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Assessment of Welfare of Working Donkeys and Mules Using Health and Behavior Parameters

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ABSTRACT

Despite their valuable contributions, mules and donkeys are the most neglected animal, accorded low social status, frequently subjected to overloading, beating, injuries and compelled for long working hours. It is regrettable that these animals are not well cared for, thus reducing their draught capabilities. A protocol was used to assess the welfare of working mules and donkeys using direct observation of health and behavior parameters. In this study, 1200 Mules and donkeys used for transportation, draught and ridden work in different areas of Punjab was assessed. Overall, 20% animals were found severely depressed, while 34% showed no response when approached. Eyes and mucous membrane abnormalities were present in 57.5% and 10.5% Mules and Donkeys. Lip lesions, missing of teeth and presences of molar or sharp edges were present in 47, 14 and 92.5%, respectively. Only 8.5% Mules and Donkeys were found in shinning coat condition, while (22%) were in rough body condition. Lesions on head and ear, neck, breast, wither, girth, shoulder, ribs and belly, spine, tail and tail base, hind quarters, hind legs, knee joints and fore legs were present in order of 11, 9, 32, 40, 45.5, 20, 23.7, 10.5, 24.5, 17.0, 10.5, 22.5 and 28.5%, respectively. Knee lesions, hock lesions, swelling of tendons and joints and deformed limbs were prevalent in 75.0, 55.0, 91 and 9% animals, respectively. Bases on these results welfare needs priority which is not only for their well-being but will also improve the economic status of the owner.

Key words: Behavior, Cruelty, Donkeys, Mules and Welfare.

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INTRODUCTION

Mules and donkeys are very useful and important draught animals and are frequently used to pull carts and carry loads. Recently the use of mules and donkeys for transportation purposes has increased. They are capable to tolerate temperature even higher than 48 to 50^{o}C in summers in some areas of country (Hassan, 2004). Mules have been considered to be superior to horses on the basis of their endurance, quality of hooves, feed requirement and longevity of life / working life span (Sasimowski, 1984). They can with stand much higher temperature than other equines. In mountainous areas where no other animal can work, the mules sure footedness and even temperament makes it an excellent pack animal, while donkeys have become very popular draught animal because of their ability to work under very unusual conditions. Their use with carts is increasing. Due to easy maneuvering, they are quite suitable to city transport. They can work for long hours and have very few health problems (Khan et al., 2005). In spite of their important role, these animals are raised under primitive conditions. It is regrettable that these animals are not well cared for, thus reducing their draught capabilities. This leads to further ill- treatment when the animals are forced to work beyond their capacity. While at work, they are overworked, underfed, and maltreated. Millions of them suffer from neck injuries and bruising due to whipping and hot iron branding. Even shoeing and castration is done in primitive ways.

The implements and carts to which they are hitched are inefficient and painful (Rehman et al., 2005; Younas et al., 1994). Moreover, beating during transportation, rough handling, and exposure to severe weather, carelessness towards wounds, in-adequate feeding and watering, frequent use of spiked sticks, etc (Yaqoob et al., 2002). The efficiency of these animals can substantially be improved by careful task scheduling, making use of the cooler parts of the day, using improved implements and machinery, etc. It is very unfortunate that this inexhaustible energy source has been neglected in developing countries like Pakistan and India (Pathak and Gill, 1982). The careless handling, overcrowding, overloading and long hours of transportation without proper feeding and watering not only cause stress to animal but sometimes also cause serious injuries, which may amount to death (Lindberg et al., 2003). Welfare of animals usually contains five basic freedoms, which provide an overall concept of animal welfare.

1) Freedom from thirst, hunger and malnutrition by ready access to fresh water and a diet to maintain full health and vigor.
2) Freedom from discomfort by providing a suitable environment including shelter and a comfortable resting area.
3) Freedom from pain, injury and disease by prevention or rapid diagnosis and treatment.
4) Freedom to express normal behavior by providing sufficient space, proper facilities and company of the animals own kind.
5) Freedom from fear and distress by ensuring conditions that avoid mental suffering (Webster, 2001).

MATERIALS AND METHODS

For the present study, multistage sampling techniques were used for data collection. The Data was collected from four districts of Punjab namely Faisalabad, Toba Tek Singh, Sheikhupura and Layyah. The sample size consisted of 1200 respondents (600 each of mule and donkey and 300 from each district). The welfare assessment was made through a checklist based on animal examination (Pritchard et al., 2005).

CHECK LIST

General Attitude

Very alert = 0, Active = 1, Depressed / dull = 2.

Response To Observer Approach

Response to observer approaching the animal's head from 3 to 5 m away
0 = No response, 1 = Friendly approach: Animal turns head towards observer, 2= Avoidance/ Aggression: Animal does one or more of following: turns head away, moves away, flattens ears, attempt to bite or kick.

Response To Walking Down Side of Animal

Response to observer walking down side of animal's body at a distance of 30 cm from its side, turning at tail and walking back to head. 0 = No response, 1 = responds: Any acknowledgment of observer's presence for example, ear turn, head turn, move away, and kick.

Tail-tuck (In Donkeys Only, Among Equines, That Behavior Is Only Observed In Donkeys)

Donkeys clamping down tail, or tucking in hindquarters when observer was level with the hindquarters during walk down side. 0 = No response, 1 = Responds

Chin Contact

Animals avoiding contact or withdrawing head when hand was placed lightly under the chin
0 = Accept, 1 = Reject

Coat Condition

0 = Rough / dirty coat, 1 = Normal**,** 2 = Very shinning.

Skin Tent

0 = If the skin takes 2 to 3 sec to come to its original place, 1 = If the skin takes 4 to 5 sec, 2 = More than 5 sec (Pritchard et al., 2007).

Firing Scars

Animals with lesion of any kind including hair loss, healed lesion and scar. 0 = No scars, 1 = Minor, 2 = Excessive.

Limb Tether / Hobbles Scars

Animals with lesion of any kind including hair loss, healed lesion and scar. 0 = No scars, 1 = Minor, 2 = Excessive.

Deformed Limbs

Animals showing lateral or flexural abnormalities of the limbs, excluding cow hocked conformation. 0 = Normal, 1 = Slight, 2 = Severe (Pritchard et al., 2005).

Data Analysis

The collected data was arranged, organized and finally

analyzed with the help of SPSS (Statistical Package for Social Sciences) (SPSS, 2004). Statistical methods employed to analyze the data are being described as: For the estimation of frequency distribution of various responses from the check list and interview, simple percentage was calculated by following formula:

$$P = F / N \times 100$$

Where, P = Percentage, F = Frequency of class, N = Total number of respondents.

Chi- Square Test:

$$X^2 = \frac{\sum (O - E)^2}{E}$$

Where,
O=observed value, E=expected value and ∑=total sum

RESULTS AND DISCUSSION

On overall basis, 20% animals were found severely depressed followed by 43% active and 37% very alert. Donkeys were the most depressed animal (24%) followed by mules (16%). Generally 40% animals showed avoidance when approached; while 34% showed no response and 26% were found friendly. Higher proportion of donkeys showed avoidance (50%) than that of mules, while least number of donkeys (10%) showed friendly approach, as compared to 42% in mules. More number of donkeys (40%) showed no response while approaching, which was higher than mules (28%). It was seen that 92% animals showed response to observer walking down side of the animal. Mules were found more responsive (94%) than donkeys (90%) Table 1. The higher prevalence of depressed animals in this study are due to several reasons, which include, working with diseased animal, or driving of animal cart is by unfamiliar person, or fatigue etc. The overloaded, weak and injured animals do not response actively to their surroundings and show signs of fatigue and depression. Comparatively donkeys in the present study were found more depressed than mules because of long working hours, frequent overloading and careless attitude of the owners, which ultimately lead to depression. Working mules and donkeys may also be seen unresponsive due to disease, exhaustion, over stimulation by crowd and noisy city environment or to avoid soliciting harsh handling. Animals displaying fear behavior are often exposed to adverse handling procedures because they react inappropriate to handling (Main et al., 2003). It was found that 57.5% mules and donkeys were subjected to abnormalities of eyes. Abnormalities of eyes were more prevalent in mules (60%) followed by donkeys (55%).

The higher prevalence accounts for diseased and depressed animals, overloaded and over worked. Only 10.5% mules and donkeys were subjected to abnormalities of mucous membrane, said abnormalities were much higher in donkeys (15%) than mules (6%) (Table 1). Of the total, 22% animals showed rough/dry/uneven/matted coat followed by normal (69.5%) was very shinning 8.5%. The problem was more frequent in donkeys (32%) followed by 12% in mules (Table 1). In donkeys, more uneven coat condition might be due to careless attitude of the owner and dehydration. Rehman et al. (2005) also reported that working animals are the neglected one in developing countries. No due care is given in respect of dipping, deworming, grooming and shoeing, there by increasing chances of rough/uneven coat. The proportion of animals showing very high skin tent duration (>5 Sec) was 9% followed by high skin tent duration (69.5%) of 4 to 5 sec and normal (14.5%) of 2 to 3 sec. Very high skin tent duration was more common in donkeys (10%) followed by 8% in mules. High skin tent duration was more common in donkeys (76%) followed by 63% in mules (Table 1). The higher skin tent duration in working mules and donkeys could be due to the ignorance on the part of the owners towards deworming, watering frequency and nutrition. Increased skin tent duration is supposed to cause low performance, muscle damage, colic, reduced kidney function, laminitis, tying up, comma and death (Pritchard et al., 2007). Chin contacts means animals avoiding contact or withdrawing head when hand was placed lightly under the chin. Only 18.3% mules and donkeys avoid contact or withdraw head when hand was placed lightly under the chin.

This was more prevalent in mules (18%) than in donkeys (14%) (Table 1). Avoiding chin contact could be due to approaching by unfamiliar observer, depression, fatigue, weakness, and injury. Overworking, overloading and beating also cause of avoiding chin contact. Lindberg et al. (2003) also reported overcrowding, overloading and long working hours without proper feeding and watering not only cause depression in animals but also serious cases accounts to death. On overall basis 47% mules and donkeys got lip lesions with the highest prevalence in mules (56%) followed by donkeys (38%) (Table 1). Higher prevalence of lip lesions could be due to untrained cart driver and rough handling (Pritchard et al., 2005). Some other reasons reported in this regard might be improper size and design of the bit, too short or tight bit and rough design (Biffa and Woldemeskel, 2006). Missing teeth were found in only 14% mules and donkeys, being common in donkeys (20%) followed by mules (8%). Presences of hook or sharp edges on teeth were prevalent in 92.5% mules and donkeys. It was common in mules (95%) followed by (90%) in donkeys (Table 1). The careless attitude or the unawareness about the presences of molar edges might lead to higher prevalence trend. The older animals are mostly neglected

Table 1. Prevalence trend of different lesions and health and behavior indicators (welfare) in working mules and donkeys (1200) at different districts of Punjab.

Welfare indicators	General attitude			Response to observer approach			Response to walking down side of animal		Eyes abnormal		Mucous membrane abnormal	
	Very alert	Active	Depressed	No response	Friendly	Avoidance	No response	Responds	No	Yes	No	Yes
Species	Donkeys 32%	44%	24%	40%	10%	50%	10%	90%	45%	55%	85%	15%
	Mules 42%	42%	16%	28%	42%	30%	6%	94%	40%	60%	94%	6%
	Over all 37%	43%	20%	34%	26%	40%	8%	92%	42.5%	57.50%	89.5%	10.50%

Welfare indicators	Coat condition			Skin tent duration			Chin contact		Lip lesions		Teeth missing	
	Rough	Normal	Very shinning	2-3 Sec	4-5 Sec	> 5 Sec	Accept	Reject	No lesions	Present	No	Yes
Species	Donkeys 32%	61%	7%	14%	76%	10%	77%	23%	62%	38%	80%	20%
	Mules 12%	78%	10%	25%	63%	8%	86%	14%	44%	56%	92%	8%
	Over all 22%	69.50%	8.5%	14.5%	69.5%	9%	81.5%	18.5%	53%	47%	86%	14%

Welfare indicators	Presence of hook / sharp edges		Firing scars			Limb tether / Hobble scars			Tail tuck		Diarrhea under tail	
	No	Yes	No scars	Minor	Excessive	No scars	Minor	Excessive	No response	Response	No	Yes
Species	Donkeys 10%	90%	59%	25%	16%	8%	60%	32%	78%	22%	84%	16%
	Mules 5%	95%	72%	18%	10%	24%	48%	28%			60%	40%
	Over all 7.5%	92.5%	65.5%	21.5%	13%	16%	54%	30%			72%	28%

Source. Author's Field Survey 2008-2009 to 2010.

one, with more chances of appearing molar edges increases. Majority of the animals were free from firing scars (65.5%), however 21.5% animals got minor scars. Firing scars were found in 13% animals of which 16% were present in donkeys higher than mules 10%. Animals possessing excessive hobble scars were 30% followed by minor scars (54%) and no scars (16%) (Table 1). There exist strong beliefs, traditional ideas, myths about the presences and significance of the scars. Firing of the joints is strongly believed to be of great help in curing the animals against some disease like tetanus.

The proportion of donkeys clamping down tail or tucking in hind quarters when observer was level with the hind quarters during walk down side were observed in 22% followed by 78% having no response. The presences of diarrhea under tail indicate the poor deworming status of the animal as well under feeding of the animal. It was common in mules (40%) and far less in donkeys (16%) (Table 1). Diarrhea results in robbing fluid and electrolytes from the body, putting mules and donkeys at high risk of dehydration and electrolyte abnormalities (De-Fombelle et al., 2004). Head and ear, neck, breast, wither, girth, shoulder, ribs and belly, spine, tail and tail base, hind quarters, hind legs, knee joints and fore legs lesions were prevalent in 11, 9, 32, 40, 45.5, 20, 23.5, 10.5, 24.5, 17, 10.5, 22.5 and 28.5% mules and donkeys, respectively (Table 2). Mules showing higher prevalence of lesions on neck, breast, wither, girth, ribs and belly, knee joints and forelegs, while on head and ears, shoulder, spine, tail and tail base and hind legs donkeys showed higher prevalence. Presence of knee lesions was noticed in 75% mules and donkeys, with the highest prevalence in donkeys (78%) than mules (72%). Hock lesions were noticed in 55% mules and donkeys, more common in donkeys (60%) followed by mules (50%). Tendon swelling was prevalent in 91% mules and donkeys more common in donkeys followed by 90% in mules. Limb deformities were found in 85% mules and donkeys. These deformities are more

Table 2. Prevalence trend of different health and behavior indicators (Welfare) in working mules and donkeys (1200) at different districts of Punjab.

Welfare indicators		Head and ears		Neck		Breast		Wither		Girth		Shoulder	
		No lesions	Superficial	No lesions	Superficial	No lesions	Superficial	No lesions	Superficial	No lesions	Superficial	No lesions	Superficial
Species	Donkeys	88%	12%	92%	8%	72%	28%	66%	34%	55%	45%	76%	24%
	Mules	90%	10%	90%	10%	64%	36%	54%	46%	54%	46%	84%	16%
	Over all	89%	11%	91%	9%	68%	32%	60%	40%	54.5%	45.5%	80%	20%
Welfare indicators		Ribs and belly		Spine		Tail and tail base		Hind quarters		Hind legs		Knee joints	
		No lesions	Superficial	No lesions	Superficial	No lesions	Superficial	No lesions	Superficial	No lesions	Superficial	No lesions	Superficial
Species	Donkeys	77%	23%	89%	11%	75%	25%	82%	18%	89%	11%	79%	21%
	Mules	76%	24%	90%	10%	76%	24%	84%	16%	90 %	10%	76%	24%
	Over all	76.5%	23.5%	89.5%	10.5%	75.5%	24.5%	83%	17%	89.5%	10.5%	77.5%	22.5%
Welfare indicators		Fore legs		Knee		Hock		Swelling of tendons / joints		Deformed limb			
		No lesions	Superficial	Absent	Present	No	Yes	No	Yes	Normal	Slight	Severe	
Species	Donkeys	75%	25%	22%	78%	40%	60%	8%	92%	10%	80%	10%	
	Mules	68%	32%	28%	72%	50%	50%	10%	90%	20%	72%	8%	
	Over all	71.5%	28.5%	25%	75%	45%	55%	9%	91%	15%	76%	9%	

observed in donkeys (90%) than in mules (80%) (Table 2).

CONCLUSION

Mules and donkeys are the most mistreated animals, cruelty is mostly common in shape of overloading, beating, burning, improper saddle and inappropriate husbandry, often forced to work long in harsh and extreme climate. Majority of them suffer from limb deformities and abnormalities of gait. Injuries were mostly found on girth, breast and withers. Moreover, they were kept on low quality, which ultimately lowers their work efficiency. Based on the above results and observations, mules and donkeys welfare needs priority which is not only for their well-being but will also improve the economic status of the owner.

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