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Retrospective case study of livestock diseases recorded at Fulbaria upazila veterinary hospital in Mymensingh district of Bangladesh

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ABSTRACT

The present study was undertaken to find out the suspected livestock cases recorded in upazila veterinary hospital from October 1, 2021, to November 30, 2022. The data were collected from the registered book that was maintained at the upazila livestock office. We found that cattle, goats, chickens, ducks, and pigeons were common livestock species taken to veterinary hospitals. We also found that clinical cases of animals were treated based on clinical history, clinical signs, and physical examination and diseases were grouped as infectious and non-infectious diseases in cattle and goats, diseases of chicken, duck, and pigeons. The relative ratio of occurrence of lumpy skin diseases and peste des petitis ruminants was high among other infectious diseases in cattle and goats respectively. By contrast, the relative ratio of occurrences of non-infectious bloat was high among other non-infectious diseases in cattle and goats. We also found that clinical cases in poultry were treated based on clinical history, clinical signs, physical examination, and postmortem examination and were grouped as diseases in chickens, ducks, and pigeons. The relative ratio of occurrences of visceral gout, duck viral enteritis, and pigeon pox was high among other diseases in chicken, duck, and pigeon respectively during the study period. In summary, the findings have indicated the various clinical cases, diagnoses, treatment approaches, and incidence in livestock species at Fulbaria upazila veterinary hospital of Mymensingh district of Bangladesh.

Introduction

Bangladesh is a populated country in the world. Farming is the major source of income for rural people. The standard of livelihood depends on crop, fish, and livestock production. The demand for animal-originated foods is increasing rapidly. About 36% of total animal protein comes from livestock products in daily life (Hoque and Samad 1996). Moreover, livestock plays a vital role in gross domestic product (GDP). The mean production of meat, milk, and eggs was about 165 metric tons in 1972 which increased to 1919.54 metric tons in 2019-1920 (Daily Sun, March, 2022). Recent studies have shown that the existing livestock populations in Bangladesh were 25 million cattle, 1.5 million buffalo, 3.8 million sheep, 26.7 million goats, 311.8 million chickens, and 63.8 million ducks (DLS, 2021-2022). In Bangladesh, clinical cases are the major obstacles to the development and production of livestock populations. By contrast, the performances of livestock are not satisfactory due to unscientific farming practices and various diseases and disorders. The clinical complaints of livestock at upazila veterinary hospital were reported in various regions like Dhaka (Hague et al. 2012), Narayangonj (Imran et al. 2021), Chittagong (Badruzzaman et al. 2015, Uddin et al. 2015, Ullah et al. 2015, Arju et al. 2013, Alim et al. 2012), Sylhet (Lucky et al. 2013), Magura (Karim et al. 2014), Kurigram (Kabir et al. 2010), Moulobibazar (Moumita et al. 2020), Bhola (Nahian et al. 2017), Barishal (Asha et al. 2022).

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Based on these previous reports, we have planned to investigate the diseases and disorders of livestock and poultry reported at the upazila veterinary hospital of Fulbaria. To the best of my knowledge, there are no reports on diseases and disorders of livestock and poultry at the upazila veterinary hospitals of Fulbaria upazila yet. The findings of the investigation will give an idea to draw the priority-based research and treatment approach for the better health and production of livestock and poultry in the Mymensingh district.

Methodology

Fulbaria is the largest upazila consisting of thirteen unions and one pouroshova of the Mymensingh district. The total area of upazila is about 402.41 km^2 and is bounded by Muktagacha at the north, Bhaluka at the south, Trishal at the east, and Modhupur at the west**.** We have analyzed the registered diseases and disorders of livestock at upazila veterinary hospital of Fulbaria based on species of livestock and poultry, suspected causes of diseases, month of occurrence, etc. We examined the clinical cases enlisted in the registered books of upazila veterinary hospitals with permission from the upazila livestock officer. We have assured that diseases and disorders were diagnosed by physical examination, clinical signs, gross pathology, and laboratory procedures by upazila livestock officers and veterinary surgeons. Clinical examination of livestock was conducted based on disease history and owner's complaint, clinical findings, and techniques used by Rosenberger (1979) and Samad (1988b) to diagnose the diseases and disorders. A general physical examination was performed by observation of the animal's body condition, behavior, posture, gait, locomotive disturbance, pulse, respiration, temperature, abdominal distension, defecation, etc. The owner's complaints were taken into account while performing a general physical examination of a sick animal. Physical examination of different parts and systems of the body of each of the sick animals were examined by using the procedures of palpation, percussion, auscultation, needle exploration, extension and flexion of limbs, and walking of animals as per methods described by Kelly (1974) and Samad (1988b). Surgical and gynecological cases were treated based on established methods of surgical and gynecological disease treatment procedures.

Statistical analysis

Statistical analysis was performed with Microsoft Excel. Relative ratio was calculated from the data produced from the registered book kept at upazila veterinary hospital. Relative ratio 1 was considered as standard in a group of diseases and compared with others. All values were presented as relative ratios.

Results

The findings of the retrospective study were summarized as follows:

Relative ratio of clinical cases of livestock

We found that the principal livestock and poultry species reared at the upazila are cattle, goats, chickens, ducks, and pigeons. The disease complaints registered at the Upazila Veterinary Hospital mostly found in favor of the mentioned species, which accepts very few pet animals, especially cats. We found that the most common livestock species taken to receive treatment at veterinary hospitals were goats and cattle (Fig. 1). The poultry species that are also found to being treated at upazila veterinary hospitals are chicken, duck, and pigeon (Fig.1). Among the poultry species chicken was the more numerous being treated at the veterinary hospital. By contrast, ducks and pigeons were also common poultry species taken to be treated at the upazila veterinary hospitals of Fulbaria under the Mymensingh district of Bangladesh.

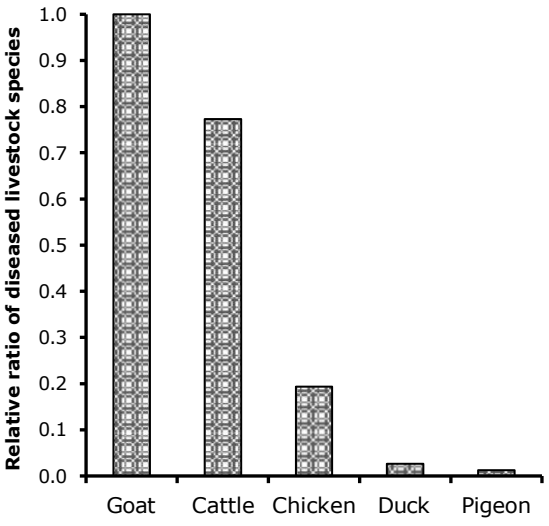

Fig 1. **Relative ratio diseases in livestock species.** Graphs showing livestock species that were registered for treatment at upazila veterinary hospital**.** The relative ratio of goats was higher among other species.

Relative ratio of infectious diseases in livestock

Based on the analysis, we found that the most livestock species that were registered for

treatment at veterinary hospitals were cattle and goat (Fig.1). Precisely, the infectious diseases in livestock were included the bacterial, viral, fungal and parasitic diseases at veterinary hospital (Fig. 2). The registered infectious diseases were lumpy skin diseases, worm infestation, non-specific fever, mastitis, enteritis, foot and mouth disease, bovine ephemeral fever, pneumonia, coccidiosis, hump sore, theileriosis, bronchitis, tick infestation, roundworm infestation, lice infestation, otitis, rabies, and black quarter which were diagnosed based on the specific clinical signs and pathogenic lesions of the cattle (Fig. 2). The relative ratio showed that lumpy skin disease in cattle was the highest among the other infectious diseases (Fig. 2). The registered data showed that infectious diseases in goats were peste des petits ruminants, worm infestation, tick infestation, coccidiosis, tetanus, pneumonia, non-specific fever, bronchitis, enteritis, contagious ecthyma, lice infestation, rabies, mastitis, otitis, foot and mouth disease (Fig. 3). The ratio of peste des petits ruminants in goats was the highest among other infectious diseases that were registered at veterinary hospitals (Fig. 3).

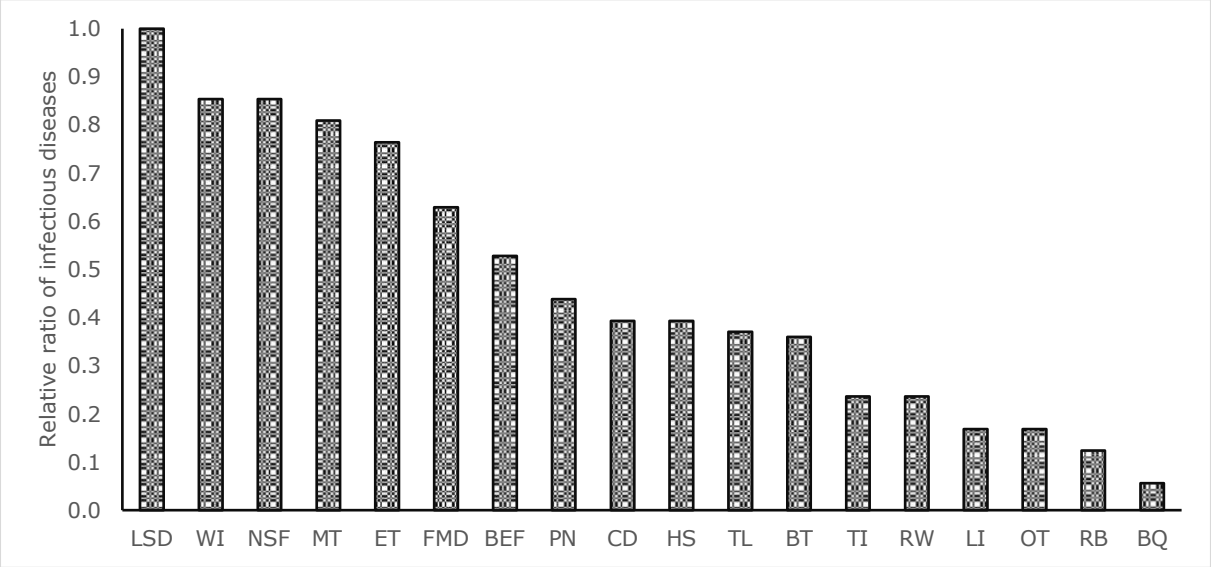

Fig 2. **Relative ratio of infectious diseases in cattle.** Graphs showing the infectious diseases in cattle registered for treatment at upazila veterinary hospital**.** The ratio of lumpy skin disease in cattle was high among other infectious diseases. LSD, lumpy skin disease; WI, worm infestation; NSF, non-specific fever; MT, mastitis; ET, enteritis; FMD, foot and mouth disease; BEF, bovine ephemeral fever; PN, pneumonia; CD, coccidiosis; HS, hump sore; TL, theileriosis; BT, bronchitis; TI, tick infestation; RW, roundworm infestation; LI, lice infestation; OT, otitis; RB, rabies; BQ, black quarter.

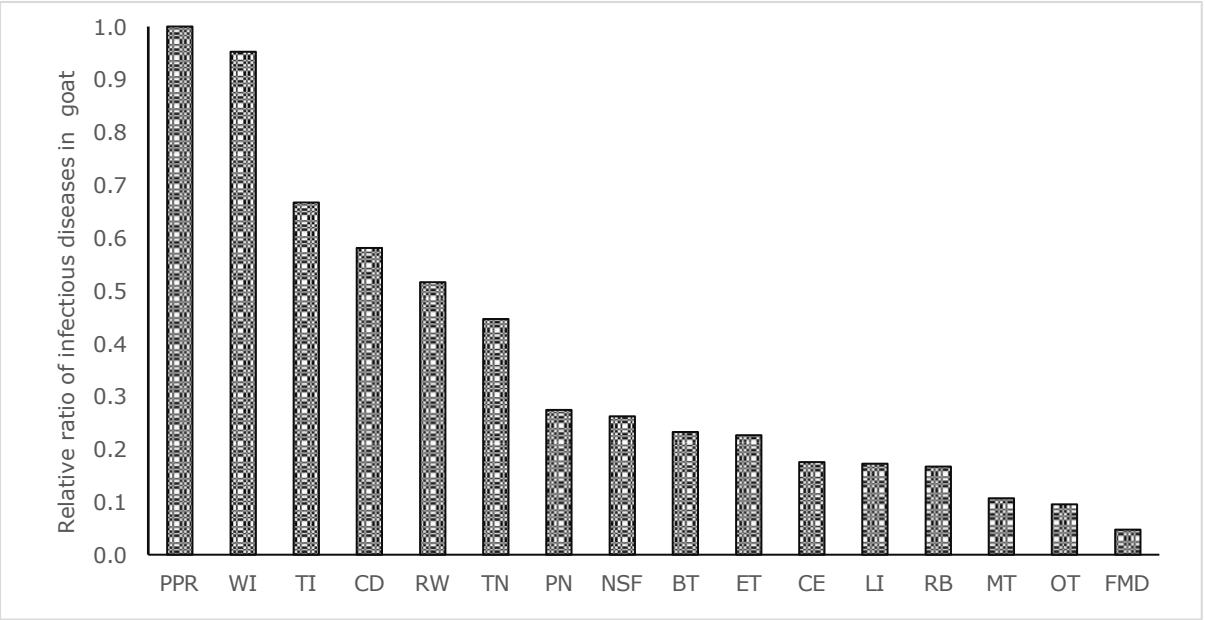

Fig 3. **Relative ratio of infectious diseases in goats.** Graphs showing the infectious diseases in goats that were registered for treatment at upazila veterinary hospital**.** The ratio of peste des petits ruminants in goats was high compared to other diseases. PPR, peste des petits ruminants; WI, worm infestation; TI, tick infestation; CD, coccidiosis; TN, tetanus; PN, pneumonia; NSF, non-specific fever; BT, bronchitis; ET, enteritis; CE; contagious ecthyma; LI, lice infestation; RB, rabies; MT, mastitis; OT, otitis; FMD, foot and mouth disease.

Relative ratio of non-infectious diseases in livestock

Based on the data analysis, we found that the cattle and goats were common livestock species registered for treatment at veterinary hospitals. The nutritional, metabolic, surgical, and theriogenological diseases in cattle and goats were considered non-infectious diseases that were registered at veterinary hospitals. The common non-infectious diseases in cattle were bloat, naval ill, abscess, hernia, anestrus, myiasis, fracture, dermoid cyst, milk fever, pyometra, dermatitis, warts, dystocia, downer's cow syndrome, upward patellar fixation, repeat breeding, retention of placenta, uterine prolapse, anemia, food poisoning, atresia ani, wound, abortion, and tail gangrene (Fig. 4). By contrast, the common non-infectious diseases/diseases condition in goats were the bloat, castration, anemia; overgrowth of a hoof, fracture, urolithiasis, dermatitis, myiasis, gid disease, abscess, abortion; retained placenta, dystocia, malnutrition, pyometra, anestrus, wound, food poisoning, uterine prolapse, and warts (Fig. 5). The relative ration of bloat was the highest among the other non-infectious diseases in cattle and goat (Fig. 4, 5).

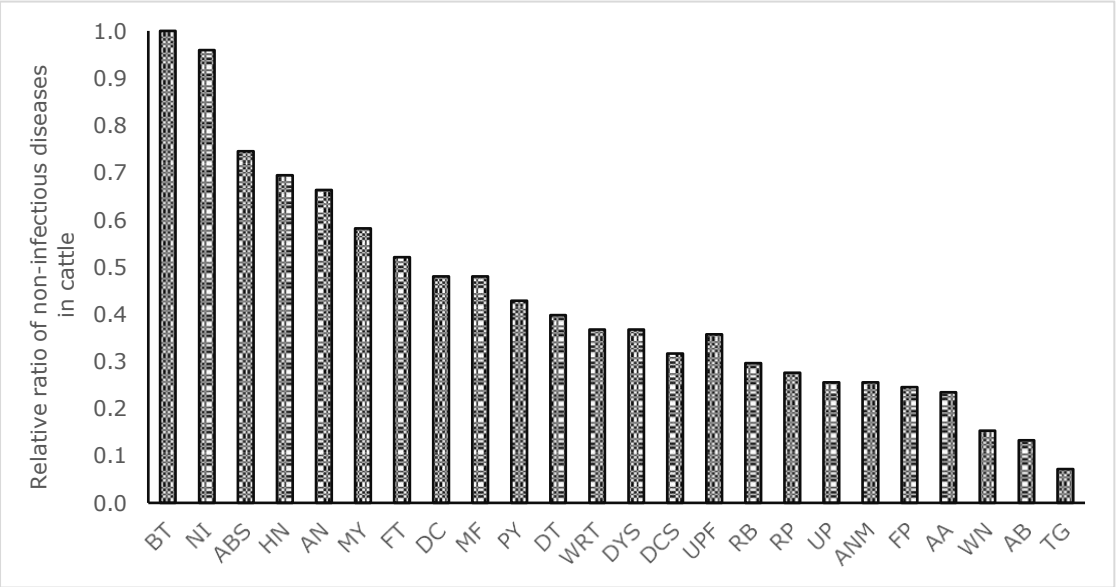

Fig 4. Relative ratio of non-infectious diseases in cattle: Graphs showing the non-infectious diseases in cattle that were registered at upazila veterinary hospital. The relative ratio of bloat was high among other non-infectious diseases/conditions. BT, bloat; NI, naval ill; ABS, abscess; HN, hernia; AN, anestrus; MY, myiasis; FT, fracture; DC, dermoid cyst; MF, milk fever; PY, pyometra; DT, dermatitis; WRT, warts; DYS, dystocia; DCS, downer's cow syndrome; UPF, upward patellar fixation; RB, repeat breeding; RP, retention of placenta; uterine prolapse; ANM; anemia; FP, food poisoning; AA, atresia ani; WN, wound; AB, abortion; TG, tail gangrene.

Relative ratio of diseases in poultry

We analyzed the registered diseases of chickens, ducks, and pigeons for treatment at the upazila veterinary hospital. The common diseases in chicken were visceral gout, newcastle disease, infectious bursal disease, colibacillosis, heat stroke, brooder pneumonia, chronic respiratory disease, sinusitis, fowl cholera, coccidiosis, mycoplasmosis, ascites, ectoparasite, fowl pox, infectious laryngotracheitis, and omphalitis (Fig.6). We also found that duck viral enteritis, botulism, duck viral hepatitis, coccidiosis, the chronic respiratory disease was common in duck (Fig.7). By contrast, pigeon pox, chronic respiratory disease, coccidiosis, omphalitis and colibacillosis were common diseases in pigeons (Fig.8). The relative ratio of visceral gout, duck viral enteritis and pigeon pox was the highest among other diseases registered at veterinary hospital in chicken, duck, and pigeon respectively (Fig.6, 7, 8).

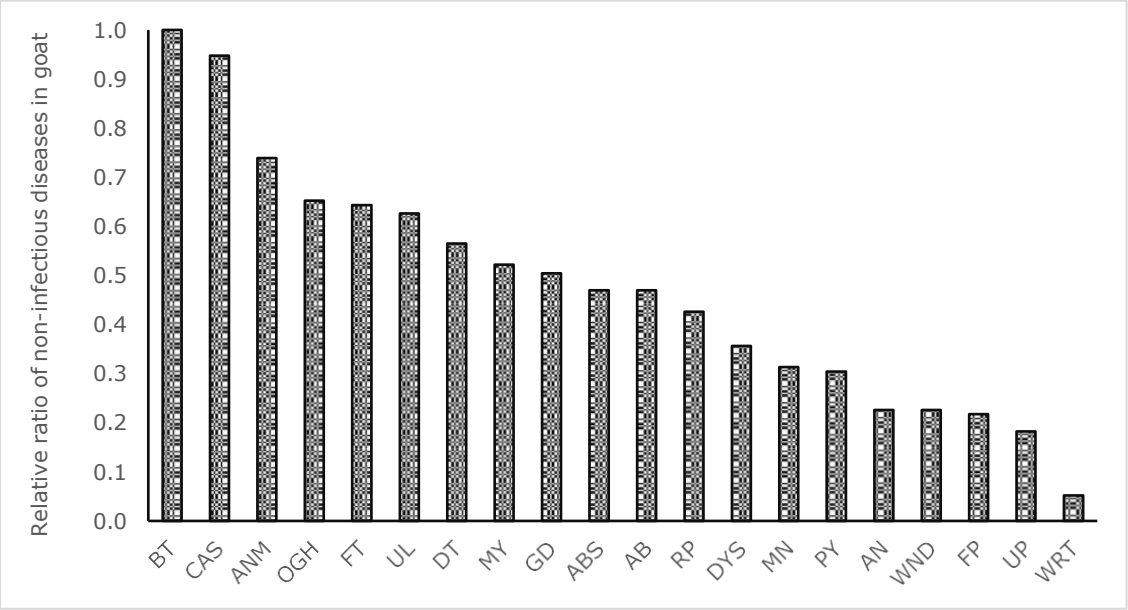

Fig 5. Relative ratio of non-infectious diseases in goats: Graphs showing the non-infectious diseases in goats that were registered at upazila veterinary hospital. The relative ratio of bloat was high among other non-infectious diseases/conditions. BT, bloat; CA, castration; ANM, anemia; OGH, overgrowth of hoof; FT, fracture; UL, urolithiasis; DT, dermatitis; MY, myiasis; GD, gid disease; ABS, abscess; AB, abortion; RP, retained placenta; DYS, dystocia; MN, malnutrition; PY, pyometra; AN, anestrus; WND, wound; FP, food poisoning; UP, uterine prolapse and WRT, warts.

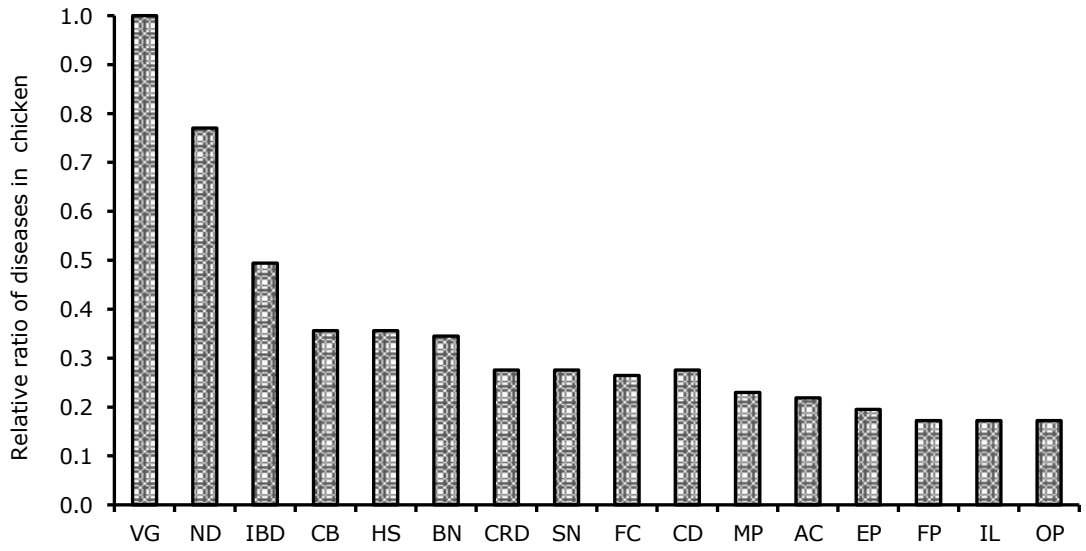

Fig. 6 Relative ratio of diseases in chicken. Graphs showing the diseases/condition of chickens that were registered for treatment at upazila veterinary hospital. The relative ratio of visceral gout was high among other diseases. VG, visceral gout; ND, newcastle disease; IBD, infectious bursal disease; CB, colibacillosis; HS, heat stroke; BN, brooder pneumonia; CRD, chronic respiratory disease; SN, sinusitis; FC, fowl cholera; CD, coccidiosis; MP, mycoplasmosis; AC, ascites; EP, endoparasite; FP, fowl pox; IL, infectious laryngotracheitis; OP, omphalitis.

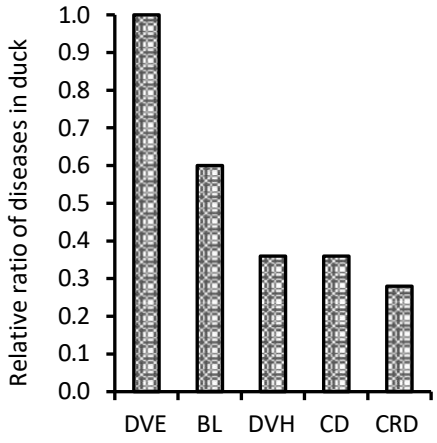

Fig 7. Relative ratio of diseases in duck. Graphs showing the diseases/conditions in ducks that were registered for treatment at upazila veterinary hospital. The relative ratio of duck viral enteritis was high among other diseases. DVE, duck viral enteritis; BL, botulism; DVH, duck viral hepatitis; CD, coccidiosis; CRD, chronic respiratory disease.

Relative ratio of diseases of livestock over the year

We have analyzed the diseases of livestock and poultry that were registered at veterinary hospitals over the years from January to December 2023. The diseases in cattle, goats, chickens, ducks, and pigeons were found in different densities over the year. We found that the relative ratio of registered diseases in cattle was relatively higher in the first quarter and started to decline in the middle and again increased in the last quarter of the year (Fig.9).

By contrast, the relative ratio of registered diseases in goat was higher in the third quarter compared to the first and second quarter of the year and continued in similar pattern up to end of the last quarter. We also found that diseases in chickens, ducks and pigeons registered over the year at different densities. The relative ratio of diseases of chicken, duck, and pigeons was higher in the first, second, and third quarters of the year respectively (Fig.9).

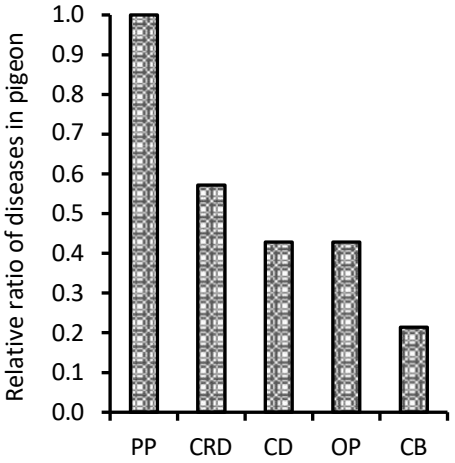

Fig 8. Relative ratio of diseases in pigeon. Graphs showing the diseases/conditions in pigeons that were registered for treatment at upazila veterinary hospital. The relative ratio of pigeon pox was high among other diseases. PP, pigeon pox; CRD, chronic respiratory disease; CD, coccidiosis; OP, omphalitis; CB, colibacillosis.

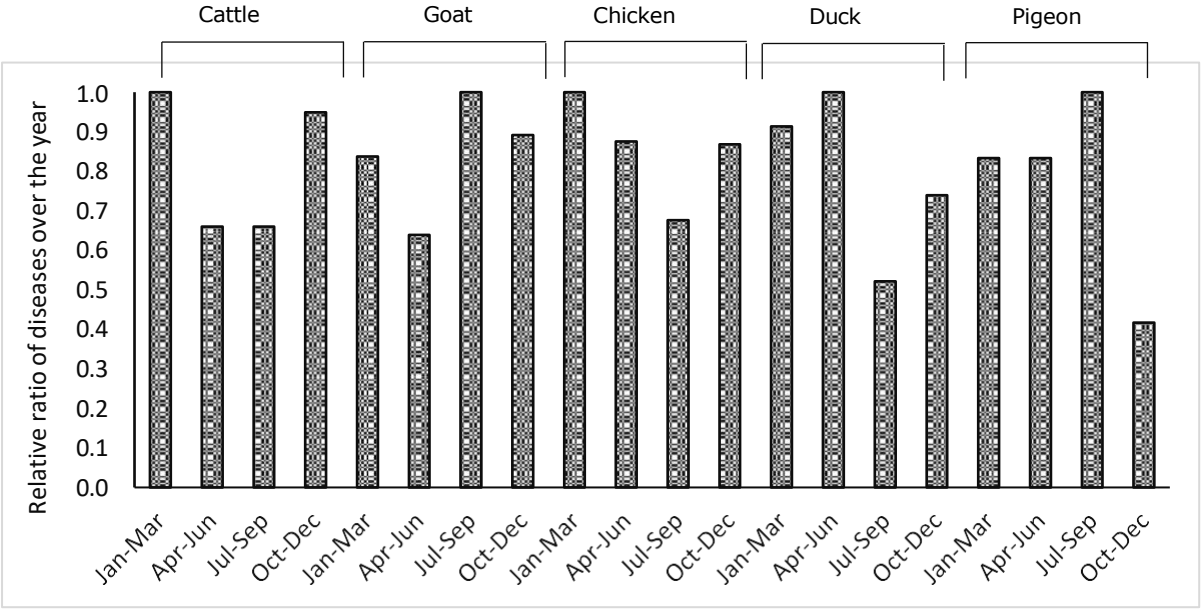

Fig 9. Relative ratio of occurrences of diseases in livestock during the study period: Graphs showing the occurrences of diseases in cattle, goats, chickens, ducks, and pigeons that were registered during the study period at upazila veterinary hospital. The relative ratio of average diseased cattle, goats, chickens, ducks, and pigeons taken in Jan-Mar, Jul-Sep, Jan-Mar, Apr-Jun, and Jul-Sep respectively were higher among other quarters of the year. Jan-Mar, January-March; Apr-Jun, April-June; Jul-Sep, July-September; Oct-Dec, October-December.

Discussion

Bangladesh is well-known as a populated country in the world. Most of the people live in rural areas and their income source is very limited. Agriculture is the main occupation of the people living in the rural area. The livestock sector is one of the most important subsectors of agriculture as the demand for animal-origin food is increasing day by day. Moreover, livestock has been making a significant contribution to the national gross domestic product by producing animal-origin food, generating job opportunities, and earning foreign remittances. Farmers involved in livestock rearing have been facing great problems due to frequent occurrences of diseases and disorders in livestock. By contrast, upazila veterinary hospitals are the only government veterinary service providers in Bangladesh. Moreover, the transportation facilities for diseased animals are limited in rural areas except few motor vehicles usually used for carrying passengers and goods. Therefore, the farmers have been facing great problems in obtaining veterinary medical services for diseased animals, especially for large animals like cattle, buffalo, and horses due to lack of communication and transport facilities. So, we have planned to investigate the relative occurrences of diseases in different animal species and provision of veterinary services at the upazila veterinary hospitals of Mymensingh district of Bangladesh. We found that the common diseased animal species registered at veterinary hospitals were cattle, goats, chickens, ducks, and pigeons. The number of goats was the highest whereas cattle was the second highest number. The number of diseased goats was higher compared to diseased cattle registered for veterinary service at upazila veterinary hospital. The variation of the number might be due to the small size of the goat and ease of carrying to the hospital using local transport whereas the transportation of heavyweight cattle was difficult using local transport. By contrast, the total number of goats rearing at the upazila might be higher compared to large cattle species. Previous reports showed that the total number of goats was the highest in number whereas the number of cattle was the second highest registered at the Bondor upazila veterinary hospital of Narayangonj (Hossain et al., 2021). The number of poultry species was very low as farmers were getting free veterinary services from different pharmaceutical companies for the treatment of poultry flocks. Animals usually suffer from different diseases like non-specific fever, peste des petits ruminants, pneumonia, mastitis, enteritis, foot and mouth disease, bovine ephemeral fever, black quarter, etc. We found that the occurrence of lumpy skin diseases and PPR was the highest in cattle and goats respectively. Lumpy skin diseases and PPR in cattle and goats were diagnosed based on clinical history and clinical signs without laboratory diagnostic tests which were the major limitations in diagnostic procedures. Previous reports showed that infectious disease in cattle was 12.79 % in males and 8.86 % in females at Moulovibazar sadar upazila (Das et al. 2020). Foot and mouth disease was the highest (6.12%) among infectious diseases in cattle at Moulovibazar upazila though FMD was the highest infectious disease registered at the veterinary hospitals of Fulbaria Upazila (Das et al.2020). Parasitic and/or parasite diseases were very common in livestock in rural areas where animals have excess to graze freely at pasture land.

We found that lumpy skin diseases, worm infestation, coccidiosis, hump sore, theileriosis, tick infestation, ringworm, and lice infestation were very common in cattle of Fulbaria upazila of Mymensingh district. Vector-borne suspected lumpy skin disease was the highest incidence in cattle among the other infectious diseases in recent times. By contrast, PPR, worm infestation, tick infestation, ringworm, and lice infestation were common in goats where the PPR was the highest incidence of infectious diseases in goats reared at the Fulbaria upazila. A previous report showed that infectious parasitic disease was about 30.64% in Chittagong and 26.58 % in the Sylhet area of Bangladesh (Badruzzaman et al. 2015; Lucky et al., 2016). We have shown that bloat, malnutrition, milk fever, downer's cow syndrome, dermatitis, anemia, and food poisoning were common in cattle. By contrast, bloat, anemia, dermatitis, malnutrition, and food poisoning were also common in goats. Among the nutritional and/or metabolic diseases, bloat has the highest incidence in cattle and goats. Bloat perhaps occurred in cattle/goats due to a lack of knowledge of the choice of food or feeding behavior of cattle and goats. The previous report also showed that tympany was 3% in cattle and 4% in goat at Bandar upazila of Narayangonj district (Hossain et al., 2021). Nahian et al. showed that bloat was 6.67% in cattle at Lalmohon upazila in the Blola district (Nahian et al. 2017). We found that navel ill, abscess,

hernia, myiasis, fractures, dermoid cysts, warts, upward patellar fixation, atresia ani, wounds, and tail gangrene were common surgical cases in cattle at Fulbaria upazila veterinary hospital. By contrast, castration, overgrowth of the hoof, fracture, urolithiasis, myiasis, gid disease, abscess, wound, and warts were common in goats. Navel illness and castration were the highest incidences of surgical cases in cattle and goats respectively at Fulbaria upazila veterinary hospital of Mymensingh district. A recent report showed myiasis (3.33 %), wounds (2.22%), and warts (1.11%) in cattle of Lalmohon upazila of Bhola district (Nahian et al. 2017). We showed that anestrus, pyometra, dystocia, retention of the placenta, uterine prolapse, and abortion are common gynecological diseases in cattle. By contrast, abortion, retention of placenta, dystocia, pyometra, anestrus, and uterine prolapse were common gynecological diseases in goats. Sarker reported that the retention of the placenta was 27% in cattle while Karim showed 30% of retained placenta in gayneco-obstretical diseases (Sarker et al. 2013, Karim et al. 2014). Chicken, duck, and pigeons were common poultry species that were treated at Fulbaria upazila veterinary hospital of the Mymensingh district. Incidence of poultry diseases like visceral gout, newcastle diseases, infectious bursal disease, colibacillosis, heat stroke, brooder pneumonia, chronic respiratory disease, sinusitis, fowl cholera, coccidiosis, mycoplasmosis, ascites, ectoparasites, fowl pox, and laryngotracheitis were very common poultry diseases in chicken. By contrast, duck viral enteritis, botulism, duck viral hepatitis, coccidiosis, and chronic respiratory diseases were common in ducks while pigeon pox, chronic respiratory disease, coccidiosis, omphalitis, and colibacillosis were common in pigeons according to the registered book of Fulbaria upazila veterinary hospital of Mymensingh district. Poultry species become infected with viral/ bacterial agents due to a lack of proper husbandry, vaccination, and biosecurity.

Conclusion

This study has provided data on the distribution of diseases and disorders in livestock over the years. It was shown that goats, cattle, chickens, ducks, and pigeons were brought for treatment to the upazila veterinary hospital. Lumpy skin diseases, worm infestation, non-specific fever, mastitis, enteritis, foot and mouth disease, and bovine ephemeral fever were common infectious diseases in cattle. By contrast, bloat, naval ill, abscess, hernia, anestrus, myiasis, fracture, etc were common non-infectious diseases in goats. We also found that diseases of chickens, ducks, and pigeons were also registered for treatment at upazila veterinary hospital over the year with variable numbers. The major problems in preventing and controlling livestock diseases were a lack of scientific husbandry practice, poor vaccination, and insufficient veterinary services at the herd level in Bangladesh. Monitoring of animal health and diseases will help to ensure the security and safety of livestock for the welfare of smallholder livestock farmers. Improving scientific husbandry practice, diagnostic capacity, and veterinary extension services in rural areas is also recommended, especially for smallholder livestock farmers.

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Author's contribution

J. Alam: Conceptualization, planning, data analysis, graphical presentation, graphs editing, manuscript writing, and editing. Ripa Akter: Collection and summarization of the data. T. Soltana, N. Nisa, T. Rahman, M.R Islam, M. M Hossain: Editing and reviewing the manuscript. All authors read and approved the manuscript.

Consent to participate

The authors fully consent to participate as needed.

Consent for publication

All the authors have full consent to publish this article in the Bangladesh Journal of Animal Science.

Conflict of interest

The authors declare no conflict of interest.

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