

PERCEPTION OF VETERINARY OFFICERS, PASTORALISTS AND TRADITIONAL HEALERS ABOUT INCIDENCE OF DISEASES AMONG CAMELS

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ABSTRACT

The present investigation was conducted in arid zone of Rajasthan, India, with the objective to study status of animal health delivery services provided among pastoralist by organised and unorganised sector. This paper highlights only the perception of veterinary service providers and receivers about occurrences of different diseases among camels. Data were collected from 120 pastoralists that receive the veterinary service through 12 veterinary hospitals under organised system and 15 traditional healers, providing veterinary service under unorganised system. The finding revealed that mange was the more prevalent disease among camel and ranked first by veterinary officers, traditional healers and pastoralists followed by puncture foot and fracture. Gangrene in camels was found to be least occurred problem in the study area perceived by all of the respondents. All of the respondents were in consensus that fractures followed by surra and puncture foot cause great economic loss. The significant rank correlation was found between rank assigned to different camel diseases according to their frequency of occurrence and economic importance by veterinary officers, pastoralists and traditional healers.

Key words: Animal health service, camel, pastoralists; Rajasthan, veterinary officers

Camel is a multipurpose animal especially in desert areas. It is fact that in most part of the Asia camel population is continuously decreasing. Frequent epidemics of camel diseases inflicted major economic impact on camel herding pastoral communities. The exact causes of many of these illnesses still remain unknown. The recent outbreak of camel disease in Afar region Ethiopia has killed up to 500 camels (Yemenu, 2005). Diseases related economic losses have been estimated at US \$ 4 billion annually for Africa as a whole (Huhn and Baumann, 1996) and specific loss estimates are available for trypanosomiasis (Swallow, 1997) and tick born diseases (Mukhebi *et al*, 1992; Norval *et al*, 1992; de Vos, 1992). In order to reduce the prevalence of diseases and improving the animal health status, demand for animal health services is expected to rise continuously. The provision of animal health service in India is in the domain of public sector and many health services activities like quarantine, service during disease prevalence, quality control, research and extension are mainly the responsibility

of government (Singh *et al*, 1998). Catley *et al* (1998) reported that veterinary services are poorly developed in many developing countries and this situation is more evident in remote and dry land areas inhabited by pastoral and agro pastoral communities.

Materials and Methods

The present study has been conducted in 2 purposively selected Bikaner and Jaisalmer districts from arid zone of Rajasthan. Two tehsils were selected purposively on the basis of existence of large number of pastoralists from each district. Similarly four clusters of villages, each consisting 3 villages were identified from each tehsil on the basis of existence of large number of pastoralists.

Selection of villages

A comprehensive list of villages having veterinary hospitals was prepared from both the districts with the help of available reports from state animal husbandry department and other secondary sources. A cluster of 3 villages from each tehsil was

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selected on the basis of existence of more number of pastoral families. The distance between clusters of tehsils was approximately 40 to 50 kilometres in order to avoid any duplicity and uniformity in sampling. Thus a total of 12 villages have been identified in 4 clusters in 2 districts.

Selection respondents

Animal health service providers

Selection of traditional healers

Animal health service providers under unorganised sector were selected through school essay method used by Mc Corckle *et al* (1996) and Sutton and Orr (1991). Under present study, school essay method was modified according to situation. Firstly, one school in selected villages was contacted by the researcher and explained the students (up to 7 and 8th standard) about the need of their contribution in selection of animal health delivery workers. A number of questions were written on black board pertaining to question related to prevalence of disease among their livestock, to whom they prefer for treatment, disease outbreak etc. and questionnaire was also distributed among students. Afterward, students were given instructions for interviewing their parents for answers of these questions. Next day, essay was collected from students. Thus, animal health service providers under unorganised system were identified and all available ethnoveterinarians providing animal health service under unorganised sector within the radius of 20 km from the selected villages were selected for data collection. A total of 15 ethnoveterinarians were identified in selected villages.

Selection of veterinary officer

The villages comprises veterinary hospital were identified and 12 veterinary officers providing animal health services covering the areas about 350 kms for in total 12 selected villages were taken as respondents.

Selection of pastoral families

Ten pastoral families were selected randomly in selected villages owning large number of livestock and depended significantly on them as contributory family source of income were prepared. Thus a total of 120 pastoral families were selected from 12 selected villages for present study. Thus, a total of 120 pastoral families, 15 traditional healers and 12 veterinary officers were identified as respondents of the study.

Besides the interview schedule, qualitative and quantitative data were also collected through individual and group discussion, observation,

participatory interaction with pastoralists, students, veterinary officers and traditional healers. Departmental documents, records, reports, books, newspaper reports and other available literature were also consulted to collect secondary data on different parameters. The collected data were compiled, tabulated and analysed statistically by using spearman rank correlation coefficient.

Spearman rank order correlation coefficient

It is non-parametric measure of correlation, which determines the degree of association of variables on ordinal scale. In present study, it was used to measure the correlation among rank provided by respondents to different diseases according to their frequency of occurrence and economic importance. Higher correlation value indicated more similar perception of respondents.

$$\rho_s = 1 - \frac{6 \sum d_i^2}{N^3 - N}$$

Where,

- ρ_s = Spearman rank correlation coefficient
- d_i = difference between the rank at *i*th place
- N = Number of total observations or subjects

Results and Discussion

Perception regarding occurrence of diseases/ ailments among camels

Spearman rank assigned to various prevalent camel diseases according to their frequency of occurrence by the veterinary officers, pastoralists and traditional healers is given in the Table 1. It clearly indicates that mange was the more prevalent disease among camel and ranks first by veterinary officer traditional healers and pastoralists followed by foot puncture and fracture. Gangrene in camels was found to be least occurred problem in the study area perceived by all of the respondents. Surra, mange and diarrhoea were found as major health problem. The study further revealed that high incidence of trypanosomiasis (Surra) caused economical and biological losses to pastoralists in both of districts. Besides these, mandible fracture, foot puncture and colic were also reported in camels. Tandon *et al* (1997) also reported that surra (Trypanosomiasis) as one of the prevalent diseases spread in camel herd of village of Bikaner district. Similarly, mange was reported as an acute problem among camels. Bhakat and Sahani (1999), however, reported skin infections (dermatitis) as first followed by surra, general fever, respiratory

and other digestive problems as prevalent diseases among camels of Bikaner district. Rajput and Tripathi (2002) reported that majority of camels (43.65%) were affected from surra followed by mange (26.98%) in Bikaner district of Rajasthan.

The significant rank correlation was found between rank assigned to different camel diseases according to their frequency of occurrence by veterinary officers and pastoralists ($r= 0.738^*$) and pastoralists and traditional healers ($r= 0.905^{**}$). It may be due to the fact that pastoralists generally contact veterinary officers as well as traditional healers for treatment of camel diseases.

Ranking of diseases according to their economic importance among camel

The data in Table 2 indicates rank given by respondents to various camel diseases and disorders according to their magnitude of economic importance. All of the respondents were in consensus that fractures followed by surra and foot puncture cause great economic loss because fractured camel is useless for carting and breeding purposes. On the other hand gangrene was given as lowest rank in terms of economic loss because of that it does not has direct and immediate effect on animal production and working capacity. It was further observed that almost similar rank was assigned by all of the respondents for different camel diseases with a view of their impact on economy of camel owners.

In another study, trypanosomiasis was reported to be 1.44 per cent with the lowest prevalence during the dry season (7.4 per cent) and the highest during the rainy season (76 per cent). This seasonal pattern

of camel trypanosomiasis was also reported by Yagi and Razig (1972) in the Sudan and Gruvel and Balis (1965) in Chad. This was attributed to the seasonal abundance of tabanidae, the insects most capable of mechanical transmission of *T. evansi* (Mahmoud and Gray, 1980). Mochabo *et al* (2005) revealed that camel trypanosomosis is still an important disease in Turkana district leading to a high morbidity and mortality thus causing severe economic losses this arid district of Kenya.

Mange, the most prevalent clinical condition encountered in camels in eastern Sudan, was confirmed by the successful demonstration of the causative mite (*Sarcoptes scabie*) in skin scrapings taken from affected animals. Other workers (Kumar *et al*, 1992) had also observed the seasonal pattern of camel mange as recorded in this study. Close contact and gathering of camels late in the summer, particularly at watering points, could be responsible for increased exposure during late summer and the early weeks of the rainy season. The lower prevalence of mange during the summer could be due to high ambient temperature possibly leading to reduction in the activity of mite (Rathore, 1971).

The rank correlation was found significantly ($P<0.01$) high between veterinary officers and pastoralists, veterinary officers and traditional healers ($r= 0.976^{**}$) and pastoralists and traditional healers ($r= 1^{**}$) for ranking of different camel diseases according to their economic importance. It indicates that all the 3 stakeholders have similar perception about the diseases. It also indicates that all the stakeholders are aware about impact of different camel diseases on economy of livestock owners.

Table 1. Ranking based on frequency of occurrence of disease/ ailments among camels.

Disease	Rank based on frequency of occurrence		
	Veterinary officers (a)	Pastoralists (b)	Traditional healers (c)
Mange	1	1	1
Surra	4	6	6
Fracture (mandible/leg)	3	5	7
Foot puncture	2	3	3
Diarrhoea	6	4	4
Pneumonia	7	7	5
Indigestion	5	2	2
Gangrene	8	8	8

$P_{ab} = 738^*$

$P_{ac} = .548$

$P_{bc} = .904^{**}$

Table 2. Ranking based on economic importance of disease/ ailments among camels.

Disease	Rank based on economic importance of diseases		
	Veterinary officers (a)	Pastoralists (b)	Traditional healers (c)
Mange	4	4	4
Surra	2	3	3
Fracture	1	1	1
Foot puncture	3	2	2
Diarrhoea	7	7	7
Pneumonia	6	6	6
Indigestion	5	5	5
Gangrene	8	8	8

$P_{ab} = .976^{**}$

$P_{ac} = .976^{**}$

$P_{bc} = 1^{**}$

Conclusions

The study concluded that mange and surra were most prevalent diseases according to frequency of occurrence and economic importance. Frequent interaction between veterinary service providers and service receivers for treatment of diseases affect the perception of respondents about occurrence of diseases among livestock. There is still need to make epidemiological survey to identify zone specific diseases among camels because most of the camel pastoralists resides in more scattered areas, hence it is very difficult to find out exact data about morbidity and mortality of camel population affected from different diseases. Participatory mode of approach with local camel pastoralists, traditional healers, paravets and NGO's would be valid techno-tools for identifying camel diseases under such areas.

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