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Retrospective Study of Livestock Diseases Registered at Government Veterinary Hospital in Shahjadpur Upazila of Sirajganj District

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ABSTRACT

The present study was undertaken to find out the suspected clinical diseases of livestock recorded in upazila veterinary hospital from October 1, 2021, to November 30, 2022. The data were collected from the registered book kept at the upazila livestock office and veterinary hospital and analyzed with standard methods. We found that cattle, sheep, and goats were frequently registered for treatment. Clinical diseases and conditions were diagnosed based on standard clinical and laboratory methods. We found that the percentage of tick infestation (18.19%), worm infestation (15.43%), non-specific fever (7.10%), mastitis (4.04%), coughing (2.69%), conjunctivitis (2.26%), dermatitis (2.21%), arthritis (1.59%) and babesiosis (1.92), diarrhea (17.73%), anorexia (8.75%), weakness (3.67%), bloat (2.08%), anestrus (4.77%), and naval ill (2.81%) in cattle. By contrast, the percentage of worm infestation (12.29%, coughing (11.61%), conjunctivitis (6.09%), non-specific fever (4.35%), PPR (3.87%), tick infestation (1.45%), diarrhea (32.52%), anorexia (15.10%), bloat (1.64%), weakness (1.06%), debility (1.06%) and anestrus (1.35%) were in goats. We also found that the percentage of worm infestation (16.66%), tick infestation (1.78%), coughing (16.39%), conjunctivitis (12.5%), non-specific fever (10.41%), rabies infection (1.48%), and peste des petits ruminants (1.19%), diarrhea (30.35%), anorexia (14.28%), and bloat (4.16%) were in sheep registered at upazila veterinary hospitals of Shahjadpur, Shirajganj. These findings will be crucial for the veterinary service provider and researcher to work together for the control and management of infectious and non-infectious diseases of livestock reared in rural areas of Bangladesh.

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Introduction

Bangladesh is an agrarian economic country where most people in rural areas depend on farming for their livelihood. Agriculture and livestock farming are important income-generating activities for people in rural areas. The Department of Livestock Services reported that the contribution of livestock to the Gross Domestic Product (GDP) of Bangladesh is 1.47%, with the GDP growth rate of livestock at 3.47% in 2020 (DLS, 2020). Approximately, 20% population of the country is directly and 50% are partially engaged with livestock production in Bangladesh (DLS, 2020). A recent report showed that the contribution of livestock to gross domestic product (GDP) was 1.85% and the share of livestock in the agricultural GDP was 16.52 % in Bangladesh (DLS, 2022-2023). The livestock resources of Bangladesh are based on cattle, goat, sheep, buffalo, and poultry and their populations vary in regions of the country. There were about 248.56 lakh cattle, 15.16 lakh buffalo, 38.27 lakh sheep, and 269.45 lakh goats (DLS, 2022-2023). Shahjadpur upazila of Sirajganj district is well-known for milk, milk products, and beef production. Livestock products provide about 36% of animal protein (Hoque and Samad, 1996). The mean production of meat, milk, and eggs was about 165 metric tons in 1972. These 165 metric tons have increased to 1919.54 metric tons in 2019-1920 (Daily Sun, March 2022). The development and production of livestock are passing obstacles for clinical diseases in Bangladesh. The performances of livestock are not satisfactory for various diseases and disorders. The diseases and disorders of livestock at upazila veterinary hospital were reported in various regions like Kurigram (Kabir et al., 2010), Dhaka (Hague et al., 2012), Chittagong (Arju et al. 2013, Alim et al., 2012; Badruzaman et al., 2015; Uddin et al., 2015; Ullah et al., 2015), Sylhet (Lucky et al., 2013), Magura (Karim et al., 2014), Bhola (Nahian et al., 2017), Moulvibazar (Moumita et al., 2020), Narayanganj (Hossain et al., 2021), Barishal (Asha et al., 2022). Based on previous reports, we investigated the diseases and disorders of livestock that were taken for treatment at the upazila veterinary hospital of Shahjadpur under Sirajganj district. To the best of our knowledge, there are no reports on diseases and disorders of livestock at the upazila veterinary hospitals of Shahjadpur 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 at Shahjadpur upazila of Sirajganj district.

Methodology

Shahjadpur upazila of the Sirajganj district is a large upazila consisting of thirteen unions and one municipality. The total area of upazila is about 324.47 km^2. We have analyzed the data of diseased animals enlisted in the register book of upazila veterinary hospital from october 2021 to september 2022. A total number of 3002 data were collected. We examined the data of registered books with the consent of the upazila livestock officer. Diseases and disorders of animals were diagnosed by physical examination, clinical signs, gross pathology, and laboratory procedures by upazila livestock officers and veterinary surgeons. physical examination of diseased animals was conducted 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). Clinical examination of animals was conducted based on the owner's complaint, disease history, clinical signs, and laboratory tests used by Rosenberger (1979) and Samad (1988b). The owner's brief description of diseases was considered during the clinical examination of a diseased animal. Surgical and gynecological cases were diagnosed and treated based on established surgical and gynecological disease diagnosis and treatment methods.

Statistical Analysis

Statistical analysis was performed with Microsoft Excel. The percentage was calculated from the data produced from the registered book kept at upazila veterinary hospital. All values were presented as percentages.

Results and Discussion

The findings of the retrospective study were summarized as follows:

Livestock species registered for treatment at upazila veterinary hospital:

The common livestock species reared in rural areas of Shahjadpur upazila were cattle, buffalo, horses, goats, and sheep with different densities. In this study, we found that cattle, goat, and sheep were the major livestock species taken for treatment at upazila veterinary hospital (Fig. 1). We found that the percentage of cattle, goat, and sheep were 54.39%, 34.41%, and 11.19% respectively. We also found that the percentage of cattle was the highest among the other livestock species (Fig. 1). The number of diseased cattle that were taken to upazila veterinary hospital over the year depended on the severity of diseases, ease of transport, distance of cattle farm from upazila veterinary hospitals, the economic stability of farmer and communication facility to poor farmer provided by the government. We found that the percentage of diseased cattle that were treated was 22.47%, 25.84%; 25.47%, and 26.21% in a consecutive quarter year respectively (Fig. 2). We found that the highest percentage of diseased cattle that were treated at veterinary hospitals was 26.21% from October 2022 to December 2022 (Fig. 2). The percentage of diseased goats were 12.19%,42.59%,38.52% and 6.67 % in a consecutive quarter year respectively (Fig. 2). By contrast, the percentage of diseased sheep was 20.23%, 26.78%, 41.96% and 11.01% in consecutive quarter of the year respectively (Fig. 2).

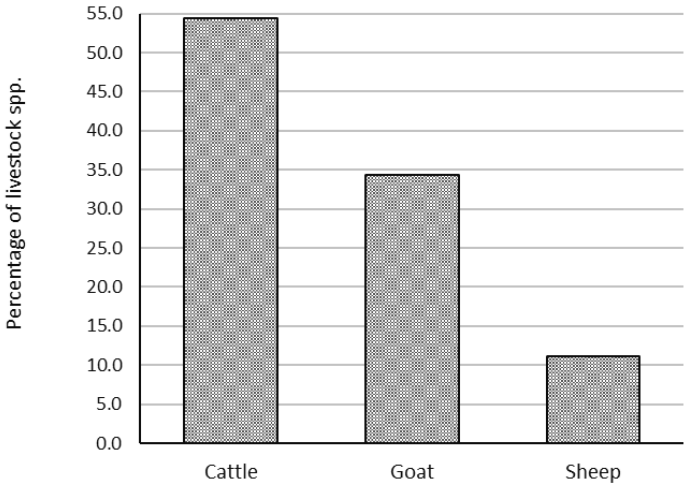

Figure 1. Graph showing the percentage of livestock species registered for treatment. The percentage of cattle registered for treatment at upazila veterinary hospital was the highest among other livestock species.

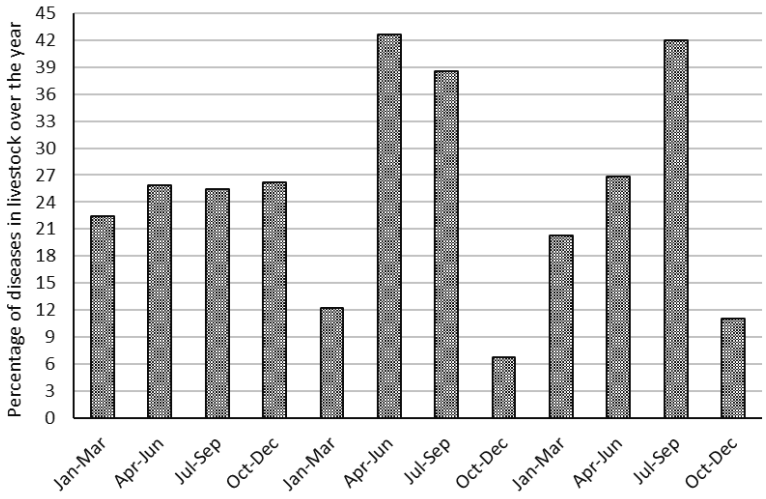

Figure 2. Graph showing the percentage of diseases in livestock spp. over the year. The percentage of diseases in cattle, goats, and sheep was the highest in the 4th, 2nd, and 3rd quarter of the years respectively. Jan-Mar, January-March; Apr-Jun, April-June; Jul-Sep, July-September; Oct-Dec, October-December

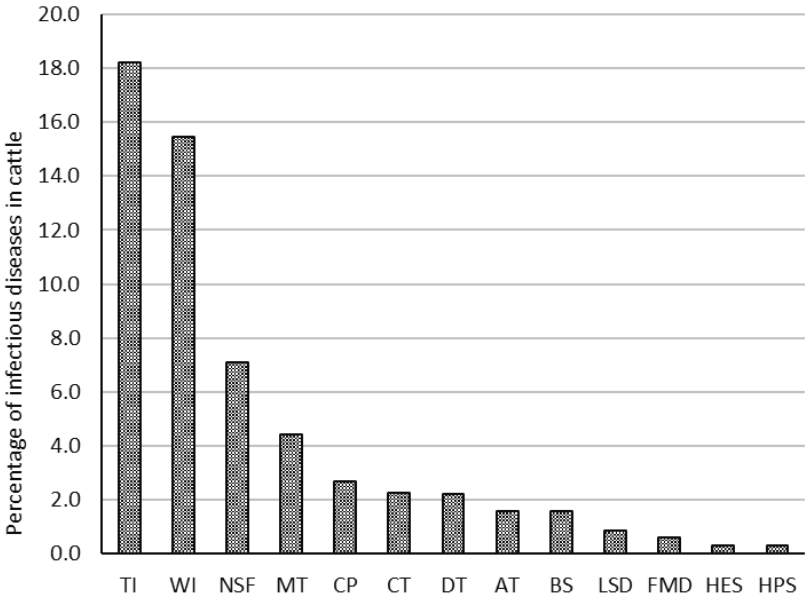

Figure 3. Graph showing the percentage of infectious diseases in cattle. The percentage of tick infestation was the highest among other infectious diseases in cattle. TI, Tick infestation; WI, worm infestation; NSF, non-specific fever; MT, mastitis; CP, coughing; CT, conjunctivitis; DT, dermatitis; AT, arthritis; BS, babesiosis; LSD, lumpy skin disease; FMD, foot and mouth disease; HES, hemorrhagic septicemia; HPS, humpsore.

Infectious and non-infectious diseases of cattle

Based on clinical signs and suspected causal agents, we had roughly categorized the diseases/ disease conditions of cattle as infectious and non-infectious diseases. The bacterial, viral, parasitic, and protozoal diseases were categorized as infectious diseases whereas nutritional, metabolic, theriogenological, and surgical diseases/conditions were categorized as non-infectious diseases in cattle. We found that tick infestation, worm infestation, non-specific fever, mastitis, conjunctivitis, dermatitis, arthritis, babesiosis, lumpy skin diseases, foot and mouth disease, hemorrhagic septicemia, and hump sore were common infectious diseases in cattle registered of upazila veterinary hospitals. We found that the percentage of tick infestation, worm infestation, non-specific fever, and mastitis were 18.19%, 15.43%, 7.10%, and 4.04% respectively. By contrast, the percentage of coughing, conjunctivitis, dermatitis, arthritis, babesiosis, lumpy skin diseases, foot and mouse diseases, hemorrhagic septicemia, and hump sore was 2.69 %, 2.26%, 2.21%, 1.59%, 1.92%, 0.85%, 0.61%, 0.30%, and 0.30% respectively (Fig.3). In this study, we found that anorexia, weakness, and beef fattening, diarrhea, bloat, acidosis were common nutritional diseases/conditions. The percentages of anorexia, weakness, and beef fattening in cattle registered for treatment were 8.75%, 3.67%, and 1.57% respectively. Similarly, the percentages of cattle registered for the treatment of diarrhea, bloat, and acidosis were 17.73%, 2.08%, and 0.79 % respectively (Fig.4). We also found that the highest percentage of cattle registered for diarrhea (17.73%) and anorexia (8.75%) at the upazila veterinary hospital (Fig.4). We found that anestrus, abortion, retention of placenta, and dystocia were common theriogenological diseases in cattle registered for treatment at an upazila veterinary hospital. By contrast, navel ill, hernia, fracture, upward patellar fixation, castration, and atresia ani were common surgical cases. The percentage of anestrus, abortion, retention of placenta, and dystocia was 4.77%, 0.42%, 0.24%, and 0.24% respectively (Fig. 4). On the other hand, the percentage of navel ill, hernia, fracture, upward patellar fixation, castration, and atresia ani were 2.81%, 0.79%, 0.24%. 0.18%, 0.12%, and 0.06% respectively (Fig. 4). Here, we also found that a higher percentage of cattle registered for treatment of anestrus (4.77%) and naval ill (2.81%) at the veterinary hospital of Shahjadpur upazila of Sirajganj district during the study period (Fig. 4).

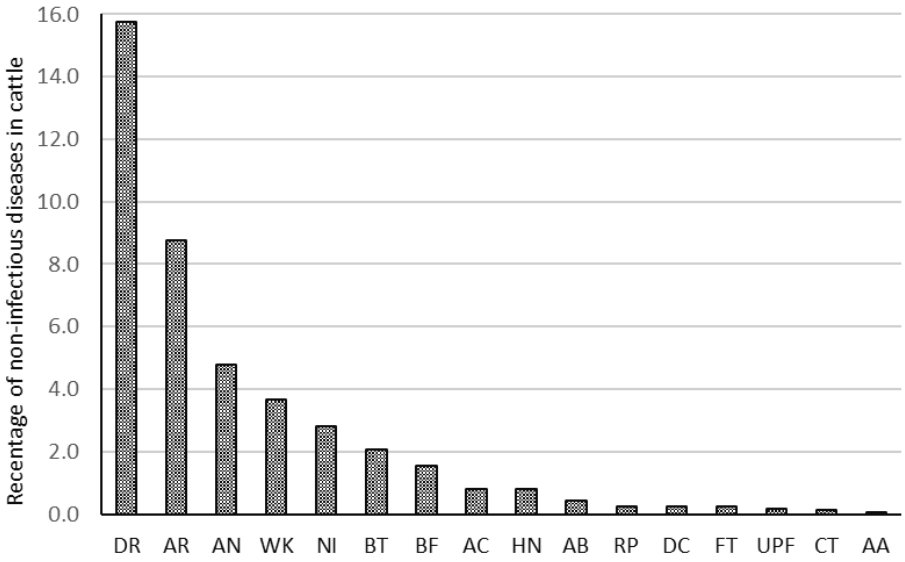

Figure 4. Graph showing the percentage of non-infectious diseases in cattle. The percentage of diarrhoea was the highest among the other non-infectious diseases in cattle. DR, diarrhea; AR, anorexia; AN, anemia; WK, weakness; NI, navel ill; BT, bloat; BF, beef fattening; AC, acidosis; HN, hernia; AB, abortion; RP, retention of placenta; DC, dystocia; FT, fracture; UPF, upward patellar fixation; CT, castration; AA, atresia ani

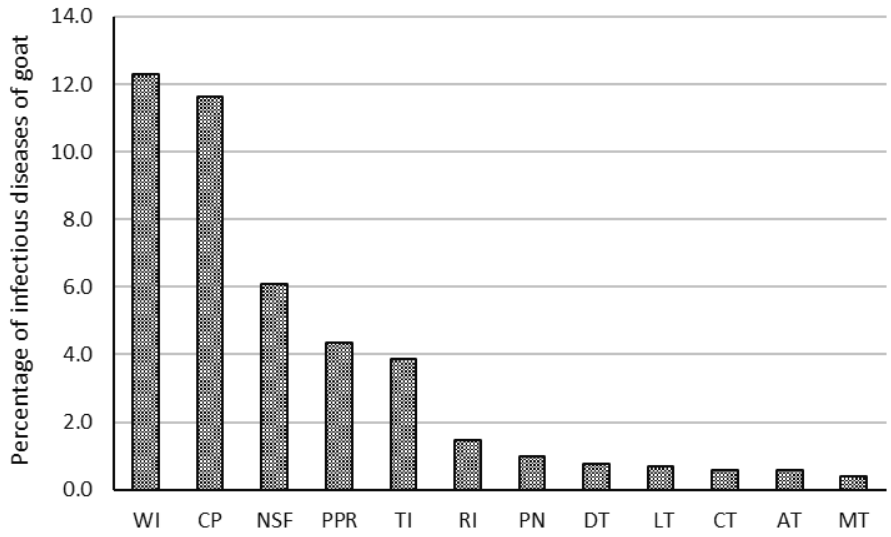

Figure 5. Graph showing the percentage of infectious diseases in goats. The percentage of worm infestation was the highest among other infectious diseases in goats. WI, worm infestation; CP, coughing; NSF, non-specific fever; PPR, peste des petits ruminants; TI, tick infestation; RI, ringworm; PN, pneumonia; DT, dermatitis; LT, laminitis; CT, conjunctivitis; AT, arthritis; MT, mastitis.

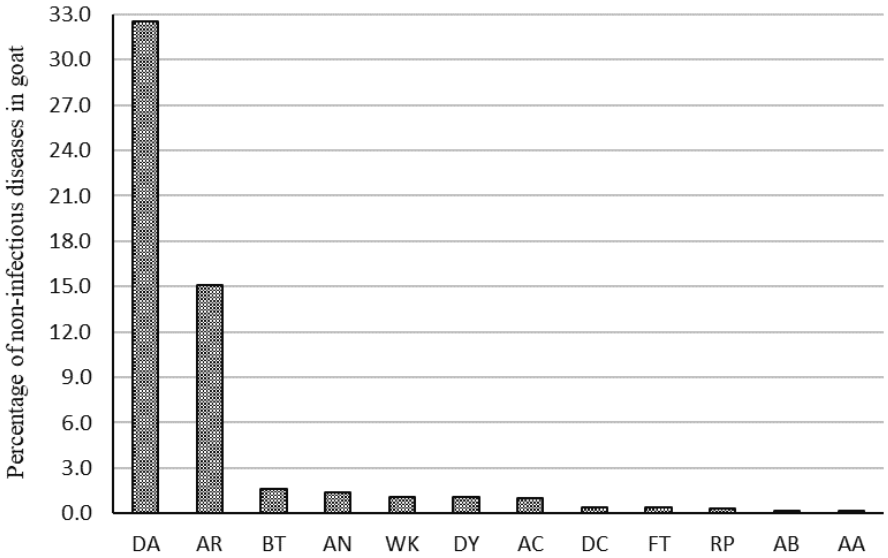

Figure 6. Graph showing the percentage of non-infectious diseases in cattle. The percentage of diarrhea was the highest among the other non-infectious diseases in cattle. DA, diarrhea; AR, anorexia; BT, bloat; AN, anemia; WK, weakness; DY, debility; AC, acidosis; DC, Dystocia; FT, fracture; RP, retention of placenta; AB, abortion; AA, atresia ani.

Infectious and non-infectious diseases of goats

We observed that the infectious and non-infectious diseases of goats were almost similar to those of cattle. Therefore, we broadly categorized bacterial, viral, parasitic, and protozoal diseases as infectious diseases. By contrast, the nutritional, metabolic, theriogenological, and surgical diseases were categorized broadly as non-infectious diseases in goats. We found that worm infestation, coughing, conjunctivitis, non-specific fever, PPR, tick infestation, rabies virus infection, pneumonia, dermatitis, laminitis, conjunctivitis, arthritis, and mastitis were common infectious diseases of goats registered for treatment at upazila veterinary hospital (Fig. 5). The percentage of worm infestation, coughing, conjunctivitis, non-specific fever, PPR, tick infestation, rabies virus infection, pneumonia, dermatitis, laminitis, conjunctivitis, arthritis, and mastitis were 12.29%, 11.61%, 6.09, 4.35%, 3.87%, 1.45%, 0.96%, 0.77%, 0.67%, 0.58%, 0.58%, and 0.38% respectively in the goats registered for treatment at a veterinary hospital (Fig. 5). Here, we had noticed that the percentage of worm infestation, coughing, conjunctivitis, and non-specific fever were comparatively higher than other infectious diseases in goats. On the other hand, we found that diarrhea, anorexia, bloat, weakness, debility, and acidosis were the common nutritional and metabolic diseases in goats. The percentage of diarrhea, anorexia, bloat, weakness, debility, and acidosis was 32.52%; 15.10%, 1.64%, 1.06%, 1.06%, and 0.96% respectively in goats (Fig. 6). We also observed that the percentage of diarrhea (32.53%) and anorexia (15.10%) in goats were higher among the non-infectious diseases (Fig. 6). We found that anestrus, dystocia, retention of the placenta, and abortion were important theriogenological diseases of goats registered for treatment at veterinary hospital. The percentage of anestrus, dystocia, retention of placenta, and abortion were 1.35 %, 0.38%, 0.29%, and 0.19 % respectively in goats (Fig. 6). By contrast, urolithiasis, fracture, and atresia ani were common surgical diseases in goats. The percentage of urolithiasis, fracture, and atresia ani was 0.87%, 0.38%, and 0.19% respectively in goats (Fig. 6). The percentage of anestrus and urolithiasis was 1.35% and 0.87% in goats, respectively.

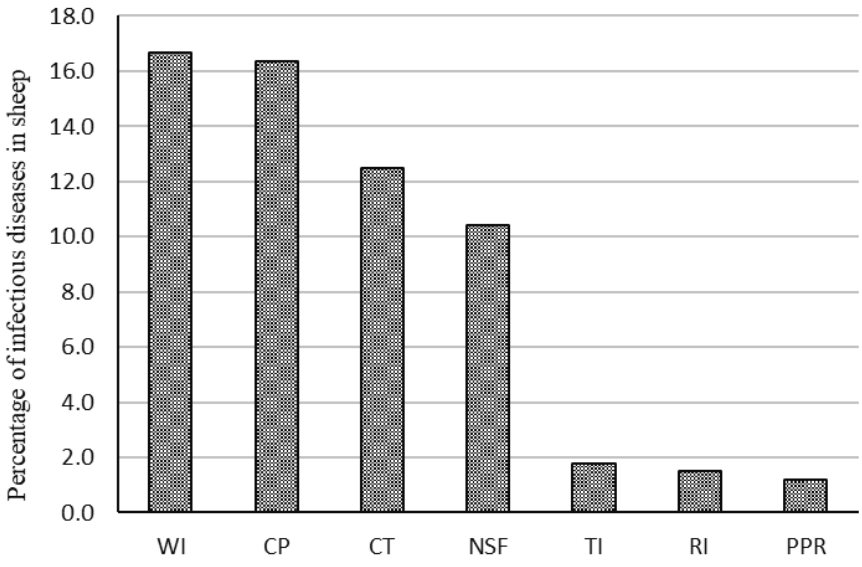

Figure 7. Graph showing the percentage of infectious diseases in sheep. The percentage of worm infestation was the highest among other infectious diseases in goats. WI, worm infestation; CP, coughing; CT, castration; NSF, non-specific fever; TI, tick infestation; RI, roundworm infestation; PPR, peste des petits ruminants.

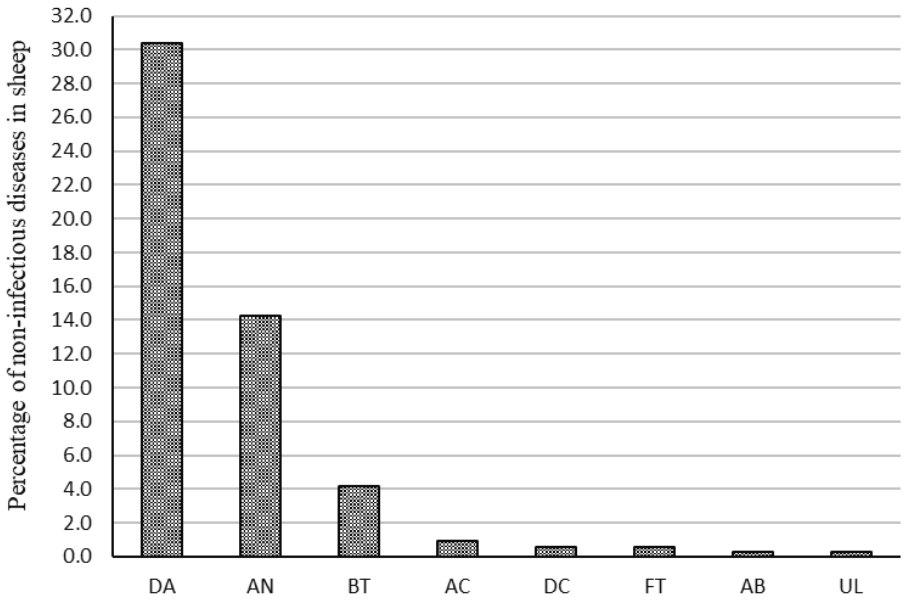

Figure 8. Graphs showing the percentage of non-infectious diseases in sheep. The percentage of diarrhea was the highest among the other non-infectious diseases in cattle. DA, diarrhea; AN, anemia; BT, bloat; AC, acidosis; DC, dystocia; FT, fracture; AB, abortion; UL, urolithiasis.

Infectious and non-infectious diseases in sheep

We observed that the infectious and non-infectious diseases of sheep were almost similar to those of goat. Therefore, we broadly categorized bacterial, viral, parasitic, and protozoal diseases as infectious diseases. By contrast, the nutritional, metabolic, theriogenological, and surgical diseases were categorized as non-infectious diseases in sheep. We found that worm infestation, tick infestation, coughing, conjunctivitis, non-specific fever, rabies infection, and peste des petits ruminants were common infectious diseases in sheep. The percentage of worm infestation, tick infestation, coughing, conjunctivitis, non-specific fever, rabies infection, and peste des petits ruminants was 16.66%, 1.78%, 16.39 %, 12.5 %, 10.41 %, 1.48 %, and 1.19 % respectively in sheep (Fig. 7). We also observed that diarrhea, anorexia, bloat, and acidosis were common nutritional and metabolic diseases in sheep (Fig. 8). The percentage of diarrhea, anorexia, bloat, and acidosis was 30.35 %, 14.28 %, 4.16 %, and 0.89 % respectively in sheep that were registered for treatment at upazila veterinary hospital (Fig. 8). We also found that dystocia and abortion were the theriogenological diseases of sheep that were registered for treatment at upazila veterinary hospital (Fig. 8). The percentage of dystocia and abortion were fracture, 0.59 % and 0.29 % respectively in sheep (Fig. 8). We found that fracture and urolithiasis were the surgical cases of sheep. Similarly, the percentage of fracture and urolithiasis were 0.59 % and 0.29 % respectively in sheep (Fig. 8).

Discussion

Bangladesh is a densely populated country in the world. Agriculture is the main income-generating practice of the people living in the rural areas of Bangladesh. The demand for animal-origin food is increasing day by day in Bangladesh. Moreover, livestock has been making a significant contribution to the national gross domestic product (GDP). Farmers involved in livestock rearing are facing obstacles of diseases and disorders in livestock. By contrast, Upazila Veterinary Hospital is the principal veterinary service provider 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 problems with diseased large animals like cattle, buffalo, horses, sheep, and goats with poor communication and transportation facilities for years. So, we planned to investigate the occurrences and categories of diseases of animal species and the provision of veterinary service at the Shahjadpur upazila veterinary hospital of Sirajganj district of Bangladesh. We found that the common livestock species registered for treatment at veterinary hospitals were cattle, goat, and sheep. The percentage of cattle was the highest (54.39 %) whereas goat was the second highest (34.41 %) percentage registered for treatment at upazila veterinary hospital. The percentage of diseased cattle (54.39 %) was higher compared to diseased goat (34.41 %) and sheep (11.19%) registered for veterinary service at upazila veterinary hospital. It is well known that the densities of the cattle are comparatively higher in Sirajganj for milk and beef production. Previous reports showed that the percentages of cattle (42.70%), goats (56.5%), and sheep (0.6%) were being treated at the veterinary hospital of Bandar upazila of Narayanganj district (Hossain et al., 2021). By contrast, farmers are more cautious about the health care of expensive large dairy and beef cattle and ensure their access to proper veterinary services for their well-being.

The occurrences of diseases in cattle registered at veterinary hospitals were almost similar for four quarter months of the whole year. By contrast, the percentage of diseased sheep and goats that were registered at veterinary hospitals varies among the quarter month of the year. The percentages of diseased goats and sheep had increased from April to September whereas in sheep from July to September during the period. The percentages of registered infectious diseases of cattle were tick infestation (18.18%), worm infestation (15.43%), non-specific fever (7.10%), mastitis (4.40%), coughing (2.69%), conjunctivitis (2.26%), dermatitis (2.20%), arthritis (1.59%), babesiosis (1.59%), lumpy skin diseases (0.85%), foot and mouth disease (0.61%) hemorrhagic septicemia (0.30%), and humpsore (.0.30%). The previous report showed the percentage of parasitic infestation (21.12%), conjunctivitis (1.11%), dermatitis (3.333%), FMD (8.89%), mastitis (4.4%), Babesiosis (1.11%) in cattle that were treated at the veterinary hospital of Lalmohan upazila in Bhola district (Nahian et. al., 2017). The occurrences of FMD are significantly decreased at Shahjadpur upazila which might be using a proper vaccination program compared to Lalmohan upazila. The percentages of non-infectious diseases like diarrhea, bloat, acidosis, anorexia, weakness, and beef fattening in cattle were 17.73%,2.08%, 0.79% 8.75%, 3.67%, and 1.57% respectively. Previously Nahian et al. showed diarrhea (12.22%), bloat (6.66%), and acidosis (4.44%) in cattle of Lalmohan upazila (Nahian et al., 2017). By contrast, the percentage of diarrhea (13.4%), bloat (2.5%), and acidosis (12.24%) were in cattle of Mohammadpur upazila of Magura and Chittagong district (Karim et al., al 2014; Badruzzaman et al., 2015). The percentage of bloat and acidosis might be varied due to different rearing and feeding system variations. In this study, we found that the percentage of anestrus, abortion, retention of placenta, and dystocia was 4.77%, 0.42%, 0.24%, and 0.24% respectively. By contrast, the percentage of naval ill, hernia, fracture, upward patellar fixation, castration, and atresia ani were 2.81%, 0.79%, 0.24%. 0.18%, 0.12%, and 0.06% respectively. A recent report showed that the percentage of anestrus and retention of the placenta in cattle was 4.44% and 2.22% (Nahian et al., 2017).

The present study has shown the percentage of worm infestation, coughing, conjunctivitis, non-specific fever, and PPR was 12.29%, 11.61%, 6.09, 4.35%, and 3.87%, respectively in the goats. Previous reports showed the percentage of worm infestation, coughing, conjunctivitis, non-specific fever, and PPR were 26.0%, 11.4%, 0.6%, 1.9%, 6.9% in goats of Bandar upazila of Narayanganj district (Hossain et al., 2021). The percentage of worm infestation (12.29%) and PPR (3.87%) are relatively low in Shahajadpur upazila though a previous report showed about 54.41% of goats were infected with PPR at Bera upazila of Pabna district (Meher et al., 2017). The percentage of coughing was 11.4% in Bandar upazila which is almost similar to Shahajdpur upazila (Hossain et al., 2021). We showed that the percentage of anestrus and urolithiasis was 1.35% and 0.87% respectively in goats. The percentage of urolithiasis in goat was 0.1% in Bandar upazila (Hossain et al., 2021). Our report showed that the percentage of worm infestation, tick infestation, coughing, conjunctivitis, and non-specific fever was 16.66%, 1.78%, 16.39 %, 12.5 %, and 10.41 % respectively in sheep. The percentage of diarrhea, anorexia, and bloat was 30.35 %, 14.28 %, 4.16 %, and 0.89 % respectively in sheep. Previous reports showed the percentage of worm infestation, diarrhea, and non-specific fever was 28.5%, 28.5%, and 14.2% in sheep of Bandar upazila of Narayanganj district (Hossain et al., 2021).

Conclusion

In conclusion, cattle, goats, and sheep were the common livestock species registered for treatment at the veterinary hospital at Shahjadpur upazila of Sirajganj district. The diseases and percentage of infectious and non-infectious diseases varied on location, species, veterinary service, vaccination history, husbandry practice, etc. The findings of the study showed that the percentage of tick infestation (18.19%), worm infestation (15.43%), non-specific fever (7.10%), mastitis (4.04%), coughing (2.69%), conjunctivitis (2.26%), dermatitis (2.21%), arthritis (1.59%) and babesiosis (1.92), diarrhea (17.73%), anorexia (8.75%), weakness (3.67%), bloat (2.08%), anestrus (4.77%), and navel ill (2.81%) were in cattle. By contrast, the percentage of worm infestation (12.29%, coughing (11.61%), conjunctivitis (6.09%), non-specific fever (4.35%), PPR (3.87%), tick infestation (1.45%), diarrhea (32.52%), anorexia (15.10%), bloat (1.64%), weakness (1.06%), debility (1.06%) and anestrus (1.35%) were in goat. The result also showed that the percentage of worm infestation (16.66%), tick infestation (1.78%), coughing (16.39%), conjunctivitis (12.5%), non-specific fever (10.41%), rabies infection (1.48%), and paste des petits (1.19%), diarrhea (30.35%), anorexia (14.28%), and bloat (4.16%) were in sheep. The findings of the study will be helpful for the veterinary service provider and researcher to work together for the control and management of infectious and non-infectious diseases of livestock reared at different upazila of Bangladesh.

Competing Interest

The authors declare that they have no conflict of interest.

Acknowledgment

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