Health and Welfare Assessment of Working Equine in and Around Nekemte Town, East Wollega Zone, Ethiopia

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Abtract: The study was conducted from November 2011 to May 2012 in four selected districts of east Wollega zone, to assess the health and welfare problems and other management constraints of equines. A total of four hundred eleven working equine comprising 297donkeys, 89 horses and 25 mules were observed for the presence of lesions, ectoparasites, lameness, demeanor, age and body condition score. Among the observed equine 23.2%, 68.8%, 5.1% and 2.2% wereused for draught, pack, ridden and other type of work, respectively. It was also observed that the proportion was different between horses (62.9%) and donkeys (9.1%) in draught type of work, whereas only 27% of horses as compared to 87.2% of donkeys were engaged in pack type of work. Across all species, 79.3% of animals had a poor body condition score of less than 2; whereas 48.3% of horses and 29.2% of donkeys were in poor body condition. Skin lesions were observed and compared within species, age group, work type and body condition. Few handlers were known to provide water (10.5%) and feed (20 %) at market or working sites, but no one provided shelter at working sites. 40% of the respondents provided feed for horses once daily while 25%, 24.7% and 10.3% of the respondents provided feed, two, three, or four times daily, respectively. In the current study, we have revealed that equine have an important place and act as multipurpose animal in the rural and urban society. However, management constraints like feed shortage, traditional health care, lameness, wound, overworking, overloading, housing problems and different cruelties on the animal together with the occurrence of trypanosomosis, parasitism, pneumonia, physical injuries, neglect and general maltreatment were prevalent. Further studies and necessary measures should be considered on the diseases and welfare constraints hindering efficient use of equine in the area of paramount importance.

Key words: Body Condition · Equine · Healthy · Welfareand Health Parameters

INTRODUCTION

There are an estimated 90 million equine in the developing world, with the highest population concentration in central Asia and north and east Africa [1]. Over 90% of all donkeys and mules and 60% of all horses are found in developing countries [2]with the majority of these being used for work. Recent 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 horse, produced 75% of traction energy in the developing world [3] and it has been suggested that more than half of the world's population depends on animal power as its main energy source [4]. Today, draught animals and humans provide an estimated 80% of the power input on farms in developing countries[5], 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.

The use of donkeys for transport in Africa dates back to famous or important historic times. This is in contrast to the situation in many African farming systems, where farmers have only recently started to use donkeys because of changes in land use patterns, agro-ecological conditions and labor availability [6]. Packing is one of the most ancient forms of transport that precede even the invention of the wheel. That it has survived to the present day emphasizes its value [6]. The Maasai community in Kenya uses donkeys for fetching water, for household shifting(During migration), for carrying the sick to the

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hospital, for carrying sick calves, for transporting purchased goods and for pulling fencing materials needed for contracting biomass [7]. In Botswana, Donkeys are used for transporting people and goods, for transporting sands for building houses and for fetching water and fire wood [8].

In Ethiopia, donkeys are the/a major mode of transport. They transport at least 12 different commodities including food to remote areas during war and peace as well as guns and ammunition during war. Some rural Ethiopians recall that in famines of the past they only survive by someone bringing in food on donkeys [9]. Also in Ethiopia after the war, many ex-soldiers started lucrative businesses in the transport sector using donkey carts [9]. The high demand among both male and female-headed house hold was explained by importance attributed to donkeys as means of carrying water and fire wood and the possibilities of hiring out the donkey to other people [10].

Despite their uses, the husbandry practices of working are poor. Some methods of hobbling to restrain cause discomfort and inflict wounds [11,12] and poorly designed harnesses or yokes that may be heavy and ragged have an effect on the animals health and safety. In addition, animals are suffering from lack of shelter from sun, rain or biting insects at markets or working sites. Long working hours and difficult conditions are experienced by donkeys and horses working in the area. Animals are often engaged in work for long hours and when finished, they are left to browse and feed on garbage. These have a potential to negatively affect their welfare and quality of life. This was justified by low number of donkeys presented annually to the clinic compared to other domestic animals, 270 donkeys vs. 20,000 head of other domestic animals such as cattle, between 1987 and 1988 [13].

This misuse, mistreatment and lack of veterinary care for have contributed enormously to early death, 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 [14, 15].

According to FAOSTAT[16] there are 27 donkeys per100 people in Ethiopia, which is the one of the highest ratio in the world, from the central statically office ofFAOSTAT[16] reported that 44%, 34% and 19% of the donkeys are found in Oromiya, Amhara and Tigray region respectively. International research institute in the country have been done under the project of the World Donkey Sanctuary in different part of Ethiopia; for

instance in Tigray, Amhara, SNNPand eastern part of Oromia region. Even though there are international research institutes in the country, it is extremely reluctant to direct funds and expertise to research on donkey even though equine often support the other livestock system with which they work. Though often been described as sturdily animal (Play significant role) in the farming system and livelihoods the large number of small farmers in and around Nekemte town (East Wollega), there are no any researches directed to the welfare, socioeconomic importance and health of working equine. Therefore, Objectives of the study weretostudy the demography of the equines in Nekemte town and its surrounding, to assess of the welfare status of equines in the study area, to investigate the existing disease problem in study areaand assessment of diversified use equines in study area

MATERIAL AND METHODS

Description of Study Area: The study was carried out from November 2011 to June 2012 in four districts of east Wollega zone; WayuTuqa, GutoGida, Diga and Sasiga districts.

GutoGida is located in Oromiya regional state, East Wollega with capital city of Nekemte which lies about 331km western of Addis Ababa. Nekemte ("Naqamtee in Afan Oromo language; also Leeqa) is a market town in Western Ethiopia, located in Eastern Wollega zone of Oromiya Region. It is found in the west of the capital city Addis Ababa with its administrative center at having 21 districts; it is characterized by crop livestock mixed farming system. Teff, Wheat, barley, maize, sorghum, peas, beans, chick-pea, linseeds, Nug and rape seed are the major annual crops grown in the area. The estimated animal population of the area is 78,178 cattle, 9,894 sheep, 6,477 goats, 3,287 donkey, 1,598 horses, 665 mule, 2,428 cats and 4,572 dogs. The total land area of the region is about 769,725 hectares, of which 336,220 hectares are used for crop production, 184,412 for animal grazing, 256,901 hectares forest covered and 20,492 hectares for other activities [17].

The town is located at a latitude and longitude of 9°5ˈN 36° 33ˈE, respectively and with elevation of 2,088 meters. Its zone receives the minimum annual rain fall of approximately 1450mm and the maximum annual rain fall of 21500mm with the average rain fall of 1800mm. The average temperature of this zone is found between 15° to 27°C [17].

WayuTuqa district is located 319 km distance from western of Addis Ababa and 12 km from Nekemte which its zone town at altitude of 1600 meters above sea level. Its zone receives the maximum annual rain fall of approximately 1800nm and the minimum annual rain fall of 1400mm with the average rain fall of 1600mm. The average temperature of this zone is found to be 13° to 26°C. The total area of the districts is 404400 hectare and three ecological locations exist 49.23%high land, 37.6%mid land and 13.2%low land. The estimated animal population of the area is 65,411 cattle, 15,861sheep, 8,066goats, 3,600donkey, 3156 horses and 712 mules [18].

Study Animal: The study animals were (Donkeys, mules and horses) from different four district Areas of in and around Nekemte town. Randomly selected donkeys, mules and horses irrespective of age, sex and color at four selected districts were examined for any health and welfare problems during the study period at the study areas. The sample size of districts ranged among districts of east Wollega zone according to the availability of and time limitation 411in four districts.

Sample Size and Sampling Method: The total numbers of requires for the study was calculated based on the formula given by Thrusfield (1995) simple random sampling method. By rural of thumb where there is no information for an area it is possible to take 50% prevalence.In this study 50% prevalence with 5% desired level of precision and 95% of confidence interval are used to calculate the sample size using the following formula.

$$N = \frac{1.96^2 \, (p) \, (1-p)}{D^2}$$

Where N= sample size
P= Expected prevalence
D= Desired level of precision (5%)

$$\text{Therefore } N = \frac{1.96^2 \, (0.5) \, (1-0.5)}{(0.05)^2}$$

$$= \frac{3.8416 \times (0.5) \, (0.5)}{0.0025}$$

$$= \frac{3.8416 \times 0.25}{0.0025}$$

$$= \frac{0.9604}{0.0025}$$

= 384.16
= 384 equine

Study Protocol: The type of study employed was a cross-sectional investigation using in the selected areas. Observations were carried out on study animals selected randomly from the study population regardless of age and species, until approximately fifteen percent of the populations were represented. Questionnaire was also administered to animal owners to collect relevant information about equine welfare issues in the study area. Retrospective and focus group discussion were also used in study methodologies.

Questionnaire Survey: Structured questionnaire (Annex 6.) was designed and validated to cover a wide range of health and welfare aspects including donkey population size at house hold level, frequency and magnitude of work, nutrition and management. The questionnaire will be randomly administered to all most all available equine owners at each study sites.

Based on the types of work animals were categorized as draught, pack, ridden and others. "Draught" animals are those used for transport of goods and people by carts. "Pack" animals are those used for transport of goods by pack. "Ridden" animals are those used by owners for non-tourist ridding, whereas "others" category includes foals and non-functional animals [19].

Retrospective Study: This was an exploratory assessment which was carried out to ascertain occurrence and magnitude of disease of equine (Donkey, horse and mule) in the study area. Data was collected from daily clinical records of each study sites in order to summarize the major health problem in the study area. The recent four years (200 to 2003) clinical records were taken and frequently occurred dynamics of disease of the areas were assessed.

Cross-Sectional Study: In the randomly selected areas almost all available donkeys and mules were physically examined for lameness, body condition score, wound, age, body weight, demeanor and external parasite were recorded.

Body Condition Score: The scoring of body condition of the selected animals was recorded based on the criteria described by Pritchard *et al.* [19]. Body condition assessment was done by looking the animal from both sides and the hind quarter without touching the animals and scored as 1, 2, 3, 4 and 5 for very thin (Poor), thin(Moderate), fair(Ideal), fat and obese, respectively.

Wound Assessment: Assessment carried out at field level, market and around homestead on the daytime. Body lesions were then recorded with regard to anatomical location as back sore, tail sore, girth sore, bit sore and other sore(Mixed) among the three species of animal(Donkey, horse and mule).Wound assessments were expressed as a proportion within each age group, within each work type and within each species.

Lameness Assessment: A grading system of zero grades -immobile Lameness grading system was applied to each equine. The grading system was based on modified version of the American association of equine practitioners (AAEP) [20]. Explain the modifications…

Demeanor of the Animal: The behaviors of all animal sampled were assessed as depressed, indifferent, alert and friendly approach, Alert and not friendly approach and anxious which involve an observation of general alertness versus unresponsiveness to the environment to correlate these behaviors with physical problem and diseases [21].

Age Determination: Age of the animal was estimated based on the observation of the animal's front teeth (Incisors). Accordingly, the study animals were categorized into four age groups as less than 5 years, 6 to 10 years, 11 to 15 years and above16 years. There was a variation among different age groups in and age groups was also an associated between sex, species, work type and body condition score to assess welfare and health of equine.

Focus Group Discussion: Discussions were held with male and female equine owners in each four study site or districts. It was designed and validated cover a wide range of role of equine, major constraints, major diseases and ranked by using proportional pilling. In each district, focus group discussion were held, with 20 individuals (10men and 10 women); totally 80 people participated in focus group discussion at four district site.

Data Analysis: In each district, Data were collated according to species, age, sex and work type and were recorded by hand and results (Welfare and health parameter) was inserted in to MS- excel spread sheet program to create a data base and transferred to the SPSS software version 16.00 program and analyzed by using descriptive statistical method.

RESULTS

Equine Distribution: During the study period, the distribution of donkeys, mules and horses in each districts of selected site were studied.

Cross Sectional Study
Species, Sex, Age Groups and Work Type Distributions: During the study period a total of 411 equine that comprises 297(72.3%) donkeys, 89(21.7%) horses and 25(6%) mules were thoroughly observed for the presence of lesions on different parts of the body, ectoparasites and body condition status.

Two hundred seventy five (66.4%) and one hundred thirty six (33.6) animals were males and females, respectively. 25.6 of were under five years of age, 45.2% were between 6 and 10 years, 22.5% were between11 and 15 years of age and 6% were over 16 years. Observation indicated that proportion of work type out of the total animals sampled revealed that 68.6%, 23.2%, 5.1% and 2.2% were used for pack, cart(Draught), ridden and other purposes, respectively.

When compared work type proportion against the respective species, a difference was observed between horse and donkeys with proportion of 62% and 9% in draught type of work, accordingly. On the other hand, larger proportion of donkeys (63%) was used for pack than horses (26%). Animals involved in ridden type of work were entirely horses and mules. There was a variation among different age groups in draught work type, where age group between 6 and 10 years had 31.5% when compared with 3.8% and 40% in age group less than or equal to 5 years and greater than 16years, accordingly. There was also an association between sex and work type; a higher proportion of males were engaged in draught type of work than females (32.7% vs. 4.4%), whereas more females were involved in pack than males (91.2% vs. 58.5%).

Body Condition Assessment: The observation on the body condition of the animals were categorized into three, where body condition score 1 and 2 grouped as "Thin", body condition score 3 as "Medium" and body condition score 4 and 5 categorized as "good" and showed that 26.2%, 70.2% and 3.6% of animals were thin (Poor), medium and good body condition, accordingly.

Table 1: Number of equine in four districts of study areas

	Species			Human Population estimate
Districts	Donkey	Horse	Mule	
GutoGida	4665	1598	258	100,522
WayuTuqa	3600	3156	712	70,640
Sasiga	5910	460	90	90,524
Diga	3066	147	48	75,111

Source: Agricultural bureau of study districts [17]

Table 2: Description of species, age group and sex of the observed animals expressed as a proportion within each work type in four districts of east Wollega zone district

FactorPercentages within work type

	No. animals observed	Draught	Pack	Ridden	Others
Species					
Donkey	297	9.1	87.2	0.7	3
Horse	89	62.9	27	10.1	0
Mule	25	52	8	40	0
Age group					
=5years	106	3.8	88.7	0.9	6.6
6-10years	187	31.5	65.2	3.2	0
11-15years	93	24.7	64.5	8.6	2.2
=16years	25	40	36	24	0
Sex					
Male	275	32.7	58.5	7.6	1
Female	136	4.4	91.2	0	4.4

Table 3: Body condition of working expressed as a proportion within species, age group and work types

	No. animals observed	Proportion of Body condition score category		
Factors		1	2	3
Species				
Donkey	297	29.3	52.5	18.2
Horse	89	48.3	34.8	16.9
Mule				
Age group	25	4	36	60
=5years	106	10.4	59.4	30.2
6-10years	187	34.2	44.4	21.4
11-15years	93	47.3	44.1	8.6
=16years				
Work type	25	48	36	16
Draught	96	42.7	35.4	21.9
Pack	285	29.1	52.3	18.6
Ridden	21	23.8	38.1	38.1
Others	9	22.1	55.6	22.2

Table 4: Health parameters of working horses, donkeys and mules expressed as a proportion within each species

Proportion health parameters within species

Observations	Donkeys (n= 297)		Horses(n= 89)	Mule (n=25)
Lesions of skin				
Wound type				
Back sore	80(19.5)	16.2	31.5	16
Girth sore	19(4.6)	1.7	10.1	20
Leg sore	27(6.6)	7.1	6.7	8.1
Tail sore	12(2.9)	4.0	0.8	0.0
Bit sore	5(1.2)	0.3	3.4.	4.0
Others sore	13(3.2)	0.3	3.4	4.0
Non wounded	255(62)	70.4	36	56
Lameness				
Zero grade	339(82.5)	87.5	71.9	60
Low grade	28(6.8)	6.7	7.9	4
Moderate grade	37(9)	4.7	18	28
High grade	4(1)	1.0	1.1	0.0
Immobile	3(0.7)	0.0	0.2	0.5
Other health problem				
Mange mites	14(3.4)	4	2.2	0.0
Ticks	17(4.1)	6.7	3.4	4
Lice	3(0.7)	0.7	0.0	4
Eye problem	13(3.2)	3	4.5	0.0
Behavior				
Depression	99(24.1)	23.2	32.6	4
Indifferent	183(44.5)	44.1	46.4	40
Alert and friendlyapproach	120(29.2)	28.3	44.7	56
Alert not friendly approach	8(1.9)	2.2	2.4	0.0
Anxious	1(0.2)	0.3	0.0	0.0

At species level there was a significant difference (p<0.01) observed between horses and donkeys, where more horses (48.3%) were in a very thin (BCS 1) condition than donkeys (29.3%) and mules (4%). Variations in body condition were also recorded among animals with different age categories and work type. All animals above 16 years (48%) were in thin and very thin body condition as compared to 34.2%, 47.3% in age group 6-10 and 11-15 years and 10.4% in age group less than 5 years of age. Concerning work type, draught animals showed high proportion of thin body condition (42.7%) compared to pack (29.1%), ridden (23.8%) and other (22.1%) animals as shown in Table 3.

From the total sample 38.4% of equine were found with wound on different body parts. Bit sore and back sore were found in both species, though the proportion was higher in horses (3.4% and 31.5%) than in donkeys (0.3% and 16.2%). Four percent and 11.4% of donkeys and 0.8 % and 5.6% of horses had tail/tail base lesion and

ectoparasites, respectively. It was also shown that the occurrence of bit sore and back sore was associated with work type as shown in table 4. In response to an observer approaching the animals head, 28.3% of donkeys showed friendly approach (Turning head towards the observer), 2.2%responded with alert and not friendly approach(Turning head away or moving away from the observer),44.1 showed no response(Indifferent) and 23.1 showed depression. Horse demonstrated that significantly higher proportions (p<0.001) of friendly approach 44.7% and no friendly approach 2% and lower proportion of and indifferent (No response to observer) 46 %, depretion32.6% than donkeys. limb associated abnormality(Lameness) were highly prevalent across all species, with 12.4%of working donkeys,40%of working mules and 29% of working horses showing some degree of gait abnormality, ranging from mildly lame to severely(Immobile) lame.

Questionnaire Survey: Total of 411 owning equine both in urban and rural areas of four selected districts were interviewed. Out of the interviewed, about 46.1% households had one donkey, 23.9% had 2-3 donkeys, 8.5% households had 4-5 donkeys and 21.5% had two or more donkeys at all. The remaining 9.65% of households had two or more.Data were collected on the traditional management system (Housing, Feeding and Health care) of equine; indicated that all animal owners do provide water and feed to equine at home, only 76.6% provide shelter to equine at home and 22.9%(94) of the owners of cart horses in Nekemte town reflected that they couldn't provide shelter at home specially at night and they release to the strait, forest after work, this is due to the fact that the owners do not have their own house and live in rented homes as a result of this, animals were exposed to predators', environmental factors, car accident and easily stolen by thieves. Only few were known to provide water (10.5%) and feed (20 %) at market or working sites, but no one provide shelter as shown in Table 5. Accordingly, 40% of the respondents provided feed for horses once daily while 25%, 24.7% and 10.3% of the respondents gave twice, three and four times daily, respectively.

Concerning the health care, out of 411 interviewed equine owners 44(10.6%) treat their animal traditionally (Plant juice) by drenching, pouring on the animals which is mainly derived from leaf, bark of tree and seed of tree. Acacia juice preparation locally called as "Walensu" is one of the commonly used in WayuTuqa for the treatment of Pediculosis. In the study sites, there is also a drenching practice of oil in case of abdominal discomfort (Pain). 88.2 % respondents described the use veterinary clinic to treat their equine and only 0.5% left untreated due to misconception of that donkey doesn't need treatment. Few of the people at the study sites mentioned the proverb which says "dealing with donkey is till its back is functional". The statement calls for decisive work to be done for behavioral change to come among the society by concerned bodies.

Retrospective Study: A retrospective data on cases of donkey, mule and horses presented to the study districts of veterinary clinic from 200 to 2003 were analyzed. Result of retrospective study revealed that infectious disease mainly GIT parasitism (24.6%), pneumonia (21.6), tryapanosomiasis (18.2%), wound (14.2%) and others (21.2%) were prevalent within four districts. Wound was frequently occurred in GutoGida (51%) from other diseases as compared to other districts and statistically significant by chi square test (p<0.001). This was mainly related to their use (Cart pulling).

Focus Group Discussion: It was designed and validated to cover a wide range of role of equine, major constraints, major diseases; listed and ranked by using proportional pilling. In each district, focus group discussion were held, with 20 men and women; totally 80 people participate in focus group discussion at four district site. Time of the season categorized into drought season (November-April) and normal time consist rainy season (May-October). The method applied to each district is the same and information obtained from three districts of focus group discussion indicated in Table 6.

Table 5: Proportion of household respondents on local management practice of equine

Site of service	Type of service	No. of interviews	No. of respondents said "yes"	Proportion of respondents, %
At home	Shelter provision	411	317	76.6
	Feed provision	411	411	100
	Water access	411	411	98.2
At working site or at market	Water access	411	12	10.5
	Shelter provision	411	0	0
	Feed provision	411	83	20

Table 6: Percent of diseases recorded in four districts east Wollega zone (200-2003)

		Districts			
Diseases	Number of case	GutoGida	WayuTuqa	Diga	Sasiga
Tryapanosomiasis	982	20.2	21.2	27.4	32.3
Pneumonia	1168	32.5	27.5	22	18
GIT parasite	1333	32.4	20.4	28.6	18.6
Wound	766	51	22.2	12.8	14
Others	1159	46.2	8.3	29.7	15.9

Table 7: Focus group discussions held at three districts mostly emphasized on donkey

	Districts											
	Diga				Sasiga				WayuTuqa			
Roles of donkeys	Rank	Normal time	Drought time	Rel. %	Rank	Normal time	Drought time	Rel.%	Rank	Normal time	Drought time	Rel.%
1 Cereal to market and flour factories	1	8	12	25	1	7	14	30%	1	8	12	29%
2 For fetching water	2	4	16	21	2	5	15	19%	2	6	14	27%
3 Income generation by selling	3	8	12	18	5	9	11	12%	4	7	13	10%
4 charcoal and firewood to town	4	4	16	15	4	6	14	14%	5	10	10	9%
5 Income generation by renting	5	12	8	13	3	7	13	17%	3	8	12	15%
6 Transport sick people and animal to clinic	6	8	12	8	7	13	7	7%	7	14	6	8%
Managementconstraints												
1 Over loading	1	3	17	30%	4	13	7	9%	5	11	9	8%
2 Over working	2	4	16	20%	3	6	12	12%	3	4	16	12%
3 Lack of food	3	7	13	10%	9	7	13	5%	2	5	15	21%
4 Poor attitude	4	14	6	9%	2	8	12	20%	4	13	7	9%
5 Lack of drug in clinic	5	10	10	8%	5	11	9	9%	6	6	12	7%
6 Diseases problem	6	9	11	7%	1	3	17	29%	1	3	17	26%
7 Harnessing problem	7	8	12	6%	6	8	12	8%	7	11	9	6%
8 Housing problem	8	12	8	5%	7	9	11	6%	8	12	8	6%
9 Lack of shepherd	9	6	14	5%	8	11	9	6%	9	7	13	5%
Health problem of donkey												
1 pneumonia	1	8	12	23%	1	6	14	24%	1	8	12	22%
2 Tryapanosomiasis	2	13	7	20%	2	12	8	21%	2	12	8	21%
3 GIT parasite	3	12	8	19%	3	11	9	18%	3	12	8	18%
4 African horse sickness	4	14	6	17%	5	8	12	16%	6	8	12	9 %
5 emaciation	5	9	11	10%	4	7	13	11%	5	7	13	11%
1 Lameness	6	6	14	8%	6	8	12	7%	7	4	16	3%
7 wound	7	5	15	3%	7	4	16	3%	4	16	3	16%

Table 8: Focus group discussions held at Nekemte town mostly emphasized on draught animal (Mule and horse)

	Districts			
	Nekemte			
Roles (mule and horse)	Rank	Normal time	Drought time	Rel.%
1 Transport of construction materials	1	8	12	32%
2 For fetching water	2	4	16	25%
3 Weeding ceremony	6	8	12	16%
4 Transport grains to flour factories	3	4	16	11%
5 Income generation by renting	4	12	8	9%
6 Transport of furniture	5	8	12	7%
Management constraints of equine				
1 Over loading	4	9	11	9%
2 Over working	3	8	12	10%
3 Lack of food	5	7	13	9%
4 Poor attitude	8	10	10	8%
5 Lack of drug in clinic(not properly treated)	5	10	10	8%
6 Diseases problem	6	9	11	7%
7 Harnessing problem	2	8	12	20%
8 Housing problem	1	10	10	30%
9 Lack of shepherd	7	6	14	5%

Table 8: Focus group discussions held at Nekemte town mostly emphasized on draught animal (Mule and horse)

| Roles (mule and horse) | Districts | | | |
| | Nekemte | | | |
	Rank	Normal time	Drought time	Rel.%
Health problem of equine				
1 pneumonia	4	8	12	24%
2 GIT parasite	5	12	8	18%
3 Epizootic lyphangitis	4	14	6	15%
4 Emaciation	3	9	11	10%
5 Lameness	2	14	6	5%
6 wound	1	10	10	28%

Information obtained from focus group discussion revealed that equine specially donkeys have multipurpose (Transportation of grain, charcoal and fire wood to market, grain milling houses, sick people to clinic, income generation by selling and renting within three districts) with various percentages of use types. The participants of focus group also indicated that overworking, over loading, lack of food and water, lack of housing and poor attitude toward equine were the major problems related to management constraints of equine. Pneumonia, trypanosomes and parasitism were the main diseases that the owners reflected during discussion (Table 7).

Housing and harnessing problem were the major constraints of cart horses in Nekemte town according to30% and 20% of respondent respectively. Next to this over working, over loading and shortage of supplemental feed were other constraints of the cart horses in this town according to 10%, 9% and 9% of the respondents, respectively. The common type of feeds for cart horses available in study area were wheat straw, Teff straw, barley and it's straw, green grass, hay and maize residue. The major health and proportion of respondents reflect from focus group discussion in the town are presented in Table 8.Wound, pneumonia, GIT parasite, Epizootic lyphangitis, Emaciation and Lameness were reflected as the top 6 health problems of cart animal in the town according to 28% 24% 18% 15% 10% and 5% of the respondents, respectively.

DISCUSSION

The purpose of this study was to identify the prevalence of general health parameters and body conditions which were indicators of poor welfare and health status of equine in the study area. Issues of concern can then be prioritized in terms of welfare significant to animals and further research conducted.

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 [22]. In this study, it was appreciated that the majority of equine observed (97.8%) were used for work, mainly for transporting goods and people, by cart, packs or ridding. Only 2.2% were either very young or non-functional due to some health problems. This observation was in agreement with Pritchard *et al*. [19], Blakeway [23], Solomon and Rahmeto [24] and Dinka *et al.* [25] that equine were kept mainly for transportation than meat or milk production. Donkeys were dominant(71.7%) followed by horses(21.5%); the population distribution of equine indicates that these animals are highly needed by most rural people for transportation of goods by pack and cart due to their well-built nature and manageable behavior.

The study revealed a wide spectrum of welfare issues on the study animals, most of which were significantly associated with the assumed risk factors. The observation on the body condition of the animals showed that 31.6% and 47.3% were under thin and medium body condition category. The well-fed group was only 20.3% which could be an indicator of management short-comings associated with poor nutrition and/or health care (Table 3). Heavy work burden coupled with nutritional deficiencies and internal parasites might be the reason for high proportion of thin and very thin animals. Negative correlation between body condition and burden of internal parasites was also reported by another work in Ethiopia [26]. Moreover, poor people who cannot afford to provide supplementary feeds to their might be the reason.

Out of 411 animal examined38.4% of equine were found with wound on different body parts. This can show the magnitude of the problem in the study area. Back, girth, hind quarters are mostly affected body part of equine body parts. Most of this injuries were resulted due to improper fitting saddle, laceration, abrasion and some

of the owners injured equine specially cart horses to treat their animal and others deliberately create wound to beat directly on it so that the equine move very fast. Most of the owners force their animals to work despite the presence mechanical injuries. This is due to lack of income generating mechanism and all owners believed that injury reduce working efficiency. Horses demonstrated a significantly higher proportion of lip lesions (3.4%) than donkeys (0.3%). This might be associated with the bit was used for leading and braking of draught and ridden horses. Nawaz *et al*. [27] support this finding, where the presence of lip lesions Tether/hobble lesions on the limbs were highly prevalent across all species, work types and age groups, although there was a significant difference with in each of these factors. It was observed that tether/hobble lesions were more common in horses (65%) and ridden type of work (78%). Observation in this study area shows that horses were kept usually by tethering hobbling around homestead. As the result, all horses inevitably experienced hobbling lesion at least once in their life. It was also mentioned by Alujia and Lopez [11] and Mohammed [12] that some method of hobbling to restrain equine cause discomfort and even wounds. Pritchard *et al*. [19] and Solomon and Rahmeto[24]also reported similar findings where ridden animals showed significantly higher (P< 0.01) prevalence of tether/hobble lesions than those doing draught and pack works.

This study demonstrated that significantly higher proportions of draught animals were thin and girth sore compared with animals engaged in pack, ridden and other work types. This may be due to heavier workload on draught animals compared to others as these animals were working for long hours per day without provision of sufficient feed because animals were usually provided sufficient feed at homes only before or after work.

Lesions on the bit (Lip sore) 25% and girth sore 63.2% were observed more frequently on draught horses than donkeys. This can be attributed to ill-fitting and ragged harnesses were used commonly in horses during carting and ridding. On the other hand, pack donkeys had a significantly higher proportion of tail /tail base lesions than horses. These lesions were usually induced by excessive rubbing on thissite by crupper /rubber rope/unpadded plastic harnessing material and excessivepressure exerted on the base of the tail related to improper loading i.e.the material passes under the tail of donkeys during packing, where there would be frequent movement and rubbing; as the packed animals move forward. Pritchard *et al*. [19], Blakeway [23], Solomon and Rahmeto [24] and Swann [28] reported similar findings,

when pack animals move long distance and frequently, the chance of tail/tail base lesion occurrence was very high. The prevalence of ectoparasites was significantly higher in donkeys (11.4%) than horses (5.6%). This might be due to ignorance to the animal: receiving less attention by owners and kept under poor management conditions. The current study reveal that, 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. Shelima *et al*. [29] made similar observation, where 38.3% of wounded horses treated, using traditional medicine and 36.2% of wounded horses had no chance to go to veterinary clinic or 17.7% due to financial constraint.

Result of retrospective study revealed that infectious disease mainly GIT parasitism (24.6%), pneumonia (21.6), tryapanosomiasis(18.2%), wound (14.2%) and others (21.2%) was found most health problem within four districts. This could be related to the existence of favorable factors facilitating the wide occurrence of disease. In the study area it was mainly associated with drenching of animal for various diseases problem and some extent due to internal parasite in case of pneumonia and other predisposing factors like overworking, over loading and malnutrition were the commonest feature in lowering equine resistance. This concept agree with Fesseha [30] that indicate malnutrition, exhaustion, traveling and overcrowding predispose donkey to respiratory diseases favorable and high GIT parasitism is due lack of deformingstrategy and equine supplied with food which is poor in quality and unhygienic. Wound was frequently occurred in GutoGida (51%) from other diseases as compared to other districts and statistically significant by chi square test (p<0.001), this due to improper harness and saddle design used since equine mostly used for cart purpose in this district (Nekemte town). this is in close similarity with the work of Demelash and Moges[31] who reported from Hawasa, Southern Ethiopia, that improper harness and saddle design were the major cause of injuries for working equines.

The novel behavior observations used in this protocol were developed to give indications of the responsiveness of an animal to the environment and to attempt to identify fearfulness. Fear is a negative motivational affective state and in a strong or prolonged form constitutes 'Suffering' [32]. Working may be unresponsive or in depressed state due to disease, exhaustion and over-stimulation by a crowded and noisy city environment or to avoid soliciting harsh handling.

Animals displaying fear behavior are often exposed to adverse handling procedures because they react inappropriately to handling [33]. In equine species, fear behavior presents a serious risk of injury to handlers, resulting in a cycle of increasing severity of restraint and increasing fear. Where the person who works the animal is not the owner, the bond of interdependence is broken, so the risk of adverse handling is thought to increase. A limitation of these behavior observations is that the response to an unfamiliar person may differ from the response to the regular handler, as observed in comparable tests on dairy calves [34]. An assessment of the quality of the human-animal bond is relevant to the development of welfare interventions for working because, without a degree of social bonding between the owner or user and his animal and in the absence of enforced legal protection for the animal's welfare, there is little motivation to improve welfare beyond the minimum necessary to enable it to earn money.

Solomon and Rahmeto[24] reported that, 46% of the respondents provided feed for horses once daily while 24%, 24% and 3% of the respondents gave two, three and four times daily, respectively; it is agree with current study that, 40% of the respondents provided feed for horses once daily while 25%, 24.7% and 10.3% of the respondents gave two, three and four times daily, respectively. This finding was in agreement with Dinka *et al*. [25] which stated that the majority of the respondents (98.6%) in the study sites provided feed at different frequencies in a day. The type and amount of feed fed requirement varies according to the workload of the horses [35]. Anderson and Dennis [36] suggested that animals, which are being used year round for transport, need more feeds than animals that are only worked for short periods seasonally. In this study 100% respondents used to provide available feed mainly grass, straw and few cereal by-products and 76.6 provide shelter at home, however few (20%) and 10.5% respondents provide feed and water respectively at market or working sites. The finding probably was a good indicator about the level of awareness of equine users or owners, where less attention was given to animals at working site.

In addition, it was reported that for draught animals, only 24.3 provide shelters which is sloping floor to allow run off to keep them dry and clean and dung should be removed daily to reduce the problem of flies. Houses need to be periodically disinfected and clean bedding provided [37]. Similarly, Dinka *et al*. [25] has found that carthorses were 42.0% and 31.4% owners used an open barn with shade and closed shelter, respectively.

The previous finding was in agreement with this study, where there was 76.6%; respondents provide shelter at home during night to protect from predators' or other factors. 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.

Recommendataions: In the urban, semi urban and rural areas of east Wollega zone of Ethiopia equine are widely used for cart pulling or as pack animals for transport of vegetables and fruits to the market place, transportation of people from and to the market, animal food, building materials, grains to flour mill and sick person to the clinics. In spite of varied uses of equine in the study area, they are confronted by series of health and welfare problems mainly tryapanosomiasisendoparasites, pneumonia and physical injuries; abused by beating and harming, over loading, over working, unnecessarily neglected and general mal treatment and drenching traditions are still prevalent health and welfare problems.

Mass education to create awareness, about the importance, how to handle animals to avoid physiological stress due to over working, over loading and deleterious effect of certain traditional management practice like drenching should be conducted through extension service of the government and NGO's Comprehensive study on epidemiology of equine diseases as well as their feasible control and prevention methods should be further under taken.

ACKNOWLEDGEMENTS

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