The Impact of Pre-Slaughter and Slaughter Procedure on Animal Welfare and Behavior Changes in Cattle at Local Abattoir in Samarinda-Indonesia

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ABSTRACT

The aim of this research was to address the impact of pre-slaughter handling and slaughtering process on animal welfare and changes of cattle behavior at local abattoir in Samarinda-Indonesia. To investigate the influence of pre-slaughter and slaughter procedures on stress levels and cattle behavioral changes, 142 Bali cattle were used. The data were collected using the inspection form and statistically analyzed descriptive to describe the percentage of animal behavior changes during antemortem and post slaughter. The results showed that, at the pre-slaughter stepwise, the animals were falling down around 6.3%. On the flip side, after the post-cut the animals had been experienced and demonstrated a return of consciousness with a reflex percentage of straightening their heads and bodies of 57.0%, 82.4% of tail movements and followed with 69.0% vocalizing amongst cattle; it has attributed to improper handling before slaughtering process. Furthermore, lack of knowledge of stockperson on animal attitude and behavior also has contributed significantly stress and animal behavior changes on animals during interactions between stockperson and livestock. This research showed that the lack of application of animal welfare could be seen and measured from the behavior of livestock point of view at the Tanah Merah Slaughterhouse in Samarinda-Indonesia.

Keywords: Abattoir, Pre-slaughter, Slaughter process, Animal behavior

1. INTRODUCTION

Abattoir is a place for slaughtering animals and producing red meat. Nevertheless, the all animals will have an experienced some triggers at abattoir where it can cause of stress and distress on cattle during handled, yarded, mustered and slaughtered, and it is linked to human contact, novel environment including over using electric prods. Furthermore, the stage on pre-slaughter handling will have an impact on the quality of the carcass produced. Poor practice on animal handling may lead animals to become stressed. Animal stress can be seen profoundly on animals and it is also can be observed and measured both quantitatively and qualitatively. The changes of behavior and attitude of animals as an indicator of welfare could be evaluated and quantified in every stepwise in which it is started from lairage to chute areas for where it is encompassing pre-slaughter handling and slaughtering process. The indicators one of which is awareness and unconsciousness that can be observed after slaughter which can show that animals can also feel pain or discomfort. The harsh conditions and treatment of handling animals cause suffering to animals [1]. The application of an appropriate pre-slaughter handling system is urgently needed which aims to achieve safe, healthy, whole and halal and good (thayyib) meat quality, one of which is by applying animal welfare factors which also have an important role in suppressing or controlling stress on animals before and during the slaughter process. Paying attention to the comfort,

pleasure and health of animals is a step in implementing animal welfare [2].

Animals that experience stress and fatigue due to improper handling where it will give a negative impact on the quality of the carcass or meat namely Dark Firm Dry (DFD) or dark colored meat (Dark Cutting Beef), hard and dry textured, and can affect the ultimate pH significantly [3]. The occurrence of DFD in meat is an indicator of stress, injury, disease or fatigue in animals during pre-slaughter phase due to lack of knowledge and practice the way how to handle the farm animals by stockperson [4]. The previous study reported that, where the Halal slaughter methods followed by the application of good pre-slaughter handling and equipped with good facilities can minimize stress levels on animal farm [5]. Nevertheless, these cited studies have reported the effect of pre-slaughter handling on level of stress on beef cattle, but there is a lack of an information concerning on animal welfare and behavior changes of beef cattle which being handled and slaughtered at traditional Halal Slaughter. Thus, the objective of this study was to evaluate and observe the impact of pre-slaughter and slaughter procedure on animal welfare and behavior changes as a form of producing quality meat that is fostered for public consumption.

2. MATERIALS AND METHODS

A total 142 Bali cattle were observed and slaughtered at an abattoir in Samarinda-indonesia and The Bali cattle were imported from the other provinces (East Nusa Tenggara and South Sulawesi). The data obtained were statistically analyzed descriptive according to the observation of the application of animal welfare at the Tanah Merah Samarinda abattoir. The data obtained is calculated in the form of a percentage (%) were performed using the SPSS. The method used has been adopted from Grandin (2017) [6].

3. RESULTS AND DISCUSSIONS

3.1. Antemortem (Pre-slaughter)

The Observations has been focused on an interaction between animals and human contact during preslaughter handling. The results revealed that the percentage of falling was 6.3% and it is not inline with the animal welfare standard while, the percentage of livestock falling down must be 1% or less [6]. As Grandin (2017) highlighted that, poor practice on animal farms is the one of factors contribute to stress where it causes beef cattle become aggressive, aversive, agitative and it's hard to control during handling stage and it has a strongly interlinked to the total percentage of falling case of beef cattle at abattoir. Poor practice on animal handling was happened at Tanah Merah Samarinda abattoir, where the animals were forced and pulled roughly by stockperson from lairage to the slaughter area without supported with good facilities such as raceway and non-slip floor. The previous study reported that, poor practice on animal handling such as forcing and pulling an animal roughly could contribute a negative effect on animal welfare where the farm animals had a stress experienced and it affects the eating quality of meat [7].

The pre-slaughter practice of the local abbtoir in Samarinda was poor in terms of animal handling technique. This matter based on the observation which shows that the animal being beaten poorly trained workers, the physical treatment was pulling forcefully, shouting, kicking, hitting, using bare hands including twisting and pulling the tail. Such bad handling procedures can cause animals can gain bruises, injures, pain to stress before slaughter. The effects of stress on animal can vary according to various factors such as the quality of the procedure, handlers' experience, and the quality of the handling equipment [8]. Futhermore, exposure to unfavourable environmental conditions and exposure to climate conditions give the effects of stress on animal [9]. Rough physical treatment to animals 100% that does not meet the animal welfare standard. Therefore, stockperson has a vital role for handling and control the animals before slaughter process, such as knowing or understanding animal behavior by paying attention to the flight zone and point of balance of animals at every stage. All handling must be done calmly so as not to make the animal become aggressive and temprament [10].

3.2. Animal Welfare Measurements on Post Slaughter

The Observation of behavior as an indicator of whether the animal is stressed or not, and the consciousness and unconsciousness on cattle during slaughter and post-slaughter also an important issue on animal welfare practice and standard. Slaughter is one of the stages of the handling process in the abattoir, the practice of Halal slaughter carried out at local abattoir in Samarinda without stunning or it can be classified as a Traditional Halal slaughter method, where the slaughter is carried out by the slaughterman after the animal has been handled and overthrown completely. The design of the slaughter facility is closely related to the number and intensity of stress stimuli [11].

At the local abattoir, the facilities were not well-designed or not equipped with restraint box and chute area. So that the animals could see to other animals during the slaughtering process. The use of restraining box in the slaughtering process serves to reduce the space of motion of animals [6], this can be a good solution, so that animals do not see other animals were being slaughtered by slaughterman. The target of slaughter is cut the throat without pain and suffering the

animal, where the veins and esophagus are cut comprehensively. The principle of slaughter that the animals are slaughtered as quickly as possible withoutany pain and result in high blood loss completely [12].

The results of observations showed that 2.8% of the

to be slaughtered, the length of the knife for slaughtering cattle is at least 30 cm [15] or approximately 2 times the width of the neck of the animal. It is very important to pay attention to the tools and equipment used. the slaughtering knife used must be compatible with animal welfare. Based on the observations, the knife used at local abattoir has rust

Table 1. Percentage of consciousness and unconsciousness of animals after slaughter at Tanah Merah Samarinda abattoir

Indicators of consciousness and unconsciousness	Percentage
Did not show signs of sensibility	2.8
Eye corneal reflex	1.4
Reflex to straighten the head and / or body	57.0
Voice	69.0
Rhythmic breathing	21.1
Tail movement	82.4

4 Bali cattle had no signs of consciousness/sensibility, this shows a low percentage which means that many animals experience consciousness after the slaughter process. Indicators of return of consciousness include the reflex of straightening the head and or body as much as 57.0% of 81 Bali cattle, rhythmic breathing as much as 21.1% of 30 Bali cattle by checking placing the palms of the hands or paying attention to the movement of the chest and abdomen rising and falling,as well as the presence of tail movement of 82.4% of 117 Bali cattle, the corneal reflex after the animal was slaughtered was 1.4% from 2 Bali cattle. The corneal reflex test is done by gently touching the corner of the eye with a finger. One of the signs of complete death of an animal is the death of brain function, namely the loss of the palpebrae or eyelid reflex response. The percentage of sound is 69.0% from 98 Bali cattle. The sound in question is the sound of breathing that can be heard from the cut trachea. Ensuring the unconscious by looking at the consciousness indicators must be absent and the unconscious indicators must be present is important before proceeding to the next stage [13]. Fairly high percentage this proves that many animals show signs of sensibility after slaughter.

The return of consciousness after slaughter in animals can occur because the animal has not experienced complete brain death. It is therefore important for the butcher to check for rapid and profuse bleeding or the absence of blood flow from an obstructed neck wound to hasten the loss of consciousness in the animal. Actions that need to be taken if the bleeding is not profuse or if the artery has a false aneurysm (blood clot) is re-slicing using a second knife [14]. The use of a second knife is important because blood clots can be caused by using a blunt butchering tool. The length of the knife for slaughtering must be 1.5 times the diameter of the neck of the animal

indicating that it does not meet the slaughter knife standard. choosing the right knife and right is one of the main keys in the process of slaughtering animals. All metal utensils that come into contact with meat must be made of stainless steel, strong, easy to clean and maintain [16].

4. CONCLUSION

The results of the study that there are still many cows that show indicators of post-slaughter consciousness or sensibility, this is supported by the observation of 2.8% there are no signs of sensibility, which means that the many cattle experience stress at the stages of pre-slaughter and slaughtering process at Tanah Merah Samarinda abattoir.

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