



Socio Economic Determinants Along with Extension and Traditional Medicine Using Factors Among Livestock Farmers of Central Kashmir

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DOI: 10.31080/ASVS.2022.04.0362

Received: March 01, 2022

Published: March 23, 2022

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Abstract

The objective of the study was to explore the extension contacts in addition to the traditional medicine usage by the livestock farmers. The present study was carried out in Central Kashmir region of Jammu and Kashmir State that comprises of three districts namely Budgam, Ganderbal and Srinagar. A total of 180 dairy livestock farmers were selected for the present study. The purpose of the study was to inquire about extension contacts and the factors determining the use of traditional medicines by livestock farmers. The majority of respondents (63.89%) were males, belonging to middle age (58.33%) group, were illiterate (63.33%) and having pucca house (42.78%). Majority of farmers were having small herd size with medium level of informal and low level of formal extension contacts. Mass media exposure related to livestock rearing practices was very poor and major agency of linkage to the farmers was veterinary hospitals and least was the KVK and research institutes. The knowledge about the Traditional Medicines (TM) for livestock rearing was mainly disseminated with family members and neighbours. Farmers were partially dependent on the traditional medicines for treating their animals and these TM were found to be moderately reliable with majority of farmers inclined towards formal veterinary treatments. The extension contacts and the mass media exposure of the farmers need to be improved through different means by their active engagement for better production results.

Keywords: Extension Contacts; Mass Media; Linkage; Veterinary Services; Traditional Medicines

Introduction

The scenario of livestock farmers in both developed and developing countries is degrading continuously. Farmers are not able to keep pace with changing trends, and a large section of farmers are leaving the livestock farming sector and exploring other areas for earning livelihood to meet their daily needs [30]. In the era of globalization, effective, reliable, and quick transfer of improved technologies towards the end-users is advantageous in improving agricultural productivity [22]. Many programmes have been launched from time to time to improve traditional agriculture and

programmes through different extension system have always a pivotal position in deciding the technologies to the targeted population (farmers) at gross root level [10]. In spite of the large number and diversity, livestock are not utilized to their full potential due constraints faced by farmers in terms of feeding, breeding, health and management [14]. India's huge livestock resources are poorest in the world when it comes to productivity because this sector has remained under-invested and neglected by the financial and extension institutions [5]. This sector is facing many challenges in terms of less outreach to farmers, less allocation of funds and neglect

from policy makers and livestock related diseases being the major challenge among all [26]. Veterinary extension is an important tool in achieving changes in animal production, which has been created and recreated, adopted and developed over the centuries and for the dissemination and application of research results in order to improve animal production and health, including food safety [10]. The technologies developed at various research institutes will be useful only when they are adopted by the farming community [22]. With increase in population, improved livelihood and changing lifestyle demand for livestock service delivery is also emerging. Among various services, an effective and efficient animal health care service delivery system is of paramount importance [24]. Extension in today's Indian context includes the agencies in private, public NGO's and community based initiatives that provide range of Agricultural activities. Major constraints in livestock breeding service delivery are the unavailability of the information, unawareness about extension activities and lack of training programmes [16]. There are many constraints to the extension and extension services which hinder the job performance of the extension personnels [11]. Due to constraints in availing conventional veterinary facilities the farmers rely on the traditional medicines as first aid for treatment. Traditional medicines play a significant role in the lives of rural people, particularly to small and marginal farmers in risky and remote areas. Despite the most recent technological advancements and breakthroughs, the farming community maintains a strong belief in their traditional medicinal knowledge [27]. The people living in far flung areas, remain cut off for many months at a stretch and have to rely on the nearby locally available medicinal plants to cure various diseases [19]. In order to address the various technical, advisory and financial needs of different livestock production systems and species an entirely differentiated approach of providing extension education and input services is the need of the hour. There is also need of the documentation and validation of the traditional medicinal practices availed by farmers in livestock rearing.

Materials and Method

Study area

The present study was carried out in Central Kashmir region of Jammu and Kashmir State that comprises of three districts namely Budgam, Ganderbal and Srinagar. For the present study two blocks from each of the above districts were purposively selected based on the presence of the traditional farmers. On similar grounds from each of the block chosen two villages were selected purpo-

sively that made a total of 12 villages for the study. Finally from each selected village 15 livestock farmers were chosen by snowball sampling with the condition that respondent must be rearing at least one livestock unit. Thus, a total of 180 livestock farmers/respondents were selected and interviewed on various identified variables based on the objectives of the study.

Data collection method

The survey was conducted on the basis of the pre-formed interview schedule that was formed in consultation with the experts and was pre-tested in the non-sampling area for better results. The farmers were personally interviewed in fields and homes as per their availability based on the various parameters of the study.

Data analysis

For analysis of the data SPSS software application was used to conduct the chi square test to determine the statistical significance between the three districts of the study area. Kruskal-wallis analysis was used for comparing some variables of the study.

Results and Discussion

Socio- economic profile

The findings (Table 1) related to socio-economic profile of the reveals that majority of respondents (63.89%) were males belonging to general category living in nuclear families. An appreciable percentage of livestock respondents were belonging to middle age (58.33%) group of 40-60 years, were illiterate (63.33%) and having pucca house (42.78%). The major age group that takes care of livestock has probably the qualities of both youth in the form of enthusiasm and experience of the old. The results are similar to the findings of [9,20,21,28] who found that majority of the traditional farmers were of the middle age group in their respective study areas. The results pertaining to gender indicate that majority of the respondents were males. This can be explained on the basis that a large proportion of the livestock is mainly held in migratory system where males have dominant role. Besides due to the conservative nature of the society, males are more prone to selection under snowball sampling followed in the study.

The results also revealed that huge majority of the respondents (91.11%) were marginal farmers having land holding of less than 2.5 acre and were doing mixed type of farming (95.00). However [9,20,29] in their respective study found that majority of the traditional farmers have medium land holdings. The main occupation of the majority of the respondents (50.56%) was doing labour work

Variable	Categories	Frequency (%)	Chi square value
Age	Young (20-40) yrs.	40 (22.22)	38.15 (P < 0.01)
	Middle (40-60) yrs	105(58.33)	
	Old (< 60) Yrs	35 (19.44)	
Gender	Male	115 (63.89)	6.89 (P= 0.931)
	Female	65 (36.11)	
Caste	General	100 (55.55)	19.31 (P < 0.01)
	OBC (other backward classes)	31 (17.22)	
	SC (schedule caste)	0 (0.00)	
	ST (Schedule tribe)	49(27.22)	
Family type	Joint	78 (43.33)	2.851 (P=0.240)
	Nuclear	102 (56.6)	
House type	Kaccha	64 (35.56)	25.421 (P < 0.01)
	Pacca	62 (34.44)	
	Mixed	54 (30.00)	
Land holding	Landless	8 (4.44)	18.341 (P < 0.01)
	Marginal (< 2.5acres)	164 (91.11)	
	Small (2.5-5.0 acres)	8 (4.44)	
Production system	Stationary	92 (51.11)	1.245 (P=.537)
	Migratory	88(48.89)	
Type of farming	Only livestock	9 (5.00)	2.105 (P=.349)
	Mixed	171 (95.00)	
Education	Illiterate	114 (63.33)	24.387 (P < 0.01)
	Primary	17(9.44)	
	Middle	28(15.50)	
	High	12(6.67)	
	Intermediate	7(3.89)	
	Graduate	1(0.56)	
	Postgraduate	1(0.56)	
Occupation	Agriculture	15 (8.33)	18.64 (P < 0.01)
	Livestock rearing	7(3.89)	
	Business	38(21.11)	
	Labour	91 (50.56)	
	Govt. service	29 (16.11)	
Income (monthly) In rupees	Low (1000-12999)	161 (89.44)	40.191 (P < 0.01)
	Medium (13000-24999)	14(7.78)	
	High (25000-36999)	5 (2.78)	

Table 1: Socio-economic profile of the livestock farmers of the central Kashmir (N = 180).
(Figures in parenthesis indicate percentage) (P value statistical significant at level of P < 0.05).

followed by business (21.11%) and government service (16.11%). The monthly income of the majority (84.44%) was in low range of 1000-12999 rupees. The results were inconsistent with the findings of Roa, *et al.* [20]. All the socio-economic characteristics considered were found to be highly significant ($p < 0.01$) except gender, family type, production system and type of farming were not showing any significant difference between the three districts. The results regarding the socio-economic parameters were in agreement with the results of the [12,19].

Herd size

It is the total number of livestock (cattle, buffalo, sheep, goat etc.) possessed by the farmer at the time of investigation. On this basis of result obtained the respondents were categorized into three categories namely small, medium and large. Majority of respondents as presented in table 2 were having small herd size followed by medium and large. The 80 percent respondents were having 0-4 cattle, 88.89 percent were having sheep and goat in range of 0-19. The possession of the herd size of up to 4 cattle by livestock farmers of the Kashmir was also reported by Kumar and Nain [12] in their study. The horse and buffalo were reared by least number of respondents in the study area. According to the topography and the climatic conditions the buffaloes are not suited to this area and horses are only reared by the tribal people who live in high altitudes for carrying load to these inaccessible places. The least preference to buffalo rearing in Kashmir was also reported by Dar, *et al.* [6].

Species	Herd size		
	Small	Medium	Large
Cattle	0-4 cattle	5-9 cattle	> 10 cattle
	144 (80.00)	33 (18.33)	3 (1.67)
Sheep and goat (S and G)	0-19 S and G	20-39 S and G	> 40 S and G
	160 (88.89)	16 (8.86)	4 (2.22)
Horse	0 Horse	1 Horse	2 Horse
	144 (80.00)	33 (8.33)	3 (1.67)
Buffalo	0 Buffalo	1 Buffalo	> 1 Buffalo
	164 (91.11)	11 (6.11)	5 (2.77)

Table 2: Herd size of the livestock farmers of the study area (N = 180).

(Figures in parenthesis indicate percentage).

Communication pattern adopted by livestock farmers

The communication channels are important for bringing any change in knowledge, awareness, behavior and attitude of the people. In rural areas the access and availability of communication channels can affect the working system and livelihood earning pattern of the people. In the present study the informal extension contact of majority of respondents (45.00%) were found to be of medium level with highest contact with the family members among the individual informal extension sources (Table 3). Majority of the livestock respondents (45.00%) were having medium level of extension contacts with informal extension sources (Table 3). And among the various informal extension sources the highest contact of respondents was found with family members (88.33%). The formal extension contact of majority of farmers (67.01%) were found to be low level. Livestock assistants (LSA) were reported as major formal agency of extension contact with the farmers. The results can be supported by the fact that LSA's are always called whenever there is any need of livestock based service as they are easily available and charge less for the services provided. Similar results were found by De [23]. Among all the formal extension agencies the highest extension contact of farmers were with the Livestock Assistants followed by the KVKs (Krishi Vigyan Kendra) or farmer's science centers. The results are in contradiction to the Ajrawat B., *et al.* [3] who found in their study that there is low level of knowledge in respondents regarding KVK's and their programmes. None of the respondents were having any extension contacts with NGO's (Non-Government Organizations). The Non-formal extension contacts were varying significantly between the three districts ($P < 0.01$) except the information contacts with the family members. Formal extension contacts were varying significantly ($P < 0.01$) between the three districts except livestock assistants, bank officials and Dairy cooperatives.

Mass Media exposure of the livestock farmers

Results in table 4 divulge that majority of respondents (65.7%) were not having any mass media exposure related to livestock rearing practices. Among the different mass media sources radio was the main source utilized by farmers regarding the information related to livestock rearing followed by T.V, newspapers, kissan me-la's and journals. The radio was found to be major source of mass media information among respondents as farmers can listen to it while doing their work. The medium level of the mass media expo-

Parameter	High	Medium	Low	Chi square value (P Value)
Informal extension contacts				
Family	159 (88.33)	21 (11.67)	0 (0.00)	2.264 (P= 0.322)
Neighbor	89 (49.44)	91 (50.55)	0 (0.00)	17.8 (P < 0.01)
Friend	28 (15.56)	133 (73.89)	19 (10.55)	18.54 (P < 0.01)
Progressive farmers	19 (10.55)	117 (65.00)	44 (24.44)	21.05 (P < 0.01)
Private vets.	0 (0.00)	43 (23.89)	137 (76.11)	24.24 (P < 0.01)
Overall Average	59 (32.77)	81 (45.00)	40 (22.22)	
Formal extension contacts				
Veterinary officer	10 (5.56)	59 (32.78)	111 (61.67)	24.04 (P < 0.01)
LSA	130 (72.22)	50 (27.78)	0 (0.00)	3.71 (P = .156)
KVK	4 (2.22)	130 (72.22)	46 (25.56)	19.56 (P < 0.01)
Research institutes	3 (1.67)	48 (26.67)	129 (71.67)	22.61 (P < 0.01)
Dairy cooperatives	0 (0.00)	12 (6.67)	168 (93.33)	3.750 (P = 0.153)
Bank officials	0 (0.00)	7 (3.89)	173 (96.11)	4.567 (P = 0.93)
NGO	0 (0.00)	0 (0.00)	180 (100.00)	-
Overall Average	18.30 (10.22)	41 (22.77)	120.62(67.01)	

Table 3: Informal and formal extension contacts of the livestock farmers of the study area (N = 180).
(Figures in parenthesis indicate percentage) (P value statistically significant at level of P < 0.05)

sure among livestock farmers was also reported by Bhatt and Patel, [4]. The results of the study were contradictory to the findings of Rajesh., *et al.* [16] who found the mass media exposure of farmers was medium and T.V was the main medium used for mass media exposure in their study in Haryana. Moreover majority of farmers have low monthly income and were illiterate so were not able to afford T.V sets and fully understand other sources of mass media exposure. Further as the majority of farmers were illiterate so were not able to read the newspapers, journals etc. The exposure to mass media was varying significantly between three districts (P < 0.01) except in case of journals.

Conventional veterinary services available

The availability and accessibility of formal veterinary services to farmers is increasing with each passing day through the efficient services from the government and other agencies. The results in table 5 show that majority of the respondents (83.33%) reveal the presence of veterinary dispensary in nearly the villages. The distance travelled to the nearest veterinary dispensary was greater than 2 km for majority (41.67%) of respondents. 58.33 percent of respondents expressed the difficulty in their access to formal

veterinary services while a majority of them (52.22%) were not availing these facilities on regular basis (sometimes only). Among the different districts selected for the study, half of the respondents from Budgam reported the absence of veterinary dispensary from their native villages. The results provide a glimpse about the existing veterinary service setup in the study area and indicate enough footprints of the formal agencies. However, it seems that the formal services are not fully utilized upto their capacity and a lot need to be done in this sphere. This less utilization can be due to a lack of awareness, modesty, and a scarcity of modern medical facilities in the region, as well as the high cost of modern medical care [8].

Linkage of farmers with livestock related agencies

Majority of respondents were having greater linkage with veterinary hospitals for advisory as well as input services followed by Para-vets for advisory services (Table 6) as these agencies have their presence at village level that results in stronger linkage with them. Further majority of respondents reported that they have least linkage with research institutes followed by KVKs which needs to be addressed. The absence of NGO’s and dairy cooperatives in the study area is indicated from the results as they don’t

Source	Daily	Weekly	Fortnightly	Monthly	Never	Chi square value
Radio	13 (7.22)	42 (23.33)	38 (21.11)	40 (22.22)	47(26.11)	32.46 P < 0.01)
T.V	2 (1.11)	22 (12.22)	36 (20.00)	57 (31.67)	63 (35.00)	23.95 (P < 0.01)
Journals	0 (0.00)	5 (2.78)	3 (1.67)	10 (5.56)	162(90.00)	1.311(P = 0.971)
News paper	0 (0.00)	4 (2.22)	0 (0.00)	12 (6.67)	164(91.11)	20.04(P < 0.01)
Kissan mela	0 (0.00)	0 (0.00)	0 (0.00)	25 (13.88)	155(86.11)	19.185(P < 0.01)
Overall Average	3 (1.67)	14.6 (7.66)	15 (9.09)	28.8(15.77)	118.2(65.70)	-

Table 4: Mass media exposure of the livestock farmers of the study area (N = 180).
(Figures in parenthesis indicate percentage) (P value statistically significant at level of P < 0.05).

Parameter	Scale of measurement	Ganderbal (n = 60)	Srinagar (n = 60)	Budgam (n = 60)	Total
Presence of Vet. Dispensary	Not present	0 (0.00)	0 (0.00)	30(50.00)	30 (16.67)
	Present	60 (100.00)	60 (100.00)	30 (50.00)	150(83.33)
Distance to nearest veterinary dispensary	< 1km	30 (50.00)	30 (50.00)	0(0.00)	60(33.33)
	1-2km	15 (25.00)	0 (0.00)	30 (50.00)	45 (25.00)
	> 2km	15 (25.00)	30 (50.00)	30 (50.00)	75 (41.67)
Accessibility of veterinary facilities	Easily accessible	30 (50.00)	30 (50.00)	15 (25.00)	75 (41.67)
	Access with difficulty	30 (50.00)	30 (50.00)	45 (75.00)	105(58.33)
Frequency of availing Vet. Facilities.	Always	28 (46.67)	26 (43.33)	26 (43.33)	80(44.44)
	Sometimes	32 (53.33)	33 (55.00)	29 (48.33)	94(52.22)
	Never	0 (0.00)	1 (1.67)	5 (8.33)	6(3.33)

Table 5: The informational parameters regarding the conventional veterinary services in the study area.
(Figure in parenthesis indicate percentage) (P value statistical significant at level of P < 0.05).

figure in any type of linkage with respondents. There linkage of the respondents with various livestock related agencies was varying significantly among the three districts (p < 0.01). The low extension contacts of the livestock farmers and extension agencies were also reported by other studies [24,26].

Transfer and dissemination of information about traditional medicines

Farmers always keep disseminating the useful knowledge to other people regarding age old tested and trusted medicinal remedies used in rearing of livestock. In spite of the presence of the formal veterinary facilities people are still relying upon traditional medicines in order to treat their animals [25]. As reported in table 7 major proportion of the respondents mainly transferred disseminate the traditional medicinal information regarding livestock rearing to family members (96.11%) followed by neighbours

(83.33%) and para- vets (70.56%). The transfer of the traditional knowledge verbally to the family and nearby competent associates was reported by Abbott, [2]. Transfer and dissemination of TM knowledge was varying significantly (P < 0.01) between public gatherings, neighbours, relatives, friends and local leaders while as there was no significant difference was found in case of the Veterinary officers, par-vets, researchers, family members and progressive farmers.

Dependence of livestock farmers on use of traditional medicines

The dependence was measured on a three-point continuum scale based on degree to which farmers rely on use of traditional medicines for livestock rearing. The results in table 8 indicates that majority of the farmers were partially dependent on use ITKs in

Type of livestock agency	Type of linkage				Chi square value
	Advisory	Input	Both	None	
Veterinary hospitals	30 (16.67)	22 (12.22)	113 (62.78)	15 (8.33)	23.01 (P < 0.01)
Research institutes	15 (8.33)	3 (1.67)	2 (1.11)	160 (88.89)	21.03 (P < 0.01)
KVK	14 (7.78)	15 (8.33)	25 (13.89)	126 (70.00)	20.01(P < 0.01)
Dairy cooperatives	0 (0.00)	0 (0.00)	0 (0.00)	180(100.00)	-
NGO's	0 (0.00)	0 (0.00)	0 (0.00)	180(100.00)	-
Para -vets	75 (41.66)	11 (6.11)	20 (11.11)	74 (41.11)	19.05 (P < 0.01)

Table 6: Linkage of the farmers with livestock related agencies (N = 180).

(Figures in parenthesis indicate percentage) (P value statistical significant at level of P < 0.05).

Agencies of transfer and dissemination	Ganderbal (n = 60)	Srinagar (n = 60)	Budgam (n = 60)	Total	Chi square value
Veterinary officer	23 (38.33)	27 (45.00)	28 (46.67)	78(43.33)	0.950 (P = 0.92)
Para - vets	40 (66.67)	41 (68.33)	46 (76.67)	127(70.56)	1.65 (P = 0.436)
SMS	19 (31.67)	21 (35.00)	20 (33.33)	60 (33.33)	1.52 (P = 0.628)
Researcher	14 (23.33)	17 (28.33)	18 (30.00)	49 (27.22)	2.72 (P = 0.542)
Public gathering	36 (60.00)	30 (50.00)	30 (50.00)	96 (53.33)	21.05(P < 0.01)
Family	57 (95.00)	57 (95.00)	59 (98.33)	173 (96.11)	1.43 (P = 0.552)
Neighbour	51 (85.00)	48 (80.00)	51 (85.00)	150 (83.33)	19.02 (P < 0.01)
Friend	30 (50.00)	31 (51.67)	34 (56.67)	95 (52.78)	28.01 (P < 0.01)
Relative	33 (55.00)	33 (55.00)	34 (56.67)	100 (55.56)	24.01(P < 0.01)
Local leader	25 (41.67)	27 (45.00)	26 (43.33)	78 (43.33)	19.03(P < 0.01)
Progressive farmer	25 (41.67)	23 (38.33)	25 (41.67)	73 (40.56)	3.21 (P = 0.234)

Table 7: Transfer and dissemination of the information about traditional medicinal knowledge.

(Figures in parenthesis indicate percentage) (P value statistical significant at level of P < 0.05).

treatment of their livestock for productive conditions like increase in milk production, expulsion of placenta, increase in fertility etc. (47.78%), curative conditions like indigestion, diarrhoea, mastitis, bloat etc. (46.67%) and preventive condition like endo-parasites and ecto-parasites (51.67%). ITKs seen to be first aids for the livestock farmers but they don't relay completely on them due to slow healing time. Further partial dependence can be supported by the fact that traditional medicines are used when symptoms of a disease appear, and formal veterinary services are only used in extreme cases [26].

Reliability of livestock farmers on use of technical medicinal knowledge

The reliability of the livestock farmers on use of Traditional Medicinal Knowledge was measured on a three point continuum scale of highly reliable, moderately reliable and least reliable. Table

9 reveals that majority (50.56%) of the respondents considered the use of TM as moderately reliable followed by most reliable. The moderate reliability of TM could probably be explained by the fact that the majority of Traditional Medicines don't have any scientific approval from the formal veterinary service providers that always raise a doubt about their reliability. Before the advent of the scientific medicines the farmers used to rely upon the traditional medicines for treating their livestock [1,15,17]and now in todays era there is moderate reliance on Traditional Medicines.

Preference of farmers regarding treatment of their livestock

The preference was studied for the two major prevalent systems of livestock service delivery namely formal scientific treatment and traditional/ indigenous treatment system. Table 10 shows that majority of the respondents prefer to treat their livestock through

Classification of ITKs	Dependency	Ganderbal n = (60)	Srinagar n = (60)	Budgam n = (60)	Total
Productive and reproductive conditions	Entirely dependent	16 (26.67)	18 (30.00)	25 (41.67)	59 (32.78)
	Partially dependent	32 (53.33)	24 (40.00)	28 (46.67)	84 (46.67)
	Least dependent	12 (20.00)	18 (30.00)	7 (11.67)	37 (20.56)
Curative conditions	Entirely dependent	20 (33.33)	27 (45.00)	22 (36.67)	69 (38.33)
	Partially dependent	34 (56.67)	23 (38.33)	29 (48.33)	86 (47.78)
	Least de pendent	6 (10.00)	10 (16.67)	9 (15.00)	25 (13.89)
Preventive conditions	Entirely dependent	11 (18.33)	9 (15.00)	10 (16.67)	30 (16.67)
	Partially dependent	35 (58.33)	24 (40.00)	34 (56.67)	93 (51.67)
	Least dependent	14 (23.33)	27 (45.00)	16 (26.67)	57 (31.67)

Table 8: Distribution of livestock farmers as per their dependence on use of traditional medicines.

Reliability	Ganderbal	Srinagar	Budgam	Total
Highly reliable	19 (31.67)	13 (21.67)	16 (26.67)	48 (26.67)
Moderately reliable	27 (45.00)	30 (50.00)	34 (56.67)	91 (50.56)
Least reliable	14 (23.33)	17 (28.33)	10 (16.67)	41 (22.78)

Table 9: Distribution of respondents as per their perceived reliability on use of Traditional Medicines.

(Figure in parenthesis indicate percentage).

formal scientific treatment system. The preferential use of conventional scientific system of treatment for the different livestock services reported by majority of the respondents followed the order preventive (85.00%), curative (66.11%) and productive (63.89%) respectively. The farmers seem to have a better impression about the formal veterinary drugs in terms of their timely healing and

early recovery resulting in their preferential behaviour. The high imprints for the usage of scientific medicines for treating livestock ailments was also reported by Matua., *et al.* [13]. Besides as the formal conventional veterinary services are prescribed and delivered by trained professional experts making it reliable and preferential choice for farmers.

Type of service	Preference in treating animals	Ganderbal (n = 60)	Srinagar (n = 60)	Budgam (n = 60)	Total
Productive	Formal veterinary treatment	37 (61.67)	47 (78.33)	31(51.67)	115 (63.89)
	Indigenous treatment	23 (38.33)	13 (21.67)	29(48.33)	65 (36.11)
Curative	Formal veterinary treatment	37 (61.67)	45 (75.00)	37(61.67)	119 (66.11)
	Indigenous treatment	23 (38.33)	15 (25.00)	23(38.33)	61 (33.89)
Preventive	Formal veterinary treatment	51 (85.00)	53 (88.33)	49(81.67)	153 (85.00)
	Indigenous treatment	9 (15.00)	7 (11.67)	11(18.33)	27(15.00)

Table 10: Preference of the livestock farmers for treatment of their livestock (N = 180).

(Figure in parenthesis indicate percentage).

Relational analysis using Kruskal-wallis analysis

The results in the table 11 reveal the relational analysis of occupation with Information sources utilized, Dependence over preventive ITKs and Transfer and dissemination of information about ITKs. table 12 reveal the relational analysis of income with Extension

contact with different source and Mass media exposure. Table 13 shows the relational analysis of production system with access to formal veterinary services and transfer and dissemination information regarding ITK. Table 14 reveals the relational analysis of the family type and farming type with mass media exposure of the study.

Occupation	Information sources utilized			Dependence over preventive ITKs			Transfer and dissemination of information about ITKs	
	Always	Sometimes	Never	Entirely Dependent	Partially Dependent	Not dependent	No	Yes
Agriculture	1 ^a	9 ^a	5 ^a	1 ^a	7 ^a	7 ^a	11 ^a	4 ^a
Livestock	9 ^a	2 ^a	1 ^a	4 ^a	0	3 ^a	2 ^a	5 ^a
Business	3 ^a	24 ^b	11 ^b	6 ^a	15 ^b	17 ^b	15 ^b	23 ^b
Labour	9 ^b	64 ^c	18 ^b	12 ^b	54 ^c	25 ^b	56 ^b	35 ^c
Govt. Job	2 ^a	18 ^b	9 ^b	7 ^a	17 ^b	5 ^a	18 ^b	11 ^b

Table 11: Relational analysis of occupation with Information source utilization, dependence over Technical Medicinal (TM) Knowledge and transfer and dissemination of Knowledge about Technical Medicines. (Values in each column with different superscripts differ significantly (P < 0.05).

Income	Extension contacts with different source			Mass media exposure		
	Always	Sometimes	Never	Weekly	Monthly	Never
Low	3 ^a	18 ^b	40 ^b	3 ^a	11 ^b	147 ^c
Medium	0	8 ^a	6 ^a	0	0	14 ^b
High	1	4 ^a	0	1 ^a	1 ^a	3 ^a

Table 12: Relational analysis of income with extension contact and mass media exposure. (Values in each column with different superscripts differ significantly (P < 0.05).

Production system	Access to formal veterinary services		Transfer and dissemination information regarding ITK	
	Easily	With difficulty	No	Yes
Stationary	45 ^b	47 ^a	50 ^b	42 ^a
Migratory	30 ^a	58 ^b	34 ^a	54 ^b

Table 13: Relational analysis of production system with access to formal veterinary services and Transfer and dissemination information regarding ITKs. (Values in each column with different superscripts differ significantly (P < 0.05) *.

Parameter	Mass media exposure		
	Fortnightly	Monthly	Never
Family type			
Joint	1 ^a	72 ^a	5
Nuclear	1	101 ^b	0
Farming type			
Livestock	1	8 ^a	0
Mixed	1	65 ^b	5

Table 14: Relational analysis of family type and farming type with mass media exposure. (Values in each column with different superscripts differ significantly (P < 0.05).

Conclusion

The extension contacts of the farmers are very important for the improvement in the production and reproduction of the livestock. The extension contacts and the mass media exposure of the farmers need to be improved through different means by their active engagement for better production results. The low socio-economic status of livestock farmers is one of the driving forces for their adoption of traditional medicinal practices and less influence of modern scientific technologies. Need of the hour is to increase the involvement of the farmers in various extension activities that can improve their farming practices and hence the living standards.

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