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Profile characteristics of para veterinarians in rendering livestock services in Bidar and Kalaburagi district of Kalyana Karnataka

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Abstract
Para veterinarians are the pillars of public veterinary services which makes them an important part of animal health care and animal husbandry services. The potential para veterinarians influenced by the availability livestock health services. In this regard the present study was conducted during 2021-22 to assess the role performance of para veterinarians. An *exploratory* and *ex-post facto* research design was employed for the study. The study was restricted to sample size of 120 para veterinarians based the highest number of para veterinarians working in 2 districts *i.e.*, Bidar and Kalaburagi. Data collection was done by using the questionnaire method. Nearly two-fifth (39.17%) of para veterinarian were belonged to the middle age group, educated up to PUC/ Diploma (52.50), medium level of work experience (39.16%), Cent percent of para veterinarians attained the induction training, mass media utilization (45.84%), high organizational linkage (50.00%), high level of self-association risk at work place (45.84%), achievement motivation (52.83%), medium level of perceived work load (48.34%), job involvement (66.64%), job stress (48.37%), self-confidence (53.33%), job satisfaction (47.50%), Cent percent of para veterinarians felt they had adequate chairs, buero, AI Gun, medical drugs like systemic drugs, antimicrobial drugs and vaccinations, always assisted in curative service (81.66%) and 72.50 percent of para veterinarians sometimes reading livestock magazine.

Keywords: Para veterinarians, profile, animal health services, variables

Introduction
Livestock plays an important role in Indian economy. It acts as a storehouse of capital insurance against crop failure and a coping mechanism against livelihood shocks. Therefore, it is considered as a 'moving bank' for the farmers' income. Animal waste like dung and urine are excellent sources of major and minor nutrient for plant production and protection measures About 20.5 million people depend upon livestock for their livelihood. Livestock contributes 16.00 percent to the income of small farm households as against an average of 14.00 percent for all rural households. It also provides employment to about 8.8 percent of the population in India. Livestock sector contributes 4.11 percent to GDP and accounts for 25.60 percent of total Agriculture GDP along with the contribution of 17.4 percent to value-added by the agriculture sector. The Indian livestock sector is one of the largest in the world which comprises of 11.60 percent of the world livestock population as per the 20th livestock census, India has the largest livestock population in the world, and India stands first in buffalo population (108.7 million) second in cattle (190.9 million) and goats (135.2 million) third in sheep (65.1 million) population. The observed pattern of growth in cross bred dairy cows, improved breeds of buffalo, sheep, pigs and poultry indicates a shift towards economically more efficient species. In the case of poultry, broiler production has been more vibrant than layer production in terms of annual growth.

For improvement of farming community, Government of India, initiated good number of schemes and programmes and the outreach of these programmes is given through various center and state government department *viz.*, animal husbandry and veterinary sciences, Agricultural, horticultural, sericultural, fisheries and other allied department. Various programs/ schemes for farmers in livestock department are Rastriya Gokul Mission, National Livestock Mission, Livestock Health and Dieses Control, National Programmes for Dairy Development, Livestock Census and Integrated Sample Survey, National Animal Disease Control Programmes, Dairy Infrastructures Development Fund, Animal Husbandry

Infrastructure Development Fund and Supporting Dairy Cooperatives and Farmers Producers Organizations in the State central sponsored schemes like National project on Rinderpest Eradication (NPRE), Foot and Mouth Disease Control programme, National Control Programme on peste des petites Ruminants, National Programme for Brucellosis Control, Amrutha Yojane, Infertility Camps, Fodder Development Scheme, Milk Incentives to Milk Producers *etc*., Despite of all these schemes and programmes livestock farmers are facing lot of challenges like Improving the productivity of farm animals, frequent outbreaks of diseases that majorly includes Foot and Mouth Diseases, Black Quarter infection, Influenza. Shortage of fodder, lack of access to markets may act as a disincentive to farmers to adopt improved technologies and quality inputs. due to shortage of veterinary staff member in the department of Animal Husbandry and veterinary services. Para veterinarians play an auxiliary role by assisting in delivery of various animal healthcare facilities services. They also work independently by providing treatment and essential animal healthcare services. There exists an acute shortage of veterinarians in the country with merely 34,500 veterinary graduates against the requirement of around 67,000 in numbers. Against the estimated need for 259,000 para veterinarians, their availability has been limited to a current population of 52,000, leading to a deficit of 207,000 para-veterinarians manpower (Anonymous, 2017-18) [1].

In majority of Indian states, State Departments of Animal Husbandry were the major livestock service providers. In the study area the total number of veterinary hospitals/polyclinics, veterinary dispensaries, primary veterinary centers and mobile veterinary centers were 140, 373, 192 and 31 in number respectively (Anonymous, 2017-18) [1]. Though NCA (1976) [9] had recommended one veterinarian for every 5000 cattle unit and one veterinary institution for four villages, it is estimated that only one veterinary institution exists for 11 villages covering about 62 sq. km area (VCI, 2008) [21]. On an average one veterinarian exists for every 7000 animals in India. In Karnataka, 18,560 posts were sanctioned of which 9,891 posts were filled and 8,669 posts were vacant including veterinary professionals and Para veterinarians (Department of animal husbandry and veterinary services, GOK). Thus, the alarming situation in the delivery of animal health services by para veterinarians has been aggravated due to manpower shortage and need of policymakers to know and understand the gap between role performance. To overcome these problems there is a need of para veterinarians in smooth rendering of livestock services in order to increase production and productivity of livestock sector.

Methodology

The study was conducted in the Kalyana Karnataka during 2021 to 2022. The *exploratory* and *ex-post-facto* research designs were used in the present study. This region had seven districts namely Bidar, Kalaburagi, Raichur, Koppal, Ballari, Vijayanagara and Yadgir. Among seven districts, Kalburgi and Bidar were selected for the study due to the highest number of para veterinarians working at the time of investigation in these districts. In Kalaburgi three talukas *i.e* Kalaburgi, Alanda and Chitapur and among eight talukas of Biadar three *i.e* Bidar, Bhalki and Humanbad talukas were selected based on the highest number of a para veterinarians working in the talukas at the time of investigation A list of number of para veterinarians working under Veterinary Hospitals, Veterinary Dispensary and Primary Veterinary centers. In selected talukas of Kalaburgi, Alanda and Chitapur 20 para veterinarians and were selected from each taluka based on the highest number of para veterinarians working at block and village level, constituting 60 samples of the Kalaburgi district and 20 para veterinarians were selected from each taluka based on the highest number of para veterinarians working at block and village level, constituting 60 samples of Bidar district. A total from both districts constitute 120 para veterinarians were selected for the study. The variables of the study were selected based on the relevant review of literature on the subject in the consultation with the experts in the field functionaries of animal husbandry, faculties from agricultural extension, agricultural economics and veterinary sciences of Farm Universities from Karnataka a group of independent variables relevant to the objectives of the study was selected from the literature, survey and discussion with the experts. A total of 30 variables for para veterinarians were identified for the study that may potentially influences the dependent variables. These variables sent to thirty judges for expert judgement on a three-point continuum *viz.*, Most Relevant (MR), Relevant (R) and Irrelevant (IR), in order to determine their relevancy for the study through post and mail. Mean and Coefficient of variance (CV) for the variables were worked based on the relevancy score and finally 16 independent variables selected for the study. Considering the total scores of the respondents, they were classified into three categories *viz.*, high, medium and low using the mean and standard deviation as a measure of check

Result and Discussion

Profile of the para veterinarians in the study area

The profile of the para veterinarians was studied using the following variables namely age, education, work experience, distance of working place, kinds of livestock services, training received, infrastructural facilities, mass media utilization, organizational linkage, self-associated risks, achievement motivation, perceived workload, job involvement, job stress, self-confidence and job satisfaction

The data in the Table 1 revealed that majority of para veterinarians belonged to middle (39.17%) to old (30.83%) age group followed by young (30.00%) age respectively. The above results might be due to the following reasons. In the middle age group, para veterinarians were economically active, had enthusiasm in their work. They were ready to face the challenges and more interested to learn newness in disease management during disease outbreak and drought situations. They were ready to take risk in emergency situations and feels to be considered as an asset for the department as well as the farming community. In addition, the experience of old age group para veterinarians was necessary to help in easy understanding of the livestock farmers. They were more empathic towards the betterment of the livestock animals and livestock community. The above findings are inline with Swain (2016) [23], Joshi *et al*. (2017) [24], Channappagouda and Shasidar (2018).

Table 1: Distribution of para veterinarians based their age group n=120

Sl. No	Variables	Range	f	%
	Age			
1	Young age	<35	36	30.00
2	Middle age	35-50	47	39.17
3	Old age	>50	37	30.83
	Total		120	100

It was observed from Table 2 that more than half (52.50%) of the para veterinarians were educated up to PUC followed by SSLC (38.33%) and graduation (09.17%) respectively. The department might have followed proper standards for higher education, which might be the cause for the selection of veterinary assistant and veterinary inspector at the time of their selection. Department of Animal Husbandry and Veterinary Services Karnataka (AHVS), has made SSLC, PUC along with acquired basic knowledge and skills on veterinary science and animal husbandry and few months of training as a basic qualification for the respective job. Now the department has made PUC in sciences or diploma in veterinary sciences as educational qualification for selection of Junior Veterinary Inspector and B. Sc. (CBZ) as educational qualification for Veterinary Inspector along with few months of training which helps in recruitment of person with high level of knowledge on animal husbandry that would enhance their service delivery efficiency. The above findings are line up with Panda (2021) [10].

Table 2: Distribution of para veterinarians based their education level n=120

Sl. No	Variables	Range	f	%
	Education			
1	SSLC	1	46	38.33
2	PUC/Diploma	2	63	52.50
3	Degree	3	11	09.17
	Total		120	100

The findings reveal from the Table 3 that nearly 39.16 percent of para veterinarians had medium level of work experience followed by 33.14 percent of them had high level of work experience and more than 27.50 percent of them had low level of work experience. Majority of para veterinarians belonged to medium age group and some of them had joined the job on the compensatory basis. They have strong commitment towards their service as well as the society which in turn resulted in stability in rendering services at field level. Hence with respect to the above findings, similar results were found with Reddy *et al*. (2020) [13].

Table 3: Distribution of para veterinarians based their work experience n=120

Sl. No	Variables	Range	f	%
	Work experience			
1	Low	<14	33	27.50
2	Medium	15-21	47	39.16
3	High	>22	40	33.14
	Total		120	100

It was observed from the Table 4 that more than three-fifth (65.00%) of the para veterinarians were posted within 20 km of radius of their family residence and 35.00 percent of the respondents were posted more than 20 km away from their family residence. The possibility for above results could be that the majority of the para veterinarians belong to their locality and had placed family with their parents. However, it is evident that if employees' working place was close to their home, there would be more convenience, and also feels that it would be easy for them to work till late hours and even return to services as and when it demands. This gives higher job satisfaction and it might increase higher job performance. These results are in line with the findings of Nanda *et al*. (2021) [7].

Table 4: Distribution of para veterinarians based their distances of posting n=120

Sl. No	Distance of working place	Range	f	%
1	Near the place of posting	(<20km)	78	65.00
2	Elsewhere	(>20km)	42	35.00

The results depicted from the Table 5 that cent percent (100.00%) of para veterinarians attained the induction training. While, majority (80.83%) of para veterinarians attained the refresher trainings on schedule of vaccination, insurance coverage, management of communicable diseases, Artificial Insemination, local formulation of feeds, *etc*,The reason might be that after selection, induction training is organized compulsorily by department for the newly selected candidates, which provides the training for 4-6 months with theoretical and practical exposures. It was found that in most of the cases, these trainings had been instrumental in developing both confidence and technical skills of Para veterinarians. Hence trainings on new areas of veterinary discipline such as skills to deal with the cases of bird flu, swine flu, enhancing laboratory management skills for disease diagnosis, knowledge on veterinary care and refresher trainings on Artificial Insemination, to increase the knowledge and skills for report writing and communicating with livestock farmers directly related to veterinary practices were given by the department. Similar findings were found in Nayak *et al.* (2022) [8].

Table 5: Distribution of para veterinarians based their training received n=120

Sl. No	Training Received	Received	
		f	%
1	Induction training	120	100.00
2	Refreshers training	97	80.83

The results depicted in the Table 6 indicate the various kinds of livestock services provided by para veterinarians and the findings revealed that the curative services with mean score of (2.78) followed by productive services (2.68), preventive services (2.59), diagnostic services (2.53) and miscellaneous services (2.39). The likelihood of loss can be reduced by maintaining proper health, and animal productivity requires routine access to vaccinations, pregnancy tests, artificial insemination services and other preventative measures. A greater number of animals had arrived at veterinary clinics for the curative treatments like major/minor surgical operations as they have to be treated immediately. More number of cattle and buffalo came for the pregnancy test and artificial insemination as these services cannot be postponed and neglected. For preventive services like deworming, vaccination and quarantine measures only few well aware farmers have bought their animals. Several people have taken their livestock and pets for treating skin disease, injury, dehydration and for treating disorders as the hospital was located in the semi-urban area. The results are on par with the findings of Tajpara *et al*. (2020) [19].

Table 6: Distribution of Para veterinarians according to their kinds of livestock services n=120

Sl. No	Area of assistance	Average score
1	Curative services	2.78
2	Productive Services	2.68
3	Preventive Services	2.59
4	Diagnostic Services	2.53
5	Miscellaneous Services	2.25

The Table 7 notices that mean scores of infrastructural facilities available at work place for medicine and drugs facilities (3.0) followed by veterinary equipment's (2.67), protection aids (2.34), basic amenities (2.19), conveyances facilities (1.79). The possible reason might be medicine and drugs as an essential demand and the government supplies as to the requirement / demand, need to improve basic amenities, veterinary equipment's, protection aids and conveyance facilities and to meet these, veterinary department require proper flow of funds to run effectively

Table 7: Distribution of para veterinarians based on their basic amenities and facilities available at work place n=120

Sl. No	Facilities	Average score
1	Basic amenities	2.10
2	Conveyance facilities	1.79
3	Protection aids	2.34
4	Veterinary equipments	2.67
5	Medicines and Drugs facilities	3

Looking at the table 8 it reveals that the overall mass media utilization of para veterinarians was found to be nearly half (45.84%) of para veterinarians belonged to high level of mass media utilization followed by medium (33.33%) and low (20.83%) level of mass media utilization. The reason that para veterinarians use social media technology mainly because of the usage of WhatsApp to know the ongoing activities in the department and some of the farmers send photographs of the animals to the para veterinarians to seek advice. They also view the TV programmes and often listen to radio programmes. Moreover, the social media is friendly as it reduces the number of steps in the diffusion process, save time, money and energy, reach the farmers instantly and it is continuously available. Veterinarians had been using digital networking as part of their standard portfolio of communication tools. The findings are similar with Nayak *et al.* (2022) [8].

Table 8: Distribution of para veterinarians based their mass media utilization n=120

Sl. No	Variables	Range	f	%
	Mass media utilization			
1	Low	Less than (mean - 0.425 SD)	25	20.83
2	Medium	In between (mean ± 0.425 SD)	40	33.33
3	High	More than (mean + 0.425 SD)	55	45.84
	Mean=14.25 SD= 2.02			

The cursory look at the table 9 shows the overall strength of organizational linkage between public, private and cooperatives and it reveals that half (50.00%) of para veterinarians had high organizational linkage followed by medium (31.66%) and low (18.34%) organizational linkage. The high to medium organizational linkage of para veterinarians might be due to their cordial relationship with line departments like Agriculture, Horticulture, Sericulture, Cooperatives, Government veterinary hospitals, KVKs, colleges, research institutions, dairy cooperatives, and village panchayath where they deal with current issues of development particularly on livestock farmers on convergence mode of different development programmes directed for the development of the farming community in general and livestock farmers in particular related to animal husbandry. NGOs might help them to share the veterinary-related information, provide advisory services on disease outbreaks on a community basis, quatrain measures and strategies for the empowerment livestock sector. They were linked with district veterinary hospitals as they attend the monthly routine meetings and also to carry the required medicines. But they had very poor linkage with research institutes than what required. Similar results were lined up with Shabeer (2013) [17], Sachin *et al.* (2018) [14].

Table 9. Distribution of para veterinarians based their organizational linkage n=120

Sl. No	Variables	Range	f	%
	Organization linkage			
1	Weak	Less than (mean - 0.425 SD)	22	18.34
2	Average	In between (mean ± 0.425 SD)	38	31.66
3	Strong	More than (mean + 0.425 SD)	60	50.00
	Mean=14.32 SD=2.04			

The results revealed from the table 10 indicated that nearly half (45.84%) of para veterinarians had high level of self-associated risk at work place followed by medium (32.50%) and low (21.66%) level of self-associated risk. The job descriptions for veterinarians, which would include caring for both small and large animals, might be a factor contributing to the work of maintaining hygiene in veterinary hospital premise, laboratory duties, consultancy to the livestock farmers, public and environmental health monitoring and they also performs various administrative duties. Apart from these, there might be an occasional kick, bites and other injuries caused by animals which lead to major injuries that includes strains, dislocations, bruising, contusions and fractures that make them a reluctant patient to a highly fatal. Also, they were highly prone to zoonotic diseases like rabies, brucellosis and TB. There is a need for proper measures to be followed by veterinarians for protecting themselves while treating animals. Similar studies were found in Landge *et al.* (2017) [6], Shubeena and Bhattacharjee. (2019) [18].

Table 10: Distribution of para veterinarians based their Self-associated risk n=120

Sl. No	Variables	Range	f	%
	Self-associated risk			
1	Less risk	Less than (mean - 0.425 SD)	26	21.66
2	Moderate risk	In between (mean ± 0.425 SD)	39	32.50
3	High risk	More than (mean + 0.425 SD)	55	45.84
	Mean= 23.94 SD= 4.02			

The results show from the Table 11 indicated that more than half (52.83%) of para veterinarians belonged to the high level of achievement motivation followed by medium (35.83%) and low (11.64%) level of achievement motivation. The high to medium level of achievement motivation might be due to the fact that they are more motivated towards their work, were animal-centric, social-oriented, always ready to accept the

challenges in their work and were eager to learn new things at work place. Higher achievement motivation directs the behavior and the needs of para veterinarians towards their objectives and tries to improve their self-efficacy and confidence in work. Similar studies were found in Cake *et al.* (2019) [2], and Sarnaik *et al*. (2019) [15].

Table 11: Distribution of para veterinarians based their achievement motivation n=120

Sl. No	Variables	Range	f	%
	Achievement motivation			
1	Less risk	Less than (mean - 0.425 SD)	26	21.66
2	Moderate risk	In between (mean ± 0.425 SD)	39	32.50
3	High risk	More than (mean + 0.425 SD)	55	45.84
	Mean= 23.94 SD= 4.02			

It can be observed from the Table 12 that nearly half (48.34%) of para veterinarians perceived high level of work load followed by medium (35.00%) and low (16.66%) level of workload. Their increased responsibility in attending assignments and multitasking might be the causes of their high to medium workload. More than doing their routine job they were assigned to perform work like rendering doorstep livestock services, participation in the census, following up pre- and post-vaccination schedule, preparation of records, reports on different prevailing schemes and drug stock management. Alongside they were also providing assistance to the superiors in administrative work and extension activities. Another possible reason might be a lack of field personnel in servicing. The results were lined up with Jena and Chander (2022) [5].

Table 12: Distribution of para veterinarians based their perceived workload n=120

Sl. No	Variables	Range	f	%
	Perceived workload			
1	Low	Less than (mean - 0.425 SD)	20	16.66
2	Medium	In between (mean ± 0.425 SD)	32	26.66
3	High	More than (mean + 0.425 SD)	68	56.68
	Mean=13.60 SD=3.46			

The results indicated from the Table 13 that 66.64 percent of the para veterinarians were belonged to the high level of job involvement followed by medium (21.66%) and low (10.00%) level of job involvement. The para veterinarians' high to medium level of job involvement may be due to their strong sense of the importance of their field. As it gives job security to para veterinarians, they were ready to take extra roles and responsibilities at workplace. Besides they were personally engaged in their work for the betterment of farmers community. The findings are line up with Sarnaik *et al.* (2019) [15].

Table 13. Distribution of para veterinarians based their job involvement n=120

Sl. No	Variables	Range	f	%
	Job Involvement			
1	Low	Less than (mean - 0.425 SD)	12	10.00
2	Medium	In between (mean ± 0.425 SD)	26	21.66
3	High	More than (mean + 0.425 SD)	82	66.64
	Mean=27.52 SD= 7.98			

It was clear from the Table 14 that nearly half (48.34%) of the para veterinarians experienced high level of job stress followed by medium (29.16%) and low (22.50%) level of job stress. The shift towards high to medium job stress may be caused by some of the activities designated for para veterinarians being ambiguous and vaguely defined. Majority of them expressed stress due to lack of proper facilities at working place in performing their activities and they had to serve large area of jurisdiction along with lack of man power. The findings are in line with Ratnayake (2018) [12].

Table 14: Distribution of para veterinarians based their job stress n=120

Sl. No	Variables	Range	f	%
	Job stress			
1	Low	Less than (mean - 0.425 SD)	27	22.50
2	Medium	In between (mean ± 0.425 SD)	35	29.16
3	High	More than (mean + 0.425 SD)	58	48.34
	Mean= 15.75 SD=3.50			

It can be observed from the Table 15 that more than half (53.33%) of para veterinarians belonged to high level of self-confidence followed by medium (33.34%) and low (13.33%) level of self-confidence.The para veterinarians, who always saw themselves as successful people, never felt incompetent, never hesitated to think critically in their job, and a feeling that they are contributing something to their job, could be the causes of this phenomenon. Even though they were confident in work they were not allowed to perform their activities democratically. The findings are in line with the findings of Panda (2021) [10].

Table 15: Distribution of para veterinarians based their self confidence n=120

Sl. No	Variables	Range	f	%
	Self confidence			
1	Low	Less than (mean - 0.425 SD)	16	13.33
2	Medium	In between (mean ± 0.425 SD)	40	33.34
3	High	More than (mean + 0.425 SD)	64	53.33
	Mean=13.42 SD=2.13			

The results indicate from the Table 16 that nearly half (47.50%) of the para veterinarians belonged to medium level of job satisfaction followed by high (32.50%) and low (20.00%) level of job satisfaction. The trend of medium to the high level of job satisfaction of para veterinarians might be due to lack of proper infrastructure facilities, lack of risk allowances, facilities for residence at work place/ quarters, absence of flexibility in work policy, need of timely promotion and a smaller number of servicing staffs. The above findings are in line with the findings of Nayak *et al.* (2022).

Table 16. Distribution of para veterinarians based their job satisfaction n=120

Sl. No	Variables	Range	f	%
	Job satisfaction			
1	Low	Less than (mean - 0.425 SD)	18	15.00
2	Medium	In between (mean ± 0.425 SD)	57	47.50
3	High	More than (mean + 0.425 SD)	45	37.50
	Mean=24.51 SD= 3.36			

Conclusion

Looking to the profile characteristics of para veterinarians, the

majority of the veterinarians exhibited high level of mass media utilization, perceived workload, achievement motivation, job involvement, Self-associated risk, self-confidence, organizational linkage, job stress and medium level of job satisfaction, meeting and other interactive sessions and interfaces about their exact duties and responsibilities in each identified area of their work. It can be further empowered para veterinarians with monitoring and evaluation may be put in place for effective results along with proper feedback from the livestock farmers

References

1. Anonymous. Policy and process guidelines for farmer producer organisations. Department of Agriculture and Cooperation, Ministry of Agriculture, Govt. of India. New Delhi, 2017-18. Retrieved on 11th February 2021.
2. Cake MA, Mansfield CF, McArthur ML, Zaki S, Matthew SM. An exploration of the career motivations stated by early-career veterinarians in Australia. J. Vet. Medical Edu. 2019;46(4):545-554.
3. Deekshit GV, Harilal R, Sharma GRK. Livestock Service Delivery in Andhra Pradesh-Status and Perspectives. Ind. Res. J Exten Edu; c2017. p. 1-4.
4. Gopalkrishna BG. Study on role perception and role performance of link workers under W Y T E P Ph.D. (Agri.) thesis, Univ. Agric. Sci. Bengaluru (India); c1997.
5. Jena A, Chander M. Work responsibility of MVU professionals (veterinary surgeons and livestock inspectors) in Kandhamal district of Odisha. The Pharma Innovation J. 2022;8(6):381-385.
6. Landge S, Tripathi H, Banthiya VV. Self-reported risks associated in veterinary Profession. Ind. J Ext. Edu. 2017;53(4):132-135.
7. Nanda SM, Goswami A, Biswas S, Ganguli D, Saha D. Job satisfaction of veterinarians in relation with various socio-personal variables in Odisha and West Bengal states of India. The Pharma Innovation Journal. 2021;11(1):1046-1051.
8. Nayak S, Srinivasa RM, Sudheer B, Vijay K, Raju S. Socio psychological profile of para veterinarians of Nalgonda district of Telangana state. The Pharma Innovation J. 2022;11(11):807-810.
9. NCA. National Commission on Agriculture in India. Part III, Ministry of Agriculture and Irrigation, GOI, New Delhi; c1976. p. 439.
10. Panda A. Influence of profile characteristics of village agricultural workers on role performance in Odisha. Asian J. Agric. Ext. Eco. and Sociology. 2021;39(8):98-107.
11. Rathod P, Chander M, Rajput DS. Livestock extension service delivery by state department of Animal Husbandry, Karnataka: A SWOT analysis. Vet. Pract. 2015;16(1):157-161
12. Ratnayake TC. Organizational climate and differential role performances as perceived by Veterinary Officers of Andhra Pradesh in India. Ph.D. (Agri.) thesis, National Dairy Res. Ins. Karnal (India); c2018.
13. Reddy VM, Triveni G, Sharma GRK, Reddy R. Influence of socio-profile characteristics of veterinary assistant surgeons on their role expectation and job performance. The Pharma Innovation J. 2020;9(6):112-114.
14. Sachin VR, Bordoloi R, Singh R, Singh RJ, Hemochandra L. A study on organizational climate as perceived by the employees of district agricultural offices in Meghalaya. The Pharma Innovation J. 2018;7(12):142-147.
15. Sarnaik SD, Bhople PP, Tekale VS. Association of job performance and job satisfaction with job related facets of subject matter specialists of Krishi Vigyan Kendra. Ind. J. Ext. Edu. 2019;55(4):189-193.
16. Sasidhar PVK, Reddy KVR, Sreenu M. Job satisfaction among the teachers of veterinary faculty in ANGRAU. Res. J. of Angrau. 2012;29(1):50-55.
17. Shabeer AH. Role dynamics of para-veterinary professionals concerning the delivery of livestock health services. Ph.D. (Agri.) Thesis, Indian veterinary res. Ins. Izatnagar (India); c2013.
18. Shubeena. and Bhattacharjee. Assessment of core competencies of livestock extension professionals of Jammu and Kashmir state of India discussion paper 8. Centre for Agricultural Extension Innovations, Reforms and Agripreneurship, MANAGE, Hyderabad; c2019. p. 1-70.
19. Tajpara MM, Kalsariya BN, Dadhania VP. Knowledge of dairy farmers towards improved animal husbandry practices. Guj. J. Ext. Edu. 2020;31(2):163-168.
20. Umali DL, Schwaerz L. Public and private agricultural extension beyond traditional frontiers, Discussion Paper, The World Bank, Washington, D.C; c1994.
21. VCI. Strategies for strengthening of veterinary education and practice sectors, Recommendation of National Seminar held at Hyderabad, India; c2008.
22. Vikash K, Meena HR. Role perception and performance of privately practicing paravets in delivery of animal health services at farmers doorstep: An exploratory study in India, Tropical Animal Health Production. 2021;53(278):1-20.
23. Swain MC, Cole JM. ChemDataExtractor: a toolkit for automated extraction of chemical information from the scientific literature. Journal of chemical information and modeling. 2016 Oct 24;56(10):1894-904.
24. Joshi BK. Conservation and utilization of agro-biodiversity advanced from 1937 to 2017 in Nepal. Krishi Sanchar Smarika (F Devkota, ed). Agricultural Information and Communication Center (AICC), MoAD. 2017:181-208.