
1. Rabies	1(0.75)	1(0.75)	0(0.00)	1(0.75)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	1(0.75)
<b>2. Feline calici virus</b>	2(1.50)	2(1.50)	0(0.00)	2(1.50)	0(0.00)	0(0.00)	2(1.50)	0(0.00)	0(0.00)
<b>3. Feline panleukemia virus</b>	4(3.01)	2(1.50)	2(1.50)	4(3.01)	0(0.00)	0(0.00)	4(3.01)	0(0.00)	0(0.00)
4. Pox/Herpes virus	2(1.50)	1(0.75)	1(0.75)	2(1.50)	0(0.00)	0(0.00)	2(1.50)	0(0.00)	0(0.00)
X. Viral diseases	9(6.77)	6(4.51)	3(2.26)	9(6.77)	0(0.00)	0(0.00)	8(6.02)	0(0.00)	1(0.75)
<b>1. Toxoscariasis</b>	4(3.01)	2(1.50)	2(1.50)	4(3.01)	0(0.00)	0(0.00)	2(1.50)	2(1.50)	0(0.00)
2. Unknown Internal worms	12(9.02)	8(6.02)	4(3.01)	8(6.02)	3(2.26)	1(0.75)	10(7.52)	1(0.75)	1(0.75)
<b>3. Myiasis</b>	3(2.26)	2(1.50)	1(0.75)	3(2.26)	0(0.00)	0(0.00)	1(0.75)	1(0.75)	1(0.75)
<b>4. Tick infestation</b>	2(1.50)	2(1.50)	0(0.00)	2(1.50)	0(0.00)	0(0.00)	1(0.75)	1(0.75)	0(0.00)
<b>5. Flea infestation</b>	4(3.01)	1(0.75)	3(2.26)	3(2.26)	1(0.75)	0(0.00)	2(1.50)	2(1.50)	0(0.00)
<b>6. Lice infestation</b>	2(1.50)	1(0.75)	1(0.75)	1(0.75)	1(0.75)	0(0.00)	0(0.00)	2(1.50)	2(1.50)
7. Mange	4(3.01)	3(2.26)	1(0.75)	2(1.50)	1(0.75)	1(0.75)	0(0.00)	2(1.50)	0(0.00)
XI. Parasitic diseases	31(23.31)	19(14.29)	12(9.02)	23(17.29)	6(4.51)	2(1.50)	16(12.03)	11(8.23)	4(3.01)
XII. Protozoal diseases	2(1.50)	1(0.75)	1(0.75)	2(1.50)	0(0.00)	0(0.00)	0(0.00)	2(1.50)	0(0.00)
XIII. Fungal diseases	2(1.50)	1(0.75)	1(0.75)	1(0.75)	1(0.75)	0(0.00)	1(0.75)	0(0.00)	1(0.75)
XIV. Nail trimming	1(0.75)	1(0.75)	0(0.00)	1(0.75)	0(0.00)	0(0.00)	0(0.00)	1(0.75)	0(0.00)
XV. Nervous system	2(1.50)	1(0.75)	1(0.75)	2(1.50)	0(0.00)	0(0.00)	1(0.75)	0(0.00)	1(0.75)
Total Medicinal cases	89(66.92)	49(36.84)	40(30.08)	69(51.88)	16(12.03)	4(3.01)	54(40.60)	23(17.29)	12(9.02)
Pregnancy detection	2(1.50)	0(0.00)	2(1.50)	2(1.50)	0(0.00)	0(0.00)	0(0.00)	2(1.50)	0(0.00)
Total Gynecological cases	2(1.50)	0(0.00)	2(1.50)	2(1.50)	0(0.00)	0(0.00)	0(0.00)	2(1.50)	0(0.00)
1. Orthopedic Surgery	9(6.77)	6(4.51)	3(2.26)	6(4.51)	2(1.50)	1(0.75)	8(6.02)	1(0.75)	0(0.00)
2. Accidental wound /dog bite	24(18.05)	18(13.53)	6(4.51)	20(15.04)	4(3.01)	0(0.00)	6(4.51)	14(10.53)	4(3.01)
3. Spaying	4(3.01)	0(0.00)	4(3.01)	4(3.01)	0(0.00)	0(0.00)	0(0.00)	4(3.01)	0(0.00)
4. Castration	5(3.76)	5(3.76)	0(0.00)	5(3.76)	0(0.00)	0(0.00)	0(0.00)	4(3.01)	1(0.75)
Total Surgical Cases	42(31.58)	29(21.80)	13(9.77)	35(26.32)	6(4.51)	1(0.75)	14(10.53)	23(17.29)	5(3.76)
Total Cases	133(100)	78(58.65)	55(41.35)	106(79.70)	22(16.54)	5(3.76)	68(51.13)	48(39.09)	17(12.78)

**Age wise prevalence of clinical diseases and conditions in pet animals**

The proportional prevalence of clinical conditions was higher in adult (40.12%) than young dog (31.98%). The age-wise distribution of the prevalence of clinical diseases and conditions in dog, cat and rabbit are shown in the Table 2, 4 and 5. In cat, the higher prevalence of clinical cases was recorded in young (51.13%) than adult (39.09%). The higher prevalence of clinical cases in rabbit was recorded in young (49.40%) than adult (30.12%). However in dogs, Tarafder and Samad (2010) reported higher prevalence clinical diseases in aged dogs (48.12%) as compared with young (17.55%) and adult (34.33%).

Table 5. Demographic distribution of clinical diseases and conditions of pet rabbit attended at SAQTVH

Clinical Diseases and conditions	Overall prevalence	Sex		Age		
		Male rabbit	Female rabbit	Below 6 month	6 month to 1 year	1 year and above
Mange	10(12.05)	25(30.12)	5(6.02)	15(18.07)	7(8.43)	8(9.64)
Traumatic injuries and fracture	14(16.87)	10(12.05)	4(4.82)	6(7.23)	6(7.23)	2(2.41)
Respiratory tract infection	3(3.61)	3(3.61)	0(0.00)	3(3.61)	0(0.00)	0(0.00)
Conjunctivitis	4(4.82)	2(2.41)	2(2.41)	2(2.41)	1(1.20)	1(1.20)
Nutritional deficiency	8(9.64)	6(7.23)	2(2.41)	4(4.82)	3(3.61)	1(1.20)
Coccidiosis	5(6.02)	4(4.82)	1(1.20)	2(2.41)	1(1.20)	2(2.41)
Alopecia	3(3.61)	2(2.41)	1(1.20)	1(2.00)	2(2.41)	0(0.00)
Parasitic infestation	6(7.23)	4(4.82)	2(2.41)	3(3.61)	2(2.41)	1(1.20)
Abscess	1(1.20)	1(1.20)	0(0.00)	0(0.00)	1(1.20)	0(0.00)
Others	9(10.84)	7(8.43)	2(2.41)	5(6.02)	2(2.41)	2(2.41)
Total	83(100)	64(77.11)	19(22.88)	41(49.40)	25(30.12)	17(20.48)

**Breed wise prevalence of clinical and diseases and conditions in pet animals**

Prevalence of clinical disease and conditions in dog and cat in relation to their breed revealed that the highest clinical diseases and conditions were found in the local dog (39.53%) and in the local cat (79.70%) are shown in the Tables 3 and 4. In Persian cat, prevalence of clinical diseases and conditions were 16.54 % and in Bengal 3.76%. Among the exotic breed of dog, the prevalence of clinical diseases and conditions were highest in German Shepherd (18.02%) and lowest in Samoyed (3.49%) as shown in Table 3. Tarafder and Samad (2010) also reported similar finding as we observed.

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**REFERENCES**

1. Biswas HR, Hoque MM, Samad MA and Rahman A (1996). Prevalence of inapparent rabies infection in street dogs. *Bangladesh Veterinarian* 13: 29-31.
2. Chaudhari AWSUR and Atsanda NN (2002). Prevalence of some disease of dogs and cats at the state government veterinary clinic in Maidugury (Nigeria). *Pakistan Veterinary Journal* 22: 2.

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3. Dohoo IR, McDonnell WN, Rhodes CS and Elazhary YL (1998). Veterinary research and human health. *Canadian Veterinary Journal* 39: 548-556.
4. Freeman LM, Abood SK, Fascetti AJ, Fleeman LM, Michel KE, Laflamme DP, Bauer C, Kemp BLE, Doren JRV and Willoughby KN (2006). Disease prevalence among dogs and cats in the United States and Australia and proportions of dogs and cats that receive therapeutic diets or dietary supplements. *Journal of the American Veterinary Medical Association* 229: 531-534.
5. Geffray L (1999). Infections associated with pets. *De Revue Medecine Interne* 20: 888 -901.
6. Hossain SSMR and Kayesh (2014). Common diseases of pet animals in Dhaka city and their zoonotic importance. *International Journal of Natural and Social Sciences* 1: 81-84.
7. Kornblatt AN and Schantz PM (1980). Veterinary and public health considerations in canine roundworm control. A survey of practicing veterinarians. *Journal of American Veterinary Medical Association* 177: 1212-5.
8. Mahmud MAA, Belal SMSH and Uddin FMJ (2014). Prevalence of protozoan diseases in pet dogs at district veterinary hospital, Sirajganj, Bangladesh. *Bangladesh Journal of Veterinary Medicine* 12: 191-196.
9. Parvez MA, Prodhan MAM, Das BC and Khatun R (2014). Prevalence of clinical conditions in dogs and cats at teaching veterinary hospital (TVH) in Chittagong Veterinary and Animal Sciences University, Bangladesh. *Research Journal for Veterinary Practitioners* 2: 99-104.
10. Plant M, Zimmerman EM, Goldstein RA (1996). Health hazards to humans associated with domestic pets. *Annual Review of Public Health* 17: 221 - 245.
11. Robertson ID, Irwin PJ, Lymbery AJ and Thompson RCA (2000). The role of companion animals in the emergence of parasitic disease. *International Journal of Parasitology* 30: 1369-1377.
12. Samad MA (2011). Public health threat caused by zoonotic diseases in Bangladesh. *Bangladesh Journal of Veterinary Medicine* 9: 95-120.
13. Sarker MS, Ahduzzman M, Kabir MN, Rahman MK, Hossian Farhana, Nath SK and Bupasha ZB (2015). Prevalence of Clinical Conditions in Dogs and Cats at Central Veterinary Hospital (CVH) in Dhaka, Bangladesh. *Bangladesh Veterinary Journal* 26: 101-105.
14. Singh SK, Islam MK and Hasan MT (2014). The Prevalence of Clinical Diseases in Dogs of Sylhet Sadar, Bangladesh. *International Journal of Pure and Applied Sciences and Technology* 5: 41.
15. Tarafder M and Samad MA (2010). Prevalence of clinical diseases of pet dogs and risks perception of zoonotic infection by dog owners in Bangladesh. *Bangladesh Journal of Veterinary Medicine* 82: 163-174.