

THE IMPACT OF FOOD ANIMAL WELFARE ON HUMAN WELLBEING: SCIENTIFIC AND ISLAMIC PERSPECTIVES

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Abstract: *Animal warfare includes consideration for all aspects of animal welfare and meeting their physical and mental needs. It generally concerns at keeping, handling, providing nutrition and disease prevention of animals especially in three important stages which are production, transportation, and slaughtering process for food animals. From the holistic medicine point of view, human wellbeing covers all aspects of physical, social, psychological and spiritual. About 80 percent of the human population of the World relies on animals for their food in which the food animals serve as the main source for most of protein, fats, iron, and some vitamins. World Health Organization (WHO) reported that chronic diseases such as obesity, diabetes, cardiovascular and dental diseases, cancer and osteoporosis are related with human diet and nutrition. The welfare of food animals should be considered not only for the sake of animals, but also for human wellbeing because the cruelty to animals is linked with animal stress which in turn have negative effects on human wellbeing. This paper uses the literature search and analytical method. It aims to explore the impact of food animal welfare to human wellbeing with the research scope on the Islamic perspectives as well as the scientific findings in the related area. Islam provides fundamental ethical guidelines in dealing with animals and highlights the importance of halal and toyyiban to achieve meat quality for human wellbeing. The scientific findings supported that mishandling of animals while keeping or slaughtering lead them to face physical and psychological stress which in turn affect the quality of the meat and chances of getting foodborne diseases. Both scientific and Islamic perspectives pointed out the requirement of animal welfare for human well-being. Thus, the welfare of food-producing animals such as ruminants and poultry should not be neglected since they have positive and negative consequences on human wellbeing. The food animal welfare should be implemented and integrated the existing and established guidelines of the meat industry to achieve the optimal value of human wellbeing.*

Keywords: *Animal Welfare, Human Wellbeing, Islamic Ethics, Meat Industry, Scientific Findings*

Introduction

Along with human history, animals and their products have been used as food and other numerous purposes. Animals used for foods are known as food animals and they are raised for their meat, milk, egg, and honey. They include cattle, sheep, goat, swine, chicken, fish and bee. Among them, livestock such as ruminants and poultry basically convert feed roughages and grains into food for human consumption. About 80 percent of the human population of the World gets most of the protein, fats, iron, niacin, and some vitamins (including vitamin B12) from the meat produced by ruminant animals (James and Frank, 2009:12). In recent times, people not only consume animals as their food, but they also demand better quality food such as leaner meat and less fat in meat and dairy products. These changes in lifestyle and eating habits of people have a significant impact on the production, processing, and marketing of meat, poultry, and dairy products throughout the rest of the twentieth century and beyond. Moreover, World Health Organization, (WHO, 2003) also reported that diet and nutrition are related to chronic diseases such as excess weight gain or obesity, diabetes, cardiovascular diseases, cancer, dental diseases, and osteoporosis.

In recent times, animal welfare is also considered as one of the contributing factors to human wellbeing. According to World Organization for Animal Health (OIE) (2018), animal welfare means the physical and mental state of an animal in relation to the conditions in which it lives and dies and so OIE described that “good animal welfare requires disease prevention and appropriate veterinary care, shelter, management and nutrition, a stimulating and safe environment, humane handling and humane slaughter or killing”. In other words, it also includes the concept of anticruelty and trying to meet the physical and mental needs of animals. Thus, a theoretical framework was developed to determine the impact of food animal welfare on human wellbeing. It includes the links between 5 freedoms of animal welfare which was prescribed by Farm Animal Welfare Council (FAWC) (Manteca, Mainau, and Temple, 2012); Cooper; Duncan & Hawkins, 2010), through 3 concerns, 3 measures and 3 benefits of human wellbeing as seen in the following Figure 1.

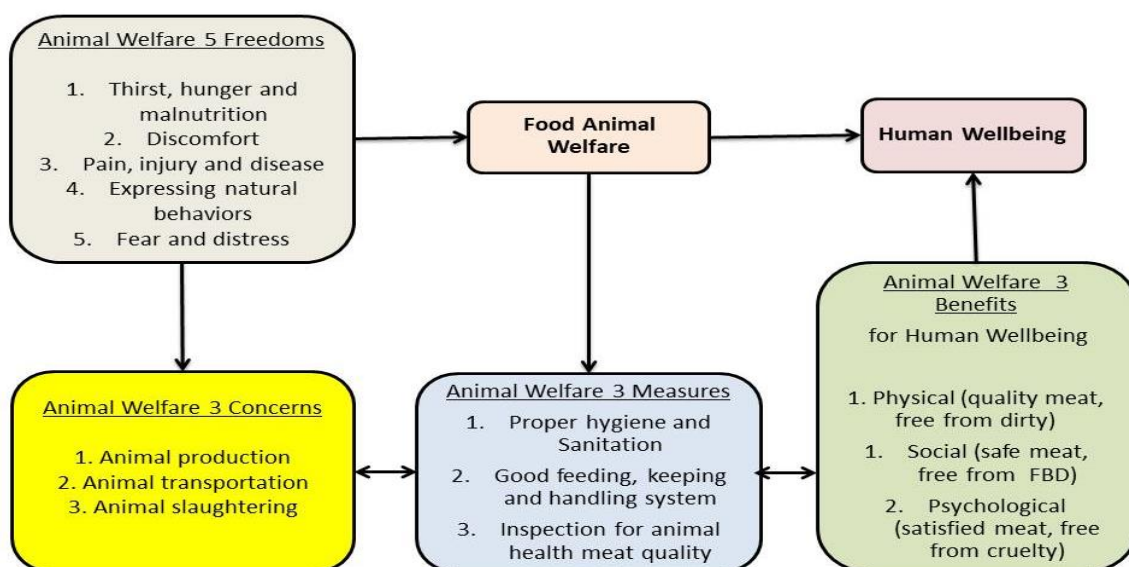


Figure 1: A Theoretical Framework Showing The Links Of 5 Freedoms, 3 Concerns, 3 Measures And 3 Benefits Of Food Animal Welfare Towards Human Wellbeing

On the other hand, the meaning of human wellbeing is generally mentioned as living a good or satisfactory life. From the holistic medicine point of view, human wellbeing covers all aspects of physical, social, psychological and spiritual, and not merely the absence of disease or infirmity as stated by the WHO. In the public health area, human wellbeing encompasses under the primary prevention or health promotion in which not only health care professionals but also the individual person should strive for achieving or maintaining the maximum level of health. Another definition of wellbeing was mentioned as the balance between an individual's resource pool and the challenges they faced by physical, social, and psychological. (Dodge, Daly, Huyton, & Sanders, 2012) as shown in Figure 2.

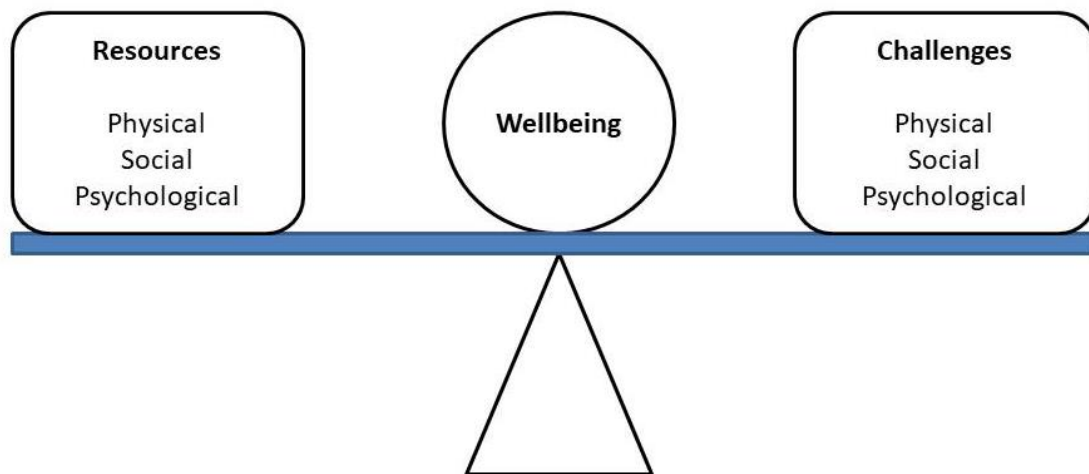


Figure 2: Definition of Wellbeing [Retrieved from (Dodge *et al.*, 2012)].

Thus, this paper explores the link between taking care of animal welfare and how it has contributed to human wellbeing from scientific and Islamic perspectives.

Background Of The Study

Some studies have done on the relationship between animal welfare with the stunning method (Al-kahtani, 2013), meat quality (Rani, Hugo, Hugo, Vimiso, & Muchenje, 2017), (Hafiz, Hassan, Nazmi, & Manap, 2015), (Ndou, Muchenje, & Chimonyo, 2011), and religion (Rahman, 2017). The authors ourselves (Min & Zaw, 2016) have been studied and highlighted on animal care from the perspective of Islam. However, little or no study has explored the link between food animal welfare and human well-being especially from the Islamic and scientific perspective.

Thus, this study aimed to explore the impact of food animal welfare to human well-being. The Islamic perspectives as well as the scientific findings in the related area are presented and discussed in this paper. The literature search with the analytical method was used for this study. The data from the primary and secondary available sources regarding animal welfare and human wellbeing were collected from the online search, books, and journal articles and analysed. It is hoped that this study served as a knowledge and awareness source on the importance of animal welfare and human wellbeing.

Animal Welfare From The Scientific Perspectives

Animal welfare includes the concepts of respect for their life, living in harmony with nature, and enjoying the co-operation of animals for human survival (Dwyer & Lawrence, 2008). It

describes the animal in the condition of good health, comfort, nutrition, safety, and reduce unnecessary stresses and pain. In recent times, several issues and incidences of animal abuse have been raised concerning their welfare. Instances of animal abuse cases include cruel treatment, feeding non-natural foods, inhumane practices on factory farms and commercial areas. Thus, animal welfare is considered in three important areas such as production, transportation, and slaughtering of them as described in Figure 1.

Hygiene and Sanitation in Animal Production

It is observed that well cared for domestic animals are healthier and less apt to spread disease in a community. The food animals going around the pasture in the open space freely and getting their fresh natural food and drinks are healthier compared to animals keeping in an overcrowded area like a factory or indoors. Moreover, hygiene, sanitation, good ventilation are the necessary requirements for animal health. The contaminated animals could serve as the source of foodborne diseases (FBD) and foodborne zoonoses (FBZ) for the people who handled the food animals (Cook *et al.*, 2017; Pal, Tesfaye, & Dave, 2013) and who consumed their meat, milk, eggs, and by-products. FBD and FBZ Pathogens that presented in animal carcasses or shed in animal wastes, might transmit to meat handlers through equipment, tools and/or slaughter processing area and finally to the consumers.

Feeding and Keeping Systems in Animal Production

One of the debatable controversial issues is feeding animals with the use of genetically modified foods, and it has been proven to affect the health of human beings. Animals are being fed with non-natural products produced for the commercial purpose that was to accelerate animal growth and increase profitability (Masri, 2007). In addition, people are still using a large number of antibiotics in food animals for nontherapeutic reasons which should be controlled by developing proper guidelines in animal production. According to Marshall & Levy, (2011), it is noted that antimicrobial use in animals leads to developing antimicrobial-resistant bacteria in animals and also could spread to humans through water and food sources. Thus, the use of antibiotics, especially for the purpose of growth-promoting, must be strictly observed and restricted. These kinds of products should not be allowed into the food chain without insisting on rigorous testing for its effects on human health. Thus, the companies and responsible government authorities should pay greater attention to the possible risks to public health. The details of the nutrients and ingredients involved in feeding animals are to be identified since a safe animal feed supply is important for ensuring the health of animals and humans.

Moreover, the animals were increasingly taken off the land and reared intensively, and tightly packed together in windowless houses of the factory farms. Another concern in the poultry factory farming is the beak trimming in which the removal of 1/3 to 1/2 of the beak, is a routine husbandry procedure practiced to prevent feather pecking and cannibalism (Heng-wei Cheng, 2010). This removing highly sensory organ of the chicken which is used for foraging, feeding, drinking, preening, nest building and arranging eggs and using as a weapon during a defencing time, is one of the animal welfare issues. It is noted that free-range animals with direct exposure to sunlight and fresh air reduce muscle weakness than caged birds and produce healthier and taste better eggs than eggs from other systems (Duncan and Hawkins, 2010). Thus, animal welfare should be considered to maximise the benefits of human wellbeing.

Animal Welfare Issues during Transportation

Animals suffer from bruises, injuries, starvation, tiredness, and water, and food deprivation in loading and unloading of them during transport. Animal handlings during transportation (heat, cold, overcrowding) and marketing (noise, unfamiliar environment) are reminded to be careful since these lead to animal stresses. In addition, Abdela and Mohammed (2016) explained that animals can be stressed by either psychological stress such as restraint, handling or physical stress such as hunger, thirst, fatigue, injury or climate extremes. They also stated that animal stress could affect their immune function and susceptibility to disease, an increase in the prevalence of mastitis in dairy cows, decreased food intake and rumination, inhibition of oxytocin release, reduced fertility and effect on meat and by-product quality (Abdela & Mohammed, 2016). Thus, animals should be handled carefully, and their stress should be reduced to a minimum at the time of transportation.

Animal Welfare At The Time Of Slaughtering

Animals are being killed by applying different methods; the manual killing with sharp materials such as knives, arrows, axes, or the use of automatic machines and advanced tools such as pistol, captive bolt, electric or gases. These methods are based on the specific purpose of slaughtering livestock and poultry (SLP). Human mostly conducted SLP for the purpose of getting benefits from them, not only meat as the main product but also other animal by-products such as skin, bones, fat/oil, and feather/hair/wool. Animal skull, meat trimmings, and fatty tissues are also taken for a wide variety of products including pet food or processed materials in soap, fertilizer or fuel. The merciful or humane killing of animals is required for animal welfare and thus the suitable methods are unfailingly required to be applied along the process of SLP.

It is quite interesting to know that animals exposed to stress is varied depends on the type of animals in which non-ruminants (poultry and pigs) are more susceptible to stress compared to ruminants (sheep, cattle, and goat) (Adzitey, 2011). Therefore, animals should be slaughtered with very little or no stress so that only trained person should be assigned to conduct slaughtering animals by proper handling.

Animal Stress and Meat Quality

Animals can be stressed due to poor nutrition and/or starvation, presence of infection/disease, and mishandling of them. They should be fed and watered regularly to prevent starvation and dehydration and keep them in a clean and conducive environment to prevent infections. Animals feeding at farming play a major role in meat quality in which animals with adequate nutrition (grazing, grasses, and vitamins) have better meat quality compared to animals fed on chemical and drug products. There is some evidence linking stress with pathogen carriage and shedding in farm animals, the mechanisms underlying this effect have not been fully elucidated. Understanding when pathogen loads on the farm are highest or when animals are most susceptible to infection will help to identify times when intervention strategies for pathogen control may be most effective and consequently increase the safety of food of animal origin (Abdela & Mohammed, 2016).

The animal could also suffer stresses during farming, transportation, and marketing and even at the time of slaughtering. The relationship of animal stress and meat quality can be seen in the form of glycogen bucket as illustrated in the following figure. The meat of the stressed animals tends to have a higher pH, poor flavour and poorer keeping quality (MLA, 2015). Moreover, their meats are visually unattractive with dark, tougher and take longer to cook than those of the meat with lower pH (AWI, 2008).

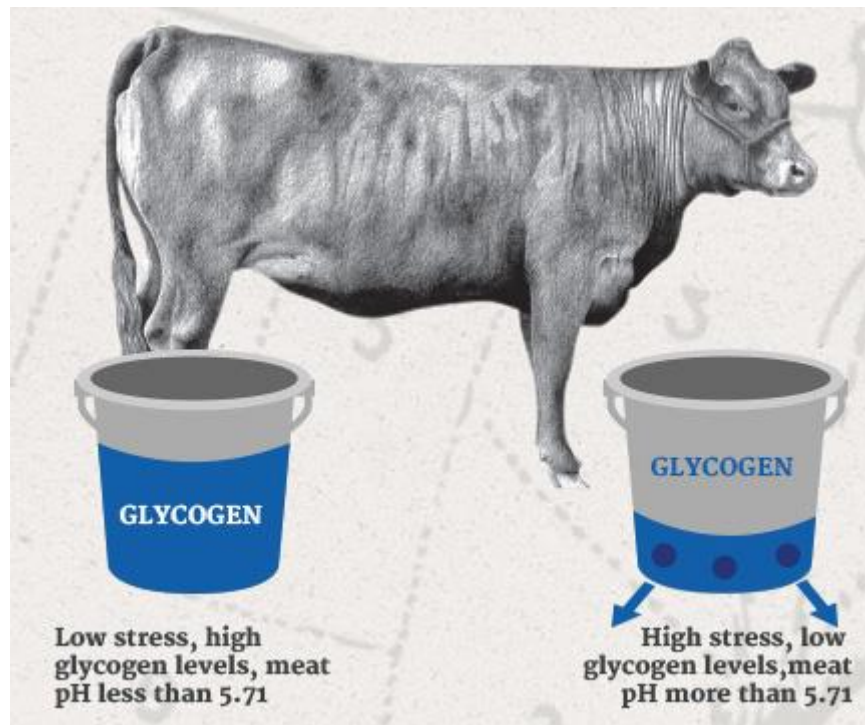


Figure 3: A Description of Glycogen Bucket and its Relationship of Meat Quality Through Changes of Meat pH. Retrieved from <https://producer.msgrading.com.au/Learning/S3P2>

Gebregeziabhear, Ameha, Zeit, & Dawa, (2015) suggested that minimizing farm animal stresses can make optimizing in product yield and quality. Hence, it is noted that animal stress is related to the quality of meat and their products, and thus, it is associated with the health and wellbeing of the humans who consumed it.

Practical Approaches in Animal Welfare

No matter how much discussion was made on the link between animal welfare, meat quality, and human health, it will not be beneficial if it is not applicable in the actual setting. The new keeping system should combine the best of traditional husbandry with technological advances that allow us to satisfy an animal's basic interest. Moreover, some instances of animal abuse are related to a commercial purpose. It is important to make changes to improve animal welfare and the benefits and impact of those in a commercial area. Thus, the organizations which focus on animal welfare as a balance between practical and commercial sense should be developed.

One of the examples stated by Dawkins, (2008) is that maintaining a hygienic environment in chicken production reduces the incidence of *Salmonella* which in turn benefits not only for human health but also for commercial purpose. For this respect, it is noted that Food Animal Initiative (FAI) based at Wytham, near Oxford, was set up to address the issue of making changes in farming to improve the animal welfare worldwide. FAI put the effort in conducting research for developing a farming system to deliver good animal welfare. The organizations with similar purpose should be set up around the world and their research work should be more encouraged. The awareness of the impact of animal welfare to human beings should also be raised among the public.

Animal Welfare From The Perspective Of Islam

There are plenty of Islamic teachings regards the rights of animals and their welfare. Animals are the creatures on earth like a human being and they have their rights and thus, encourage treating them with kindness and compassion. Moreover, the rewards and punishments regarding animal treatments are clearly mentioned in Islam, and thus Animal warfare should never be neglected. These could also be studied from the examples of Prophet Muhammad (PBUH) who treated the environment and animals with respect and kindness. Prophet Muhammad (PBUH) made a remark on this cruelty as “Do not turn your animals into the chair” and he mentioned that beast of burden like camels, ox, donkeys, horses, elephants are not allowed to carry a load that is too heavy and should be well fed and watered. Whenever the Prophet saw any animal over-loaded or ill-fed, he would approach the owner and said, “Fear Allah (SWT) in your ill-treatment of animals” (Muslim and Bukhari).

The authors, Min & Zaw, (2016) highlighted a saying of Prophet (PBUH) from ‘Muslim and Bukhari’ that “whoever kills a sparrow or anything bigger than that without a just cause, Allah (SWT) will hold him accountable on the Day of Judgment”. The Prophet (PBUH) explained that killing would be for a just cause if it was for food (Khan, M. Muhsin 1995). Being disobedient to Allah’s (SWT) instructions of having to be kind to animals can be seen in the example of the destructions of the ancient nation (the tribe of Thamud) and a she-camel as a symbol in the story of Prophet Saleh (PBUH) (Qur’an 7:73; 11:64; 26:155-6; 54:27-31). And it is stated that “He, who is not merciful to others, will not be treated mercifully” (Khan, 2009). For these reasons mentioned, one should never underestimate the treatment of animals, while being receiving benefits from them as a source of food and a mercy from Allah (SWT). Thus, this study considers the animal warfare issues in handling and killing process as the necessary requirements of *Islam*. These issues include food and water deprivation time, ventilation, humidity, their transportation mode and duration, and the sharpness of knives to reduce their undue sufferings and pain.

Moreover, the Prophet also mentioned about the treating animals that “there is a reward for acts of charity to every beast alive” (Al-Bukhari). Regarding punishment to treating animals with cruelty, it is stated that “A woman was tortured and was put in Hell because of a cat which she had kept locked till it died of hunger” but “a prostitute was forgiven her sins as the reward because of her activity of easing thirsty dog” (Sahih al-Bukhari, 54/538; Khan, 2009). Not only physical but also emotional care of animals was much emphasized by the Holy Prophet (PBUH), that he once reprimanded his wife, Hazrat A'ishah (R.A.), for treating a camel a bit offhandedly. She herself narrates: "I was riding a restive camel and turned it rather roughly. The Prophet (PBUH), said to me: ‘It behoves you to treat the animals gently’ (Narrated by A'ishah (R.A.), Muslim Vol. 4, Hadith No. 2593; Masri, 2007).

Even though animals as a necessity for food are allowed, there are certain guidelines to be followed at the time of slaughtering them. Humans are not allowed to torture animals and Prophet Muhammad (PBUH) said that “if you must slaughter, slaughter without torture” (Al-Bukhari). Other than the facts mentioned above, the concept of *halalan toyyiban* is prescribed deeply for animal welfare as well as the wellbeing of consumers which can be known as the principle of diet in Islam. Concerning the forbidden animals and their conditions, some studies identified the possible risks involved in consuming pigs and animal blood. There are more than 20 different parasitic worm species that are known to affect wild boars and domestic pigs can also infect to humans (Brondz, 2018). Regarding the use of blood in human, Ofori and Hsieh (2011) shared a statement that “blood, the first by-product obtained after the slaughter of an animal, has long been used in European and Asian countries as an

ingredient in traditional foods such as blood sausages, puddings, blood soups, bread and crackers”. However, Islamic ways of slaughtering include letting the flow of the blood after cutting the animal throat (Nurdeng, 2009). The Qur’an completely prohibits eating of dead meat where free blood has coagulated (Qur’an; 6:121, 145; 5:3,5).

In regard to animal blood, Ofori & Hsieh, (2015) highlighted that blood as a risk of pathogenic or harmful metabolic materials, the infectivity of prion diseases, and the presence of identified allergens such as bovine serum albumin (BSA) and as a cause of many consumers avoiding from any product containing either animal blood and/or ingredients derived from it. Hence, it is noted that consuming animal blood could jeopardize and affect human health because blood is the mediums for microorganisms and a carrier of diseases. From the reasons mentioned above, the forbidden animals or the stated conditions in Islam are aimed for the benefits of mankind by preventing them from any form of impurity or foodborne diseases.

In addition to these, some research has proven that the way of *halal* slaughtering could be accepted as the most humane method of slaughter (Pozzi, Geraisy, Barakeh, & Azaran, 2015). The captive bolt and/or electric stunning method are still controversial for either reducing or increasing the pain of animals from Islamic perspectives. This opinion is supported by the research conducted by Professor Schultz and Dr. Hazim of Hanover University, Germany. They proved it through an experiment using an EEG and ECG that the *halal* method is a more humane method of slaughter than the captive bolt stunning method.

There are various other methods such as killing by strangulation and beating the animal to death with a blunt stick. All these techniques are more painful and allow the animal to die before complete bleeding, with the result that the flesh of the animal poses the characteristic of dead meat (Schulze, 1978). “It is found that Islamic practice on slaughtering food animals is not only *halal* (lawful) but also *toyyiban* (wholesome), on which maintaining conventional practice of safety and hygiene.

From all the findings and discussions above, Figure 4 summarizes the link between the important role of *halalan toyyiban* and the impact of animal welfare on human wellbeing. The concept of *halalan toyyiban* covers directly on animal welfare, hygiene and safety, and human wellbeing and indirectly on foodborne disease prevention through three concerned stages - animal production, transportation, and slaughtering.

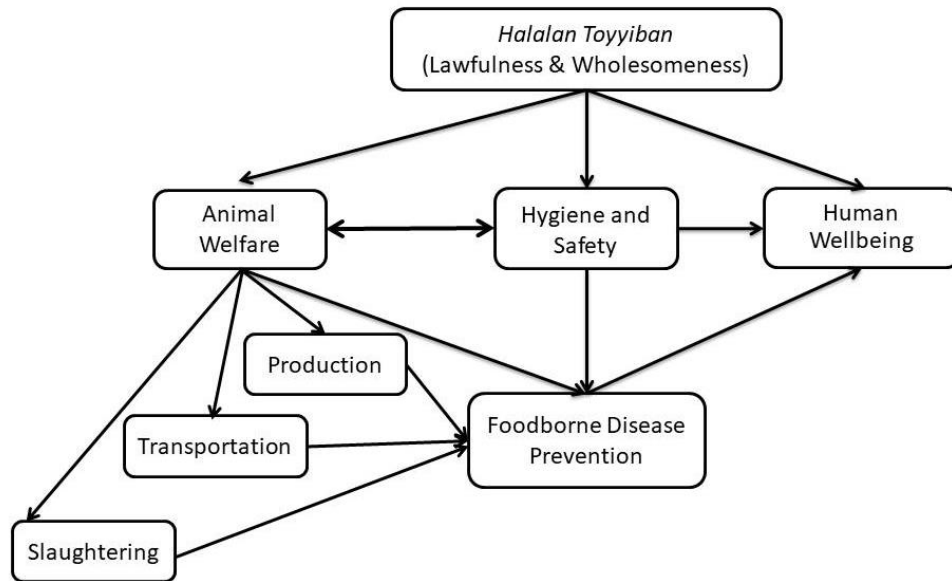


Figure 4: The Role of *Halalan Toyyiban* and The Impact of Animal Welfare to Human Wellbeing

Conclusion

To summarize, human beings and animals complement each other when it comes to survival. We care for animals and in return, they provide us with food and warmth as mentioned in the Qur'an, (16:5), "And cattle He has created for you (men): from them ye derive warmth and numerous benefits, and of their (meat) ye eat". In addition, it is noted that animal welfare is linked to animal health, lesser opportunity for infecting FBD, and provide more standard meat quality which in turn related with human wellbeing. Thus, animal welfare and their rights should be observed through 5 ways of their freedoms, in 3 concerned stages - production, transportation, and slaughtering, by 3 measures namely 1), proper hygiene and sanitation, 2), good keeping, feeding, and handling animals, and 3), regular inspecting animal health and meat quality. Animal stress can be reduced by taking care of their hygiene and sanitation, by providing enough space and shelter, proper and adequate nutrition. The food animals should be well handled at all three concerned stages based on 3 measures of animal welfare, which should be set as the guidelines of the authorized and religious organizations in the country. By following these scientific and Islamic guidelines, reducing animal cruelty which cause animal stress, the safe and quality meat free from unhygienic and risk of FBD, will be achieved. The meat obtained will meet the *halalan toyyiban* (lawful and wholesomeness) with hygiene and safety status to be contributed for human wellbeing and physical, social and psychological benefits.

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