Original Research Article

Adoption of Animal Welfare Practices by Selected Gaushalas (Cow-Shelters) in the State of Karnataka, India

ABSTRACT

Gaushalas serve a crucial role in protecting our nation's livestock wealth. Its primary function is to provide shelter for cows, mainly for non-lactating, frail, unproductive, and stray cattle. Forty gaushalas were chosen at random from the eighty registered gaushalas in the state of Karnataka for this study. On the basis of herd size, the forty selected gaushalas were categorized as small (12), medium (18), and large (10) gaushalas. Animal welfare is currently a global issue that is receiving increasing attention. With this in mind, the present study was conducted to determine the degree to which gaushalas have adopted animal welfare measures. Sixty percent of large sized gaushalas belonged to high adopter categories, fifty-six percent of medium sized gaushalas belonged to medium adopter categories, and fifty percent of small sized gaushalas belonged to low adopter categories in terms of adoption of overall animal welfare practices. However, it was also observed that a lack of funds, inadequate financial assistance from governments, inadequate fodder availability, inadequate access to technical services, inadequate infrastructure facilities and poor management were perceived as impediments to the adoption of animal welfare practices in gaushalas.

Keywords: Adoption; cattle; gaushalas; practices**,** welfare.

1. INTRODUCTION

"Gaushala" refers to an institution formed for the aim of preserving, breeding, growing, and maintaining cattle for the reception, protection, and treatment of sick, old, or ill livestock. It focuses mostly on providing cows with shelter and primarily meets the needs of non-lactating, frail, unproductive, and stray cattle [1]. According to the 19th Livestock Census, India has a population of approximately 190 million cattle, of which 79% are native and 21% are crossbred/exotic [2]. However, the total indigenous cattle population has decreased by 8.94 percent during the past five years (2012-2019). The main reasons for the decrease in the number of cattle are low productivity and the use of machines in agriculture instead of draught power. As a result, especially unproductive, aged, and stray cattle are housed in gaushalas as opposed to individual houses. Presently, India has over 4,500

gaushalas, of which approximately 1,850 are registered with the Animal Welfare Board of India (AWBI), which mostly serves the indigenous cattle population [3]. Rashtriya Gokul Mission (RGM) calls for the establishment of Integrated Indigenous Cattle Centers - "Gaushalas" in order to increase the productivity of indigenous breeds by providing suitable housing, feeding, and veterinary treatment for stray and abandoned animals [4]. Globally, a great deal of focus is currently being placed on the growing concern for animal welfare in the present situation. According to the OIE (World Organization for Animal Health), “an animal is in a good state of wellbeing if it is healthy, comfortable, well-nourished, safe, able to exhibit intrinsic behaviour, and not experiencing unpleasant states such as pain, fear, and distress” [5]. IDF (2008) in the guidelines states that “animal welfare is mainly concerned with the ‘five freedoms’ which described the basic needs. This consists free from thirst, hunger and malnutrition, free from discomfort, free from pain, injury and diseases, free from fear and distress, and able to engage in normal patterns of animal behaviour” [6]. “Hence, both failure to cope with the environment and difficulty in coping are indicators of poor animal welfare” [7]. According to Fraser (2005), “any instruction in Animal Welfare should include the following three cornerstones: animal behaviour, ethics and legislation (policy)” [8]. “Welfare science predominantly concerns the quantification of the influence of human actions on animals” [9], and “its repercussions on physiological, behaviour and health issues. Information about how much a diseased or injured animal is suffering can be obtained from direct behavioural measures of difficulties in trying to cope with the pain or discomfort i.e., of poor welfare” [10]. “If animals are kept in a way that their immune systems are less effective in combating disease, there is clearly some inadequacy in the management and housing system” [11, 12]. Consequently, living conditions and management procedures appear to have a higher influence on animal welfare than the quantity of dairy cows per farm [13]. Therefore, animals must be raised according to acceptable welfare standards from the stable to the table, including humane slaughtering practises [14]. In light of these considerations, FAWC (1993) underlined the importance of understanding the links between husbandry techniques and cow health in the development of protocols that will increase animal welfare [15]. Although animal welfare scores, scales, and modules have been developed and implemented in wealthy nations, animal welfare outreach and awareness have not received the significance they deserve in developing nations such as India. Consequently, the development of gaushalas aims to improve the overall livestock keeping practises and animal welfare for the sheltered cows in a sustainable manner. With this in mind, the

objective of the current study was to determine the level of adoption of animal welfare practises in the gaushalas of the study area.

2. MATERIALS AND METHODS

The study was conducted in Karnataka State in forty (40) gaushalas, selected randomly out of total eighty (80) registered gaushalas present throughout the State. The forty selected gaushalas were further categorized as small (12), medium (18) and large sized (10) gaushalas based on the herd size i.e. small (below 50), medium (51-150) and large (above 150) animals respectively. The criteria for categorization of Gaushalas was based on mean and standard deviation. The primary data was collected from the concerned individuals/stakeholders involved in maintaining the gaushalas through well-developed interview schedule. Animal Welfare Practices (AWPs) was operationally defined as the degree to which a respondent actually adopted Animal Welfare Practices in their gaushalas at the time of investigation and it was determined by a simple adoption schedule developed by the investigator. The schedule contained 18practices. Against each of the practices, there were two columns representing 'adopted', and 'not adopted' with score of 1and 0 respectively. The adoption score were then converted into adoption index by applying following formula,

$$\text{Adoption Index} = \left(\frac{\text{Obtained Adoption Score}}{\text{Maximum Obtainable Adoption Score}}\right) \times 100$$

The gaushalas were divided into three groups, "Low," "Medium," and "High" adopter categories, based on the final score values obtained, taking the mean and standard deviation into consideration. Gaushalas' total score was calculated, and their overall adoption level was determined using the formula above. **3. RESULTS AND DISCUSSION**

Results presented in Table 1 revealed that from the sample of forty gaushalas, comprised a total herd size of 6640 cattle which was categorized into small, medium and large sized gaushalas. In addition, based on the size of the herd, it was found that more than 95.00% of the cattle in all of the gaushalas were native cattle, with only 5.00% being crossbred. Among the indigenous cattle maintained in the gaushalas, most of them were old and unproductive cattle in small (32.00%), medium (45.00%) and large sized gaushalas (37.00%). A notable percentage (16.00%) of the indigenous cattle were found to be 'in milk' population in all the gaushalas whereas, among the crossbred cattle the 'in milk' milk' population were composed of 52.00 percent, 45.00 percent and 37.00 percent in small, large and medium sized gaushalas respectively.

Table 1. Herd composition in Gaushalas (n=40)

Sl. No	Category	Small				Medium				Large			
		Indigenous		Crossbred		Indigenous		Crossbred		Indigenous		Crossbred	
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	In Milk	100	16	15	52	358	15	45	37	500	16	80	45
2	Dry	120	19	10	34	400	16	25	20	750	23	25	14
3	Calves	85	14	4	14	190	8	10	8	275	9	11	6
4	Heifer	80	13	0	0	240	10	0	0	350	11	0	0
5	Bull/ Bullock	35	6	0	0	165	7	2	2	150	5	8	4
6	Old/ Unproductive	200	32	0	0	1112	45	40	33	1200	37	55	31
	Total	**620**	**100**	**29**	**100**	**2465**	**100**	**122**	**100**	**3225**	**100**	**179**	**100**
	Total Percent	**96.00**	**-**	**4.00**	**-**	**95.00**	**-**	**5.00**	**-**	**95.00**	**-**	**5.00**	**-**

1. Adoption level of animal welfare practices in gaushalas: From the results shown in Table 2. It is interpreted that majority (70.00%) in large sized gaushalas, followed by 44.00 percent in medium and 25.00 percent in small gaushalas adopted treatment for lameness (abnormality of movement in cattle).Similar observations were found in the study conducted by Flower and Weary (2016) and Sharma et al. (2019) due to the reason that, majority of the large Gaushalas had regular access to veterinary services as compared to small and medium sized Gaushalas [16, 17]. Majority (70%) of large sized gaushalas provided treatment against integument alterations (hairless patches and lesions/swellings) on the skin of dairy animals as compared to medium and small sized gaushalas. The observations were in line with the studies conducted by Wechsler et al. (2000), Whay et al. (2003) and Kielland et al. (2010) [18,19,20]. Exactly 60 percent of large sized, 44 percent of medium and 25 percent of small sized gaushalas gave treatment against overgrowth of claw and hoof. Similar incidences were observed in the studies of Huxley and Whay (2006), Platz et al. (2007) and Sharma et al. (2019) [21, 22, 17]. TerWee et al. (1989) also reported in their study that 90 percent of lameness problems in cattle were caused due to claw abnormalities [23]. A considerable majority (60%) of large sized gaushalas, 50 percent of medium and 25 percent of small size gaushalas adopted treatment against nasal or ocular discharges. The findings were in correlation with the studies conducted by Sharma et al. (2019) “in 54 shelters (gaushalas)

located in the six states of India (Gujarat, Maharashtra, Rajasthan, Punjab, Haryana and Himachal Pradesh) for assessment of animal welfare" [17]. In case of majority (90%) of large sized gaushalas there was provision of adequate floor space in gaushalas for standing, resting, loafing, feeding, water intake and ventilation. Blom (1983) also reported that joint injuries occurred due to the restrictions of floor space and lying areas [24]. The results were in agreement to the works of Otten et al. (2016) and Von Keyserlingk et al. (2012) [25,26]. "A large majority (90%) of large sized gaushalas followed by equal majority of (83%) of medium and small sized gaushalas had access to levelled flooring with non-slippery material and provision of channels for urine/dung drainage. Slippery floors affected the behaviour and lead to injuries due to falls" [27]. A majority (90%) of large sized gaushalas followed by medium (89%) and small (75%) sized gaushalas maintained good human-animal relationship (approachable distance). Similar evidences were reported by De Vries et al. (2014) wherein cows that were standing at the feeding manger were approached at the front at a rate of one step per second, starting at 2 m from the manger [28]. However, Rousing et al. (2004) highlighted that "dairy cows with tick lesions have been shown to express more kicking behaviour and a higher avoidance distance" [29].

Table 2. Distribution of gaushalas according to their adoption level in animal welfare practices (n=40)

Sl. No.	Animal Welfare Practices	Small		Medium		Large	
		Adopted F (%)	Not Adopted F (%)	Adopted F (%)	Not Adopted F (%)	Adopted F (%)	Not Adopted F (%)
1	Treatment for lameness	3 (25%)	9 (75%)	8 (44%)	10 (56%)	7 (70%)	3 (30%)
2	Treatment against integument alterations (hairless patches and lesions/swellings) on the skin of dairy animals	4 (33%)	8 (67%)	8 (44%)	10 (56%)	7 (70%)	3 (30%)
3	Treatment against teat and udder injuries in dairy animals	4 (33%)	8 (67%)	8 (44%)	10 (56%)	7 (70%)	3 (30%)
4	Treatment against overgrowth of claw and hoof	3 (25%)	9 (75%)	8 (44%)	10 (56%)	6 (60%)	4 (40%)
5	Treatment for discharges (nasal, ocular)	3 (25%)	9 (75%)	9 (50%)	9 (50%)	6 (60%)	4 (40%)
6	Treatment of sick/dull animals in the herd/farm	8 (67%)	4 (33%)	15 (83%)	3 (17%)	8 (80%)	2 (20%)
7	Disbudding of calf/dehorning of cattle	7 (58%)	5 (42%)	11 (61%)	7 (39%)	8 (80%)	2 (20%)
8	Ear marking of cattle for identification	1 (8%)	11 (92%)	2 (11%)	16 (89%)	2 (20%)	8 (80%)
9	Branding of animals	11 (92%)	1 (8%)	16 (89%)	2 (11%)	8 (80%)	2 (20%)
10	Provision of adequate floor space in Gaushalas for standing, resting, loafing,	8 (67%)	4 (33%)	14 (78%)	4 (22%)	9 (90%)	1 (10%)

	feeding, water intake and ventilation.						
11	Continuous tying of animals in Gaushalas	7 (58%)	5 (42%)	6 (33%)	12 (67%)	2 (20%)	8 (80%)
12	Allowing animals for free movement and grazing	5 (42%)	7 (58%)	12 (67%)	6 (33%)	10 (100%)	0 (0%)
13	Access to levelled flooring with non-slippery material and provision of channels for urine/dung drainage.	10 (83%)	2 (17%)	15 (83%)	3 (17%)	9 (90%)	1 (10%)
14	Management practiced to protect animals during extreme summer or chilled winter conditions.	3 (25%)	9 (75%)	9 (50%)	9 (50%)	6 (60%)	4 (40%)
15	Protection of dairy animals from its feeding to toxic plants and other harmful substances (i.e. plastic, garbage etc.)	11 (92%)	1 (8%)	17 (94%)	1 (6%)	10 (100%)	0 (0%)
16	Provision of necessary assistance by veterinarian/other trained person during parturition in case of difficulty	8 (67%)	4 (33%)	15 (83%)	3 (17%)	9 (90%)	1 (10%)
17	Proper handling during expression of agonistic behaviors (such as aggressive and submissive behaviors)	8 (67%)	4 (33%)	14 (78%)	4 (22%)	9 (90%)	1 (10%)
18	Maintenance of good human-animal relationship (approachable distance)	9 (75%)	3 (25%)	16 (89%)	2 (11%)	9 (90%)	1 (10%)

Note: F- Frequency (Figures in parenthesis indicates percentages)

2. Overall adoption level of gaushalas in animal welfare practices: Data presented in Table 3 and Fig.1 indicated that the distribution of gaushalas according to their overall adoption of animal welfare practices revealed that in case of large sized gaushalas majority of 60.00 percent belonged to high adopter categories and 40.00 percent belonged to medium adopter categories. In medium sized gaushalas, a majority (56.00 %) of them belonged to medium adopter category and equal percent belonged to small (22.00%) and high adopter category (22.00%). Among small sized gaushalas exactly half (50.00%) of the gaushalas belonged to medium adopter category, another 33.00 percent and 17.00 percent belonged to low and high adopter category, respectively. This clearly indicates that majority of the small and medium sized gaushalas were not completely aware of the Animal Welfare Practices (AWPs).It may be due to few major reasons like lack of resources and adequate training were the major reasons for non- adoption of AWPs in gaushalas. The observations were in agreement to the observations of Gupta (2017), "where more than half of the respondents (55.83%) possessed medium level of adoption of animal welfare practices, while 20.83 per cent and remaining 23.34 per cent had low and high level of adoption of animal welfare practices respectively, among dairy farmers in Central plain zone of Uttar Pradesh" [30].

Table 3. Distribution of gaushalas according to their overall adoption level in animal welfare practices (n=40)

Sl. No.	Adoption categories	Small		Medium		Large	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1	Low (upto 5)	4	33	4	22	0	0
2	Medium (6 to 13)	6	50	10	56	4	40
3	High (above 13)	2	17	4	22	6	60
	Total	**12**	**100**	**18**	**100**	**10**	**100**

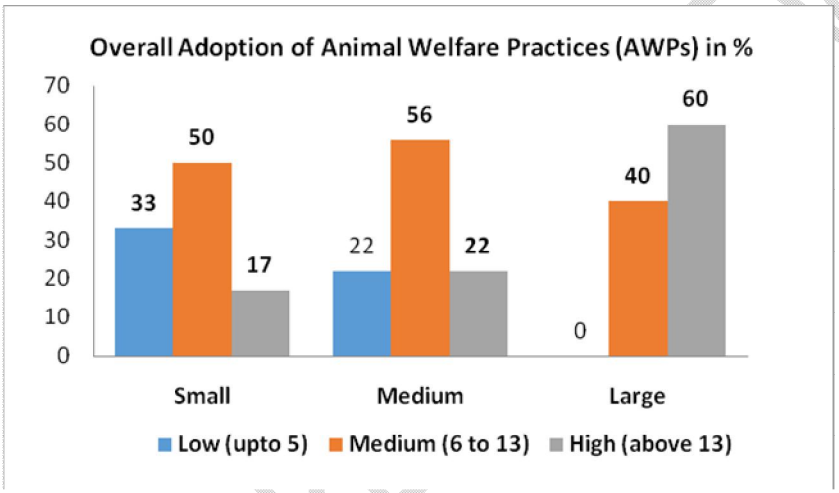

Fig. 1 Overall adoption of AWPs by the Gaushalas

4. CONCLUSION

In terms of the overall adoption of Animal Welfare Practices (AWPs), the majority of large sized gaushalas outperformed medium and small sized gaushalas. Small and medium sized gaushalas have not adopted AWPs due to a lack of funding and inadequate training facilities. Poor quality bulls, restricted access to veterinary services, and a lack of funds/capital and training constituted the most significant obstacles for gaushalas. Regular financial support, strong infrastructural facilities, and government support for training and growth were identified as essential elements influencing gaushala performance. For the holistic growth of gaushalas in the country, it is recommended that the stakeholders of gaushalas be sensitised and trained to implement management according to animal welfare protocols through proper extension, policy, and financial support.

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