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# Common health and welfare problems of working donkeys in Addis Ababa and its surrounding area: Retrospective and questionnaire survey

**Samson Terefe, Asnakech Ashine* and Getachew Mulugeta**

Department of Clinical Studies, Faculty of Veterinary Medicine, Addis Ababa University College of Veterinary Medicine, P. O. Box 34, Bishoftu, Ethiopia.

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**A retrospective study was conducted to assess the health and welfare problems of working donkeys at the Merkato Donkey Sanctuary clinic in Addis Ababa, Ethiopia. Data on 12,991 working donkeys from 2008 to 2010 were analyzed from the data record sheet kept by the clinic. Results on the age distribution of donkeys showed that the average age of the donkeys was around nine years old. Only 7.37% of the donkeys were with good or ideal body condition (≤2.5), while the majority, 90.56% were with poor body condition (≤2). Multiple health problems were a common feature. Among the common health problems encountered parasitosis, hoof problems, wounds, musculoskeletal disorders, colic, ophthalmic cases and traffic accidents accounted for 55.68, 16.71, 14.9, 3.28, 2.59, 2.37, and 1.71%, respectively. Wounds due to ill fitted harnesses and inappropriate harnessing materials accounted for majority of the wounds observed. Back sore due to the absence of paddings, improper padding, inadequate and inappropriate padding materials was a common feature, and accounted for 62.6% of the overall different wounds. Hoof overgrowth and solar puncture and/or abscess due to sharp objects were the common hoof problems recorded, while hoof overgrowth accounts for 13.56%. Traffic accidents leading to death and injuries were common problems. Apart from the health related welfare problems, the questionnaire survey made also revealed that abuses and negligence by the owners, management constraints like overloading and overworking, beating, and shortage of feed, housing problems, wounds due to harnessing and physical injuries mainly due to traffic accidents were the major welfare problems of urban working donkeys. The retrospective study, the questionnaire survey and observations made provided the significant health and welfare problems of working donkeys that need to be addressed in order to improve their health and working efficiency.**

**Key words:** Retrospective study; working donkey; health and welfare problems.

## INTRODUCTION

World domesticated equines (horses, donkeys, and mules) population is 115.2 million consisting of 44.3 million donkeys. Global distribution indicated that 98% of all donkeys are found in developing countries (Jannke, 1983). Ethiopia having5.2 million donkeys is the second in donkey population in the world and first in Africa

*Corresponding author. E-mail: asnakech55@yahoo.com.

possessing nearly 40% of African donkey population. According to the present regional classification of Ethiopia 97% of donkey population is found in three regions: 44% in Oromia, 34% in Amahara and 19% in Tigray regional state (Feseha, 1998).

In Ethiopia they have been used as beasts of burden for a long time and still render their valuable services mostly as pack animals throughout the country, particularly in areas where modern means of transportation are absent, unaffordable or inaccessible (Getachew et al., 2002). Donkeys have been completely neglected and omitted from the national livestock development programs. This is because the contribution of donkey's power in the agricultural systems and their role in production are not yet well recognized and magnified (Fielding, 1987). The treatment services provided to these species of animals have been far below that is given to other species of animals; this can be due to age old erroneous concept that when donkeys do get sick they are quick to die and probably because they are not provider of meat and milk (Yoseph et al., 2001).

Due to minimum management attention is given to donkeys, particularly in countries like Ethiopia; they are exposed to some diseases. Donkeys in Ethiopia are subjected to numerous health and welfare problems. These include: polyparasistism, back sores, and other harness inflicted wounds, hoof problems, ophthalmic problems, colic, car accident, overloading and overworking, and various infectious diseases such as strangles and Tetanus, Donkey Sanctuary-Donkey Health and Welfare project (DS-DHWP) in Ethiopia has been providing veterinary, education and extension services since its inception in 1994. It opened its second stationary clinic in December 2007 in Addis Ababa, Merkato grain market, where more than 5000 donkeys are giving their pack transport services to the urban communities. The clinic provides veterinary services to many health and management problems of working donkeys. The health and welfare problems of these working donkeys are not well documented and readily available. Therefore, the primary objective of the present study was to identify the common health, welfare, and management problems of working donkeys in Addis Ababa-Ethiopia, Merkato grain market.

## MATERIALS AND METHODS

### Study area

The study was conducted in Addis Ababa, Merkato Donkey Sanctuary (DS) clinic. Donkeys are coming to get treatments from within Addis Ababa and the surrounding areas of Sululta and Gefersa. Merkato is known for its high donkey population used by limited resource communities for their livelihood.

Addis Ababa- located at 9°2'N', 38042'E with an altitude of about 2400 m above sea level, Addis Ababa city possesses a complex mix of highland climates zones with temperature differences of up to 10°C depending of elevation and prevailing wind patterns, high elevation moderate temperature year round, and the city's position near the equator mean that temperatures are constant from month to month. Addis Ababa receives a mean annual rainfall of 1800 mm in bimodal pattern. The long rainy season extends from June to September followed by a dry season ranging from October to February; the short rainy season lasts from March to May. The average minimum and maximum temperature of Addis Ababa is 10.7 and 23.6°C, respectively (NMSA, 2005).

### Study animals

The study animals were working donkeys in Addis Ababa, and the surrounding areas of Sululta and Gefersa coming to the Merkato DS clinic for treatment against different health problems. Most of the donkeys were from the Merkato grain market and some from the different sub-cities of Addis Ababa.

### Study design

#### *Retrospective studies*

Data on the different health, management and welfare problems of working donkeys that came to the Merkato DS clinic for treatment were stored either electronically or on a data record sheet as a hard copy since 2008. Data from daily clinical record formats/sheet were entered into Microsoft Excel spread sheet. The data were coded into categories of clinical findings for each donkey. The categories were defined according to the systems affected, types of the problem and the cause of the problems. A total of 12,991 records of donkeys from 2008 to 2010 were extracted and organized for further analysis.

#### *Questionnaire survey*

A structured questionnaire was designed and validated to cover a wide range of socio-economic aspects including the number of donkeys owned, size at house hold levels, uses, family income through the use of donkeys, frequency and magnitude of work, nutrition and management of donkeys, health and welfare constraints and significant causes of abandoning working donkeys. The questionnaire was randomly administered to donkey owners, drivers coming to the Merkato clinic to collect relevant information about working donkey's welfare issues in the study area. For the purpose, a total of 71 donkey owners were interviewed.

### Data analysis

Descriptive statistics for the common health problems of working donkeys were calculated using Minitab statistical software. Graphs and tables were produced using Microsoft Excel program.

## RESULTS

### Retrospective study

The data record format showed that some donkeys were coming to the clinic to get treatments against different health problems (Figure 1). The study made showed that 96.3% of the donkeys in and around Addis Ababa used for work were adults greater than four years old. However, more than 3% of the donkeys were less than three years of age. The average age of the donkeys was

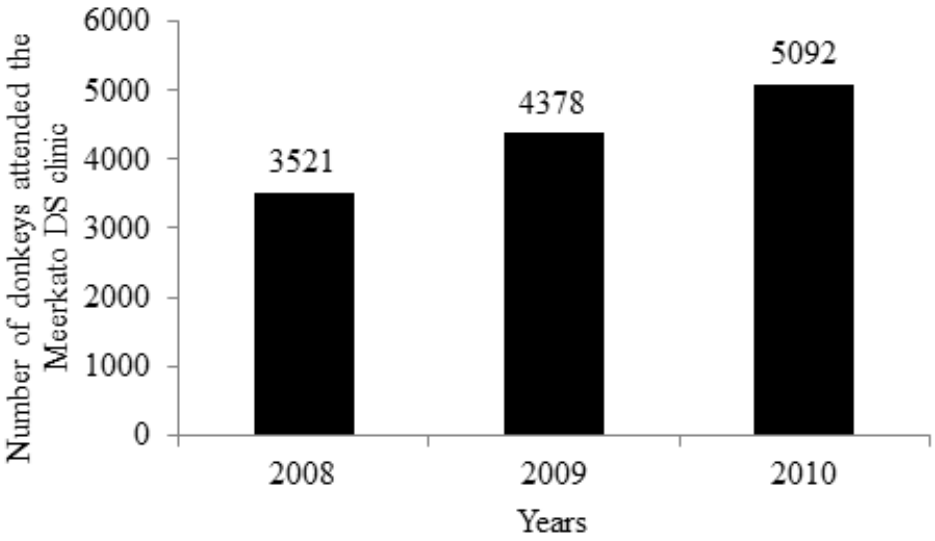


**Figure 1.** Number of donkeys got treatment at the Merkato DS clinic during the year 2008-2010.

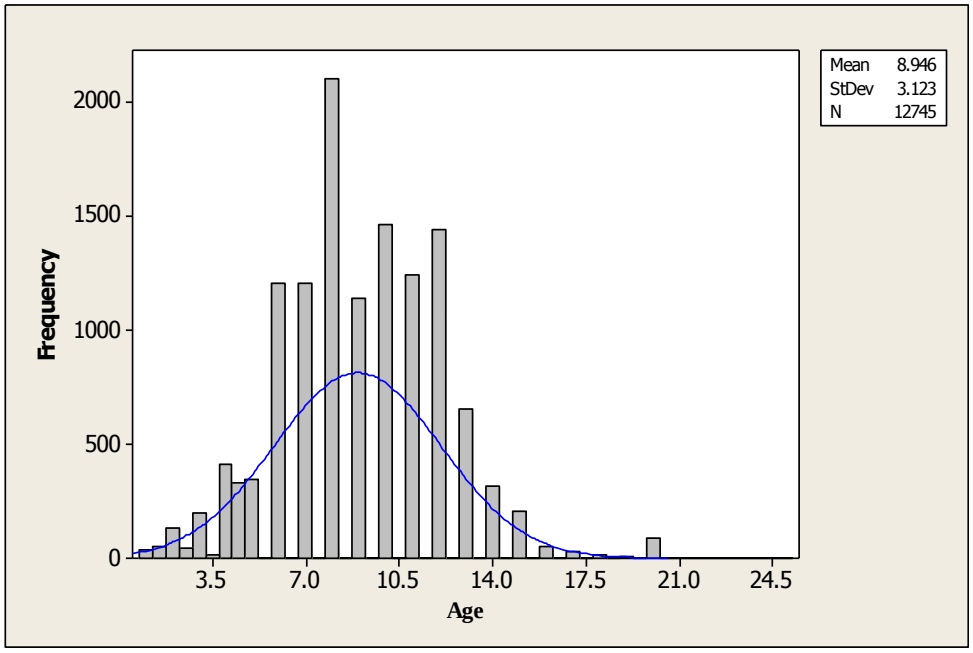


**Figure 2.** Frequency distribution of the age of working donkeys treated at Merkato DS clinic in Addis Ababa during the year 2008-2010, Ethiopia.

nine years old. Age distribution of the donkeys is shown in Figure 2. The frequency distribution of the body condition score of the donkeys is shown in Figure 3. More than 90% of the donkeys were with poor body condition score (≤2), while it is only 7% of the donkeys had well to ideal (≥2.5) body condition. Further analysis of the data revealed that donkeys were suffering from multiple health and welfare problems. The common health problems of working donkeys are summarized in Table 1.

Parasitosis, Wounds, hoof problems, musculoskeletal disorders, colic, ophthalmic problems and traffic accidents were the major problems encountered in working donkeys during the year 2008-2010 (Table 1). Wounds due to the use of inappropriate harnessing materials, absences of padding for the back and ill fitted harnessing materials were the primary cause of wounds and sores. The most common wound was back sore (Figure 4). Among hoof problems, hoof overgrowth and

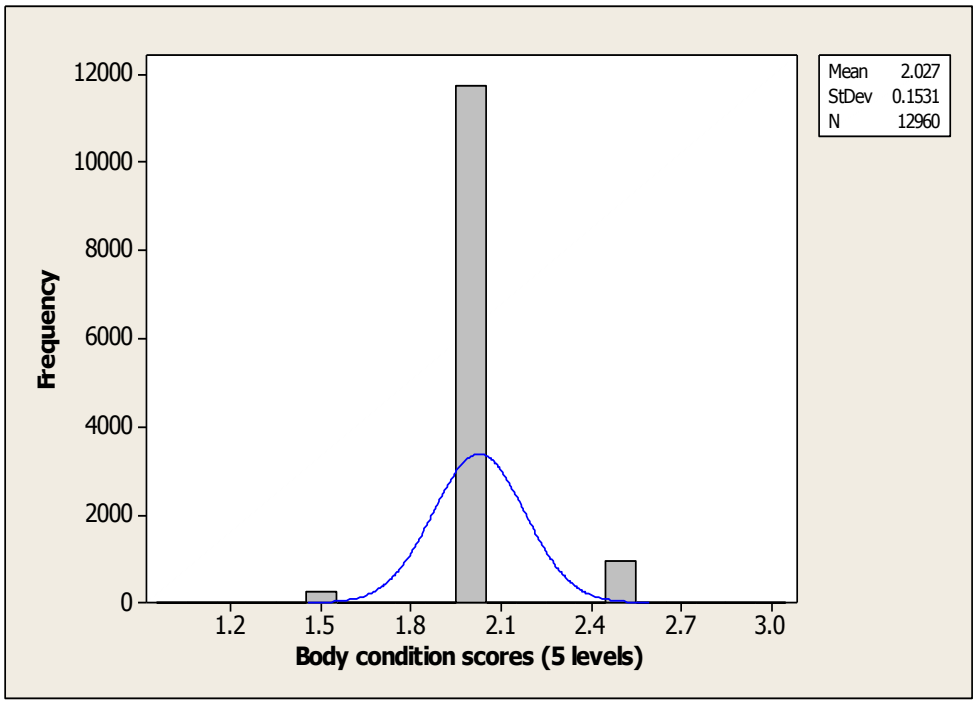


**Figure 3.** Frequency distribution of body condition of working donkeys treated at the Merkato DS clinic in Addis Ababa during the year 2008-2010, Ethiopia.

**Table 1.** Common health problems of working donkeys diagnosed and treated at Merkato DS clinic in Addis Ababa (n=12,991).

| Cases attended | Number of cases | Percentage |
|---|---|---|
| **Wounds** | | |
| Back sores | 1195 | 9.2 |
| Other wounds | 734 | 5.7 |
| **Total** | **1929** | **14.9** |
| **Colic** | | |
| Due to Foreign bodies | 154 | 1.2 |
| Parasitic | 38 | 0.29 |
| Impaction | 10 | 0.08 |
| Unknown causes | 132 | 1.02 |
| **Total** | **338** | **2.59** |
| **Hoof problems** | | |
| Hoof overgrowth | 1762 | 13.56 |
| Solar puncture/abscess | 268 | 2.08 |
| Hoof thrush | 141 | 1.09 |
| **Total** | **2171** | **16.71** |
| **Musculoskeletal disorders** | | |
| Mechanical injury | 41 | 0.32 |
| Muscular strain | 385 | 2.96 |
| **Total** | **426** | **3.28** |
| **Ophthalmic cases** | | |
| Mechanical injury | 222 | 1.71 |

**Table 1.** Contd.

| | | |
|---|---|---|
| Unknown cause | 86 | 0.66 |
| **Total** | **308** | **2.37** |
| | | |
| **Respiratory problems** | | |
| Drenching pneumonia | 18 | 0.14 |
| Suspected strangles | 9 | 0.07 |
| GIT Parasites | 59 | 0.45 |
| **Total** | **86** | **0.66** |
| | | |
| Parasitosis | 7234 | 55.68 |
| Traffic accidents | 183 | 1.41 |
| Dental problems | 89 | 0.69 |
| Infectious cases | 49 | 0.38 |
| Tumours | 55 | 0.42 |
| Rectal prolapse | 23 | 0.18 |
| Suspected anthrax | 30 | 0.23 |
| Suspected rabies | 11 | 0.08 |
| Tetanus | 10 | 0.08 |
| Miscellaneous | 35 | 0.27 |

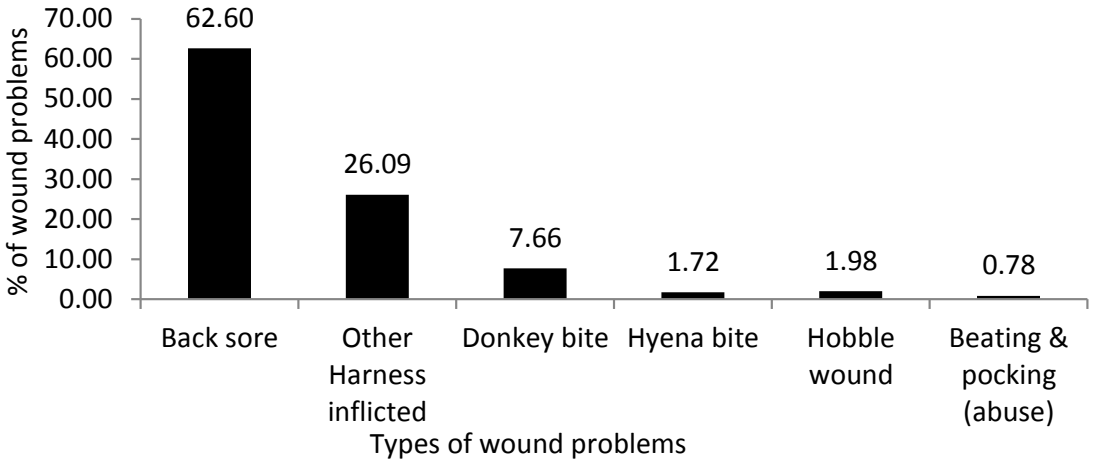


**Figure 4.** Common wound problems of working donkeys treated at the Merkato DS clinic during the years 2008-2010 (n=1945).

puncture wounds leading to solar abscess and lameness were common (Figure 5).

## Questionnaire survey

### *Ownership, owners' education back ground and working condition of donkeys:*

Questionnaire survey showed that 83% of the owners get 60-100% of their income from the work of their donkeys. Over 90% of the donkey owners were more than 25 years old ranging from 15-85 years. Education background of the donkey owners showed 56% were illiterate and only 31 and 14% attended elementary and secondary school level, respectively. Ownership of the donkeys showed that more than 83% had 2 to 3 donkeys, and the average number of donkeys per owner was 3. Eighty seven percent of the owners reported that the average weight they load their donkeys was 85 kg (50-130 kg), travelling 7 h per day covering an average distance of 20 km. Seventy six percent of the owners use

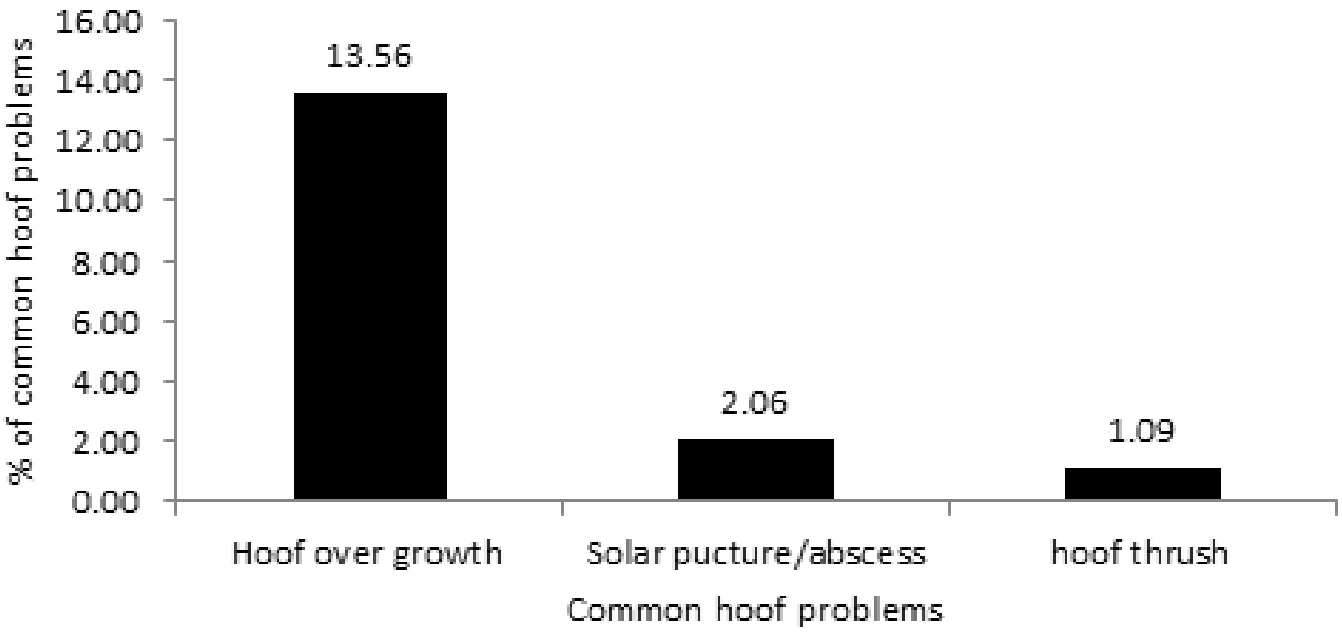


**Figure 5.** Common hoof problems of working donkeys treated at the Merkato DS clinic during the year 2009-2010 (n= 2171).

their donkeys 2-5 days per week covering a distance of 2.5-35 km.

***Water, feed, feeding and housing practices***

Almost all donkeys in urban areas depend on hand feeding since grazing is quite scarce. Over 83% of the owners reported that they supplement their animals with 'kortebe', the local name for a mixture of different cereals/grain leftovers while other provides grains and straws/grass. Over 66% of the owners reported that they feed their donkey only once a day, while 33% feed twice a day. Majority of the owners provide water twice a day. Most of the donkeys spend day time working, and have a limited time roaming around and/or grazing, if available. Over 91% of the owners reported that donkeys are housed at night separately in purposely built enclosures.

***Health and management problems***

Ninety five percent of the owners reported parasitosis as a significant disease problem incriminated in reducing the working performance of their donkeys. Hoof problems and wound/traumatic injuries were ranked second and third major essential health problems, respectively. The owners do not practice castration of male donkeys because they believe that castration reduces working capacity and life span of their donkeys. From the interviews and observation made, health care given to the animals is negligible and more than 70% of the owners practice traditional methods of treatment when their donkeys get sick. Drenching herbal plants mixed with some spices and alcohol (Areke), the use of engine oil for wound treatment, and branding for lameness cases related to musculoskeletal problems are common practices.

**DISCUSSION**

The present retrospective study has revealed multiple health, management and welfare problems of working donkeys in and around Addis Ababa. Although the majority of the donkeys were adults, over four years of age, the 3% of donkeys below three years of age indicate that donkey owners begin to use donkeys for work before they are mature enough. Age at maturity of donkeys is estimated at four years and it is recommended not to work with them until this age as this predisposes them to structural deformities such as sagged (lordosis) back and early demise. Although good to ideal body condition was observed in 7% of the population, the majority of the donkeys were with poor body condition (bcs<2). Donkeys studied were, on the whole, in poor body condition with a mean/median body condition of 2. This clearly shows that apart from health and management related problems, shortage of feed may be a major contributory factor for poor body condition of the donkeys the result obtained by a questionnaire survey, they have low priority regarding access to good quality feed. Pearson et al. (2001), similar finding. Such poor body condition might be one of the contributory factors for the high incidence of back sore, due to less muscle cover.

A large proportion of donkeys were seen with various degrees of wounds and abrasions. These results were consistent with the finding of similar works done by Mohammed (1991), Pearson et al. (2001) Demelash and Moges (2006) in Ethiopia, Rodriguez-Maldonado (1990) in Mexico, Harris (1971) in UK. The major causes of wounds and injuries were harness related problems due to inappropriate harnessing material, ill-fitted harnesses and the absence of padding on the back of the animals. Abnormalities in locomotion incident to joint sprains and unknown causes suggested that donkeys were overloaded, leading to tendon damage.

The observed high incidence of hoof problems could have resulted from lack of proper hoof trimming and care due to the lack of veterinary services (Soliman, 1989). Similar hoof problems were reported by Getachew et al. (2002a) and Yilma et al. (1991). The finding of questionnaire survey also reflects this problem, the high incidence of hoof overgrowth and lameness in the present study is not consistent with the findings of Getachew et al. (2002) in rural donkeys. The travelling of donkeys in a narrow lane in the city might have predisposed them to hoof puncture with sharp objects such as nails and broken glasses, which are quite common in such urban areas. Traffic accidents also played a significant role in causing hoof problems leading to lameness. According to the study made by Morgan (2006), lameness related to foot problems due to traffic trauma was a common problem in urban donkeys that is consistent with current finding.

Wounds from donkey bites are results of fighting between males donkey, as the practice of castrating donkey is not known in the areas, and this may lead to aggressive behavior to each other. The low incidence of hobble wounds in this study indicates that hobbling donkeys is not a common practice in urban donkeys as compared to rural donkeys, which is one of the common causes of injury and abrasion (Feseha, 1997; Getachew et al., 2002b). Both the retrospective study and questionnaire survey showed that traffic accidents are quite common in urban working donkeys. The present 1.4% traffic accident cases were those lucky ones with treatable injuries and able to recover. However, according to the clinician and our observation, the majority of traffic accidents result in death and serious structural damage, which necessitate euthanasia. Study made by Getachew et al. (2002) reported traffic accident as one of the major problems in working donkeys living in the urban setups and by the road sides, which frequently cross roads on their way to graze or home. The fact that donkeys carrying heavy loads and sharing the same road in the urban setup with vehicles predisposes them to the accident.

Colic cases due to the ingestion of a foreign body, particularly plastic materials were found to be one of the significant gastrointestinal problems, which are consistent with the finding of Getachew et al. (2002). Apart from ingestion of foreign bodies, impaction due to ingestion of excessive coarse, dry and high fiber feeds such as the fine residue of teff (*Eragositis abyssinica*) is a frequently encounter cases of colic in rural donkeys during the harvesting and threshing seasons (Getachew, et al., 2002).

The present finding of respiratory problems is consistent with the reports by Feseha (1997), Pearson et al. (2001) and Getachew et al. (2002). Majority of the respiratory problems were due to drenching of herbal remedies to treat other problems, particularly colic cases. The common use of traditional herbal remedies from the reflection of those. The finding of cases of rabies, anthrax, tetanus, strangles, rectal prolapse and tumour in this study was consistent with the results of the study made by Getachew (1999), Pearson et al. (2002), Getachew et al. (2002) and Ayele et al. (2006).

## CONCLUSION AND RECOMMENDATIONS

The present retrospective study and questionnaire survey revealed that there are a significant health, management and welfare problems of working donkeys in the urban and per-urban setup of Addis Ababa. The study has shown that majority of the problems were due to mismanagement, neglect and cruelty which could easily be preventable, however, deliberate maltreatment is rare and health problems of donkeys are more likely due to ignorance. The ubiquitous nature of the problems may result in donkey owners becoming indifferent or being unaware that anything is wrong. The main reasons for the mismanagement and ill-treatment of donkeys could be many folds:

(i) The weak economy of the owners
(ii) Lack of education and training
(iii) Lack of material essential drugs
(iv) Lack of professional advice
(v) The perception by the people that donkeys do not get ill or can tolerate problems may also play a significant role.
(vi) Fundamental lack of understanding of the potential productivity of their animals giving the correct care by the owners.

The health, management and welfare problems of donkeys can be improved and controlled, and the increased use of donkeys can be enhanced:

(vii) Proper veterinary care and advice
(viii) Through the development and dissemination of proper harnesses to control wounds and sores.
(ix) Through better education and training of both professionals and donkey owners as to the primary health care, management and welfare problems of donkeys.
(x) When the donkey is seen by the whole community as an animal for collective benefit, and not just for the

individual, who owns them.
(xi) When a better awareness of its utility and its possibility as an economic force is recognized by the people concerned with developmental programs.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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