

CHAPTER 1

INTRODUCTION

Animal welfare is now burning issue all over the world. Although as a science, animal welfare is a quite modern field of knowledge, and the concept and concern are not. Usually the animal owners try to take care to their animal and the outcome of this motif is nothing but welfare of animal (von Keyserlingk et al., 2009). Generally animal welfare comprises physical and mental health (Dawkins, 2004) which includes several aspects including absence of thirst, hunger, discomfort, disease, pain and injuries, stress and the expression of normal behavior (Farm Animal Welfare Council, 2012).

According to World Organization for Animal Health (OIE) animal welfare has been defined as the broad term which includes an animal is in a good state of welfare if it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear and distress. The UK's Farm Animal Welfare Council (FAWC) determined general rules which are associated with animal welfare on the basis of five privileges and this five privileges are also named as "five freedoms" (Harald, 2017). The actual meaning of "Five freedoms" is as follows:

- 1) **Free from hunger and thirst:** A suitable diet in amount and quality should be provided to animal so that they should not be exposed to prolonged hunger. Sufficient amount of water quality and quantity should be provided for their needs, so that they should not be exposed to prolonged thirst.
- 2) **Free from physical and thermal discomfort:** Suitable environments for summer and/or winter seasons, and comfortable resting areas should be provided.
- 3) **Free from pain and diseases:** Animals should be free from lesions, diseases and pain induced by management procedures. Preventive schemes and timely diagnosis and treatment should be established to avoid disorders.
- 4) **Free to express normal behaviour:** Animals should be housed in a conformable manner and with a positive human/animal relationship; they should be allowed to

express their social and other behaviours. Animals should be provided with sufficient space, suitable infrastructure and company of animals of the same species to facilitate their interaction.

- 5) Free from negative emotions or harmful stress (distress):** Animals must be managed so as to avoid negative emotions such as suffering, pain, fear, anxiety, discomfort, boredom, frustration and harmful stress or distress, i.e. functional response of an organism in which several defence mechanisms act to face a situation perceived as threatening or demanding of increased energy.

Animal welfare issue encompassed domestic (farm, game and pet), wildlife (undomesticated, free ranging terrestrial vertebrates (reptiles, amphibians, birds, and mammals)) laboratory and aquatic animals. Now days, animal welfare issues are going on well under better pressure in the western parts of the world contrary to the developing countries where by animals poorly handled during treatment, transportation, housing, slaughtering, rearing, draughting due to misconception and resource scarcity or limitation. In developing world, it is common to see that poor handling and welfare status of animals, which is below the standards because of misconception and resource scarcity in the nations (Getahun-Asebe et al., 2016).

In Bangladesh, for meat production the transportation of farm animal are mostly done by foot or in best cases by vehicle, usually during long distances. In addition, the road transport conditions involve high stocking densities, poor ventilation on the animals' underside, high humidity and temperatures, including the tying legs together, which may increase the risk of muscle injury, fatigue and stress (Kober et al., 2014). Every year huge number of culled draught cattle (mainly Haryana steers) and water buffaloes are imported from India. Normally 16-18 cattle and 12-14 buffaloes are loaded in a truck and there is overcrowding in relation to the surface area available for each animal (Alam et al. 2008).

Transport vehicles are open-top, no cushion is applied around the side to protect the injury. The animals are tied to the vehicles' sides to control their movement and ropes are secured at the neck, legs or nose. This condition leads to respiratory problems, discomfort, rubbing injuries, abrasion and laceration injuries from rubbing against the vehicle wall (Alam et al., 2010). Skin injuries can also be associated with the down grading of meat and loss of skin value (Minka and Ayo 2007).

In Bangladesh, most of the slaughter houses are primitively structured poorly equipped and have an unhygienic environment. The attitude of most slaughter staff and butchers towards their animals are too negative. They don't have formal training to handle the animals for slaughtering. The animals are frequently injured during the time of slaughter in their skin, muscles and bone. (Kober et al., 2014)

But now a day we commonly observed that various types of violations against animal during transportation, treatment, rearing, feeding, slaughtering and so on. When animals are suffering from illness they should be treated and thus welfare of animal is conserved. Unfortunately, in developing country like Bangladesh violations of welfare also observed during treatment also due to carelessness of physicians.

During treatment animal feel more painful condition due to rough and painful handling, most of the times treatment are done by compounder or dresser rather than veterinary doctor and the knowledge of compounder or dresser is few than a qualified doctor. They have no idea how to handle a sick animal, how to medicate animal without feeling any pain or stress. Due to little knowledge about animal welfare, sometimes they do small surgery without using any anesthesia; they show fearful approach to control the animal because they have no idea how to restrain an animal by physical, chemical or psychological way. Due to poor knowledge about medication they do multiple pricking during injection in vein, which causes fibrosis in vein, skin damages, lowering the quality of hides and skins, causes infection. In field level they also used blunt needle, unsterilized syringe, dressing tools and materials which causes multiple infection of patients from one to another animal, it causes contagious diseases, they have also few knowledge about appropriate dose of anesthesia that's why they used local anesthesia where requires a general anesthesia, animal feel painful or stressful condition for that reason. Sometimes they suggested to owner for slaughtering or euthanasia due to high treatment cost. These violations are not usually addressed in Bangladesh as well as other countries. Most of the violations during treatment are occurred in field level but it is not focused or discussed or reported. So it is utmost important to address violation during treatment and actually what is happening in field level. Among these violations, the current research is focused on violations of animal welfare during treatment at different levels of veterinary hospital using some fixed criteria.

Objectives:

1. To access the animal welfare violations during treatment at different veterinary hospitals in Bangladesh and India.
2. To compare the animal welfare violations during treatment at different veterinary hospitals in Bangladesh and India.

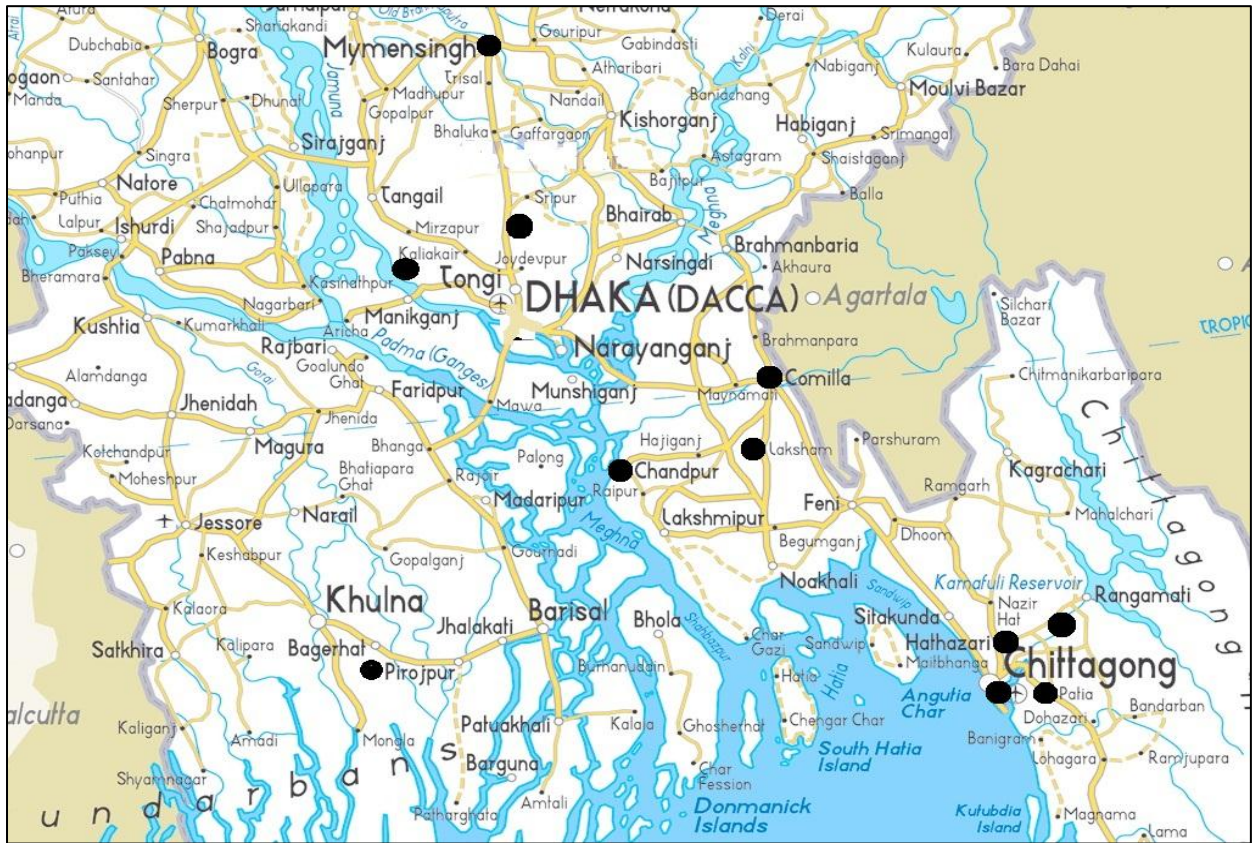
CHAPTER 2

MATERIALS AND METHODS

2.1 Study area

The study was carried out in two different levels of veterinary hospitals selected both from home and abroad. One group of selected hospitals is university Chittagong Veterinary and Animal Sciences university situated in Khulshi area of Chittagong, Bangladesh (Figure 1). So far known, it is the best veterinary hospital in Bangladesh equipped with moderately standard diagnostic facilities and skilled manpower. TCMVC located in Madras, India and TCVCRI located in Namakkal, India. They are leading veterinary hospitals in India with standard diagnostic facilities and skilled manpower (Figure 1). As TCMVC and TCVCRI both teaching veterinary hospitals and another group consists of upazilla veterinary hospitals (UVH). The selected teaching veterinary hospitals are SAQ Teaching Veterinary Hospitals (SAQTVH), Teaching Clinics of Madras Veterinary College (TCMVC) and Teaching Clinics of Veterinary college and Research Institute (TCVCRI). SAQTVH is the teaching veterinary hospitals of them are nearly equal level of hospital, we placed them on the same level as TCMVC+TCVCRI and the outcome of this research has been described jointly.

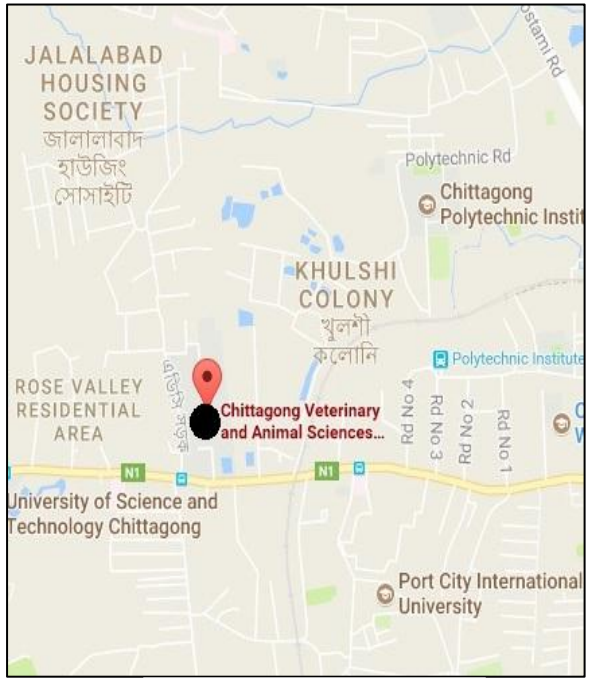
The selected UVH are Comilla UVH, Laksam UVH, Patiya UVH, Dhamrai UVH, Hathazari UVH, Anowara UVH, Rangunia UVH, Chadpur UVH, Pirojpur UVH, Mymensingh UVH and Gazipur UVH (Figure 1).



Location of Upazilla Veterinary Hospitals



Location of MVC & VCRI



Location of SAQTVH

Figure 1: Maps of study area

2.2 Study Period

This study was conducted between January to May, 2017 but the actual data was collected from SAQTVH between January to February, 2017; from UVH March, 2017 and from TCMVC and TCVCRI between April to May, 2017.

2.3 Data Collection

A pre-structured questionnaire was for the data collection on different form of welfare violations like delay in starting treatment, non-specific or no treatment, rough and painful handling, fearful approach, painful manipulation without anesthesia, using blunt needle during injection, using unsterilized dressing tools and materials, multiple pricking during injection, surgery without anesthesia, inappropriate anesthesia during surgery like using local anesthesia where requires a general anesthesia or failure to attain optimum anesthesia, euthanasia due to high treatment cost (Figure 2). Some general related data also collected. The questions of the questionnaire were mostly closed ended. Both primary and secondary data were taken into consideration. Primary data were collected directly from the TCMVC, TCVCRI and Comilla UVH while I was working as intern vet in the aforementioned hospitals. Secondary data were collected from intern vets of the all the selected hospitals. The intern vets were previously supplied the questionnaire and instruction regarding data collection. Some indicative pictures of welfare violations were also taken from the spot of data collection.

2.4 Data compilation

The author of this manuscript compiled the collected primary and secondary data after necessary drafting and sorting. The extreme values were deleted from the data series.

2.5 Data analysis

All compiled data were imported in Microsoft Excel- 2007 and transferred to STATA (Statistics and Data) version 11 for analysis .Descriptive statistics of some general parameters like – species, age, sex, breed and types of cases were done. Comparison of different forms of welfare violations in different levels of veterinary hospitals (SAQTVH, TCMVC +TCVCRI and UVH) were done by using chi-square test. The differences of different parameters were considered significant when the p-values were <0.05 and highly significant when p-values were <0.01.



Unhygienic Condition



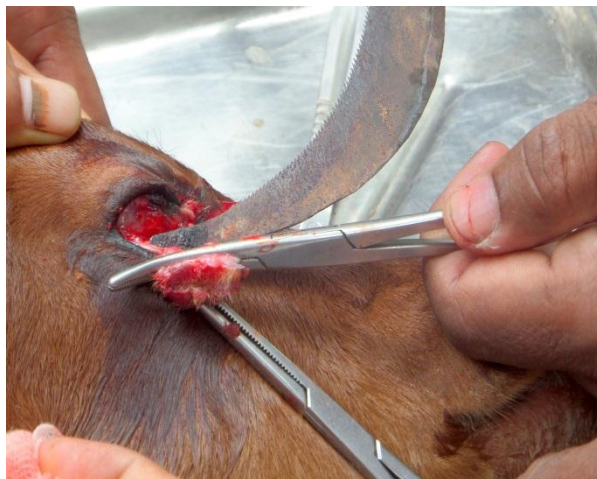
Unsterilized suture materials



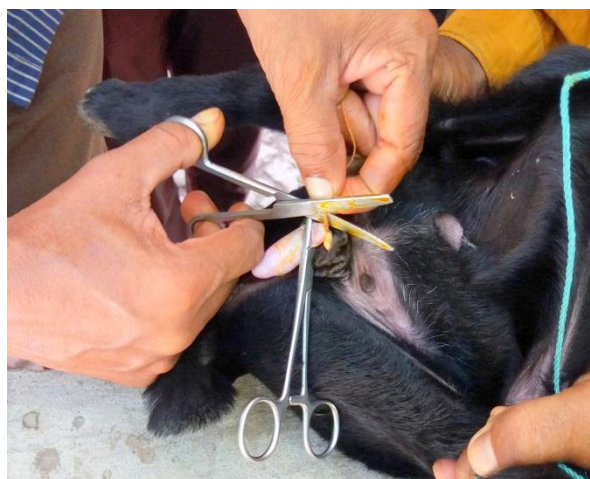
Without antiseptic medication



Rough and painful handling



Surgery without anesthesia



Castration without anesthesia

Figure 2: Some pictures of different categories of welfare violations

CHAPTER 3

RESULTS

The current study investigated the welfare violations of a heterogeneous population during their treatment in the veterinary hospital. The descriptive statistics of the sampling population is presented in table 1.

Table 1: Summary of patient information admitted to veterinary hospital under study

| Parameters | Categories | MVC & VCRI | UVH | SAQTVH |
|-----------------------------------|---------------------|-----------------------|------------|---------------|
| Species (% of total cases) | Cattle | 30 | 34 | 33 |
| | Buffalo | 13 | 0 | 0 |
| | Sheep | 0 | 0 | 6 |
| | Goat | 6 | 36 | 43 |
| | Poultry | 0 | 13 | 10 |
| | Cat | 3 | 0 | 7 |
| | Dog | 40 | 3 | 10 |
| Age (in years) (Mean±SE) | Cattle | 2.5±0.4 | 2.25±0.61 | 2.25±0.2 |
| | Buffalo | 4 | - | - |
| | Sheep | - | - | 1 |
| | Goat | 1 | 2.2±0.44 | 2±0.5 |
| | Dog | 3.25±0.61 | 1 | 1.5±0.28 |
| | Cat | - | - | 1 |
| | Poultry | - | 2±0.70 | 1.5±0.28 |
| Breed (% of total cases) | Cross (cattle) | 77 | 72 | 75 |
| | Indigenous (cattle) | 1 | 20 | 15 |
| | Murrah (buffalo) | 99 | 0 | 2 |
| Sex (% of total cases) | Male (cattle) | 22 | 78 | 50 |
| | Female(cattle) | 78 | 22 | 50 |
| | Male (buffalo) | 0 | 0 | 0 |
| | Female (buffalo) | 100 | 0 | 0 |
| | Male (goat) | 50 | 36 | 30 |
| | Female (goat) | 50 | 64 | 70 |

| | | | | |
|---------------------------|---------------|----|----|-----|
| | Male (sheep) | 0 | 0 | 50 |
| | Female(sheep) | 0 | 0 | 50 |
| | Male (Dog) | 38 | 1 | 66 |
| | Female (Dog) | 62 | 0 | 34 |
| | Male (Cat) | 80 | 0 | 100 |
| | Female(Cat) | 20 | 0 | 0 |
| Types of cases (%) | Medicinal | 56 | 90 | 53 |
| | Surgical | 13 | 3 | 33 |
| | Orthopedic | 8 | 1 | 3 |
| | Reproductive | 23 | 1 | 11 |

N=90; MVC & VCRI: Madras Veterinary college & Veterinary College and Research Institute; UVH: Upazilla Veterinary Hospital; SAQTVH: SAQ Teaching veterinary Hospital; SE: Standard Error.

There are seven species were considered in this study among them cattle were more numerous in three different levels of hospital which are 30, 34 and 33% respectively in MVC & VCRI, UVH and SAQTVH (Table 1).

The highest number of dog encountered in MVC & VCRI which is 40%. Considering the proportion of three levels of hospitals goat was the second numerous species which was 6%, 36% and 43% respectively in MVC & VCRI, UVH and SAQTVH. Although buffalo found in 13% cases in MVC & VCRI but it was absent in UVH and SAQTVH. Poultry was about 13% in UVH and 10% in SAQTVH; which was absent in MVC & VCRI. As patient, cats were found 3% in MVC & VCRI and 7% in SAQTVH but not found in UVH. Sheep population was 6% found only in SAQTVH but not found in MVC & VCRI and UVH (Table 1).

In case of age variation most of the cattle age was in and around 2.5 year which were encountered in three different hospitals. Buffalo only found in MVC & VCRI and the age of buffalo was almost 4 year. Dog age was 1.5 to 3.5 year which were highly encountered in MVC & VCRI then in SAQTVH and not found in UVH. In poultry species chicken, pigeon, duck, turkey and quail were found in hospitals and the age of bird species varied from 1.5 to 2 year (Table 1).

In breed variation we found welfare violation in cross breed cattle 77%, 72% and 75% in MVC & VCRI, UVH and SAQTVH respectively and in local breed 1%, 20% and 15% in MVC &

VCRI, UVH and SAQTVH respectively. For buffalo Murrah breed we observed most of the cases in India about 99%, whereas no buffalo cases were found in UVH and few amount in SAQTVH which was about 2% (Table 1).

In sex variation we found 78% female cattle in MVC & VCRI, where male cattle were 22% but in UVH female cattle percentages were lower 22% than male cattle 78% and in SAQTVH male and female cattle percentages were same. In buffalo we found 100% female in MVC & VCRI and which was absent in UVH and SAQTVH .In case of goat 50% male and 50% female, 36% male and 64% female and 30% male and 70% female in MVC & VCRI , UVH and SAQTVH respectively. Dog population were higher in India, from total 30 cases in India we found 38% male and 62% female but in UVH we handled 1% male dog and not handled any female dog during investigation and in SAQTVH we found 66% male dog and 34% female from 30 cases of SAQTVH. In MVC & VCRI we found 80% male cat and 20% female and not found in UVH (Table 1).

By considering three level hospitals the highest number of medicinal cases found in UVH about 90% whereas 56% cases in India and 53% in SAQTVH. Second highest cases were surgical 33% in SAQTVH, 13% in India and 3% in UVH. Reproductive cases were 23%, 1% and 11% in India, UVH and SAQTVH respectively and few amount orthopedic cases were also found in three levels of veterinary hospitals 8%, 1% and 3% in India, UVH and SAQTVH respectively (Table 1).

The current study also investigated the different types of welfare violations during treatment in the veterinary hospitals (presented in table 2).

Table 2: Percentages of different types of welfare violations

| Types of violations | MVC&VCRI | UVH | SAQTVH | P value |
|---|---------------------|------------|---------------|----------------|
| Delay in starting treatment | 26 | 42 | 36 | 0.06 |
| Non- specific treatment | 5 | 69 | 13 | <0.001 |
| use of unsterilized instrument | 1 | 65 | 4 | <0.001 |
| surgery without anesthesia | 0 | 80 | 0 | <0.001 |
| rough and painful handling | 4 | 50 | 13 | <0.001 |
| fearful approach | 2 | 60 | 5 | <0.001 |
| use of blunt needle | 1 | 22 | 2 | <0.001 |
| multiple pricking during injection | 20 | 30 | 26 | 0.23 |

N=90; MVC & VCRI: Madras Veterinary college and Veterinary College and Research Institute; UVH: Upazilla Veterinary Hospital; SAQTVH: SAQ Teaching veterinary Hospital.

Delay in starting treatment varied insignificantly and it was 26-42% across the different levels of hospitals. Most of the forms of welfare violations were occurred in different UVHs and was significantly deferred than the other hospitals. Welfare violations like- use of unsterilized equipment, surgery without anesthesia, rough and painful handling, fearful approach and use of blunt needle were found significantly highest proportion of cases in UVH and which are 65%, 80% ,50%, 60% and 22% respectively (Table 2).

Although multiple pricking during injection was found 30% cases in UVH but statistical variations with other levels of hospitals were unnoticed ($p>0.05$). In case of MVC & VCRI and SAQTVH the multiple pricking during injection were observed in 20% and 26% cases respectively (Table 2).

CHAPTER 4

DISCUSSION

Animal welfare means fulfilling the basic five needs of animals these are absence of thirst, hunger, discomfort, disease, pain and injuries, stress and the expression of normal behavior (Farm Animal Welfare Council, 2012) and the treatment of one of the important component. Animals admitted to hospital to relieve from pain, disease and ultimately from discomfort. It is true an effective treatment can relieve the animals from discomfort thus improve welfare (Main and Spanswick, 2000). Unfortunately, due to ignorance and or carelessness of veterinary doctors and personnel's sometimes animals may suffer from different types of welfare violations. Although, treating of animals with some welfare violations is obviously better than not treating but the treatment without welfare violations is much more realistic to conserve animal welfare.

We studied a cross section of the animals that were admitted for treatment in different levels of hospital. In all cases, the cattle were highest proportion in all hospital. But MVC & VCRI were the dog was highest (40%), it is due to the fact that the cattle population is highest in Bangladesh and India among the livestock populations (DLS, 2011; NDDP, 2015). The highest proportion of dog was found in MVC & VCRI because this hospital is specialized for pet animal treatment. Doctor and pet owners are more conscious about any disease condition of their patient and they try to maintain animal welfare during treatment.

From our study we found buffalo only found in one hospital and that was MVC & VCRI due to more common species in that area (NDDP, 2015), whereas goat patients were higher in Bangladesh both in SAQTVH and UVH due to fact of relative abundance of this species in our country (DLS, 2011) compare to MVC & VCRI.

In this research we found various forms of welfare violations during treatment including delay in treatment, non-specific treatment, use of unsterilized instruments, multiple pricking during injection, surgery without anesthesia, rough and painful handling, fearful approach and use of blunt needle. Animal has the right to get the treatment after getting sick and a delay in treatment is obviously a welfare violation. This statement can be explain by the fact that delay in treatment will extended the period of discomfortness and animals in discomfort are in poor welfare condition (Scott, 2013). Non-specific treatment that means use of antibiotics sometimes causes drug resistance against organism. Surgery without anesthesia, rough and painful handling and

multiple pricking during injection causes pain in animal, and all of these against animal welfare (Harald, 2017).

Among all parameters surgery without anesthesia was higher in UVH rather than SAQTVH and MVC & VCRI. This may be due insufficient drugs, equipment and no doctors in the UVH. Lack of doctor in the UVH leads to surgical treatment of patient by assistants who usually do not care about anesthesia. Used of unsterilized instruments and given nonspecific treatment to patient were also common in UVHs and all of this occurred may be due to lack of knowledge about importance of using sterilized instruments during treatment. We found most frequent fearful approach for restraining animals during treatment in the UVH. In the UVH most of the patients are handling by the hospital attendants who are not well trained in restraining of animal so again the lack of knowledge and skills are the main culprit for higher frequency of fearful approach during handling of animal that leads to poor welfare. We only investigated the welfare condition of hospitalized cases but it is possible that most of the violations during treatment are occurred in field level but it is not focused or discussed or reported yet. So it is utmost important to address violation during treatment and actually what is happening in field level.

CHAPTER 5

CONCLUSION

As a science ‘Animal Welfare’ is a comparatively new area in developing country like Bangladesh. Last few years, the animal welfare concern among the farmers and general people significantly improved. Mostly we are concern with the welfare violations that are easily visible to us however, welfare violations can also occur in more precise fields. In this study we have shown an overall idea of animal welfare violations during treatment at different level of veterinary hospitals. Although attending treatment improve welfare status but we found that a poor managed treatment can also hamper animal welfare. We found different forms of welfare violations like- surgery without anesthesia, multiple pricking during injection, using unsterilized needle during drug administration etc. in different levels of veterinary hospitals and these are more instance in the UVHs. The limitation of manpower, lack of skills and lack of knowledge may be responsible for significant welfare violations during treatment at UVHs. We only considered some selective hospitals for this study and found welfare violations are increase with the status of hospital i.e. a comparatively less developed hospital is responsible for more welfare violations during treatment than a developed hospital and from this trend we assume welfare violation during treatment may be occurred in the field level treatment more intensely. So a comprehensive study considering all levels of hospitals including field treatment is essential to find out the welfare violations during treatment.

CHAPTER 6

LIMITATIONS

- The study period was short.
- Sample size was small.
- This study was limited to certain parameters and some of the parts of the study were left untouched due to time, so I wish future researchers could elaborate this study by approaching the untouched portion.

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BIOGRAPHY

I am Aparna Datta, daughter of Mr. Pijush Kanti Datta and Mrs. Archana Rani Datta. I passed secondary School Certificate examination in 2009 followed by Higher Secondary Certificate examination in 2011. Now I am an intern doctor under the Faculty of Veterinary Medicine in Chittagong veterinary and Animal Sciences University. In future, I want to develop me as a veterinary practitioner. I have immense interest to work in the field of Medicine and Surgery.