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Knowledge Level and Application of Animal Welfare Aspects at Binjai City Slaughterhouse

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Abstract. Animal welfare is very important to pay attention to in the slaughtering process in abattoirs to ensure the quality of the meat produced. This study aims to determine the level of knowledge of the implementers of the activities on aspects of animal welfare and the application of animal welfare aspects at the Binjai City Slaughterhouse. This research was conducted at the Binjai City Slaughterhouse, Jalan Letan Umar Baki, Clove Turi, North Binjai District, Binjai City, from October to November 2021. This study used a survey method: interviews and direct observation with the implementers of activities at the Slaughterhouse. Binjai City Animals consists of 3 cattle traders, 15 animal controllers, and one slaughterer using a questionnaire and a checklist. This study uses an assessment based on a Likert scale. Based on the results of the study, the level of knowledge regarding aspects of animal welfare from the implementers of activities at the Binjai City Slaughterhouse was in the sound and excellent categories. In the application of animal welfare aspects at the Binjai City Slaughterhouse to the facilities it has, it is categorized as very good (100%) in slaughter facilities and good category (80%) in animal shelter facilities.

1. Introduction

Meat consumption has increased yearly because people are becoming aware of the nutritional needs in the food they eat, especially from animals or meat [1]. Slaughterhouses (RPH) have an essential role in the chain of meat procurement. The increasing demand for meat has made some abattoirs pay less attention to slaughter methods that are in accordance with aspects of health, religion, and animal welfare [2]. Animal welfare aspects of livestock to be slaughtered are very important to pay attention to because handling animals before and during the slaughter process has the potential to violate animal welfare aspects and cause a decrease in the quality of slaughtered products.

One of the incidents that are not in line with animal welfare is that some processes in the abattoir have been ignored or forgotten where one example is that the livestock that will be slaughtered are rarely rested first. After arriving, the slaughter is immediately carried out, which violates the provisions of animal welfare, which is currently an important issue. [3]. Based on the background, the authors are interested in conducting research related to the knowledge and application of animal welfare aspects at the Binjai City Slaughterhouse.

2. Materials and methods

This research was conducted at the Slaughterhouse (RPH) of Binjai City, which is located at Jl. Lieutenant Umar Baki, Clove Turi, Kec. North Binjai, Binjai City, North Sumatra. This research was conducted from October to November 2021.

2.1 Data Types and Sources

In this study, the data used are primary data and secondary data. The results of observations and interviews through questionnaires to the population or all respondents in the Binjai City RPH, which consisted of 3 groups of respondents, namely three cattle traders, 15 animal controllers, and one slaughterer were the primary data sources.

2.2 Data analysis method

The data analysis method used in this research is descriptive qualitative analysis. This study uses a study based on a Likert scale. The Likert scale has four or more questions or statements combined to form a score or value representing individual characteristics, for example, in terms of knowledge, attitudes, and behavior [4].

Table 1. Likert scale

Symbol	Description	Score
SB	Very good	5
B	Good	4
CB	Pretty good	3
KB	Not good	2
TB	Not good	1

Source: [4]

3. Results and Discussion

3.1. Knowledge Level of Welfare Aspects of Cattle Traders

The maximum score is based on the highest answer score multiplied by the number of respondents and then multiplied by the number of questions, so five × three × 13 = 195.

Meanwhile, the percentage of knowledge level based on the cattle trader respondent group is as follows:

$$\text{Score Percentage} = \frac{\text{Skor Total}}{\text{Nilai Maksimum}} \times 100\%$$

$$\text{Score Percentage} = \frac{156}{195} \times 100\%$$

Percentage Score = 80.00%

The total score of the knowledge level data of the cattle trader respondent group is 156 (80.00%) from the maximum value of 195 (100%). Based on the criteria for assessing the level of knowledge on aspects of animal welfare according to [5] the percentage score is included in the good category.

3.2. Knowledge Level of Welfare Aspects of Animal Control

The maximum score is based on the highest answer score multiplied by the number of respondents and then multiplied by the number of questions, so five × 15 × 14 = 1,050.

Meanwhile, the percentage of knowledge level based on the animal control respondent group is as follows:

$$\text{Score Percentage} = \frac{\text{Skor Total}}{\text{Nilai Maksimum}} \times 100\%$$

$$\text{Score Percentage} = \frac{978}{1.050} \times 100\%$$

Percentage Score = 93.14%

The total score from the data on the level of knowledge of the animal control respondent group consisting of 15 respondents had a percentage score of 978 (93.14%) from the maximum value of 1,050 (100%). Based on the criteria for assessing the level of knowledge on aspects of animal welfare according to [5], the percentage score is included in the outstanding category.

3.3. Knowledge Level of Welfare Aspects of the Slaughterer

The maximum score is based on the highest answer score multiplied by the number of respondents and then multiplied by the number of questions, so five × one × 20 = 100.

Meanwhile, the percentage of knowledge level based on the animal control respondent group is as follows:

$$\text{Score Percentage} = \frac{\text{Skor Total}}{\text{Nilai Maksimum}} \times 100\%$$

$$\text{Score Percentage} = \frac{100}{100} \times 100\%$$

Percentage Score = 100%

The total score of the data on the level of knowledge of the slaughtering interpreter respondent group working at the Binjai City RPH consisting of 1 respondent has a score percentage of 100 (100%). It reaches the maximum or expected value of 100 (100%). Based on the criteria for assessing the level of knowledge on aspects of animal welfare according to [5], the percentage score is included in the excellent category.

3.4. Slaughter Process Facility at Binjai City RPH

Table 2. Application of Animal Welfare Aspects in Binjai City RPH

Facilities at RPH	Application of Animal Welfare Aspects		Conformity Rate (%)	Rating Category
	In accordance	It is not following		
Animal Reception	10	1	90.90	Very good
Animal Shelter	4	1	80.00	Good
Herdsman	11	1	91.70	Very good
Animal Stunning Site	11	1	91.70	Very good
Animal Slaughterhouse	9	0	100.00	Very good
Total	45	4	90.86%	Very good

Description :
In accordance: already meets the operational standards of animal welfare
It is not following: has not met the operational standards of animal welfare

3.5. Application of Animal Welfare Aspects in Animal Reception

The process of dropping the livestock is carried out as soon as the truck arrives at the abattoir (Figure 1a). While unloading the cattle at the reception, the cattle can unload themselves without any harsh treatment (Figure 1b). The process of lowering livestock does not use stairs because the height of the truck's door for removing livestock is the same as where the cattle are received at the shelter (Figure 1c). The animal reception area at the Binjai City RPH has the floor made of concrete with a slightly bumpy surface like a ladder to prevent animals from slipping (Figure 1d).

Several processes do not follow the operational standards of animal welfare; the livestock looks less comfortable when they are in the truck. This is because the distance is quite far to the Binjai City RPH.
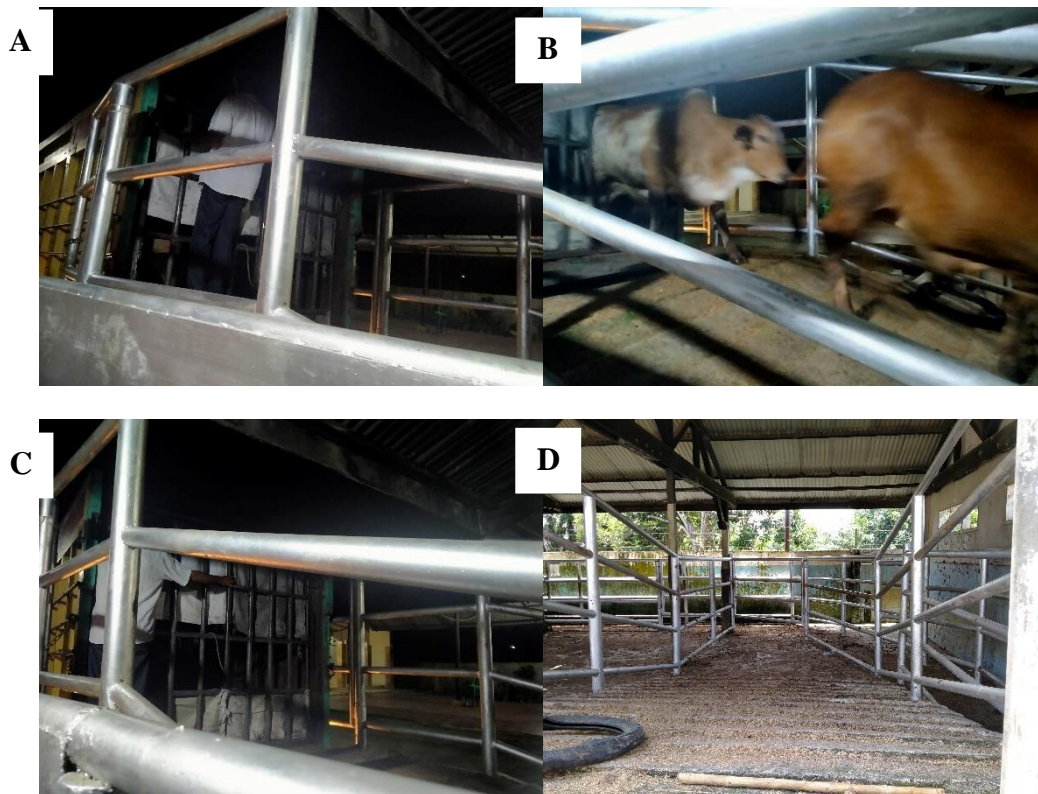
Figure 1. Animal Acceptance Process; (a) animal drop preparation, (b) animal drop process, (c) animal drop-off area, (d) animal drop-off floor

3.6. Application of Animal Welfare Aspects in Animal Shelters

The suitability of the application of animal welfare aspects in animal shelters can be seen from animal shelters that already have a roof that protects animals from heat and rain (Figure 2). The area of the animal shelter is sufficient according to the animal's size, where the animal can move freely (animals can go forward, backward, lie down and stand freely). Animal shelters are also provided with adequate drinking water as long as the animals are rested and are safe from sharp objects that can injure livestock [6].

The operational standard of animal welfare aspects that are not yet appropriate in animal shelters is that animals that are in holding cages have not been grouped according to their gender. This can cause animals to fight while in holding cages. Another shortcoming can be seen in the cleanliness of the holding cage. The floor of the cage still looks dirty due to livestock manure.

Figure 2. Shelters

3.7. Application of Animal Welfare Aspects at Animal Herd

The suitability of applying animal welfare aspects at the herding site can be seen from the condition of the animals that are not jostling during the herding process (Figure 3). The number of requests for slaughter means that the animal herding strategy depends on the species' character, which can be individually or in groups. The gangway facility used at the Binjai City RPH has a non-slippery floor, no holes, and no puddles of water during the driving process. The guardrail has a width and height under the animal's size so that the animal does not allow turning around during herding [7].

As for what is not under the operational standards of animal welfare aspects in herding areas, on the gangway, there are still animal control activities and sounds that can disturb the animals and cause the livestock to become stressed and rush to walk during the herding process to the slaughtering site.

Figure 3. The Process of Herding Animals Through the Gangway

3.8. Application of Animal Welfare Aspects in Animal Stunning Sites

The application of animal welfare aspects at knocking down or stunning (Figure 4a) before slaughtering animals at the Binjai City RPH has a 91.7% conformity level with an excellent score. There are two ways of slaughtering animals at the Binjai City RPH, the first is by direct slaughter using a restraining box (Figure 4b), and the second is by stunning (Figure 4c) using a non-penetrative captive bolt stun gun (Fig. Figure 4d). Meanwhile, there was an argument of stunning gun application [8]. The suitability of applying animal welfare aspects in the place of animal stunning can be seen by putting the animal into the restraining box. The entrance of the restraining box and stunning cage can be operated easily, and the animal can enter the restraining box independently.

The thing that is not under the operational standards of animal welfare aspects at the stunning animal place before the slaughter process is the restraining box and stunning cage facilities used are not equipped with a chin restraint device. This can cause the stunning process to take a long time because the animal's head is not aimed correctly, and the shooting accuracy is low. The neck and chin brace is standard operational tools of the restraining box that are used to simplify the stunning process and function to get the accuracy of the shooting point in the stunning process.
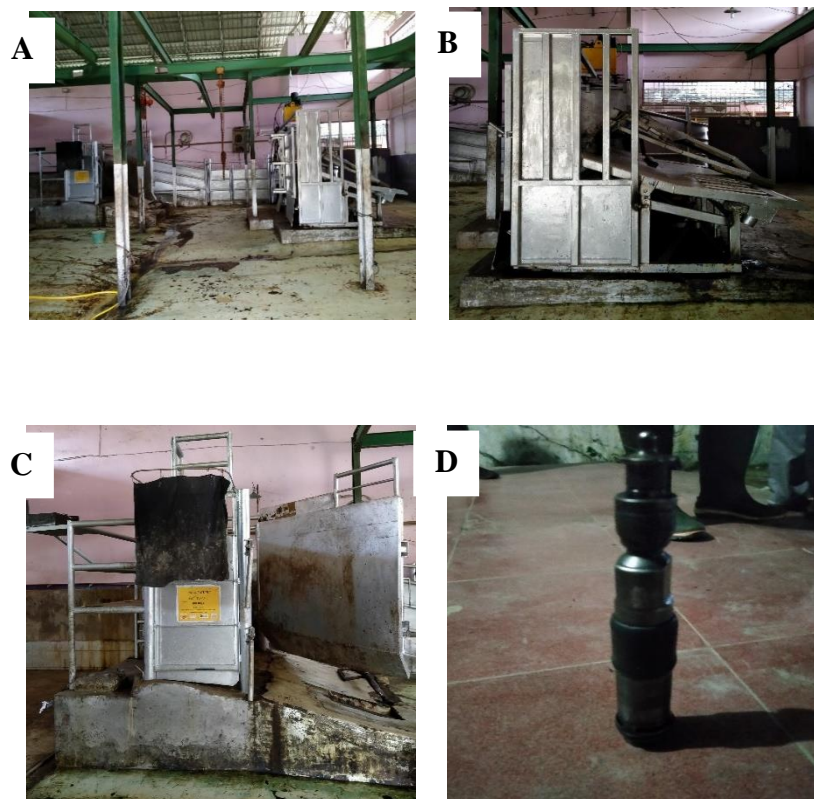

Figure 4. The Stunning Process of Animals; (a) stunning animal facilities; (b) restraining box; (c) stunning cage; (d) captive bolt stun gun non-penetrative type

3.9. Application of Animal Welfare Aspects in Animal Slaughterhouse

The suitability of applying animal welfare aspects at the Slaughterhouse can be seen from the slaughter process carried out quickly after the animal is knocked down or stunned. The knife used in the slaughtering process is sharp, with a size that is suitable for the type of animal. Animals that are still alive are not allowed to see their friends directly at the time of slaughter during the slaughtering process. At the time of slaughter, the incision location follows operational standards for animal welfare, namely under Adam's apple or just below the esophagus. The slaughter involves three incisions with back-and-forth movements without lifting the knife [9].

The slaughtering process is under the operational standards of animal welfare, where the animal has been confirmed to be completely dead by the butcher. Then the following process is carried out: separation of the legs, separation of the head, and skinning (Figure 5).

Figure 5. The process of separating legs, heads, and skins

4. Conclusion

1. The level of knowledge regarding aspects of animal welfare from the implementers of activities at the Binjai City RPH is in the excellent category and the good category in the percentage of answer scores from the questionnaire statements given. The respondent group of slaughterers had the highest percentage of answer scores (100%), then animal controllers (93.14%) and cattle traders (80.00%).

2. The application of animal welfare aspects at the Binjai City RPH to the facilities owned is included in the excellent category, with the highest percentage of suitability being found in animal slaughter facilities, namely 100%, and the lowest level of conformity and included in the excellent category is in animal shelter facilities, namely 80%.

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