

Welfare Problems of Equines in Sebeta Town and Suburbs, Central Ethiopia

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ABSTRACT

Working equines are the most important animals for the transportation of people and their goods in both urban and rural areas of developing countries. However, a lack of knowledge about animal welfare and the poverty of carthorse owners have led to several animal welfare and health problems for carthorses. A cross-sectional study was conducted from September 2021 to May 2022 in and around Sebeta town to assess the welfare problems of equines through an observational and questionnaire survey. A total of 384 equines (82 donkeys and 302 horses) were selected using simple random sampling technique and assessed for their body condition and skin problems and a total of 120 owners were included for the interview. According to the information gathered from the respondents, 30% of them take their animal to veterinary clinic, while 13.3% treat with traditional medication and the majority 56.7% of the owners were not interested to deliver their equines to veterinary clinic for treatment. From all the 384 studied equines, 52.6% of them (63.4% in donkeys and 49.6% in horses) were observed with lesions on their skin. The distribution of lesions on the body of the animal showed 69%, 62.9%, 46.0%, 35.6%, and 23.8% at the lips, tail/tail base, limbs, at back and wither, and flank region respectively. High proportions, 57% of donkeys had back and wither lesions, whereas 68.6% of horses had lip lesions. As a consequence, these problems reduce the efficient use of equines. Therefore, further studies on awareness on basic animal welfare principles should be created to working equine owners and necessary measures should be considered on equine health and welfare constraints to alleviate the problem.

Keywords: Equine, Lesions, Observation, Questionnaire, Sebeta, Welfare

INTRODUCTION

The equine population of the world was reported to be 122.4 million with 40 million donkeys, 15 million mules, and 43.3 million horses. The number of equines in Africa was in the range of 17.6 million comprising 11.6 million donkeys, 2.3 million mules, and 3.7 million horses (Starkey and Starkey, 1997) [1].

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Ethiopia possessed approximately half of Africa's equines population with 37%, 58%, and 46% of all African donkeys, horses, and mules respectively (FAO, 2003) [2].

Information regarding the contribution of draught animal power to the economies of developing countries is scarce. Although, in 1998 it was estimated that working animals, including horses, produced 75% of traction energy in the developing world (OTA, 1998) [3]. It has been suggested that more than half of the world's population depends on animal power as its main energy source (Wilson, 2003) [4]. Draught animals and humans provide an estimated 80% of the power input on farms in developing countries, but traction animals are often neglected in the allocation of resources such as food, shelter, and appropriate equipment, because members of the poorest section of the society, who cannot afford motorized transportation (Pearson, 2005) [5].

Animal welfare refers to the physical and emotional state that is impacted by the environment in which the animal lives and works, human attitudes and practices, and resources available to it. Welfare is an ever-changing state in which all of these factors can and will cause welfare to fluctuate between good, bad, and somewhere in between on a near-constant basis. Animal welfare is important because there are so many animals around the world suffering from being used for entertainment, food, medicine, fashion, scientific advancement, and as exotic pets. Every animal deserves to have a good life where they enjoy the benefits of the Five Domains. The concept of animal welfare includes three elements: the animal's normal biological functioning (which, among other things, means ensuring that the animal is, in better body condition, good physical appearance, healthy and advanced-nourished), its emotional state (including the absence of negative emotions, such as stress, pain, and chronic fear), and its ability to express certain behaviors (Hewson, 2003; Brooke, 2013) [6,7]. The term "fit and feeling good" is to illustrate that animal welfare includes both emotional and physiological components. Physical wellbeing includes health and is affected by injury and disease while emotional wellbeing encompasses minimizing negative mental states such as fear, pain, and distress as well as maximizing positive states such as happiness and comfort. A third component that overlaps with the previous two is naturalness and in the context of working animal welfare, this can be described as an expression of normal behavior (Webster et al., 2004) [8].

Despite their invaluable contributions, equines in Ethiopia

are the most neglected animals, accorded low social status, particularly the male working equines. Horses involved in pulling carts often work continuously for 6 to 7 hours/day, carrying 3 to 6 persons (195-390 kg) in a single trip. They are provided with grasses during the night and allowed to graze on pasture in the town fringe during the day. Donkeys often are involved in more multipurpose activities than horses. They transport goods to and from markets, farms, and shops, traveling long distances. They also pull carts carrying heavy loads 3 to 4 times of their body weight. They work from 4 to 12 hours/day, depending on the season and type of work. Unlike horses, donkeys are not provided with feed supplements. Some methods of hobbling to restrain cause discomfort and inflict wounds (Alujia and Lopez, 1991; Mohammed, 1991) [9,10].

This misuse, mistreatment, and lack of veterinary care for equines have contributed enormously to early death, the majority of which currently have working life expectancy of 4 to 6 years. However, in countries where animal welfare is in practice, the life expectancy of equine reaches up to 30 years (Svendsen, 1981; Fred and Pascal, 2006) [11,12]. Hence, the present study was conducted with general objective of conducting welfare-related assessment, and identifying the welfare problems of equines in and suburb Sebeta town.

MATERIALS AND METHODS

Study Area

The study was conducted from September 2021 to May 2022 in and around Sebeta town. Sebeta Hawas is a district in the Oromia Special Zone Surrounding Finfinne, Ethiopia and it shares common boundaries on the Southwest by Southwest Shewa Zone, on the Northwest by Walmara district, on the North by Burayu town, on the Northeast by Addis Ababa city, and on the East by Akaki district.

The Awash River defines this woreda's boundary with South west Shewa Zone. The towns in Sebeta Hawas include Sebeta, Awash Melka, and Tefki. Sebeta is located at 22 Km distance to the Southwest of Addis Ababa. This town has a latitude and longitude of 8°54'N 38°37'E / 8.911°N 38.621°E. Its altitude ranges from 1700 metres above sea level to about 3385 meters with the highest picks at Mount Mogle. The average temperature is 17.4 °C and the town receives an annual rainfall of 1650 mm, the monthly precipitation is being 150 mm are mostly wet and below 30 mm mostly dry. For instance, the study area was summarized in (Figure 1).

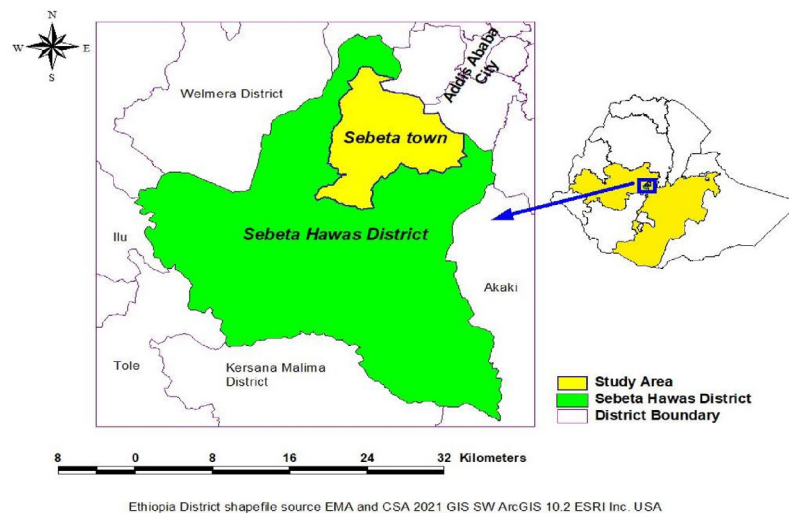


Figure 1: Map of the study area.

Study Animals

The study was conducted on 384 equines composed of 82 donkeys and 302 horses to investigate their welfare problems. All of the studied donkeys served as pack animals, while all horses were pulling carts. They were randomly selected irrespective of their age, body condition, and color from Sebete town and surroundings.

Study Design

A cross-sectional study was conducted on equines and equine owners to identify the equine welfare problems in and around Sebete town. Sebete town market and veterinary clinic were purposively selected since it was a big market from the area, and Sebete veterinary clinic was also selected due to many equines from Sebete and surrounding areas brought to this clinic than others. The study animals were selected using random sampling technique from equines which were brought to Sebete town market and clinic. Equines were made to stand and examined using welfare-friendly approaches and restraint. A semi-structured questionnaire survey was also employed for the owners.

Sample Size Determination

The sample size of study animals was determined by using Thrusfield M, (2007) [13] formula with an expected prevalence of 50% and with 0.05 precision, and the sample size at a 95% confidence interval was calculated by the formula:

$$n = 1.96^2 \text{Pexp} (1 - \text{Pexp}) d^2$$

where,

n =required sample size

Pexp =expected prevalence; d^2 =desired absolute precision

Therefore, sample size at expected prevalence of 50% was;

$$\begin{aligned} n &= 1.96^2 (0.5) (1 - 0.5) 0.05^2 \\ &= 3.84 (0.5) (0.5) 0.0025 \\ &= 384 \text{ samples} \end{aligned}$$

Accordingly, 384 equines comprising 82 donkeys and 302 horses were selected for sampling during the study.

Sampling and Data Collection Methods

The study animals were selected using simple random sampling technique at market places and veterinary clinics. A total of 384 equines were sampled and from these, 82 donkeys were selected (49 and 33 which were brought to market and veterinary clinic respectively). A total 302 horses were also selected (208 and 94 which were brought to market and veterinary clinic, respectively). The equines were examined for their body condition score and presence of skin lesions.

Questionnaire Survey

A semi-structured questionnaire was designed and validated to be subjected to the randomly selected equine animal owners and interviewed so that relevant information was collected about the uses of their equine, size of animals ownership at a household level, the magnitude of workload of their animal, management practices (feeding, watering, housing) and health care.

Observational Study

The study animals regardless of age, sex, and work type were assessed for their welfare states in terms of body condition

and lesions. Lesion of skin was assessed according to depth and location on the body region. Only lesions that cover a qualifying area were considered as a lesion, identified, and recorded. Thus, the qualifying area is a lesion larger on all sides than a 2×2cm square or 1×4cm rectangle or 2.3cm diameter circle according to Dennison T, et al. (2006) [14].

The scoring of body condition of the selected animals and lesions observed on different regions of the body was recorded based on the criteria described by Pritchard J, et al. (2005) [15]. Accordingly, body condition assessment was done by looking at the animal from both sides and the hindquarter without touching the animal and scored as “0” for very thin; “1” for thin; “2” for medium; “3” for good; “4” for fat and “5” for very fat/obese.

Data Analysis

The raw data were recorded and encoded into a Microsoft Excel 19 spreadsheet and analyzed. Descriptive statistical test was used to describe the results and displayed as percentages and frequencies.

RESULTS

Observational Study Results

Body condition assessment

The scoring of the body condition of the selected animals was recorded based on the criteria described by (Pritchard et al., 2005). So, the result indicated that 168(43.8%) were poor (thin), 162(42.2%) were medium and 54(14%) were in good body condition, as shown in (table 1 and figure 2) below.

Table 1: Body condition score proportion of studied horses and donkeys

	Good	Medium	Poor
Horses(n=302)	32(10.6%)	124(41.1%)	146(48.3%)
Donkeys(n=82)	22(26.8%)	38(46.3%)	22(26.8%)
Total(n=384)	54(14%)	162(42.2%)	168(43.8%)

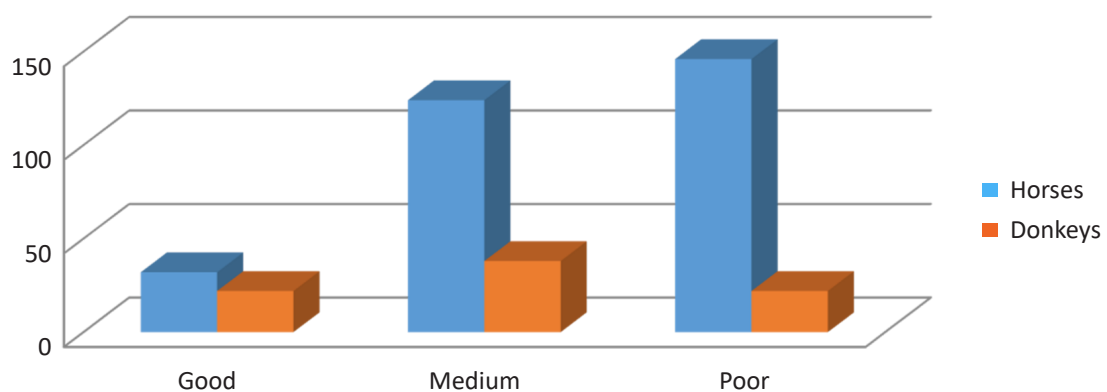


Figure 2: Body condition of the equine animals.

Assessment of Skin Problems

Observation of the animals was made thoroughly to assess the presence or absence of skin lesions on different body parts. From the total of 384 equine animals observed, the majority 202(52.6%) were affected by skin lesions. From these affected equines, a high proportion of animals 140 (69%) were observed with lesions on their lips, whereas 127(62.9%),

93(46.0%), 72(35.6%), and 48(23.8%) had a lesion on their tail/tail base, limbs, back and wither region, and flank region, respectively. Lesions affecting the back and wither and tail/tail base were predominant in donkeys whereas lip lesions were most frequent in horses (Table 2), and the proportion of lesions in donkeys and horses on different body locations indicated (Table 3). In addition, equines with different problems were observed (Figure 3).

Table 2: Prevalence of skin lesions in donkeys and horses.

Studied equines	Number of examined	Number of affected	Prevalence
Donkeys	82	52	63.4%
Horses	302	150	49.6%
Total	384	202	52.6%

Table 3: Proportion of lesions in donkeys and horses on different body locations.

Studied	Lesions on the skin depending on location				
Equines	Back and wither	Lips	Flank	Limbs	Tail/tail base
Horses(n=302)	31(43%)	96(68.6%)	26(54.2%)	62(66.7%)	76(59.8%)
Donkeys(n=82)	41(57%)	44(31.4%)	22(45.8)	31(33.3%)	51(40.2%)
Total(n=384)	72(35.6%)	140(69%)	48(23.8%)	93(46.0%)	127(62.9%)

**Figure 3:** Equines with different welfare problems. A) Horse with poor body condition; C) Horse with overload; B) Horse with lesion; D) Donkey with overload.

Questionnaire Survey Results

A total of 120 individuals that owned different kinds of equine animals for different purposes were interviewed and analyzed during the study period in Sebeta town. Information concerning management and health aspects, such as their provision of feed, watering, housing, condition of harnessing, and health care was gathered.

Status of Workload and Overloading

Owners of equine animals were asked about when their animals should begin to work and 115(95.8%) of the respondents said that their animals are put into service when

they have reached maturity, regardless of age, determined by their physical fitness. According to the response collected, cart horses work for an average of 7 hours a day, carrying an average of 487.5 kg in a single trip, while pack donkeys carried with a load of 100 kg.

Health Care Managements

Provision of health care for their equine animals was delivered either by taking to veterinary clinics or by traditional medication. Out of 120 equine animal owners, 36(30%) of the respondents take their animal to veterinary clinic, while 16(13.3%) treat with traditional medication and 68(56.7%) give no treatment (Figure 4).

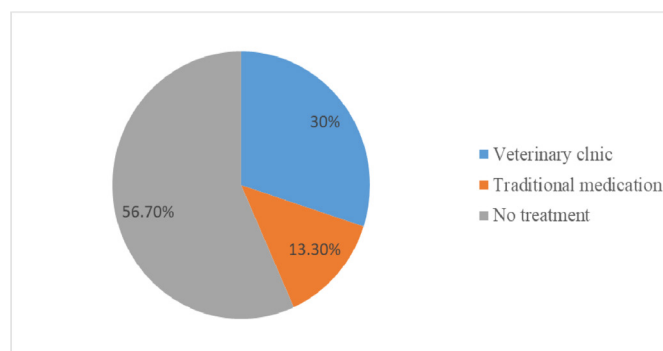


Figure 4: Proportion of respondents in terms of treatment options for their sick animals.

DISCUSSION

The purpose of this study was to identify the general management practices and body lesions that are indicators of the poor welfare of equine animals in the study area. Once risk factors associated with each issue have been identified, methods of decreasing or eliminating the effects of these risks can be incorporated into specific interventions that will be planned and implemented (Dennison et al., 2006) [14].

Observation of the body condition of the study animals showed that 43.8% were in the poor (thin), 42.2% in medium, and 14% were in the good body condition score category. This study agreed with the study results of Fasil N, et al. (2017) [16] who found 51.8%, 30.3%, and 17.9% poor, medium, and good body condition score during the study assessment of welfare and health-related problems of working equines in Wogera district, northern Ethiopia. Similarly, Solomon M, et al. (2013) [17] reported that 52% of the study animals in Hawassa were in poor body condition. This could be an indicator of management shortcomings associated with poor nutrition, overloading, and working for long hours per day without

the provision of sufficient feed and water at the workplace. Heavy work burden coupled with nutritional deficiencies and internal parasites might be the reason for a high proportion of thin animals. This study also indicated that 48.3%, 41.1%, and 10.2% of studied horses showed poor, medium, and good body condition scores respectively. It was comparable with the study of Aliye S, et al. (2022) [18] who found 49.3%, 48.0%, and 2.6% poor, medium, and good body condition scores respectively by the study undertaken on welfare and health status of working equines in and around Shashamene town of Ethiopia.

The study also revealed a wide spectrum of different welfare problems, most of which were lesions at different body sites of the equines. It was demonstrated that 52.6% of equine animals were observed with lesions on different body parts. Most of these injuries resulted due to improperly fitted saddles, lacerations, and abrasion and some of the owners injured their equine animals especially cart horses as a result of whips. This agreed with the explanation of Keith R. (2005) [19] that skin of the equine is highly affected by wounds

due to inadequate packing or by strap holding the load, that is, harness and husbandry related and the rest were due to different trauma and hyena bite. Similarly, Pearson R, et al. (2003) [20] also explained that harness-related problems were raised from incorrect size, inappropriate fitness, too narrow or too thin, made of unsuitable synthetic materials, poor paddle, poor design, and synthetic rope too strained to be fitted to the animal.

High proportions, 57% of donkeys had lesions on the back and wither, indicating inadequate padding in pack donkeys. Similarly, Abreha T, et al. (2015) [21] reported that back sore was the highest prevalence in donkeys in Mekelle. This agreed with Pearson R. (2000) [22] who reported a similar situation in central Ethiopia where overweight and heavy load contributed to high cases of back sores. On the other hand, lesions on the tail/tail base were the third highly frequent 40.2% in donkeys. Similar findings were reported by Dennison R, et al. (2007) [23] where pack donkeys had a significantly higher proportion of tail/tail base lesions than draught (carting) animals. It was also supported by Blackeway S. (1994); Pritchard J, et al. (2005); Swann W. (2006); Solomon M, et al. (2013), and Morka A, et al. (2014) [15,17,24-26] that the chance of tail/tail base lesion occurrence is very high when pack animals frequently cope with long distances.

The study also demonstrated that lip lesions were more frequent, 68.6% occur in horses. This finding is in line with that of Solomon M, et al. (2013); Morka A, et al. (2014), and Salim U, et al. (2015) [17,26,27], made similar reports that lip lesions predominantly occurred in horses and draught type of work and less frequently develop in donkeys and more general in pack animals.

In the current study, all of the observed equines were used for work, mainly for transporting goods and people. Donkeys were used for transporting of goods by packing to the market, while horses were used to pull carts loaded with people or/and goods. The population distribution of equine indicated that they were fully integrated with the owners' daily life that these animals were highly needed by most rural people for transportation of goods and people by pack and cart due to their sturdy nature and manageable behavior. The result from the respondents showed that 99.6% of them used equines for transportation and this was in agreement with reports by Blackeway S. (1994), Pritchard J, et al. (2005) [15,24] and Dinka H, et al. (2007) [28] describing that equines were kept

mainly for transportation. In the study area, all the observed horses were used for cart purposes. Similarly, Solomon M, et al. (2013) [17] reported that 98% of horses in Hawassa town were kept for draught (carting) purposes.

The present study also indicated, 30% of the respondents take their sick animals to the veterinary clinic, however, 13.3% were treated with traditional medication and 56.7% did not give treatment.

Similar findings were reported by Salim U, et al. (2015) [27] that 31.6% of the diseased equines in Batu town were taken to the nearby veterinary clinics, 10.5 % were treated traditionally and 57.9% did not get any help from their owner and were forced to work regardless of the disease. It also agreed with the report of Demelash B, et al. (2006) [29], where only 21.4% of the respondents take wounded horses to the nearby veterinary clinic, while 8.7% treat with medications purchased from the local market, 27.5% take to a local healer, 2.2% treat with medicinal plants and 40.2% do nothing.

Generally, most of the results from this study were almost similar to the findings reported from different parts of the country, and this may be due to the way the owners of equine manage, use, and treat them, and an attitude problem from the owners towards the equines was also similar.

CONCLUSION

In Sebeta town and Suburbs, equines were widely used as pack or cart animals. Despite their varied uses, they are subjected to a series of welfare problems. Lack of proper health care, overworking and overloading were practiced. They were also expected to work hard without sufficient inputs such as feed, water, and veterinary treatment. This was a sign of lack of knowledge and it may also be more of an attitude problem from the owners towards the equines. On the other hand, there were no detailed and comprehensive approaches undertaken to overcome these problems so far. Since, the improvement of the presently available methodologies of harnessing to prevent the incidence of injuries, Awareness creation about how to handle Equines to avoid physiological stress, Proper equine health care and disease prevention strategies should be designed and implemented.

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CONFLICT OF INTEREST

There is no Conflict of Interest between Authors.

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