Health and Welfare Assessment of Working Donkeys in and around Axum Districts, Tigray Regional State Northern Ethiopia

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Abstract

Across-sectional study was conducted from October 2011to April 2011 with the objective of assessing the health and welfare status of working donkeys in and around Axum. A total of 384 donkeys were subjected to direct animal based assessment. Out of the total 384 donkeys, 56(14.59%) of the donkeys had poor body condition score that showed a statistically significant different (p<0.05) and 34.9% of them demonstrated abnormal demeanor. Additionally, 7.81% of the examined donkeys had varying degrees of lameness which was significantly associated (p <0.05) with the presences of wound on the leg of animals. 29.69% of the examined animals were with either healed or active wounds dominated by back sore, older and thin donkeys were prone to develop back sore (p<0.05). Moreover, other skin problems (3.125%), abnormal mucous membrane (3.12%), ophthalmic problems (3.90%), parasitic disease (2.1%) were also encountered. Out of the 384 animals, 80(20.8%) donkeys had varying degrees of dehydration. Indirect assessment about the welfare problem of donkeys demonstrated that poor attitude to donkeys (24.16%), limitation of access to health care (21.6%) and lack of vaccination compared to other animals (11%), among others. As a remedy, the community suggested awareness creation for the owners, provision of feed and water, improvement of access to veterinary care equivalent to other animals. It is, therefore, recommended that public awareness toward the value. Management and health care provision for working donkeys should be enhanced in the study area.

Keywords: Donkey welfare, Axum

1. INTRODUCTION

There are 44.3 million donkeys worldwide. This number has increased by 15.6 percent (FAO,1992). A small number are kept in the western world as pets, as companions for horses, or for work, for example in occupational therapy programmers. However over 95 percent live in the developing world (Blake way, 1994).

Ethiopia has an estimated 2.75 million of horse, 5.02 million of donkeys, and 0.63 million of mules (fielding and Krause, 1998). Tigray   is one of the regions of northern part of Ethiopia having large numbers equine population. The region is estimated to have about 386.737 donkeys, 11,341 mules and 6,276 horses that account for 95.524%, 2.81% and 1.5 % the total equine population respectively (EARO, 1999).

Ethiopia use donkeys to carry many different types of load such as wood, animal manure, charcoal, grain, vegetable, hay, salt, sand, water, building materials they are also use to lesser extent for threshing of crops, weeding and plouging. After years of being ignored, their use is now being encouraged by both government and non-government development agencies (Fielding and Starkey, 2005). Because of lack of infrastructures   in the rural part of the country, most of the transportation activities are performed by us of equine. Beside in the north western part of the country, it has been used not only for transport but also for plaguing (fielding and Krause, 1998).

Despite the increasing in mechanization throughout the world donkeys are still well deserving of name beast of burden. They have prominent position in the agricultural system developing countries. This is shown by the wide spread of use of donkeys in rural and urban areas in Africa (it is suggested that donkeys can play great roles in the farm works of food security and social equity of high food insecure countries (AYELLE et al, 2005).

Since the establishments of the donkeys' health and welfare project, different clinical inventions have been introduce to improve the health and welfare problems in Ethiopia. The contributions of donkey sanctuary in the area of clinical intervention, welfare deduction and extents ion programmers since its inception immense and has resulted in the improvement in the wellbeing of donkeys and the livelihood of their owners. in Ethiopia, donkeys and mules frequently exposed to different types wounds because of miss management and ill-fitting of harnessing materials, even if certain donkeys and mules are treated in the facilitated hospital of the donkey. Health and welfare project owners are not patient enough to wait for a full recovery of their animals (SVENDESEN, 1997).

The definition of welfare has several implications: welfare is characteristic of animals. Not something that is giving to it , welfare well vary from very poor to very good, that is to say the individual may be in poor state at one end of the welfare continuum or in a Goode states at the others. Welfare can be measured in a scientific way that is independent of moral consideration, as explained above measure of how difficult it is for animal to cope both given information about how poor the welfare is. Acknowledge of the preferences of an animal 's often give valuable information about conditions are likely result in good welfare but direct

measurement of the sates of the animals must be used inattention to asses welfare (Duncan, 1990. Most of the time, the health and welfare concerns of animals are treated by many people as separate subjects. However, both are given to the distributive assertive good and bad. Yet both the word health and welfare can be in distribution of the same condition. It is Well agreed that an animal lacking correct nutrition will be in a states of both poor health and poor welfare and also true with an animal affect by an infectious condition and show clinical signs of that infection considered to be poor health it can agreed that its welfare states may range from good to be bad depended on the treatment and nursing it is receiving (moss,1992).The welfare of working equines in developing countries is therefore crucially important .not only for the health and survival of those animals , but also for the livelihoods of this people dependent on them (Pearson & krecek , 2006; Wilson, 2002) .

In Tigre region in general mostly in and around Axum in particularly there is less research working regarding on the welfare and health care of working donkeys. Hence organized problems oriented research is need to monitor or enhance awareness of the owners regarding the welfare and health care of working donkeys. Therefore this research was done with the following objectives

2. Objectives
- To assess the health and welfare of working donkeys in the study area
- To identifying associated risk factors compromising the welfare of working donkeys

3. MATERIAL AND METHODS
3.1 Study Area
The study was conducted from November, 2011 to April, 2012 in Axum district of central zone of Tigray region which is is located at $36^0 27'20''E$ and $39^0 59'40''$ E longitudes and $12^0 15'30''$N and $14^0 51'10''$ N latitudes in the northern part of Ethiopia. The region covers an area of about 52,000 km^2 .It is surrounded by regional boundary of Afar in the east, Amharic in the south and southwest, by Sudan in the west and Eritrea in the north (Geber yohannes, 2009). Axum, where the study was conducted, is located in the central Tigray region with the distance of 1050 km from the capital city Addis Ababa. The town has 70% mid highland and 30% low land agro climatic condition, and gates 600-750mm average annual rain fall. The area has about 8470 equine (wereda Lailay may chew agricultural development, 2011).

3.2 Study design and study animals
The study design used in this study was across- sectional type and random sampling strategy was used to select donkey as packing animals group. In each groups an appropriate village was assigned and to each village proportional sample was allocated. Then direct welfare assessment was conducted by randomly selecting animals and houses hold members. Pilot study was conducted prior to launching the proper study with the local veterinarians. Direct and in direct measurement research strategies were used to assess welfare of animals and in order to generate sufficient information both direct and indirect methods were used in the study. In direct methods evaluates the adequacy of the input and management practices that the animals receives indicating the risk of welfare problems (wood et al, 2005), while direct methods use animal based parameters as measure of the animal's welfare states (Pritchard et al, 2005).

3.2.1. Direct assessment of working donkeys
Data about determinate factors for the direct measure were collected through direct physical and clinical assessment, these includes; gender, age, body condition, demeanors, level of dehydration, would, lameness and others sign of illness of the animal sampled.

3.2.2. Indirect welfare assessment of donkeys
Semi structure focus group discussion based interviews were carried to generate information demonstrating in direct welfare assessment.

3.3. Sample size determination
During they study period, donkeys of different peasants association of the district were selected randomly and includes as part of the study. A total number 384 of donkey were included in the study were determined by considering the overall donkey population of the study site (Thru field , 2005) was used to calculate the sample size with 95% confidence interval (CI), 5% absolute precision (acceptable error) and 50% prevalence. The sample size was determined as follows;

N= (1.96)2 *Pexp.)
        D2

Where; N= the required sample size

Pexp= expected prevalence (50%)

D=desired absolute precision level at 95 confidences interval (0.05)

3.4. Data management and analysis

The data collected from the study areas was fed into MS excel spread sheets and analyzed using SPSS (Version 17.0) statically soft ware and odds ratio for comparing various risk factors were computed . Significance level is set at 95% confidence and P value less than 0.05

4. RESULT AND DISCUSSION

4.1. Direct assessment result

The result of direct assessment of the present study showed that the health and welfare of working donkeys concerning the overall problems like general health problems, wound, lameness and level of dehydration additionally in the current study all donkeys examined during the study period were mainly used for transpiration of farm produces, market commodities and building materials.

4.1.1. General health problems observed

The donkeys were examined individually to assess their health status. However, due to their weight, health problems like wound, lameness and dehydration are not included in this portion. Hence, concerning health problems other than those mentioned above, from the total of 384 donkeys examined 48(12.5%) had at least one health problem. Regarding the types of health problems, 15(3.9%) had eye problems of which 11(2.9%) were lacrimation excessively while the rest 4(1%) had one blinded eyes, the general examination also revealed that 12(3.13%) donkeys had abnormal visible mucous membranes in which 9 (2.3%) had pale mucous membranes and the rest 3(0.8%) were their mucous membranes congested . Skin problem was also encountered on 12 (3.13%) of the donkeys in the form of alopecia on 3 (0.8) of the affected donkeys and rough hair coat on the rest nine donkeys. additionally, rare cases of tick infestation and car accident were recorded (table 1)

Table 1. General health problems observed on the examined donkeys.

Major health problem	Positive	Prevalence	
Visible mucous membranes	3	3.125%	
Congested mucous membranes	0.8%		
Pale mucous membranes	9	2.3%	
Skin problems			**3.13%**
Alopecia	3	0.8%(3/384)	
Rough hair coat	9	2.3%(9/384)	
Parasite			
Tick	8	2.1%(8/384)	
Eye condition	**3.9%**		
Lacrimation	11	2.9%(11/384)	
Blindness	4	1%(4/384)	
Other case			
Car accident	1	0.3%	
Total	48	12.5%	

4.1.2 Body condition of the animals

For ease of clustering animals with body condition scores 1 and 1.5 were considered to have poor body condition were as animals with body condition score of 2 and above were taken as animals with good body condition score . The finding in this regard has shown that out of the total 384 examined donkeys, 328 (85.42%) of them had good body condition score (1 and 1.5). The association of body condition of the animals and influencing factors (age, lameness and presence of wound) was also analyzed and seen that from the total 125 young donkeys (age between 0 to 5 years), 123 (98.4%) had good body condition scores while only 2(1.6%) of them had poor body condition score. On the other hand, among the 259 adult donkeys (age of 6 years or more), 205 (79.15%) had good body condition score whereas the remaining 54 (20.85%) were in poor body condition score. There was a statistically significant association (p=0.000) between the body condition score of donkeys and their age, adult donkeys relatively scoring the highest proportion of poor body condition score (Table 2).

A statistically significant (p=0.002) section of lame donkeys scored the highest proportion of poor body condition score as compared to non-lame animals in that 10 (33.34%) of the lame donkeys were in poor body condition score while only 46 (13%) of the non-lame donkeys had the same body condition score (Table 2).

The result pertaining the association of wound and body condition score has shown that there was a statically significant association (p=0.008) between BCS and the presence of wound on the animal, wounded animals taking the highest proportion of poor body condition score whilst only 31(11.48%) out of the 270 not wounded animals had poor body condition score (Table 2).

Table 2. Body condition score of the examined donkeys and its association

Risk factor	animals examined	poor	good	x2	p- value	OR
Age(n=384) Adult	259	54	205	25.07	0.00	16.2
young	125	2	123			
Lameness (n=384)						
Lame	30	10	20	9.184	0.002	3.37
Not lame	354	46	308			
Wound (n=384)						
Wounded	114	25	89	7.02	0.008	2.166
Not wounded	270	31	239			

4.1.3 The prevalence of skin wound and its distribution on animals

A total of 114 (29.69%) of the examined 384 donkeys were found to be with either healed or active wounds. The greatest distribution of the wound was found at the back region (39.47%) followed by leg (23.70%), bite sore (21.93%) and tail sore (11.40%). The last distribution accounts for the girth wound(3.5%).

4.1.4. Behavioral observation and response to stimulus of donkeys in different sites

Behavioral observation is central to the evolution of welfare of the animals. Behavioral responses to different challenges were assessed during the study   period. From the total examination animals only 250 (65.1%) donkeys were found to be alert and friendly, while the rest 134 (34.9%) donkeys had varying degrees of deviation from the normal response. Hence, 50(13%) of them were depressed, 38(9.9%) were alert but not friendly, 26(6.8%) were indifferent and the remaining 20(5.2%) were anxious (Table 3)

Table 3. Demeanor of the examined donkeys and their respective location

	Behavioral observation (demeanor				
Location	**Depressed friendly**	**indifferent friendly**	**alert and alert**	**alert but not**	**anxiety**
Hatsebo	12	7	35	6	4
Debre brahan	7	0	49	6	2
Dura	3	9	42	4	6
Miha	11	4	40	7	2
Welo	6	4	47	4	3
Medego	11	2	37	11	3
Total (n=384)	50	26	250	38	20

4.1.5. Lameness

Lameness is one of the vital signs used as indicator of welfare problems in working animals. Among the total 384 examined donkeys, 30 (7.812%) of them had varying degree of lameness. Among the 30 lame donkeys, 11 (36.67%) had low grade lameness, 9 (30%) of them had moderate grade lameness while 9 (30%) of them were suffering from high grade lameness. Only one donkey had a very server lameness which left it immobile. Statistical analysis of this problem with respect to associated factor (presence of wound on the animal) has shown that their association is statistically significant (p=0.000) with the trend of some fraction from wounded animals almost exclusively constituting the lam animals while only one out of 270 non wounded donkeys is lame (Table 4).

Table 4. The proportion of lame donkeys in view of wounded as a risk factor

Risk factor	Lameness status			
	Not lame	**lame**	**x^2**	**p-valu**
Wound				
Wounded	85	29	69.94	0.000
Not wounded	269	1		
Total	354	30		

4.1.6. Level of dehydration

Level of dehydration is also taking as an indirect tool to assess the welfare problem in working animals. Hence, assessment in this aspect has disclosed that 80 (20.8%) donkeys were not dehydrated. An attempt was made to trace the origin of examined animals to asses if there is association with the localities where the donkeys dwell. Accordingly, there was a statistically significant association (p=0.000) between level of dehydration and the

origin of animals; donkeys from kola (low land) areas OF Miha AND Welel constituted the highest relative proportion of dehydrated animals as compared to those in weynadega (mid highland) parts of the study site particularly Hatsebo, Medego , Debrebrhan an Dura areas (Table 5).

Table 5. Level of dehydration observed in the examined animals in view of their geographic location

Origin of the animal	Not Dehydrated	Moderately Dehydrated	Extremely Dehydrated	X2	P-value
Lowland	70	58	0	70.79	00
Miha	25	39	0		
Wellel	45	19	0		
Midland	234	21	1		
Debrebrehan	60	4	0		
Dura	60	4	0		
Hatsebo	57	7	0		
Medego	57	6	1		
Total	304	79	1		

4.2. Result of in direct assessment

Focused group discussion was made by assembling six focused groups each with six members. The groups were formed evenly, one group in each of the six kebeles (peasant associations). Each focus group was given 100 gravels to rate its respective response on the raised questions. Accordingly, the owners were allowed to discuss on the role of donkeys, management constraints, major health problems and the possible measures and solutions to be taken to improve the health status and welfare of working donkeys in the study area .

4.2.1. Major roles of donkeys

The summarized result of the respondents included in the focus groups indicated that donkeys are exclusively used as pack animals in the study site mainly for transportation of farm produce earning an average proportion of 21.3% followed by transportation of water (17.83%) and transpiration of fire wood and charcoal (15.5%) . even though the role of donkeys to transport water is ranked among the highest in most kebeles, it has go to maximum rank in Dura peasants association earning 30% of the proportion our of 100. However, though very rarely, donkeys are also used to transport food and ammunition in times of conflict and war earning an average 4.17% of the proportion rated by the respondents (Table 6).

Table 6. The major role of donkeys in order of importance as perceived by the respondents.

	Study site						
Roles donkeys'	Deberbrahan	Hatsebo	Miha	Dura	Welel	Medego	Proportion
Transport all farm produce	30	20	15	20	18	25	21.3
Water	20	10	20	30	12	15	17.83
Fire woo d and charcoal	13	20	10	8	30	12	15.5
Irrigation water pump	3	10	15	15	8	15	11
Building materials People	10	15	10	10	8	10	10.5
Shopping commodities	4	8	15	7	6	3	7.17
Manure	8	6	3	5	2	7	5.17
Food and ammunition	5	4	5	2	4	5	4.17

4.2.2 Major management constraints

The group also pointed out the major limitation of management in the area that have been affecting the health and welfare of working donkeys. After thorough discussion on the issue each group has forwarded the main ideas.

The wrapped responses disclosed that first ranking management constraint is lack of awareness towards the value of donkeys due to cultural influences and got an average proportion of 24,17% shortage of feed and lack of timely vaccination are also among the prioritized limitations earning 13.17% and 11% of the proportions, respectively (figure 1).
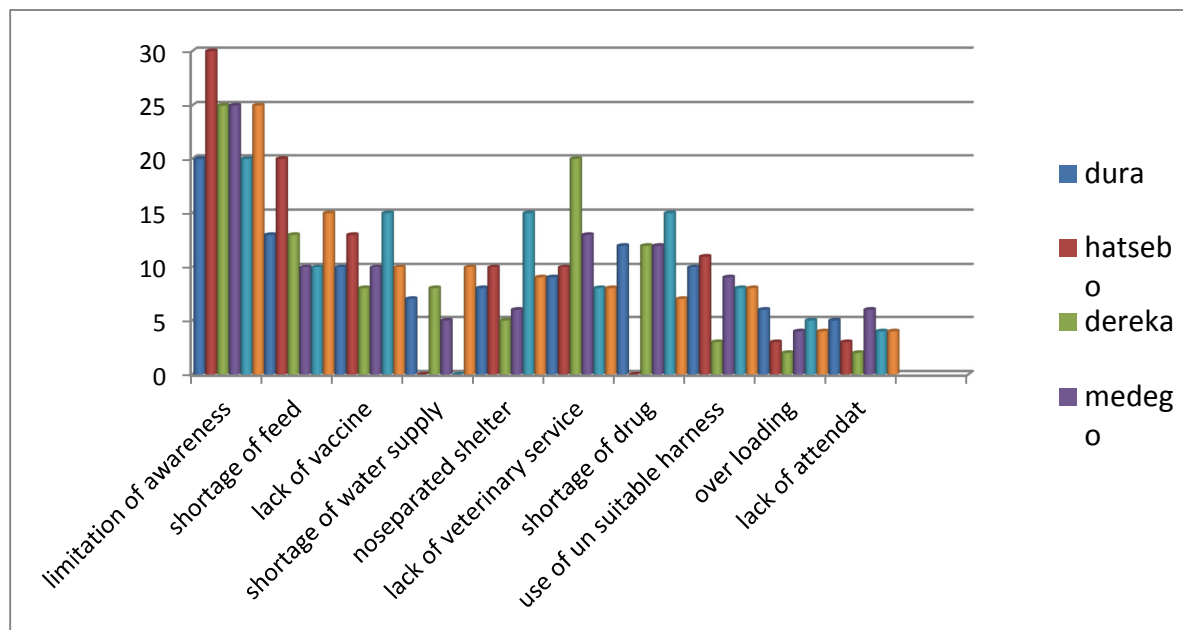
Figure 1. The proportion of owners and the management constraints donkeys which forwarded by the owner

4.2.3. The commonly encountered health problems

Disease conditions are the major health problems which hinder efficient utilization of donkeys. The common health problems which were mentioned during the group discussions include African horse sickness (49.67%, coughing (24.67%), anthrax (Megerem (13.5%) and parasitic disease (11.3%). The main health problems in the study site were listed by the owners in all sites was African horse sickness (Mendef) with proportion of (49.67%) (Figure2).
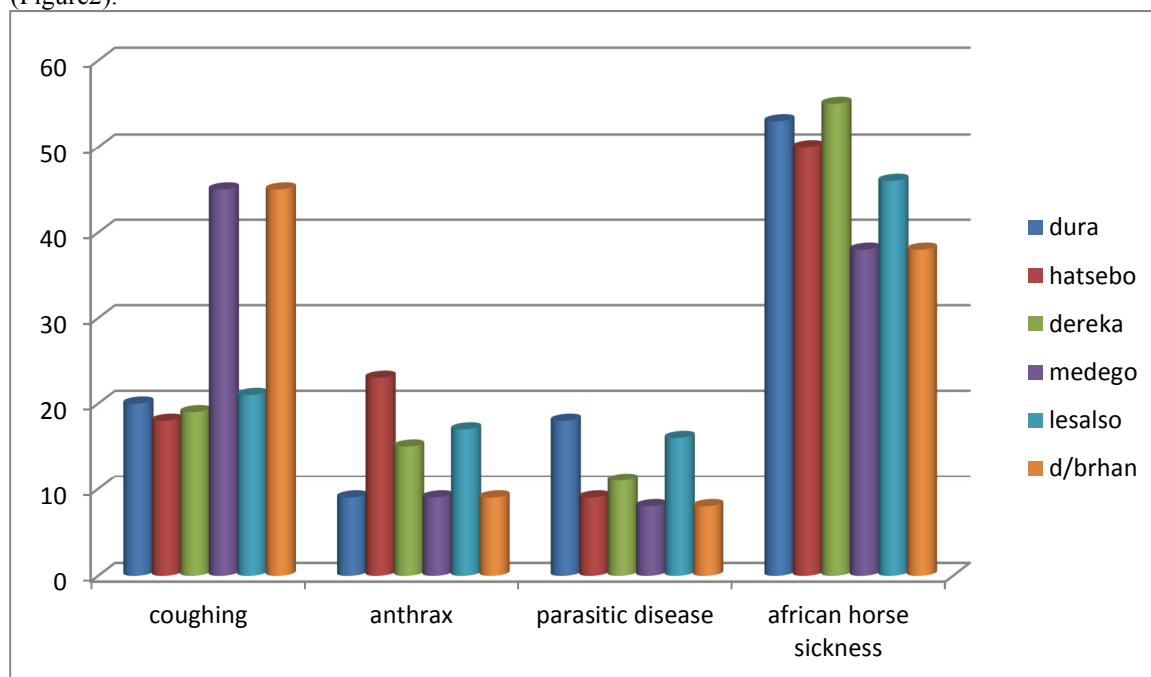

Figure 2. The proportion of owners and the disease conditions which they reported to be present in their donkeys in different areas

4.2.4. Major intervention areas to be dealt by different stakeholders

During the focus group discussion the main possible solution forwarded by the respondents were, given training (50%) for the people, provide appropriate harnessing materials (12,34%) that are suitable for packing of the donkeys, provide enough supply of water (6.33%) at working site and house, supplement of feed(12.83%) like other animals, veterinarians or health assistance(18.5%). These possible solution were ranked based on the proportional pilot were list firstly given training (50%), assigned veterinarians (18%), provide enough supplement of feed (12.83%) use suitable harnessing materials(12.34%) and provide enough supply water
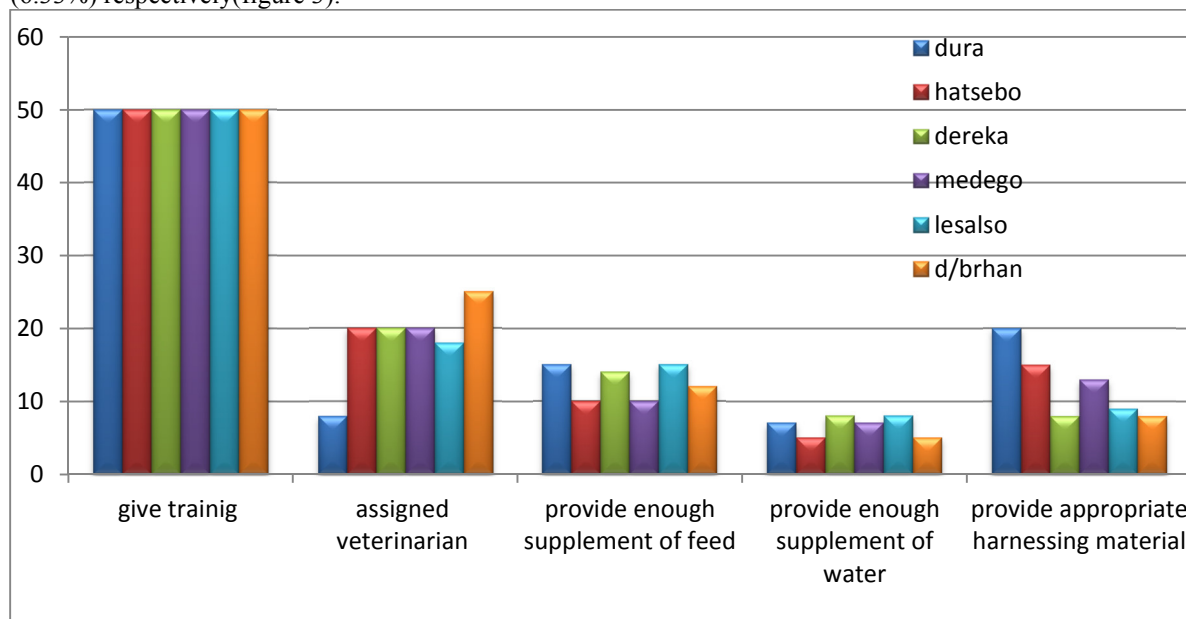
(6.33%) respectively(figure 3).

Figure 4. Possible solution given by the respondents

The possible solution given by the respondents were to be taken by the community, government and nongovernmental organization in order to solve the major health and management constraint which hinder the welfares of donkeys (Table 4).

Table7. The proportion of measurement taken by the community, government and non-government.

Measure to be taken	community	government	NGOs	proportion
Providing enough drug	0	60	22	13.67
Enough supplement of feed	50	42	24	19.33
Supply of enough water	34	35	30	16.5
Assigning veterinarian	21	101	17	23.17
Provision of enough vaccine	42	72	50	27.33
Total	147	310	143	100

5. DISCUSSION

The current study has indicated that the donkeys in the study area had various health and welfare problems. General health problems examination revealed that among the examined 384 donkeys 12(3.13%) of them had abnormal visible mucous membranes in witch 9(2.3%) had pale mucous membranes and the rest 3(0.8%) were their mucous membranes congested. This finding is in agreement with UPRETI (2009) who reported that pale mucous membranes and congested mucous are the main indications of abnormally in donkeys. Skin problem was also encountered on 12(3.13%) of the donkeys in the form of alopecia on 3 (0.8%) of the affected donkeys and rough hair coat on the rest nine donkeys. Additionally, rare cases of tick infestation and car accident were recorded. MCPEAK (2005) reported similar findings and also indicated such problems have a possible contribution of to the poor body condition scores observed in some of the examined donkeys. Beside, animals with poor health problems may also failed to express their normal behaviors.

The observation on the body condition of the animals showed that 56 (14.59%) donkeys were found under poor body condition scores. In the current study, it is revealed that there is statically significant association between body condition scored and the assumed risk factor like (wound, lameness and age).

A statistically significant (<0.05) proportion of adult donkeys (age of six years and above) were found under poor body condition score (20.85%) as compared with young donkeys (1.6%).This result disagrees with Upjohn (2009) who reported those young donkeys scored higher proportion of poor body condition score than adult donkeys. This result might due to the fact that adult donkeys were working for long hours day without provision of sufficient feed because animals were usually provided insufficient feed at homes only before or after work and the immunity defenses mechanism of an animal also reduced with age advancements. Sells (2010) also reported that heavy work load combined with malnutrition and internal parasite might be the reason for high proportion of poor body condition score.

Wounds are one of the primary welfare concerns of working Equids and are often related to harness or load_ bearing packs sells (2010). Similarly, the present study disclosed that statistically significant (p<0.05)

proportion of wounded donkeys (21.19%) were found under poor body condition score as compared with not wounded donkeys (11.48 %). The majority of these wounded are result of man-made cause , which is in contrast to the majority of wands on donkeys in the study area was predominantly due to accidental injury, wounds in wounds in working donkeys are seen on the legs, tail and back region. These wounds are often caused by a combination of poorly fitting harnesses, beating with sticks and improper management practice. Wounds are amongst one of the commonest health concerns to afflict working donkeys in many countries Pritchard et al, (2005) Biffa and woldemeskel (2006).

Lameness is the most economically important condition affecting health of donkey's BROSTER (2010). This study demonstrated that a statically significant (p<0.05) section of lame donkeys scored the highest proportion of poor body condition score as compared to non-lame animals in that 10 (33.34%) of the lame donkeys were in poor body condition score while only 46 (13%) of the non-lame donkeys had the same body condition score. Pritchard (2005) also reported similarly that lame donkeys were relatively in poor body condition. Since donkey's owners give less attention for welfare and health car of donkeys than other animals lame donkeys were not provided with enough supplements of feed and water hence, their body condition might have reduced.

Studs on donkeys in Ethiopia have demonstrated that back scores and wounds are the most commonly observed health problems (tesfaye (2005) and Curran (2005). In the current study skin lesions were very common all over the body of donkeys especially on the back region with prevalence of 39.473% which is in agreement with the finding of MCPEAKE (2005) who reported similar finding of 35.7% back sores. Swann (2006) and Pritchard (2006) and Pritchard (2005) also reported that the majority of wounds were back sores.

Demeanor observations and pain are central to the evolution welfare in working donkeys almost (2010). The present study disclosed that from the total 384 examined donkeys only 250(65.1%) donkeys were found to be alert and friendly, while the rest 134 (34.9%) donkeys had varying degrees of deviation from the normal response of which 50 (37.31%) of them were depressed, 38 (28.36%) were alert but not friendly, 26(19.4%) were indifferent and the remaining 20(14.93%) were anxious.

Dehydration is a serious welfare issue for equine working in developing countries Barr (2007). The present study disclosed that 80 (20.8%) donkeys out of the total 384 had varying degrees of dehydration. A statistically significant association (p<0.05) was observed between level of dehydration and the origin of animals; donkeys from kola (low land) areas of Miha and Welel constituted the highest relative proportion of dehydrated animals (45.31%) as compared to 8.59% in those Woynadega (mid highland) areas (Hatsebo, Medego, Debrebrhan and Dura). This finding can be explained that in (low land) kola areas there is high ambient temperature and less access to drinking water in addition to the heavy work load. Additionally, the movement of donkeys to long distance every day in search of feed due to lack of available feed in bear by the surrounding of the donkeys also plays a role in body water loss and hence aggravated dehydration .

Focus group discussion result of the current study revealed that different diseases and management constraints were the main issue concerning the welfare and health problems of working donkeys in the study area as reported by the respondents.

The present study disclosed that main roles of donkeys forewarned by the respondents include transportation of farm produce earning an average proportion of 21.3% followed by transportation of water (17.83) and transportation of fire wood and charcoal (15.5%).This result agrees with the finding of Pearson(200) who reported that that main importance of donkeys in different areas of west Shewa , Addis Ababa and east Shewa zone was for transportation of different commodities . The role of donkeys to trans port water has ranked among the highest in some Kebeles in the present study especially in Dura peasants' association earning 30% of the proportion our of 100. This result is in agreement with the work by BLACKEWAY (1994) who reported a similar finding .Biffa & woldemeskel (2006) also indicated that the use of equines for transportation would continue for years to come in Ethiopia because of the rugged terrain characteristics inaccessible for modern road transportation facilities as well as the absence of well-developed modern transport networks and the prevailing low economic status of the community. Thus they stressed that the health and welfare of equines should be of crucial importance.

In the present study, it is observed that the main management constraints raised by owners were limitation of attitude towards donkeys (24.16%), lack of available treatment drug (11.6%) lack of vaccine (11%), lack of available feed (10.16%) and lack of veterinary service (9.98%), among others. Lack of separated shelter (8.83%), lack of enough supply of water (8%), (5.8%) over load and to least extent shortage of attendants (3.8%) were also mentioned among main management constraints. This result is in line with the finding of Pearson (2000) who reported that negative attitudes of towards donkey (14%18% 33%), unavailability of feed (69%, 34% 74%), and unavailability of water (43% 9% 44%)in different countries of west Shewa ,Addis Ababa and east SHEWA zone , respectively . however , it disagree with the finding of MUKERIA and abele 2010) who reported that 100% of the respondents provide shelter at home during night to protect their donkeys from predators and other dangers .the community also clean dung daily and provide clean beddings such as dry grass

or wheat straw; but none of the respondents did show up the importance of provision of shelter at working site /market site. This might be due to donkeys were the most neglected animals in Ethiopia, receiving less attention by owners and kept under poor management conditions.

Disease conditions are the major health problems which hinder efficient utilization of donkeys Webber and Suzanne (2009) the current study revealed that the most health problems forwarded by respondents were African horse sickness (49.67%) with highest proportion in all study sites. This might be due to the fact that there is no enough veterinary services and there is lack of vaccine for donkeys unlike other animals in the study site apart from the awareness limitation of donkeys owners about prevention of diseases.

The main possible solution for the mentioned problems forwarded by the respondents was training of the donkeys owners taking the highest proportion (50%) of all the remedies to be taken .this agrees with the observation of MCPEAK (2005) who reported that educating donkeys owners about the treatment of working donkeys would bring about better healing and less discomfort for the donkeys. The respondents of the focus group discussion sorted out different stake holders should play their role to tackle the problems and avert their impact. Accordingly, the government and the community are ranked among the fore players of change taking proportion of 51.67 &and 24.5%, respectively. The contribution of nongovernmental organizations is considered to be immense taking 23.83% proportion from the vote by the respondents. This is comparable to the finding by stringer (2011) who reported that the effectiveness of different knowledge-transfer interventions for adult learning amongst working equid users in a developing country. Hence , the collective action of the stake holders mentioned is key to alleviate the major health and management constraint which hinder the welfare of donkeys in the study area .

CONCLUSION AND RECOMMENDATIONS
Donkeys in and around Axum experience multiple welfare and health problems. The major problems were poor body condition score, physical injury (wound) associated with poor harnessing, lameness, poor demeanor, and dehydration as well as believes, attitudes and practices that do not favor good donkey welfare, limited practice in taking sick donkeys to clinic, providing regular feed and war and appropriate shelter was also observed. Yet, donkeys play an important role in the transportation of farm produce from the field to home and to markets. The results of this study may be used as a bench mark for a long-term strategy to inform priorities for welfare interventions in working equines and to establish a welfare benchmark in the study area. Subsequent stages will rank the welfare concerns identified, assess the contributing risk factors and implement specific interventions to address these risks.

To overcome some of the issues, the following are set of recommendations that could help in tackling some of the problems and may lead to the development of animal welfare.

- ❖ Awareness creation on the health care, management, nutrition and shelter, as well as educations on myths.
- ❖ Agricultural livestock related extension packages should encompass promotion of donkey's welfare, provision of quality veterinary service, harness development & improvement initiatives if the existing deep rooted problem is to be tackled to some extent.
- ❖ Further investigation into the risk factors associated with each welfare issue is required before an intervention should be made to improve the welfare problems of these working animals.
- ❖ If animal welfare organization develop partnership with other livelihood focused humanitarian NGOS, the intervention ,if any ,would help strengthen poverty reduction local efforts as donkeys play a significant role

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