

Review Article**The veterinarian's role in animal welfare**Alam, M. R.^{1*} and R. E. Doyle²¹Department of Physiology, Biochemistry and Pharmacology, Chittagong Veterinary and Animal Sciences University, Chittagong-4225, Bangladesh and ²Animal Welfare Science Centre, Faculty of Veterinary and Agricultural Sciences, the University of Melbourne, Melbourne, VIC, Australia**ARTICLE INFO***Article history :*

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Public concerns about animal welfare are well documented in worldwide. The World Organization for Animal Health (OIE) is taking a lead in harmonizing animal welfare standards for veterinary profession in member countries. Veterinary profession have a wide range of expertise and skills that make veterinarians unique in their understanding of animal behaviour and animal welfare. They have the pragmatism to examine and assess the welfare of animals in their environment and to make recommendations to improve welfare where that is required. Veterinarians can contribute to animal welfare in a number of ways such as addressing food security and animal welfare issues; human-animal interactions and their impact on animals; the role of intensive vs extensive production systems; slaughter and pre-slaughter inspections; identifying social, economic and cultural drivers of welfare outcomes; developing strategies to address painful husbandry procedures, and distress associated with road, sea and air transport, euthanasia, and disaster preparedness; human responsibilities to wild animals; and animal abuse. Therefore, a veterinarian needs to remain visible, active and relevant in this important part of animal welfare science as their professional responsibilities. In 2005, the OIE drafted the first ever global standards for animal welfare and new standard continue to be added. These standards have been ratified by all of the organization's member state countries. Bangladesh is an OIE member state, so it should be committed to implementing the standards.

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1. INTRODUCTION

Globally, animal welfare is recognized as being of increasing importance. In Bangladesh the scientific study of animal welfare was identified in 2006 as a new discipline needed by veterinary professionals. Chittagong Veterinary and Animal Sciences University has taken the lead in recognizing animal welfare as a topic that needs to be incorporated into the curriculum, and an important way of institutionalizing this subject is to develop expertise through study and research. In recent years a domestic research program has been gradually developed to address animal welfare in Bangladesh (Alam 2006).

There is a critical relationship between animal welfare, animal and human health, production and food safety. Animal welfare is a complex, multifaceted international public policy issue with scientific, economic, religious, regional and cultural dimensions. Veterinarians are extremely well placed to positively influence the future health and welfare of all animals, including humans. Expansion of the role of veterinarians is becoming increasingly important as the human population expands and the earth's ecology appears to be veering towards a dangerous imbalance. Modern veterinarians are not only animal doctors and animal welfare advocates; they are also key public health stakeholders because of their crucial

role in reducing global hunger, controlling and preventing diseases in animals, promoting animal welfare, controlling zoonoses, monitoring food quality and safety, participating in biomedical research, and protecting the environment and biodiversity. Veterinarians should be "leading advocates for the welfare of all animals, recognizing the key contribution that animals make to human society through food production, companionship, biomedical research and education" (OIE 2012). The veterinarian has a holistic knowledge in multiple species of animals in the area of veterinary science and they can play roles in providing leadership on animal welfare issues. The aim of this paper is tried to focus on the duties and responsibilities of veterinarians in various aspects of animal welfare as part of the veterinary field.

2.1. Animal welfare education

Internationally, animal welfare is a growing field of science and is gaining more recognition within the veterinary profession as a necessary competency for every veterinarian. Therefore, a graduating veterinarian should be well versed in modern animal welfare science. The development of animal welfare standards is an ongoing process, with the major international effort being led by the World Organisation for Animal Health (OIE). The World Animal Protection organization and University of Bristol took the initiative and developed a syllabus for animal welfare teaching, 'Concepts in Animal Welfare' (WAP 2000), as a resource to be used in veterinary undergraduate training, where veterinary training is done as an undergraduate degree. Recently Chittagong Veterinary and Animal Sciences University revised its curriculum for undergraduate veterinary students. Inclusion of animal welfare courses into the veterinary curriculum has been a part of the Mission Statement of Faculty of Veterinary Medicine of CVASU since the concepts of animal welfare was recognized by the faculties and students in 2006 (Alam 2008). Eventually animal welfare became a separate credit course in the updated veterinary curriculum of CVASU dated on September 27, 2014 approved by the 27th syndicate for the first time in Bangladesh. Earlier the updated veterinary curriculum was approved by the 29th academic council of CVASU in September 23, 2014. The new veterinary graduates will enter the government veterinary service in Bangladesh and they have many professional responsibilities to ensure the health and welfare of livestock population.

2.2. The Veterinarian's Oath and Five Principles of Animal Welfare

As per the Code of Practice of the Bangladesh Veterinary Council, a veterinarian needs to take an

oath called the "Veterinarian's Oath" before becoming a veterinary practitioner. The main theme of the oath is concentrated on "a veterinarian should be dedicated to the benefit of society through the protection of animal health, and the relief of suffering of animals and to promote animal wellbeing". Moreover, a veterinarian should always keep in mind the five freedoms and its provisions (FAWC 1993) as being essential to welfare, and every practical effort should be made to achieve them. They are: i. Freedom from thirst, hunger and malnutrition - by ready access to fresh water and a diet to maintain full health and vigour; ii. Freedom from discomfort - by providing a suitable environment including shelter and a comfortable resting area; iii. Freedom from pain, injury and disease - by prevention and/or rapid diagnosis and treatment; iv. Freedom to express normal behaviour - by providing sufficient space, proper facilities and the company of the animal's own kind; and v. Freedom from fear and distress - by ensuring conditions that avoid mental suffering.

2.3. Properly address painful husbandry procedures

Veterinarians do an excellent job of treating injuries and disease, important categories that are part of animal welfare. Veterinarians routinely discuss proper on-farm management practices to maximize health, and mitigate distress and disease. Many routine painful procedures (e.g., castration, nose piercing etc) are done by people involved in veterinary professional without pain control. Castration is an area that is often done without anaesthetics. It is one of the painful acts where veterinarians need to help develop better procedures. The lead veterinarian needs discuss the importance of changing painful husbandry procedures with their subordinate veterinary staff particularly when working with livestock and companion animals.

2.4. Human-animal relationships (HARs) and impacts on animals

Veterinarians have a special and legitimate role to play in animal welfare because this issue involves the relationship between animals and humans. Handling studies have consistently shown that handling treatments that elicit high levels of fear adversely affect animal productivity.

The welfare of dairy cattle is a particular sensitive issue because of their high metabolic demands, intended longevity and close human-animal relationships (HAR) (Hemsworth 2000). The fear level of cows, which results from their interactions with stockpersons and milking staff is a welfare indicator that can be used to assess HAR. Fear of people can reduce animal wellbeing and possibly milk production, and increases the risk of injury to both animals and handlers (Breuer

2000). Farmer's responses to a series of attitude statements is a useful way to begin to understand his underlying attitudes. Understanding the underlying beliefs that underpin farmer and stockperson attitude and behaviour provides the opportunity to improve HAR and animal welfare. Of the 36 small to medium scale dairy farms animals observed in this study, 19% had skin injuries, 12% presented with lameness, 30% with hock, 37% claw and 28% hoof lesions were the major welfare problems (Al-Amin et al., 2015). Significant associations between injury and various management risk factors were shown. The farmer perceptions and ignorance of animal welfare issues compounds the problem. Therefore, veterinarians should keep in mind that positive farmer attitudes towards working with dairy cows will be positively associated with good management strategies, farm productivity and welfare. When they visit the dairy farm, they need to advise farmers and stockperson about the positive outcome from positive HAR.

2.5. Antimicrobial resistance (AMR) and treatment residues

Antimicrobial resistance and residues in food animals are other areas where veterinary leadership and strong advocacy is needed. Overuse of certain types of antimicrobials in food producing animals, and the subsequent risk of antimicrobial resistance around the world, poses a real risk to human and animal health. Internationally it is estimated that the volume of antimicrobials used in food animals exceeds the use in humans worldwide (AMR Colloquium 2013), making this problem of AMR in animals a global one. In Bangladesh, dairy cow productivity is closely tied to the day-to-day livelihoods of the small and medium scale dairy farmers. Mastitis is the most prevalent disease in cattle in Bangladesh (Uddin et al., 2009), and this is usually treated by veterinarians, veterinary field assistant and farmers through the indiscriminate use of antimicrobials, which are easily obtained from a pharmacy without a prescription. A similar indiscriminate treatment is used for animals destined for slaughter. This poses two risks to human health. Firstly, the risk of AMR transfer from animals to people is poorly quantified, yet the ease with which AMR genetic material can be transferred between organisms is high (WHO 2012). Secondly, human exposure to veterinary antimicrobials can be mitigated with withdrawal periods; however, this is either not well known, or adhered to, and so antimicrobials enter the food-chain, increasing people's exposure to antimicrobials, and thus risking human resistance developing. Finally, not only does the risk of AMR in

production animals provide a risk to human health, it also influences the productivity and survival of the animal, thus affecting food supply. Veterinarians need to be actively involved in discussions about limiting and justifiable use of antimicrobials in animal populations to ensure the guarantee of good animal welfare along with the protection of human health. As a profession we must also be confident that appropriate medications are available with veterinary oversight to allow adequate treatment of our patients to alleviate pain and suffering.

2.6. Animal Transportation

Animal transportation is another area where a veterinarian can advise traders and transport staff on proper transportation according to OIE guidelines. Significant issues with animal transportation include its contribution to national economies, its effects of animal stress and mortality, and its potential to spread disease. The methods used for handling, loading and unloading, transporting and slaughtering of animals have a major effect on animal welfare in Bangladesh. Many live animals are transported from India, both legally and illegally, by trekking, trucks and trains, often in an inhumane way. The main type of vehicle used for transport them is open top trucks which are not appropriately designed. High stocking densities, poor ventilation, high humidity, high temperatures and poor restraint of the animals during transport e.g. by tying the legs together is likely to result in stress, injury and fatigue. When the animals are unloaded at the livestock markets in Bangladesh they are subjected to inappropriate treatment i.e., lack of proper handling and care. Usually there is no shade, so they are directly exposed to heat stress, and often insufficient water and feed. Research on transport in Bangladesh has focused on determining the various physical injuries and metabolic stresses observed with transported cattle and water buffalo at livestock market (Alam et al., 2008, Alam et al., 2010). It was reported that 89% of cattle and water buffaloes had obvious skin injuries when exported from India into Bangladesh, and 51% of cattle and 15% of water buffaloes had broken tails. About 69% of the cattle had rubbing or tearing injuries at the nostrils from nose ropes. Thought needs to be given to reducing the risk of all these injuries. The OIE has drafted the first ever global standards for animal welfare for the land transport of animals for human consumption. These standards have been ratified by all of the organisation's member countries, including Bangladesh, which should, therefore, be committed to implementing the standards.

2.7. Pre-slaughter handling and slaughter inspections

Veterinarians are employed in the slaughterhouse to inspect food animals. The OIE (OIE 2014) has already adopted global guidelines on animal welfare especially with reference to the welfare at slaughter that address the need to ensure the welfare of food animals during the pre-slaughter and slaughter processes. When an animal is slaughtered for food, it is important for ethical reasons that the methodology used does not inflict pain. The management and handling of animals prior to slaughter has the potential to significantly compromise welfare before death (Doyle et al., 2016). Animal welfare is a challenging issue at the slaughter houses in Bangladesh. In particular there are concerns about how cattle and water buffalo are restrained for slaughter, e.g., by casting and tying the legs together. There is also concern about the lack of proficiency of those conducting the handling and slaughter because of lack of training and/or sufficient experience (Alam et al., 2007). Another important welfare issue is the very short length of the knife used for halal slaughter. Rope casting is the traditional method for restraining bovines prior to slaughter, but it can have negative welfare outcomes for the animals involved as the casting process can take 3-4 min and cause pain, injury and distress to the animal (Ahsan et al., 2014). Of the 423 animals observed in this study, 63% had some degree of dehydration, 68% presented with existing injuries, 69% with oculo-nasal discharge, and 27% were classed as dull and depressed (Jahir et al., 2015). Broadly, these results suggest that a majority of animals have experienced some degree of welfare compromise in the past, or were currently experiencing a state of welfare compromise, although the extent or significance of this is not known. Veterinarians should advocate for more training of slaughter workers and providing them with the proper tools to do their job so as to maximize the welfare of the animals during pre-slaughter handling and at the time of slaughter while maintaining public health and addressing food safety issues.

2.8. Wildlife and Zoo animals

Bangladesh is one of the disaster susceptible countries of Southeast Asia. It suffers frequent extreme weather events such as droughts, flood, thunderstorms, cyclones and earthquakes. People always need to struggle with these natural calamities. The livestock and wildlife also suffer during any of these disastrous situations. Veterinarians are often needed to help with the rescue and treating of the injured and damaged wildlife. On the other hand, human-wildlife conflict is another area which causes harm, whether it is to the

human, the wild animal, or property. Human tiger conflicts are now seen as a major challenge for conservation, where humans and large carnivores interface, conflicts of three types are common: Livestock depredation, prey depletion from over-hunting and direct human-caused mortality of carnivores. In general, veterinary responsibilities to wildlife are not defined structurally, but rather it seems that veterinarians need to think about how to participate in addressing these issues. Veterinarians involved in zoo medicine may have quite clearly defined responsibilities to the animals in their care and these may be similar to those for farm or pet animals. However, all veterinarians should have holistic knowledge of veterinary science that can be used to develop policies to protect and conserve wildlife as well as mitigate human-wildlife interactions. Moreover, they play a vital role in conservation programs (Kelly et al., 2013) and may be involved in wildlife health (Reading et al., 2013), population management (Wikler et al., 2014).

2.9. Stray dog control

To avoid dog bite and rabies, a large number of stray dog are killed every year across the country. Rabid dog bites are very common in Bangladesh (Hossain et al., 2011). However, the method of catching or killing is not humane. Using poisonous substance in the accumulated garbage of food (kitchen waste) where free-roaming dogs search for their food is not acceptable as they suffer long before death. Therefore, humane catching and euthanasia of stray dogs must be insured. Veterinarians need to be actively involved in minimizing the abusing and inhumane killing of stray dogs in our country. To reduce the stray dog population, we should adopt the Animal Birth Control (ABC) program and/or a country-wide neutering program. This ABC program was developed by World Health Organization (WHO) to control the street dog population and eradicate the rabies. This can be done by sterilization and vaccination of dog which is the only scientific and humane solution to reduce the number of stay dogs over the time.

2.10. Islam and Animal Welfare

From the religious point of view, every religion teaches us to be kind to animals and especially as animals have become an integral part of our daily life. As the best creature of the Almighty Allah, human beings must have the proper knowledge of how to behave with all other living creatures. Islam is the religion of peace and has given clear guidelines about how to maintain our livelihood with the use of animals and how to deal

with animals for human purposes. Any kind of mistreatment, misbehavior and abuse to the animals is not allowed in Islam. Islam has facilitated giving humans the power of understanding ourselves, which must help a save the animals from unnecessary suffering, pain and distress. So, such teachings from Islam play a pivotal role in ensuring that good animal welfare occurs. Now-a-days it is noticeable that scientists have been studying the Holy Quran more and more to find out in depth the information it contains about what kind of attitude we should have towards animals. Recently the Islamic Foundation in UK has published a book "Animals in Islam". There are many more examples in the holy Quran and the Hadith regarding the kindness towards animals. The Holy Prophet (PBUH) used to say: "whoever is kind to the creatures of God, is kind to himself." Allah ordered to complete each work in a nice way. So if you give anyone death sentence then complete it in a good manner and if you slaughter any animal do it properly. Therefore, sharpen your knife nicely and provide comfort to the animal during slaughter (Muslim, 261). A veterinarian needs to gain religious knowledge on animal welfare to ensure the health and welfare of sentient animal.

3. CONCLUSION

An undergraduate veterinary student gained the comprehensive knowledge of anatomy and physiology, animal behaviour, nutrition, genetics, animal health, Animal breeding, diseases, epidemiology and medicine. Indeed adding the understanding of animal welfare science will enrich their professionalism and future veterinary graduates will be better trained to meet national and international challenges. Veterinarians are highly skilled at problem solving and are able to assess the welfare of animals in their environment and then to prescribe or recommend remedial measures to enhance welfare when needed. They need to advise their clients and other stakeholders of welfare improvement possibilities and to speak positively of the benefits of improving animal welfare.

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