Research Article

Occurrence of Common Pigeon Diseases in Sylhet, Bangladesh

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Abstract | Pigeon farming is an emerging sector in Bangladesh, but its development is limited by high disease prevalence and poor management practices. Farmers often lack adequate knowledge of standard health protocols and preventive measures. A cross-sectional study was conducted to determine the prevalence of common pigeon diseases and evaluate farmers' knowledge, attitudes, and treatment practices. Primary data were collected through interviewee-assisted surveys, while secondary data were obtained from the Upazila Livestock Office and local veterinary hospitals. Pigeon Pox was the most prevalent disease (35%), followed by parasitic infections (20%) and Newcastle Disease (12.7%). Other conditions included fowl cholera (8.4%), nutritional deficiencies (8%), and salmonellosis (6.4%). Only 20% of farms followed complete vaccination schedules, and Newcastle Disease antibody titers were monitored in just one farm. Most farmers relied on symptomatic treatment using antibiotics such as oxytetracycline, doxycycline, and sulfachloropyridazine sodium with trimethoprim, with minimal use of laboratory diagnostics. The study highlights a high burden of disease and inadequate preventive practices in pigeon farming. Enhancing farmer awareness, improving vaccination coverage, and promoting diagnostic-based treatment are essential to improve productivity and sustainability.

Keywords | Pigeon, Prevalence, Diseases, Prevention, Bangladesh

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INTRODUCTION

For centuries, Pigeons (*Columba livia)* have long been integral to human society, historically serving as cultural symbols of peace and spirituality while today flourishing as popular domestic pets. In Bangladesh, where the poultry sector is the most accessible source of animal protein, commercial broilers and layers currently meet the bulk of public demand. However, rising consumer interest in meat variety and health-conscious alternatives has positioned pigeon farming as a critical substitute for future protein security. Unlike industrial chicken, which many find monotonous, pigeon meat known as squab is prized for its delicate flavor, nutritional density, and status as one of the safest meat sources available.

The economic and biological landscape of pigeon rearing in Bangladesh offers a unique opportunity for development. According to the Paul *et al.* (2015), the country supports 10.8 million pigeons, with approximately 11% already managed in commercial settings. The ancestral rock pigeon's adaptability to human proximity makes it an ideal study subject and a low-cost livestock option. Furthermore, a significant technical advantage exists in the use of native pigeons as foster parents; while high-value foreign breeds like King and Pouter often fail to hatch their own eggs, hardy native breeds can successfully brood and rear these exotic varieties allowing farmers to scale high-value production with minimal extra effort.

Beyond its biological potential, pigeon farming is a

powerful socio-economic tool for poverty alleviation and financial independence. Traditionally managed by women in backyard systems, the practice has evolved to include students financing their education and employed individuals seeking a secondary income stream. As the price of commercial chicken feed rises, the lower feed intake and minimal rearing costs of pigeons make them an alluring alternative for farmers seeking higher profit margins. In regions like Sylhet and the coastal belts, pigeon farming presents a viable solution to unemployment, offering a high-income, low-labor opportunity that can discourage unnecessary migration abroad and contribute directly to the national Gross Domestic Product (GDP).

Despite these prospects, the sector faces critical hurdles. A lack of specialized knowledge regarding vaccination and medication leaves many farms vulnerable to diseases such as Newcastle disease and Pigeon Pox, which can compromise both production rates and the safety of the meat for human consumption. Because the profitability of a farm is inextricably linked to its health status, understanding the prevalence of common diseases and the efficacy of available treatments is paramount. This research aims to evaluate the current disease landscape and the management practices of local farmers to ensure that pigeon farming can fulfill its role as a secure, sustainable cornerstone of Bangladesh's livestock industry.

MATERIALS AND METHODS

Study area and study period

The study was conducted across various pigeon farms in Sylhet district (Figure 1). This study was conducted from March 2022 to November 2022.

Data collection

Data were collected using a bimodal approach combining active field research and passive institutional review. Primary data were obtained through direct, interviewee-assisted interviews with farmers. This semi-structured approach utilized closed-ended questions with fixed response categories for quantitative consistency, alongside open-ended questions to capture qualitative insights without predefined constraints.

Conversely, secondary data were acquired through passive collection methods by sourcing existing administrative records and clinical reports from the Upazila Livestock Office and local veterinary hospitals (Table 3). This integration of primary field data and secondary institutional data ensured a robust and contextualized dataset.

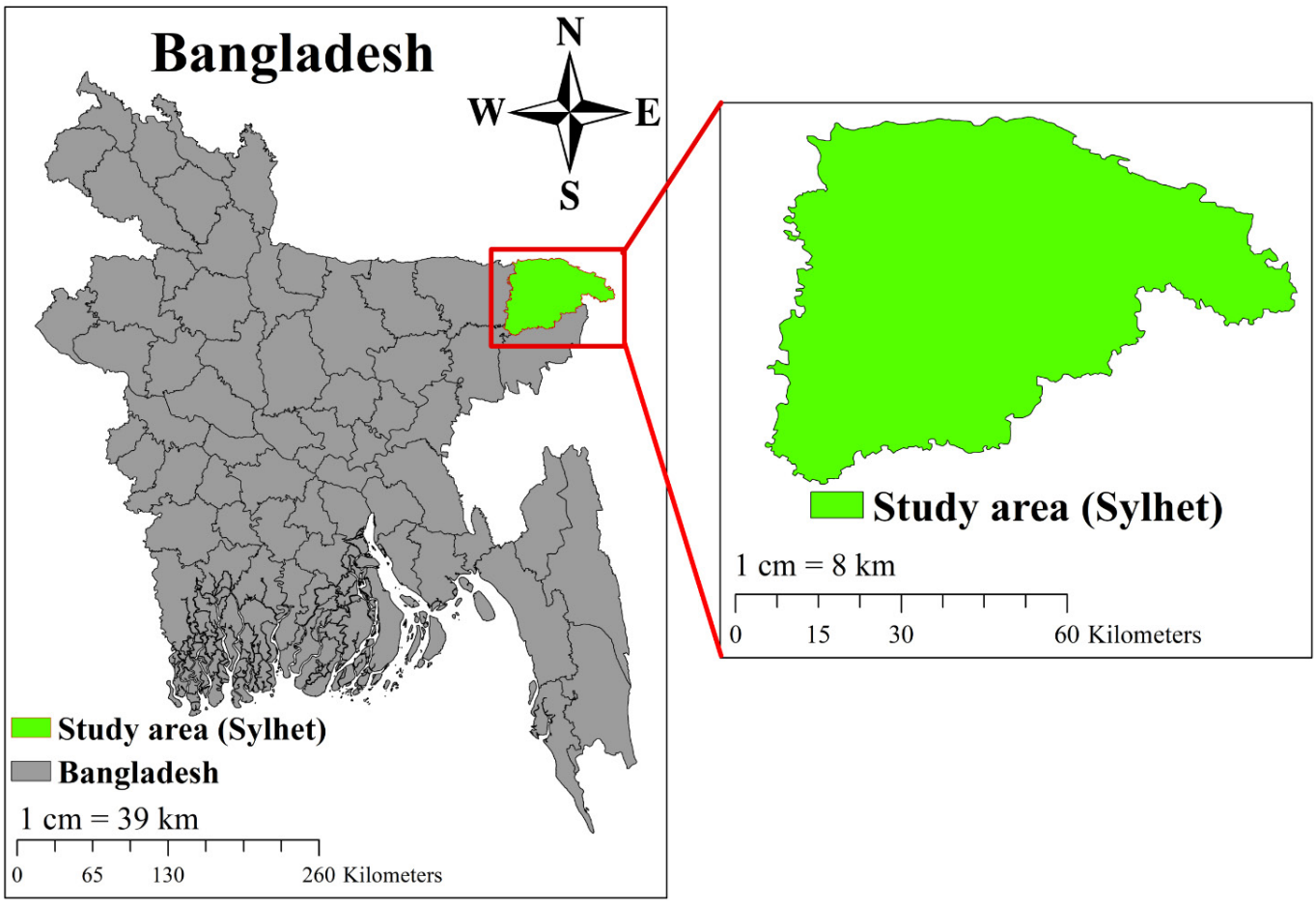

Figure 1: Map of study area (Created by ArcGIS).

Table 1: General information about 10 pigeon farms in the study area.

Serial No	Name of the owner	Profession	Farm size	Status of vaccination	Common diseases
01	Md. Alamgir	Day labourer	60	Not vaccinated	Newcastle diseases, Pox
02	Rahat Basit	Businessman	200	Pigeons are Vaccinated	Common cold, Salmonellosis
03	Syed Mortuza	Students	90	Only against ND	Coccidiosis, worm infestation.
04	Jobbar Mia	Pigeon farming	40	Not vaccinated	Pox, paralysis, ND
05	Mamun Abdullah	Teacher	140	Pigeons are Vaccinated	Common cold, CRD, Nutritional deficiency
06	Bijit Das	Students	80	Only Against pox	Malaria, Fowl cholera
07	Rima Begum	Housewife	30	Not vaccinated	Coryza, salmonellosis
08	Azmol Hussen	Driver	46	Not vaccinated	Pox ,ND, Canker
09	Malek Mia	Businessman	100	Only against ND	Nutritional deficiency, Pox, Fowl cholera
10	Rezaul Islam	Pigeon farming	70	Not vaccinated	Coccidiosis, Salmonellosis, Infectious Coryza

Procedure

Data were gathered through active, interviewee-assisted surveys during farm-to-farm visits. The researcher interviewed pigeon rearers directly to collect information on farmer demographics, flock size, rearing duration, breed diversity, age-specific disease occurrence, mortality rates, vaccination status, feed and water quality, ventilation, living space, squab care, and general hygienic conditions. In addition to interviews, the researcher performed on-site clinical observations of active disease cases present in the farms at the time of the visit to validate farmer reports. To supplement field findings, a passive data collection approach was used at the Upazila Livestock Office and Veterinary Hospital, Sadar, Sylhet. Historical records and clinical reports regarding pigeon diseases and treatments were retrieved to provide a broader regional context. The raw data collected from both the field and institutional sources were compiled and cleaned. Statistical analysis was performed using Microsoft Excel to calculate the prevalence rates of different diseases and to categorize the management practices prevalent in the Sylhet District.

RESULTS

The study identified several pigeon breeds reared by farmers in the Sylhet. While rearing is primarily conducted on a small scale, there is a notable variety of both indigenous and exotic breeds. Based on the active data collection from farm-to-farm visits, the following findings were established regarding pigeon health and husbandry (Tables 1 and 2).

Table 2: Categories of farms based on flock size. In this study 3 categories of farms were observed on the basis of size

Categories of farms	Flock size	No. of farms
Small	<50	3
Medium	50-100	5
Large	>100	2

According to age, pigeons were classified into 3 categories.

Squab	0 – 4 weeks of age
Young	5-13 weeks of age
Adult	More than 13 weeks

DISCUSSIONS

The findings of this study highlight significant variations in disease prevalence and management practices among pigeon farmers in Sylhet compared to other regions of Bangladesh. The study recorded a 35% prevalence of Pigeon Pox (Table 4; Figure 2), which is substantially higher than the 18.92% reported by Paul *et al.* (2015) in Khulna Sadar. This disparity suggests a critical lack of knowledge regarding vaccination among farmers in Sylhet. Since Pigeon Pox is a vaccine-preventable viral disease, the high occurrence indicates a failure in prophylactic measures and a lack of awareness. Furthermore, the risk is compounded by the disease's ability to spread via direct contact and mosquito vectors. Given that the wet pox form can result in mortality rates as high as 50–60%, it represents an alarming threat to the local pigeon population. Improved environmental hygiene, such as clearing surrounding jungles and stagnant water, is essential to reduce vector populations.

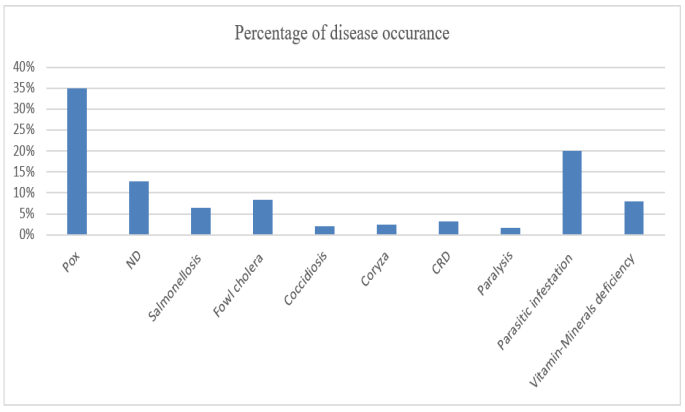

Figure 2: Percentage of occurrence of different disease.

Table 3: List of pigeon diseases found in Upazila Livestock Office and Veterinary Hospital, Sadar, Sylhet (from March to November 2022):

Study peroid	Pox	ND	Salmo nellosis	Fowl cholera	Cocci diosis	Cory-za	CRD	Para-lysis	Parasitic infe station	Vitamin, mineral deficiency
March	465	28	40	-	-	-	40		420	120
April	330	90	-	150	40	60	-	50		-
May	160	-	40	-	-	-	50	-	175	-
June	500	120	80	90	-	-	-	-	-	-
July	-	60	-	40	60	80	-	-	-	90
August	250	80	60	-	-	-	100	-	100	-
September	180	-	60	120	-	-	-	40	150	-
October	130	100	130	85	20	-	-	-	120	-
November	-	200	-	-	-	-	-	-	190	250
Total	2015	730	370	485	120	140	190	90	1155	460

Table 4: Determination of percentage of disease occurrence.

Name of disease	Number of cases	Percentage of occurrence
Pox	2015	(2015 ÷ 5755) × 100 = 35%
Newcastle Disease (ND)	730	(730 ÷ 5755) × 100 = 12.7%
Salmonellosis	370	(370 ÷ 5755) × 100 = 6.4%
Fowl Cholera	485	(485 ÷ 5755) × 100 = 8.4%
Coccidiosis	120	(120 ÷ 5755) × 100 = 2.1%
Infectious Coryza	140	(140 ÷ 5755) × 100 = 2.4
Chronic Respiratory Disease	190	(190 ÷ 5755) × 100 = 3.3%
Paralysis	90	(90 ÷ 5755) × 100 = 1.6%
Parasitic infestations	1155	(1155 ÷5755) × 100 = 20.1%
Vitamins and minerals deficiency	460	(460 ÷ 5755) × 100 = 8%
Total	5755	= 100%

Table 5: Occurrence of diseases on the basis of types of causal agents.

Types of causal agents	Number of cases	Percentage of occurrence
Viral diseases	(2015+730) = 2745	(2745 ÷ 5755) × 100= 47.7%
Bacterial diseases	(370+485+140) = 995	(995 ÷ 5755) × 100 = 17.3%
Parasitic diseases (protozoan, worms, mite and ice)	(120+1155) = 1275	(1275 ÷ 5755) × 100 =22.2%
Others diseases	(460+90) = 740	(740 ÷ 5755) × 100 = 12.9%

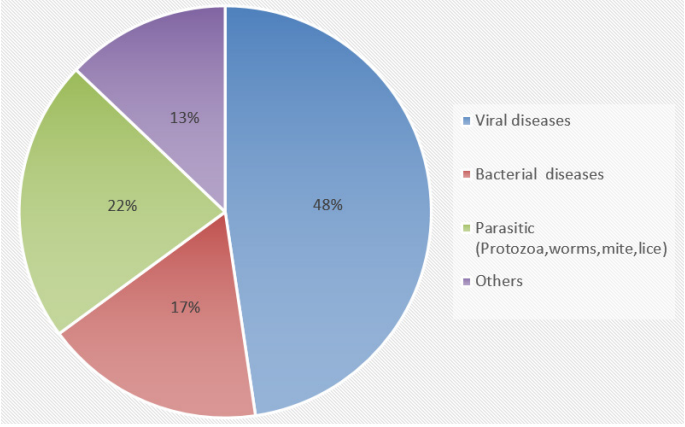

Figure 3: Percentage of occurrence of different disease.

In contrast, parasitic diseases accounted for 20% of cases in this study (Table 5; Figure 3), a notable decrease from the 31.67% observed in Khulna Sadar (Paul *et al.*, 2015). This lower percentage indicates that farmers in Sylhet are becoming more proactive regarding loft cleanliness and the administration of anthelmintic. However, the persistence of these parasites suggests that while awareness is growing, regular deworming schedules are not yet fully optimized. Achieving a further reduction in parasitic load will require stricter adherence to periodic anthelmintic dosages.

A common constraint identified was vitamin and mineral deficiency. Observations revealed that most farmers focus

solely on providing basic feed, neglecting the specific micronutrient requirements of the birds. This "feed-only" approach hampers overall production and growth performance. Educating farmers on the importance of supplements is vital for improving the physiological health and reproductive success of the pigeons.

The study underscores a significant gap in biosecurity measures. The lack of quarantine protocols for newly introduced birds creates a high risk for the introduction of pathogens into unaffected flocks. Additionally, unrestricted visitor access acts as a potential pathway for indirect disease transmission. Implementing strict entry barriers and mandatory isolation periods for new stock is necessary to safeguard farm biosecurity.

CONCLUSION

This study highlights that while pigeon rearing in Sylhet is a resilient practice due to the birds' naturally robust immune systems, significant gaps in scientific management and biosecurity remain. The high prevalence of vaccine-preventable diseases, such as Pigeon Pox (35%), underscores an urgent need for increased farmer awareness regarding systematic vaccination and vector control. Furthermore, while improvements in sanitation and anthelmintic use have reduced parasitic burdens to 20%, the neglect of micronutrient supplementation (vitamins and minerals) remains a primary constraint to maximizing production. Transitioning from traditional "feed-only" methods to evidence-based husbandry incorporating quarantine, balanced nutrition, and professional veterinary consultation is vital for the sustainable growth of pigeon farming in Bangladesh.

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NOVELTY STATEMENT

This study provides a detailed assessment of pigeon health by simultaneously evaluating disease prevalence, farmer knowledge, preventive practices, vaccination status, and treatment pattern. Unlike previous studies that primarily focused on disease occurrence, the present research identifies critical management and bio-security gaps contributing to disease load in pigeon farms of Bangladesh. The findings provide baseline evidence for developing targeted disease control and farmer education programs in the emerging pigeon farming sector.

AUTHOR'S CONTRIBUTION

Data collection: SLD, MSAS. Data analysis: SLD, MKA. Writing the original draft: SLD, MKA, SIB. Review and editing: MKA, SIB. All authors read and approved the final manuscript.

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Generative AI and AI assisted technology statement

The authors declare that no generative AI and AI assisted technology was used in the creation of this manuscript.

Conflict of interest

The authors have declared no conflict of interest.

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