



Identification of the Technical Skills Needed by the Field Veterinarians for Effective Service Delivery

Sireesha Pulla^{1*} and P. R. Nisha²

¹Ph.D Scholar, Department of Veterinary & Animal Husbandry Extension Education, Madras Veterinary College, TANUVAS, Tamil Nadu, INDIA

²Professor & Head, Krishi Vignan Kendra, Kattupakam, TANUVAS, Tamil Nadu, INDIA

*Corresponding Author: sireeshavet@gmail.com

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Abstract

The study was conducted to identify the skills needed by field veterinarians for delivering effective livestock services to the farming community. Data were collected to compare the technical skills imparted to veterinary students from veterinary faculties and students as well as the technical skills practiced by field veterinarians from veterinarians and farmers. A total of 39 skills constituting clinical, para clinical, animal production and extension skills were identified and data collected from a total of 120 respondents, 30 each from veterinary faculty, students, field veterinarians and farmers through structured questionnaire. Clinical skills were identified as most important skill by all the categories of respondents and among them physical examination was ranked as most important skill. Among the para clinical skills, handling of outbreak was ranked most important skill by students, field veterinarians and farmers whereas faculty ranked conducting post-mortem. Among the production skills, faculty and farmers ranked animal dentition and ageing as most important skill whereas students ranked selection of animals including Body Condition Score and field veterinarians ranked casting and restraining of livestock. Among the extension skills, arranging extension activities was ranked most important skill by veterinarians whereas faculty and students ranked communication skills to build rapport with clientele and farmers ranked understanding group dynamics. The study concluded that undergraduate veterinary curriculum to be oriented to match the stakeholders' expectations.

Keywords: Veterinary Faculty, Field Veterinarians, Veterinary Skills, Veterinary Students, Farmers

Introduction

Veterinarians play an important role in protecting the animals from the threat of diseases at the field level. They are the most vital to contribute to the livelihood of the farmers, protein requirement of the population, contain zoonotic diseases of wider population and economic growth of the country indicating their need for a wider perspective of skills related to the profession as well as dealing with the society.

Based on various studies, sweeping changes were made in the veterinary education curriculum in India. Many skills are taught to the veterinary students as part of their curriculum. Research studies and experts also express that students are exposed to different set of skills during academics and what they practice at work are quite different. The training given to the veterinary graduates in the colleges is not in tune with the job responsibilities of the field veterinarians due to inadequate reflection of Animal Husbandry Department's requirements during curriculum revisions (Rao *et al.*, 2015). The Planning Commission (NITI Aayog) emphasized that re-training of the field veterinarians to brace for the recent developments is paramount and they should attend mandatory refresher courses every five years during their career (Planning Commission, 2012). So, need based refresher training programmes including "Continuing Veterinary Education" is being organised by the colleges at regular intervals to improve the capacity of the working veterinarians (Rao *et al.*, 2017). Some experts also express that outgoing students are not able to meet the requirements of the field conditions. In this context, the present study aims at identification of skills required by the field veterinarians who practice at field level as perceived by different stakeholders.

Materials and Methods

The study was conducted in the state of Tamil Nadu. The faculties and final year B.V.Sc & A.H students of Madras Veterinary College, Chennai, field veterinarians and farmers from Thiruvallur district were selected randomly for the study. The skills needed were listed on discussion with experts and relevant literature. The skills identified were broadly categorised into clinical, para clinical, animal production and extension skills. The sample size was 30 respondents each from students, teaching faculty, veterinarians and farmers who formed the stakeholders in the identification of skills required by field veterinarians. The stakeholders were asked to rank the skills based on the number of times it was practiced. Garrett Ranking technique was applied to study the skills needed.

$$\text{Percent Position} = \frac{100 (R_{ij} - 0.5)}{N_j}$$

R_{ji} = Rank given for the i^{th} variable by the j^{th} respondent

N_j = number of variables ranked by the j^{th} respondent

Data were collected using well-structured questionnaire/interview schedule designed for this study based on the objectives. The collected data were tabulated, analysed and interpreted with suitable statistical tools.

Results and Discussion

Profile of the Respondents

The profile of the veterinary faculties studied showed that an overwhelming majority of the respondents were Assistant Professors (93.33%) in middle age category (90%). Majority were male (63.33%) with post-graduation in Veterinary Sciences (60%) and job experience of less than 10 years (53.33%). The results pertaining to the profile of veterinary final year undergraduate students are presented in Table 2. Majority (90%) of the respondents fell under the age group of 21-22 years with more than a half (56.67%) of the respondents being male. Less than half (40%) of them belonged to rural areas and majority of them (73.33%) preferred Government job. These are in line with the findings of Bharadwaj *et al.*, (2017). One half of the respondents (50%) preferred large animal practice as their career choice.

Table 1: Profile of veterinary faculty (n=30)

S. No.	Characteristics	Categories	Frequency	Percentage
1.	Age	Young (Less than 35 years)	1	3.33
		Middle (35 to 45 years)	27	90
		Old (More than 45 years)	2	6.67
2.	Gender	Male	19	63.33
		Female	11	36.67
3.	Qualification	M.V.Sc.	18	60
		Ph.D	8	26.67
		PhD + Diploma	4	13.33
4.	Designation	Assistant Professor	28	93.34
		Associate Professor	1	3.33
		Professor	1	3.33
5.	Job experience	<10 years	16	53.33
		10-20 years	14	46.67

Table 2: Profile of veterinary final year undergraduate students (n=30)

S. No.	Characteristics	Categories	Frequency	Percentage
1.	Age	20-21 years	1	3.33
		21-22 years	22	73.33
		23-24 years	7	23.33
2.	Gender	Male	17	56.67
		Female	13	43.33
3.	Location of living	Rural	12	40
		Semi urban	9	30
		Urban	9	30
4.	Preferred work	Government	22	73.33
		Private	4	13.33
		Self employed	4	13.33
5.	Preferred practice	Large animal	15	50
		Small animal	7	23.33
		Wild life	2	6.67
		Research	2	6.67
		Mixed practice	4	11.33

From Table 3, it is evident that among the field veterinarians studied, majority (90%) of the respondents fell under middle age category. Equal percent of the respondents were male and female. Majority (66.67%) of the respondents had graduation as their educational qualification followed by post-graduation. Majority (80.00%) of them were in government service, working in rural areas (80%) and one half of the respondents had less than 10 years of experience.

Among the farmers studied, one-half (50%) of the respondents fell under old age category and majority of them were male (66.67%). Slightly more than one third (36.67%) of the respondents had high school education with agriculture with animal husbandry as their occupation (70%) with medium herd size (73.33%).

Table 3: Profile of field veterinarians (n=30)

S. No.	Characteristics	Categories	Frequency	Percentage
1.	Age	Young (Less than 35 years)	6	20
		Middle (35 to 45 years)	21	70
		Old (More than 45 years)	3	10
2.	Gender	Male	15	50
		Female	15	50
3.	Qualification	Graduates	20	66.67
		Post graduates	10	33.33
4.	Designation	Government service	24	80
		Private service	6	20
5.	Place of work	Rural	24	80
		Semi urban	2	6.67
		Urban	4	13.33
6.	Job experience	<10 years	15	50
		10-20 years	12	40.67
		>20 years	3	10

Table 4: Profile of farmers (n=30)

S.No.	Characteristics	Categories	Frequency	Percentage
1.	Age	Young (Less than 35 years)	5	16.67
		Middle (35 to 45 years)	10	33.33
		Old (More than 45 years)	15	50
2.	Gender	Male	20	66.67
		Female	10	33.33
3.	Education	Can't read and write	5	16.67
		Primary	4	13.33
		High School	11	36.67
		Higher secondary	4	13.33
		Graduate	6	20
4.	Occupation	Agriculture + Animal Husbandry	21	70
		Animal Husbandry + Agriculture	1	3.33
		Animal Husbandry + Other occupation	8	26.67
5.	Livestock possession	Small (<1.57)	2	6.67
		Medium (1.57-35.98)	22	73.33
		Large (>35.98)	6	20

Comparison of Ranking of Broad Area of Skills

The skills needed by the veterinarians was collected in different broad areas of clinical skills, para clinical skills, animal production skills and extension skills and presented in Table 5. From the table, it can be stated that clinical skills were identified as most important skill by all the categories of respondents. The second most identified skill Animal Production skill by faculty, students and farmers as production has to be improved as it is the livelihood of the farmer and the need of the country to increase the production and income. Whereas field veterinarians identified extension skills as important as they are immensely needed in the field to retain clients, convince farmers to adopt new technologies in the field etc. and farmers for rapport building with the veterinarians for easy accessibility. Third most important skill identified was veterinary para clinical skills by faculty and students which will assist in disease

diagnosis. Farmers might not be aware of the importance of para clinical skills for disease diagnosis and control, whereas veterinarians might not be getting enough opportunity/facilities to practice them which might be the reason for last ranking of the skill by veterinarians and farmers. Least important skill identified by both faculty and students as they concentrate more on scientific skills and give least importance to the soft skills which helps in being convincing, impressive and effective in the field. The individual skill among the broad areas of clinical, para clinical, animal production and extension skills were studied to get a better insight on the skills needed.

Table 5: Comparison of ranking of broad area of skills as perceived by faculty, students, field veterinarians and students

S. No.	Skills imparted	Veterinary faculty (n=30)		Students (n=30)		Field veterinarians (n=30)		Farmers (n=30)	
		Mean garrett score	Rank	Mean garrett score	Rank	Mean garrett score	Rank	Mean garrett score	Rank
1	Veterinary clinical skills	68.6	I	68.07	I	68.53	I	63.47	I
2	Animal production skills	46.83	II	48.8	II	45.57	III	55.77	II
3	Extension skills	42.41	IV	40.2	IV	50.93	II	48.03	III
4	Veterinary para clinical skills	45.72	III	44.93	III	39.52	IV	34.73	IV

Comparison of ranking of clinical skills as perceived by faculty, students, field veterinarians and students is presented in Table 6. It was evident that physical examination was ranked as the most important skill by faculty, students and farmers whereas it was ranked third by veterinarians. This might be due to the fact that disease diagnosis need physical examination and farmers are satisfied when veterinarians handle the animals. Field veterinarians ranked Artificial Insemination as the most important skill. The reason might be that veterinarians were doing Artificial Insemination services as they perform it regularly in the field for breed improvement. The skill of disease diagnosis was felt important by students, veterinarians and farmers due to its significance in reducing economic losses.

Table 6: Comparison of ranking of clinical skills as perceived by faculty, students, field veterinarians and students

S. No.	Skills imparted	Veterinary faculty (n=30)		Students (n=30)		Field veterinarians (n=30)		Farmers (n=30)	
		Mean garrett score	Rank	Mean garrett score	Rank	Mean garrett score	Rank	Mean garrett score	Rank
1	Physical Examination – Auscultation, heart rate, temperature, respiration, etc	66.03	I	72.2	I	64.07	III	67.27	I
2	Artificial insemination	61.59	IV	56.63	III	69.7	I	65.4	III
3	Disease diagnosis by clinical symptoms	63.9	III	67.83	II	65.33	II	66.1	II
4	Drug administration	64.8	II	53.87	IV	60.37	IV	63.6	IV
5	Deworming and vaccination of animals	54.43	VI	52.67	V	54.77	VI	61.83	V
6	Anaesthetisation of animals	38.59	X	44.1	VIII	38.7	X	39.07	IX
7	Minor surgical procedures like abscess management, castration etc	49.17	VII	44.53	VII	44.83	VIII	41.97	VIII
8	Orthopaedics and eye surgery	24.62	XII	35.63	XII	27.28	XII	27.67	XII
9	Common surgical procedures like POP bandaging, patella fixation, Rumenotomy, Tail amputation	44.83	IX	41.13	X	44.73	IX	35.77	XI
10	X-ray/Ultrasound interpretation	34.4	XI	37.87	XI	28.17	XI	31.07	X
11	Pregnancy diagnosis	57.83	V	51.07	VI	57.7	V	58	VI
12	Obstetrical procedures like Handling of dystocia, foetotomy, Retention of placenta, prolapse	45.62	VIII	41.8	IX	51.5	VII	48	VII

Under the broad area of animal production skills, the different skills presented in Table 7 indicates that faculty and farmers ranked animal dentition and ageing as most important skill whereas students ranked selection of animals including body condition score which might be due the fact that helping the farmers to select the best animal would reduce the poor production issues of the farmers. Field veterinarians ranked casting and restraining of livestock which might be due the fact that they felt the difficulty of restraining the livestock for various operations.

Table 7: Comparison of ranking of Animal Production skills as perceived by faculty, students, field veterinarians and farmers

S. No.	Skills Imparted	Veterinary faculty (n=30)		Students (n=30)		Field veterinarians (n=30)		Farmers (n=30)	
		Mean garrett score	Rank	Mean garrett score	Rank	Mean garrett score	Rank	Mean garrett score	Rank
1	Animal Dentition and ageing	63	I	58.72	IV	64.03	II	66.97	I
2	Selection / Judging of animals including Body Condition Score	61.97	III	61.8	I	58.37	V	65.27	II
3	Casting and restraining of livestock	62.57	II	59	III	64.77	I	55.4	V
4	Handling pets	53.77	V	59.21	II	58.7	IV	59.33	III
5	Handling wild animals	27.7	XI	44.41	IX	32.03	XI	30.33	XI
6	Ration formulation with locally available ingredients	53.76	VI	50.93	V	49.37	VI	56.53	IV
7	Fodder production and utilisation	55.76	IV	49.89	VI	61.9	III	48.7	VII
8	Feed technologies like formulation of Least cost ration, mineral mixture, Urea treatment of paddy straw, Silage preparation	51.86	VII	48.86	VII	48.37	VII	52.6	VI
9	Milk Testing and Adulteration Detection Techniques	42.97	IX	45.43	VIII	42.2	IX	39.03	VIII
10	Meat cutting and handling	32.72	X	39.33	X	32.2	X	32.03	X
11	Farm Record keeping	47.93	VIII	35.3	XI	42.27	VIII	37.47	IX

Under the broad area of extension skills, Table 8 shows that arranging extension activities was ranked most important skill by veterinarians whereas faculty and students ranked communication skills to build rapport with clientele and farmers ranked understanding group dynamics. The reason might be that field veterinarians organise extension activities regularly as a part of their routine duty. Second most important skill ranked was communication skills by field veterinarians whereas it was ranked first by faculty and students and farmers gave importance to marketing and entrepreneurship. Farmers might have felt the need for facilitating groups and better marketing opportunities for more income generation.

The different skills imparted under the area of para clinical skills studied and presented in Table 9 shows that handling of outbreak was ranked most important skill by students, field veterinarians and farmers, whereas faculty ranked conducting post mortem as an important skill. It might be due the reason that faculties and students felt that handling outbreak was very essential to reduce morbidity and mortality and farmers might have been impacted very much by outbreak. Record keeping was ranked as second important skill by field veterinarians as it is an important skill practiced at field level whereas it was least ranked by faculty and students. Collection and transport of samples were ranked second by the faculty and farmers might be due to the reason they feel that accurate diagnosis will be possible by testing the samples.

Table 8: Comparison of ranking of Extension skills as perceived by faculty, students, field veterinarians and farmers

S. No.	Skills imparted	Veterinary faculty (n=30)		Students (n=30)		Field veterinarians (n=30)		Farmers (n=30)	
		Mean garrett score	Rank	Mean garrett score	Rank	Mean garrett score	Rank	Mean garrett score	Rank
1	Extension event like training, campaign, exhibitions, etc. organising skills	65.38	II	55.27	II	70.47	I	51.57	IV
2	Communication skills to build rapport with clientele	67.3	I	69.21	I	65.97	II	49.17	V
3	Understanding group dynamics and facilitate groups of livestock farmers	55.19	V	54.57	III	56.6	IV	68.87	I
4	Preparation of various extension instructional materials (leaflets, writing success stories)	55.57	IV	50.63	IV	58.1	III	43.6	VII
5	Conduct of on farm trails, field demonstrations	56.71	III	48.48	VI	54	V	43.83	VI
6	To achieve coordination of various departments	45.64	VI	45.43	VII	44.2	VI	33.87	IX
7	Promote entrepreneurship among clientele	42.61	VII	44.44	VIII	39.7	VII	58.77	III
8	Marketing skills	33.96	VIII	49.39	V	36.73	VIII	64.07	II
9	Impact analysis	28.93	IX	34.7	IX	28.23	IX	40.27	VIII

Table 9: Comparison of ranking of Para Clinical as perceived by faculty, students, field veterinarians and students

S. No.	Skills imparted	Veterinary faculty (n=30)		Students (n=30)		Field veterinarians (n=30)		Farmers (n=30)	
		Mean garrett score	Rank	Mean garrett score	Rank	Mean garrett score	Rank	Mean garrett score	Rank
1	Handling of outbreak / disaster	44.77	VI	58.6	I	65.63	I	62	I
2	Post-mortem conduction	60.32	I	57.77	II	55.7	III	53.93	III
3	Sampling for microbiology, toxicology and histopathological purpose	51.27	IV	49.5	V	43.93	VI	45.23	VI
4	Collection and/or transport of samples from livestock	53.7	II	52.03	IV	51.47	IV	57.13	II
5	Sterilization/Asepsis	51.17	V	54.5	III	44.87	V	44.3	VII
6	Laboratory diagnostic techniques	52.53	III	47.18	VI	34.23	VII	45.7	IV
7	Record Keeping at hospital level	39.6	VII	31.86	VII	57.23	II	45.4	V

Conclusion

The study concluded that undergraduate veterinary curriculum needs to be oriented to match the stakeholders' expectations. The veterinary colleges should conduct scientist – veterinarian interaction meeting to gain adequate field information which need to trickle down to the student community emphasizing skill training in those relevant areas. The students should necessarily be sensitized on value chain analysis, livestock business development and entrepreneurship development so that they are ready to promote agripreneurship. A skill log book can be maintained by students and list the skills they acquired each year. These skills can be evaluated by teachers at the end of course and also self-evaluated by the students themselves. A skill centre may be established at University level where students can practice the skills which will be supervised by some faculty. The field veterinarians deal mainly the

landless, marginal and small farmers who are almost entirely dependent on their livestock for livelihood. They are involved in implementation of various Central / State sponsored schemes to promote animal production as well improving the income of livestock farmers through increased production. Emphasis to be given to the students on the importance of improving extension skills for better field performance. Online courses can be offered to field veterinarians through online mode, without affecting their routine duties.

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Conflict of Interests

There is no conflict of interest.

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