

## Research Article

# Investigation of Clinical Diseases and Surgical Cases in Cats of Dhaka City, Bangladesh

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**Abstract** | Cats appear as an important pet animal in Dhaka city, Bangladesh. The information on the prevalence of clinical diseases and surgical cases in cats is critical, which can help the veterinary community and the pet owners to manage and prevent various diseases, including zoonotic ones. A cross-sectional study on a total of 2699 cats was conducted in Dhaka city between January 2024 and May 2024 to investigate the prevalence of common clinical diseases (n=1922) and surgical cases (n=777) in cats. Allergic dermatitis was the most prevalent (19.51%, n=375) disease among cats in the study area, followed by parasitic infestations (15.24%, n=293), feline upper respiratory tract disease (13.68%, n=263), and feline panleukopenia (11.19%, n=215). Among surgical cases, neutering was the most prevalent (39.25%, n=305), followed by spaying (31.66%, n=246), soft tissue surgery (11.71%, n=91), and urolithiasis (11.20%, n=87). The results of this study provide a valuable insight into the prevalent clinical diseases and surgical cases in cats, which may help in adopting effective preventive and control measures against feline diseases and conditions in Dhaka city of Bangladesh. Furthermore, these findings should contribute to improved veterinary practices for cats and support public health initiatives, promoting the well-being of cats and their owners.

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## Introduction

Owning a cat can promote a greater sense of well-being with a more active lifestyle, and contribute to the development of social support networks (Arhant-Sudhir *et al.*, 2011; Wood *et al.*, 2015). The

popularity of domestic cats as pets has surged over the past few decades, both nationally and globally (Lepczyk *et al.*, 2015). Different factors can contribute towards the popularity, including affectionate nature of the cats, low maintenance requirements, and the joy brought to the households (Chomel, 1992). The

increased trend of the popularity of cats as pets also suggests a broader societal shift towards the pet ownership and the recognition of cats as beloved companions. Domestic cats have become cherished members of many families, providing companionship, comfort, and entertainment. Their independent yet affectionate demeanor appeals to people of all ages, making them suitable pets for individuals, couples, and families alike. Additionally, the rise of social media has played a significant role in showcasing the antics and personalities of cats, further fueling their popularity and cultural significance.

With the increasing popularity of cats as pets, their health and welfare are now key concerns, making it essential for veterinarians to understand and address feline health challenges. Cats encounter a diverse spectrum of health challenges, ranging from infections to urgent surgical issues, significantly affecting the quality of life and longevity of cats. Animal bites and pet allergies are major health risks, but domestic pets can also transmit a wide range of infections, including parasitic, bacterial, fungal, and viral diseases (Geffray, 1999; Hossain and Kayesh, 2014; Plaut *et al.*, 1996). In addition, cats also can serve as an important reservoir of zoonotic diseases due to their coexistence with humans and shared environment (Lepczyk *et al.*, 2015).

Cats are highly susceptible to a range of bacterial and viral infections, including feline panleukopenia virus, feline infectious peritonitis, feline calicivirus, feline immunodeficiency virus, feline leukemia virus, feline upper respiratory tract disease, feline lower urinary tract disease, enteritis, chronic kidney disease, along with other fungal, parasitic and protozoal diseases as well as accidental wounds. Furthermore, various surgical cases are also observed including spaying, neutering, fracture management, soft tissue surgery, orthopedic surgery, urolithiasis, pyometra, hernia, enucleation, cesarean section, cystotomy, tumor removal, wound care, myiasis, and abscesses etc. (Parvez *et al.*, 2014). Overall, the increasing popularity of domestic cats as pets reflects a deepening bond between humans and animals, highlighting the importance of companionship and the positive impact pets can have on our lives (Dohoo *et al.*, 1998).

Internationally, the appeal of cats transcends borders, with various breeds and types of cats finding homes in diverse cultures and societies. Whether it's the

sleek elegance of a Siamese, the playful antics of a tabby, or the regal presence of a Persian, cats come in a variety of breeds and personalities to suit different preferences and lifestyles. In a previous study, the overall prevalence of clinical diseases of cats in Dhaka city was found 3.72% (Hossain and Kayesh, 2014). The trends of keeping cats as pets are increasing in Dhaka, surpassing other cities in Bangladesh in terms of cat ownership (Halder and Samama, 2023). Despite this rise in pet cat ownership, there has been a lack of comprehensive studies on the prevalence of clinical diseases and surgical cases in cats of Dhaka city, Bangladesh (Hossain *et al.*, 2022). The current study was designed to know the common diseases and surgical cases of cats in Dhaka city for better management towards maintenance of better cat health.

## Materials and Methods

A cross-sectional study was performed and the information on cats' age, sex and breed was recorded using a structured questionnaire by asking to the cat owners and/or attendants.

### *Study area, study period and study population*

The study was conducted at For Pets Care Veterinary Clinic, a familiar private pet clinic Dhaka city located at Jigatola, Dhanmondi, Dhaka, Bangladesh. Pet cat owners and/or attendants from various parts of Dhaka city brought their animals to the clinic for medical treatment and/or vaccination. A total of 2,699 cats were investigated in the study, among them 1,922 cats had clinical diseases and 777 cats had surgical disorders. This diverse sample size encompassed a range of common household pets and provided a comprehensive overview of the prevalence of diseases among cats. The study was conducted between January 2024 and May 2024 and aimed to assess the prevalence of diseases and surgical disorders in cats. Considering the progressive stages of feline puberty, the cats' ages were stratified into four distinct categories: Under 6 months, 6 months to 1 year, 1 to 2 years, and over 2 years. Moreover, the breeds were distinctly classified into Persian, local, and cross breed (Sarker *et al.*, 2015).

### *Diagnosis of diseases*

A tentative diagnosis of disease was made based on the owner's complaint, the observed clinical signs, distant and close inspection and the results of both

physical and clinical examination. In addition, X-ray imaging, ultrasonography, biochemical tests and rapid kit tests were employed for confirmatory diagnosis of certain diseases and conditions, including FIP, FPV, FLV, flu, bone fracture, pyometra, pregnancy detection, and urolithiasis. The diagnoses of cat diseases were established through a comprehensive approach involving clinical examination, evaluation of past disease history, and various laboratory methods, such as fecal examination, urine examination, blood examination, serological tests, skin scraping examination. The overall quality assurance of laboratory testing procedures was maintained to uphold best practices in veterinary medicine by following the guidelines of the OIE manual (OIE, 2012).

### Data analysis

The collected data were entered into Microsoft Excel 2007 (USA), and the disease prevalence was calculated. The study analyzed the influences of age and sex on the occurrence of diseases in cats.

## Results and Discussion

### Prevalence of feline clinical diseases and surgical cases

During the study period from January to May 2024, a total of 2,699 cases of different clinical diseases and surgical cases in cats were recorded. Allergic dermatitis was the most prevalent disease condition, accounting for 19.51% prevalence, whereas organophosphorus poisoning was the least prevalent, comprising only for 0.16% (Figure 1 and Table 2). Neutering was recorded as the highest prevalent (39.25%) among surgical cases, while enucleation was the least common, with a prevalence of 0.64% (Figure 2).

### Sex-wise prevalence of clinical diseases and surgical cases in cats

The prevalence of clinical diseases in cats, analyzed by sex has been summarized in Table 1 and surgical cases in cats have been shown in Table 2. Analysis of disease prevalence by sex revealed that female cats were most frequently admitted for medical conditions, whereas male cats had a higher admission rate for surgical procedures at the For Pet Care Veterinary Clinic, Dhaka city, Dhaka. Out of 1,922 diseases in cats, 1,107 (57.60%) were recorded in females, and 815 (42.40%) in males. Among the female cats, allergic dermatitis showed the highest prevalence of 22.13%, while there was no report of chronic kidney disease in cats (Table 1). On the other hand, in male cats, feline

upper respiratory tract disease (FURTD) showed the highest prevalence, accounting for 19.02%, whereas feline lower urinary tract disease (FLUTD) was the least prevalent with a rate of 0%, as shown in Table 1. In addition, in female cats, spaying showed the highest prevalence accounting for 71.51%, whereas neutering was the predominant surgical procedure in male cats. This gender-based analysis helps to assess whether there are any differences in disease prevalence between male and female cats.

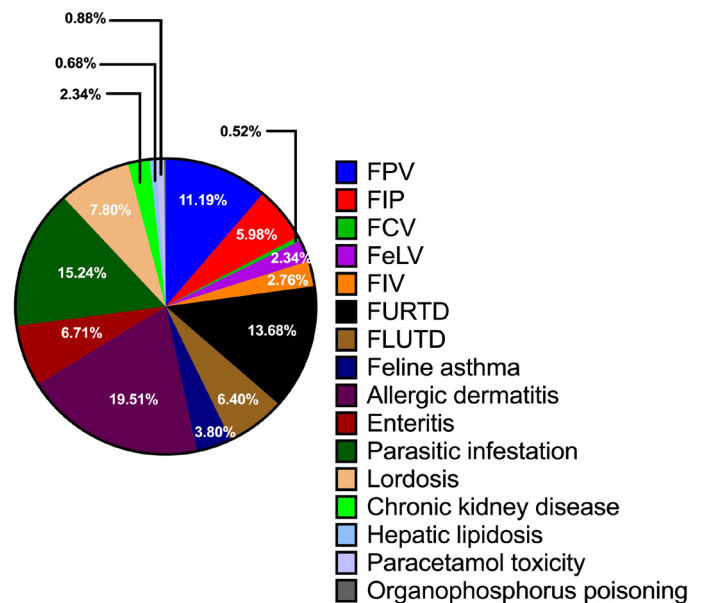


Figure 1: Pie chart showing the overall prevalence of most common disease in cats of Dhaka city. FPV, FIP, FCV, FIV, FeLV, FURTD, and FLUTD have been used to indicate feline panleukopenia virus infection, feline infectious peritonitis, feline calicivirus infection, feline immunodeficiency virus infection, feline leukemia virus infection, feline upper respiratory tract disease, and feline lower urinary tract disease, respectively.

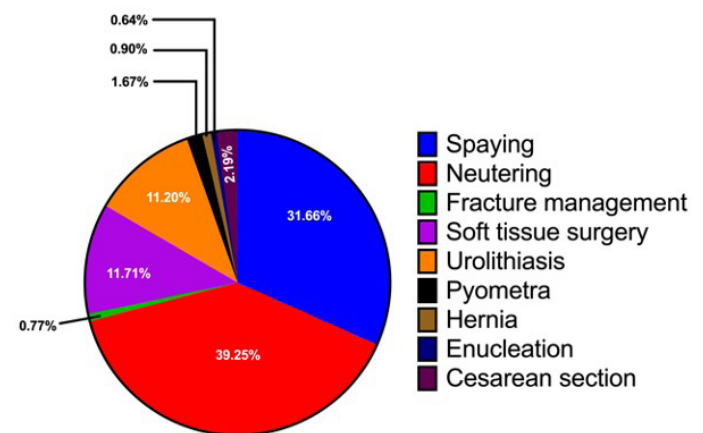


Figure 2: Pie chart showing the overall prevalence of most common surgical cases in cats of Dhaka city.

**Table 1:** Prevalence of clinical diseases in cats in relation to sex, age and breed.

Diseases	Overall prevalence (%) (n= 1922)	Sex-wise prevalence (%)		Age-wise prevalence (%)				Breed-wise prevalence (%)		
		Male (n= 815)	Female (n= 1107)	< 6 M (n=859)	6 M to 1 Y (n=438)	1 Y to 2 Y (n= 322)	> 2 Years (303)	Persian (n= 771)	Local (n= 766)	Cross breed (n= 385)
FPV infection	11.19(215)	11.90(97)	10.66(118)	17.46(150)	13.70(60)	1.55(5)	Not found	8.3(64)	10.44(80)	18.44(71)
FIP	5.98(115)	4.29(35)	7.23(80)	5.59(48)	5.25(23)	4.97(16)	9.24(28)	4.04(62)	6.53(50)	0.78(3)
FCV infection	0.52(10)	0.37(3)	0.63(7)	0.35(3)	0.46(2)	0.31(1)	1.32(4)	0.26(2)	0.78(6)	0.52(2)
FeLV infection	2.34(45)	3.93(32)	1.17(13)	0.12(1)	2.28(10)	2.8(9)	8.25(25)	4.93(38)	0.26(2)	1.3(5)
FIV infection	2.76(53)	2.45(20)	2.98(33)	0.58(5)	3.88(17)	3.11(10)	6.93(21)	5.58(43)	0.39(3)	1.82(7)
FURTD	13.68(263)	19.02(155)	9.76(108)	13.39(115)	14.38(63)	15.22(49)	11.88(36)	15.95(123)	12.27(94)	11.95(46)
FLUTD	6.4(123)	Not found	11.11(123)	Not found	1.37(6)	18.63(60)	18.81(57)	7.0(54)	5.61(43)	6.75(26)
Feline asthma	3.8(73)	5.77(47)	2.35(26)	1.15(13)	7.53(33)	4.66(15)	3.96(12)	6.23(48)	3.26(25)	Not found
Allergic dermatitis	19.51(375)	15.95(130)	22.13(245)	20.37(175)	21.23(93)	24.53(79)	9.24(28)	16.21(125)	20.63 (158)	23.90(92)
Enteritis	6.71(129)	4.29(35)	8.49(94)	9.66(83)	3.88(17)	3.42(11)	5.94(18)	9.47(73)	4.96(38)	4.68(18)
Parasitic infestation	15.24(293)	17.06(139)	13.91(154)	17(146)	15.75(69)	18.32(59)	6.27(19)	12.58(97)	15.40 (118)	20.26(78)
Lordosis	7.8(150)	7.73(63)	7.86(87)	13.39(115)	7.99(35)	Not found	Not found	2.98(23)	12.14(93)	8.83(34)
Chronic kidney disease	2.34(45)	5.52(45)	Not found	Not found	Not found	0.93(3)	13.86(42)	1.95(15)	3.79(29)	0.26(1)
Hepatic lipidosis	0.68(13)	0.49(4)	0.81(9)	Not found	Not found	Not found	4.29(13)	0.39(3)	1.31(10)	Not found
Paracetamol toxicity	0.88(17)	1.10(9)	0.72(8)	0.58(5)	1.83(8)	1.24(4)	Not found	0.13(1)	1.83(14)	0.52(2)
Organo-phosphorus poisoning	0.16(3)	0.12(1)	0.18(2)	Not found	0.46(2)	0.31(1)	Not found	Not found	0.39(3)	Not found

FPV=feline panleukopenia virus, FIP= feline infectious peritonitis, FCV= feline calicivirus, FIV= feline immunodeficiency virus, FeLV= feline leukemia virus, FURTD= feline upper respiratory tract disease, FLUTD= feline lower urinary tract disease.

*Age-wise prevalence of clinical diseases and surgical cases in cats*

The overall highest prevalence of clinical disease in cats was observed under 6 months of age (44.69%), while the lowest prevalence was recorded in the 1 to 2-year age group (16.75%) (Table 1). In contrast, the highest prevalence of surgical interventions was found in cats aged between 1 to 2 years (40.54%), whereas the lowest prevalence was found in cats under 6 months of age (13.31%) (Table 2). This age-based analysis helps to assess whether there are any differences in disease prevalence based on age difference.

*Breed-wise prevalence of clinical disease and surgical cases of cats*

The prevalence of clinical diseases and surgical cases

among cats, categorized by breed, indicates that Persian cats accounted for the highest prevalence of clinical cases (40.11%), whereas crossbred cats had the lowest prevalence (20.03%) as shown in Table 1. Conversely, local breeds demonstrated the highest prevalence of surgical cases (42.34%), with crossbreds recording the lowest prevalence (22.39%), as shown in Table 2. Analyzing disease patterns based on breed allows for the identification of variations in prevalence among Persian, local, and crossbred cats.

The prevalence of allergic dermatitis, parasitic infestation, feline upper respiratory tract disease, feline panleukopenia highlights a significant health concern for cats in the area. This can be attributed, at least in part, to a lack of awareness among pet



**Table 2:** Prevalence of surgical cases in cats in relation to sex, age and breed.

Surgical cases	Overall prevalence (%) (n=777)	Sex-wise prevalence (%)		Age-wise prevalence (%)				Breed-wise prevalence (%)		
		Male (n=433)	Female (n=343)	< 6 M (n=37)	6 M to 1Y (n=274)	1 Y to 2 Y (n=315)	> 2 Years (n=151)	Persian (n=274)	Local (n=329)	Cross breed (n=174)
Spaying	31.66 (246)	No	71.51 (246)	Not found	54.01 (148)	31.11 (98)	Not found	29.93 (82)	31.91 (105)	33.91 (59)
Neutering	39.25 (305)	70.44 (305)	No	Not found	41.24 (113)	48.25 (152)	26.49(40)	38.32 (105)	30.09 (99)	58.05(101)
Fracture management	0.77(6)	0.46(2)	1.16(4)	Not found	1.46(4)	0.63(2)	Not found	1.82(5)	Not found	0.57(1)
Soft tissue surgery	11.71(91)	7.62(33)	16.86 (58)	100 (37)	1.46(4)	14.29(45)	3.31(5)	4.74 (13)	21.88 (72)	3.45(6)
Urolithiasis	11.20(87)	20.09(87)	Not found	Not found	Not found	0.95(3)	55.63(84)	20.07 (55)	9.73 (32)	Not found
Pyometra	1.67(13)	Not found	3.78 (13)	Not found	0.36(1)	2.22(7)	3.31(5)	1.09(3)	2.74 (9)	0.57(1)
Hernia	0.9(7)	0.46(2)	1.45(5)	Not found	1.46(4)	0.95(3)	Not found	1.09(3)	0.61(2)	1.15(2)
Enucleation	0.64(5)	0.92(4)	0.29(1)	Not found	Not found	0.32(1)	2.65(4)	Not found	1.52(5)	Not found
Cesarean section	2.19(17)	No	Not found	Not found	Not found	1.27(4)	8.61(13)	2.92(8)	1.52(5)	2.3(4)

owners regarding the importance of recognizing and addressing such issues promptly. The widespread nature of these diseases underscores the need for concerted efforts in both awareness-building and implementing effective control measures. In a previous study, several clinical diseases such as salmonellosis, leptospirosis, canine rabies, infectious canine distemper, cat scratch diseases and canine scabies were recorded in cats of Dhaka city (Hossain and Kayesh, 2014). In a recent study, a high prevalence (40.45%) of FPV infection in cats of Barishal district was observed (Hossen *et al.*, 2024).

A higher prevalence of feline panleukopenia (22.9%) was observed in cats of different selected areas of Bangladesh, including Dhaka, Mymensingh and Rajshahi (Kabir *et al.*, 2023), whereas a lower prevalence (11.19%) of FPV infection was observed in this study. The relatively low prevalence of FPV can be ascribed to numerous factors, including extensive vaccination coverage, robust management strategies, enhanced public awareness, advancements in disease surveillance and reporting, as well as the influence of geographical and climatic variables. Additionally, genetic resilience observed in the local feline population may also play a pivotal role.

Different viral and bacterial disease were reported in the cats of Dhaka city (Hossain and Kayesh, 2014), requiring continuous monitoring of diseases in cats for controlling the diseases. A higher prevalence of dermatitis (19.51%) was observed in the cats of Dhaka city. A higher prevalence of dermatitis in cats in Dhaka City can be attributed to a variety of factors such as inadequate hygiene practices, adverse environmental conditions, widespread parasitic infestations, exposure to allergens and irritants, insufficient veterinary awareness, and the presence of secondary infections. However, comparatively a lower prevalence of dermatitis (2.9%) was reported in the cats of Douala city, Cameroon (Kouamo *et al.*, 2021), which could be partially attributed to geographical difference. In a previous study, Mamun *et al.* reported 3.13% prevalence of FIP in cats of Dhaka city (Mamun *et al.*, 2023), however in this study we found comparatively a higher prevalence (5.98%) of FIP, suggestive of increased prevalence of FIP in the cats of Dhaka city. In addition, enhancing pet owners awareness through targeted campaigns can play a crucial role in reducing the disease prevalence. These campaigns could educate cat owners about the management of diseases affecting their animals, including preventive measures such as regular vaccinations and health check-ups. Moreover,

ensuring proper therapeutic management of diseases is essential for effectively controlling their spread and minimizing their impact on cat health.

## Conclusions and Recommendations

The study conducted at 'For Pets Care Veterinary Clinic, Jigatola, Dhanmondi' in Dhaka city of Bangladesh, revealed that several clinical diseases are prevalent among cats in Dhaka city. Skin diseases, including allergic dermatitis, emerged as the most common issues, followed by parasitic infestations, feline upper respiratory tract disease, feline panleukopenia, and others. Among the surgical cases, neutering emerged as the most common surgical procedure, followed by spaying, soft tissue surgery, urolithiasis and others. By implementing measures such as awareness campaigns, proper disease management, and vaccination protocols, it is possible to reduce the prevalence and impact of diseases among pet cats in Dhaka city and beyond. These findings should contribute to improved veterinary practices for cats and support public health initiatives, promoting the well-being of cats and their owners. Future studies are warranted to confirm the molecular detection of the disease-causing microorganisms in cats using polymerase chain reaction.

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## Novelty Statement

This study will enhance the understanding of the prevalence of common clinical diseases and surgical cases in cats of Dhaka city, Bangladesh.

## Author's Contribution

Conceptualization: AC, YB, MKA. Investigation and data curating: AC, YB, MKA, MSR. Writing draft: YB, MKA, AC. Editing manuscript: MEHK and MRK. MEHK supervised the activities. All authors read and approved the final version of the manuscript.

## Conflict of interest

The authors have declared no conflict of interest exists.

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