



Preparedness Towards Sheep Health Care - An Exploratory Study Among Shepherds in Southern State of India

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ABSTRACT

Sheep husbandry is a low-investment sustainable enterprise yielding reasonably high rates of return. However, sustainability of the farm depends upon efficient management of sheep by the farmer which ultimately depends on the farmers' socio-economic situation along with knowledge and attitude towards the recommended practices. Keeping in view of farmers' role in success of any livestock farm, an exploratory study was conducted among 180 shepherds of Prakasam and Nellore districts of Andhra Pradesh to assess shepherds preparedness towards sheep health care with specific reference to vaccination. Majority of shepherds were middle aged, illiterates and belonged to Backward Caste. An index was developed to measure the farmers preparedness towards sheep health care with specific reference to vaccination through weighted mean score method which comprised of seven components viz awareness and knowledge about sheep diseases, perception on the probability of occurrence of sheep diseases, attitude towards sheep health care practices, information seeking behaviour, risk management behaviour and scientific orientation. It was interesting to note that majority of shepherds possessed medium level of preparedness towards sheep health care with specific reference to vaccination. Significant relation was found at 5% ($p < 0.05$) level between shepherds preparedness and the variables socio-economic status and purpose of rearing sheep. Whereas, characteristics social participation, extension contact, availability and accessibility of vaccines and veterinary services along with affordability and decision-making ability were found significantly related with preparedness of shepherds at 1% ($p < 0.01$) level.

Keywords: Preparedness index; Shepherds; Vaccination

Received 01.08.2017

Revised 09.08.2017

Accepted 29.08.2017

INTRODUCTION

In India, livestock is the major source of income for most of the rural people after crop production which has contributed one quarter of the total output in agriculture, fisheries and forestry (DAHDF & SAPPLPP 2015). Sheep and Goat contribute 40 per cent of the livestock population in India and form the backbone of rural livelihoods for resource poor families often providing them with much needed cash especially in arid and semi arid regions and ranks 3rd in sheep population next to China and Australia and is placed at the 7th position among the top 10 countries of the world in terms of mutton and wool production. The meat production of indigenous sheep is 237.6 MT and occupies first position among SAARC countries (FAO 2013). In Andhra Pradesh, sheep farming plays a crucial role at both the national and household level and has been identified as critical to the overall economic and social development. In Andhra Pradesh sheep population was 26.39 million constituting 40.57 per cent of India's sheep population and ranks first in the country and producing 198.82 MT of meat, out of total meat production of 441.14 MT in India (Ministry of Agriculture, Govt. of India 2012-2013). In Andhra Pradesh, most of the sheep production is in the hands of traditional shepherd community or economically weaker sections of the society under traditional extensive system of rearing which is influenced by agro-climatic conditions and rigors of nature (Rajanna *et al.* 2012). Sheep husbandry is a low-investment sustainable enterprise yielding reasonably high rates of return. The sheep are valued for both mutton and wool production, although sheep productivity in terms of both is low. The reasons for low productivity of sheep are poor exploitation of genetic potential of native stock, inadequate feed resources, nutritional deficiency, heat stress, poor health monitoring, inadequate marketing and credit support to sheep owners (Khan *et al.* 2002). Moreover, animal diseases are still a major constraint on economic growth, reduction of poverty and food security. Animal diseases generate a wide range of biophysical and socio-economic impacts that

may be both direct and indirect, and may vary from localized to global (Perry and Sones 2009). The loss of even a single animal has a significant and sometimes crippling effect on a family (Wallace *et al.* 2014). Diseases in sheep adversely affect the production performance of the animals and in turn, the net profit. Health care is given little attention and the sick animals are generally treated using indigenous medicines. Moreover many studies revealed that disease out-breaks cause major losses to the sheep farmer and hence, preventive sheep health care practices play major role in safeguarding the farmer against such losses. A highly effective way of controlling infectious diseases is through vaccination. Regular vaccination which is an integral part of preventive sheep health care against important diseases of sheep could reduce the mortality. This has obvious implications for shepherds to raise the need for early diagnosis and detection of diseases along with increased awareness and preparedness to tackle the disease out breaks. Thus, the present study attempted to explore the farmers' preparedness towards sheep health care with specific reference to vaccination.

METHODOLOGY

The present study was conducted in Prakasam (located at 15°20'N latitude, 79°33'E longitude) and Nellore (located at 14°26'N latitude, 80°0'E longitude) districts of Andhra Pradesh State (located at 16°50'N latitude, 80°64'E longitude). A total of 180 shepherds who were having at least 50 sheep were selected from 18 villages of six mandals of two districts through multistage sampling and interviewed through direct interview method.

Development of farmers preparedness index:

Identification and selection of components

Identification of characteristics/attributes that may influence the farmers preparedness was carried out through detailed analysis of literature and about 11 components were selected through discussion with experts in the field of Veterinary and Animal husbandry Extension. Based on the preliminary discussion, 11 components were selected considering the situation existed in the region.

Relevancy rating of the components

The list of components with detailed instructions were sent to the judges i.e. extension specialists of different universities. The judges were asked to indicate degree of relevance for each component on a 3 point continuum ranging from most relevant, relevant and least relevant with respective weightages of 3, 2 and 1 to measure the shepherds' preparedness. Out of 40 judges to whom mailed questionnaire was sent, 35 gave their responses and the score of three responses of 35 judges for each item were added and divided by the number of judges to arrive at the overall weighted mean i.e., 2.401. The items whose means were equal or above overall mean score of 2.401, were finally selected to constitute the farmers' preparedness index (Table 1).

Table 1: List of selected components selected by weighted mean score method

S. No	COMPONENTS	WEIGHTED MEAN SCORE
1.	Awareness about sheep diseases	2.846*
2.	Knowledge about sheep diseases	2.615*
3.	Perception on the probability of occurrence of Sheep diseases	2.740*
4.	Adoption of sheep health care practices	2.115
5.	Attitude towards sheep health care practices	2.461*
6.	Attitude towards veterinarian / para veterinarian	2.076
7.	Information seeking behaviour of sheep farmer	2.484*
8.	Risk management behaviour of farmer	2.507*
9.	Achievement motivation of farmer	2.000
10.	Cosmopolitaness of livestock farmer	1.807
11.	Scientific orientation of farmer	2.446*

* Components selected for the study

Farmers preparedness index has been arrived as follows:

Total score of attributes for

all judges

Overall mean score = -----

Total no. of attributes x Total no. of judges

Total score of each attributes

Mean score of each attribute = -----

Total no. of judges

Thus an Index was developed to measure shepherds' preparedness toward sheep health care with specific reference to vaccination which includes awareness about sheep diseases, knowledge about sheep diseases, perception on the probability of occurrence of sheep diseases, attitude towards sheep health care practices, information seeking behaviour, risk management behaviour and scientific orientation.

A pre-structured interview schedule was developed in consultation with Veterinary and Animal Husbandry Extension Education experts to collect the necessary data from identified shepherds and they were categorised into three groups based on flock size viz., small (66-231), medium (232-397) and large (398-562). The data were entered in the computer using the software SPSS 15.0 and processed.

RESULTS AND DISCUSSION**Socio-personal and economic characteristics of shepherds:**

Socio-personal and economic characteristics of shepherds were studied in terms of age, socio economic status, social participation, training received and extension contact and the findings were represented in Table 2.

Majority of the shepherds of the study area were middle aged (60.56%) and illiterates (74.44%) and belonged to Backward Caste (71.11%). Similar results were observed by Rajanna *et al.* (2012) and Kandasamy *et al.* (2006). For all the farmers, sheep farming was the main occupation as also reported by Thilakar and Krishnaraj (2010), Kuldeeporwal *et al.* (2006) and Thiruvankadan *et al.* (2004), whereas, dairy farming was taken up as subsidiary occupation. The study indicated that 62.22 per cent of the shepherds had medium experience in sheep farming and they might be continuing it being their traditional caste occupation and also they had experienced it as a remunerative livelihood. These findings are in accordance with Rajanna *et al.* (2012) and Anandarao (2010).

More than three fourth (87.22%) shepherds had small flock size (66-231) and 81.11 per cent shepherds had annual income of Rs.50,000-1,66,670 and nearly three fourth (77.22%) were landless farmers. These findings are in line with the findings of Thilakar and Krishnaraj (2010), Kandasamy *et al.* (2006) and Rajapandi *et al.* (2005) who reported that majority of the shepherds were landless and marginal farmers. Only 11.11 per cent of the shepherds had training in sheep farming and three fourth (75%) of the shepherds possessed medium extension contact. Whereas, more than three fourth (83.89%) of the shepherds did not have any social participation. These findings are in consonance with the findings of Thilakar and Krishnaraj (2010).

Table 2: Socio-personal and economic characteristics of shepherds

S.No	Parameter	Small farmers (n=157)	Medium farmers (n=15)	Large farmers (n=08)	Total farmers (n=180)
1.	Age				
	Young (19-34 years)	26 (16.56)	01 (06.67)	00 (00.00)	27 (15.00)
	Middle (35-50 years)	95 (60.51)	08 (53.33)	06 (75.00)	109 (60.56)
	Old (51-65 years)	36 (22.93)	06 (40.00)	02 (25.00)	44 (24.44)
2.	Socio-economic status				
	1.Caste				
	Open category (OC)	17 (10.83)	01 (06.67)	01 (12.50)	19 (10.55)
	Backward Caste (BC)	108 (68.79)	13 (86.66)	07 (87.50)	128 (71.11)
	Scheduled Caste (SC)	20 (12.74)	01 (06.67)	00 (00.00)	21 (11.67)
	Scheduled Tribe (ST)	12 (07.64)	00 (00.00)	00 (00.00)	12 (06.67)
	2.Education				
	Illiterates	117 (74.52)	13 (86.66)	04 (50.00)	134 (74.44)
	Can read only	00	00	01	01

	Can read & write	(00.00)	(00.00)	(12.50)	(00.56)
	04	04	01	01	06
	Primary School	(02.55)	(06.67)	(12.50)	(03.33)
	07	07	00	01	08
	Middle School	(04.46)	(00.00)	(12.50)	(04.44)
	10	10	01	01	12
	High School	(06.37)	(06.67)	(12.50)	(06.67)
	16	16	00	00	16
	Intermediate	(10.19)	(00.00)	(00.00)	(08.89)
	03	03	00	00	03
	3.Occupation	(01.91)	(00.00)	(00.00)	(01.67)
	Main (Sheep farming)				
	Subsidiary	157	15	08	100
	Dairy farming	(87.22)	(08.33)	(04.45)	(100.00)
	47	47	02	01	50
	Agriculture	(29.94)	(13.33)	(12.50)	(27.78)
	18	18	02	01	21
	Agriculture labour	(11.46)	(13.33)	(12.50)	(11.67)
	10	10	00	00	10
	Only sheep farming	(06.37)	(00.00)	(00.00)	(05.55)
	82	82	11	06	99
	4.Land holding	(52.23)	(73.34)	(75.00)	(55.00)
	Land less				
	(0 acres)	121	12	06	139
	Marginal farmers	(77.07)	(80.00)	(75.00)	(77.22)
	(0-2.5 acres)	32	02	02	36
	Small farmers	(20.38)	(13.33)	(25.00)	(20.00)
	(2.5-5 acres)	04	01	00	05
	Large farmers	(02.55)	(06.67)	(00.00)	(02.78)
	(> 5 acres)	00	00	00	00
	5.Experience in sheep farming	(00.00)	(00.00)	(00.00)	(00.00)
	Low				
	(< 11years)	41	02	03	46
	Medium	(26.11)	(13.33)	(37.50)	(25.56)
	(bet11-31years)	99	08	05	112
	High	(63.06)	(53.33)	(62.50)	(62.22)
	(> 31years)	17	05	00	22
	6.Income	(10.83)	(33.33)	(00.00)	(12.22)
	Low				
	(50000-166670)	145	01	00	146
	Medium	(92.36)	(06.67)	(00.00)	(81.11)
	(166671-283340)	12	13	00	25
	High	(07.64)	(86.67)	(00.00)	(13.89)
	(283341-400000)	00	01	08	09
	Social participation	(00.00)	(06.67)	(100.00)	(05.00)
3.	Yes				
	21	21	06	02	29
	No	(13.38)	(40.00)	(25.00)	(16.11)
	136	136	09	06	151
4.	Training received	(86.62)	(60.00)	(75.00)	(83.39)
	Yes				
	16	16	02	02	20
	No	(10.19)	(13.33)	(25.00)	(25.00)
	141	141	13	06	160
5.	Extension contact	(89.81)	(86.67)	(75.00)	(75.00)
	Low				
	(< 06)	12	01	01	14
	Medium	(07.65)	(06.67)	(12.50)	(07.78)
	(bet 6-11)	123	08	04	135
	High	(78.34)	(53.33)	(50.00)	(75.00)
	(> 11)	22	06	03	31
	(14.01)	(14.01)	(40.00)	(37.50)	(17.22)

Purpose of rearing sheep:

It was evident from the table 3 that all the shepherds mentioned that sheep rearing was their main livelihood and among which for three fourth of the (70%) shepherds it was their caste occupation. These findings are in consonance with the findings of Rajanna *et al.* 2012; Thilakar and Krishnaraj 2010; Kuldeeporwal *et al.* 2006 and Thiruvenkadan *et al.* 2004. The farmers might found sheep farming as remunerative and hence continued the traditional caste occupation.

Table 3: Purpose of rearing sheep as mentioned by the shepherds

S.No	Statements	Responses n=180		
		Agree	Undecided	Disagree
1	As a livelihood earning enterprise	180 (100.00)	00 (00.00)	00 (00.00)
2	As an alternative to agriculture during non agricultural days	40 (22.22)	30 (16.67)	110 (61.11)
3	As a combination with agriculture to earn income	41 (22.77)	30 (16.67)	109 (60.56)
4	Has passion for sheep rearing	01 (00.56)	13 (07.22)	166 (92.22)
5	Caste / community / traditional occupation	126 (70.00)	00 (00.00)	54 (30.00)

(Figures in parenthesis indicate percentage)

Shepherds Preparedness towards sheep health care with specific reference to vaccination:

Majority (77.71%) of small category shepherds followed by 73.33 and 50 per cent of medium and large category of shepherds had medium level of preparedness towards sheep health care practices (Table 4). This trend representing shepherds plan of future farming activities.

It was also stated by Karimuribo *et al.* (2011) that preparedness from both farmers and veterinarian side is having its importance in dealing with disease out-breaks.

Table 4: Distribution of shepherds according to preparedness towards sheep health care with specific reference to vaccination

S.No	Parameter	Small farmers (n=157)	Medium farmers (n=15)	Large farmers (n=08)	Total farmers (n=180)	Mean	Standard deviation
1.	Farmers preparedness						
	Low (< 184)	19 (12.10)	01 (06.67)	02 (25.00)	22 (12.22)	196.367	12.402
	Medium (bet184-208)	122 (77.71)	11 (73.33)	04 (50.00)	137 (76.11)		
	High (> 208)	16 (10.19)	03 (20.00)	02 (25.00)	21 (11.67)		

(Figures in parenthesis indicate percentage)

Factors affecting shepherds preparedness towards sheep health care with specific reference to vaccination:

Several factors affect and contribute towards shepherds preparedness with regard to sheep health care. Hence, the relationship between profile characteristics and preparedness towards sheep health care with specific reference to vaccination has been calculated through Correlation coefficient.

Among the total shepherds, social participation, extension contact, availability and accessibility of vaccines and veterinary services along with affordability and decision-making ability were positively and significantly correlated with preparedness towards health care practices at 0.01 level of significance. Whereas, variables socio-economic status and purpose of rearing sheep were found significantly related with preparedness towards health care practices at 0.05 level of significance (Table 5).

Table 5: Correlation coefficient between shepherds profile characteristics and preparedness towards sheep health care with specific reference to vaccination

S.No	Variable	Correlation coefficient (r)			
		Category of shepherds			
		Small (n=157)	Medium (n=15)	Large (n=08)	Total (n=180)
1	Age	0.066 NS	-0.244 NS	0.680 NS	0.081 NS
2	Gender	-0.074 NS	a	a	-0.079 NS

3	Socio-Economic status	0.204 *	0.141 NS	0.781*	0.191*
4	Purpose of rearing sheep	0.103 NS	0.647**	0.613 NS	0.150*
5	Social participation	0.150 NS	0.165 NS	0.803*	0.207**
6	Extension contact	0.486**	0.387 NS	0.436 NS	0.469**
7	Training received	-0.055 NS	0.642**	0.803*	0.044 NS
8	Availability and accessibility	0.488**	-0.045 NS	0.568 NS	0.480**
9	Affordability	0.492**	0.511 NS	0.776*	0.510**
10	Decision making Ability	0.204**	0.099 NS	0.155 NS	0.203**

*Correlation significant at 0.05 level of probability

**Correlation significant at 0.01 level of probability

NS = Non Significant

a = cannot be computed because this variable is having similar values

Shepherds with more socio-economic status, social participation, extension contact and with more affordability will enable the shepherds to have more information and enrich them with the knowledge and importance of preparedness towards sheep health care practices with specific reference to vaccination.

CONCLUSION

The study conducted in Prakasam and Nellore districts of Andhra Pradesh revealed that majority of shepherds having medium level of preparedness towards sheep health care. This kind of shepherds can act as catalysts in motivating other shepherds through interpersonal networks. Traditional sheep rearers can be targeted more towards adoption of recommended scientific health care practices through intensive extension education efforts, which in turn lead to yield higher returns in terms of improved flock size, disease free flock, decreased investment on curative measures, saving of time, disease free and quality meat whose demand is on the raise locally as well as internationally.

ACKNOWLEDGEMENTS

The authors wish to thank the farmers of Prakasam and Nellore districts, who greatly cooperated and provided the data for this study. This study is a part of Post Graduation research work conducted under the support of Sri Venkateswara Veterinary University, Tirupati, Andhra Pradesh state, India and we thank for the immense support which is gratefully acknowledged.

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CITATION OF THIS ARTICLE

Mastanbi Shaik, B Subrahmanyeswari And G R K Sharma Preparedness Towards Sheep Health Care - An Exploratory Study Among Shepherds in Southern State of India. *Bull. Env. Pharmacol. Life Sci.*, Vol 6 Special issue [3] 2017: 221-227