



Variables predicting the role performance of field extension functionaries in animal husbandry sector of Karnataka: A multivariate approach

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ABSTRACT

A research work was conducted to study the role performance of Field Extension Functionaries (FEFs) from Department of Animal Husbandry and Veterinary Services (DAH&VS) and Karnataka Milk Federation (KMF), and variables influencing the role performance of FEFs. Ex-post facto research design was employed for the study. The study was restricted to 120 FEFs of DAH&VS and KMF from 2 districts i.e. Bengaluru Rural and Bengaluru Urban districts of Karnataka state. Study indicated that majority (62.50%) of the FEFs were grouped under medium level of role performance category. Exploratory factor analysis (EFA) was used to select the variables suitable for regression model. Extraction method used for EFA was principal axis factoring and finally only 12 variables were picked whose extracted communalities value was >0.40. Testing of regression coefficient revealed that, only six variables viz. job satisfaction marital status, job involvement and information seeking behaviour family occupation and attitude towards work were found to be significant at 1%, 5% and 10% level of significance, respectively. The coefficient of determination value with twelve independent variables indicated that 53.44% of significant variation in the role performance was explained by the independent variables covered under the study which was found to be significant.

Key words: Exploratory factor analysis, Field extension functionaries, Multiple regression analysis, Role performance

Livestock rearing has traditionally been a part of agriculture in India. It plays a crucial role in poverty alleviation and overall socio-economic development of the rural population. Although India has the highest livestock population in the world, with 512.06 million (19th livestock census 2012) but the productivity of animal are much lower than developed countries. This is due to indiscriminate breeding, neglected health care, shortage of feed and fodder, lack of awareness among small farmers, poor guidance on good management practices, non-availability of appropriate technologies and ineffective delivery system (Hedge 2012). In the last few decades, government has launched several animal husbandry developmental programmes which were aimed at the upliftment of socio-economic status of rural poor and their overall development. Most of the developmental programmes are planned and implemented by government agencies, with an active involvement of local organisations on one hand and rural people on the other

hand. The objective of these developmental programmes could be realised only when the field level extension personnel implementing the educational activities perceive and better understand their role in order to perform them with all interest and ingenuity in their respective positions (Patel *et al.* 2016). Levinson (1959) explained role performance in terms of overt behaviour of an individual. It is more or less a characteristic way in which the individual acts as occupant of a position. The role of field extension functionaries (FEFs) is crucial for animal husbandry development as they disseminate the technology developed by the scientist to farmers in the field who in turn use them for raising the animal production. The main concern in human resource development in an organization is the improvement in the performance of its employees. Unless the employees are well informed about their performance and also their strong and weak points, it's very difficult for them to improve their level of performance (Mishra *et al.* 2005). Role performance of FEFs is governed by socio-personal, socio-psychological, organizational and communicational variables involved in situation. All these factors are believed to have direct or indirect influence over role performance of the individual and ultimately realization of organizational goals (Ratnayake and Gupta 2014). Role performance of FEFs varies from individual to individual because of the difference with their personal attributes (Patel

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et al. 2016). For enhancing the performance of the FEFs, it is very important to know the level of performance and also to delineate the factors responsible for it. Therefore, an attempt has been made in this study to analyze the relationship between various independent variables of the FEFs and their role performance.

MATERIALS AND METHODS

The present study was conducted in two districts of Karnataka state namely Bengaluru Rural and Bengaluru Urban and Field Extension Functionaries (FEFs) of Department of Animal Husbandry and Veterinary Services (DAH&VS) and Karnataka Milk Federation (KMF) were selected as the respondents for the study. The ex-post facto research design was used for the study. One hundred and twenty respondents were selected; out of them, 30 respondents from each department of each district were selected through simple random sampling. In the present study, the role performance was operationalized as the degree to which the different job duties (activities) performed by the respondents as the occupants of the post. Role performance was considered as dependent variable, whereas seventeen variables namely designation, age, gender, marital status, educational qualification, rural/urban background, family occupation, work experience, training received, social participation, attitude towards work, job involvement, achievement motivation, job stress, job satisfaction, organisational climate and information seeking behaviour were selected as the independent variables for the study. For the purpose of data collection, a questionnaire was developed. The collected data were scored, compiled, tabulated and analyzed through several appropriate statistical tools and techniques such as mean, standard deviation, frequency, percentage, exploratory factorial analysis and regression analysis. Multivariate analysis was done by using exploratory factor analysis (EFA) coupled with multiple regression analysis. Exploratory factor analysis was used to select the variables suitable for regression model. Extraction method used for EFA was principal axis factoring and the variables whose extracted communalities value was >0.40 were further selected for multiple regression analysis.

RESULTS AND DISCUSSION

The field extension functionaries have an important role to play in animal husbandry development through effective technology transfer. It is important to have clear understanding of their profile as the role performance is influenced by different characteristics of the FEFs.

Data from Table 1 revealed that a considerable percentage (39.17%) of FEFs was veterinary officers and 43.34% belonged to middle aged category. Most of the respondents (62.50%) possessed B.V.Sc & A.H. as basic educational qualification and had medium level of work experience (59.17%) in their job. The experience of FEFs ranged from less than a year to 34 years. Majority of respondents were male (85%) and married (85.17%) having

rural background (80%) and 72.50% of them had farming as their family occupation. Nearly half of the respondents (47.50%) had received 3 to 4 numbers of training in their job. A large proportion of respondents had medium level of achievement motivation (64.17%) and job satisfaction (68.33%), respectively. Nearly two third of the respondents (68.33%) were moderately satisfied with their job and had medium level of information seeking behaviour. A larger proportion of respondents (80.83%) experienced job stress in their job. Majority of respondents (71.67%) have perceived that organisational climate of their work place was favourable and a sizable portion having medium level of information seeking behaviour.

On the basis of self rating technique, the level of role performance as perceived by respondents showed that major share (62.50%) of respondents belonged to medium level whereas 20 and 17.50% of respondents belonged to low and high level of role performance category, respectively. The main reasons for the medium level of role performance of the respondents were medium level of job satisfaction, attitude towards work and job involvement. Lack of appropriate training opportunities, lack of social participation were also the cause of medium level of role performance. Similar contentions had been reported by Nagananda *et al.* (2006) and Goyal *et al.* (2015) who found that majority of respondents had fallen under medium level job performance category.

In order to conduct multiple regression analysis, EFA was used to select the variables that have extracted communalities value >0.40 (Lal *et al.* 2016a). Factor analysis such as PCA or EFA can be used for bringing scientific parsimony among variables or selecting the appropriate set of variables to run in the final regression model as the case in the present study (Lal *et al.* 2016b). In most estimation methods, the communalities are estimated first to set criterion in EFA, so that they can be used for selection of suitable variables to fit in regression model (Blunch 2013). So, the selected variables through EFA were subjected to the multiple regression analysis to identify the important variables which contributed significantly towards the variation in role performance of the respondents.

Before conducting EFA, its suitability was checked through different tests. The EFA estimated the Kaiser-Meyer-Olkin (KMO) value of .687 was far above the cut-off value of 0.5, and a significant Bartlett's Chi-square ($\chi^2=821.651, P<0.001; df=136$) justified the sampling adequacy test (Table 2).

Five factors that exceeded the Eigen value of one were retained for promax rotation. Variance explained by 5 initial Eigen values >1 was 64.585% of the total variance in the data, which is well above the standard level of 60% (Table 3). Rotation method for the study was Promax with Kaiser Normalization, whilst rotation converged in 7 iterations. Extraction Method used was principal axis factoring among the factors. Factor 1 explained maximum variance (25.461%) and had highest Eigen value (4.328). Only 12 factors had extracted communalities value >0.40 and thus

Table 1. Socio-personal, socio-psychological, organizational and communicational profile of the respondents

Variable	Category	Frequency	Percentage
<i>Socio-personal profile</i>			
Designation	Veterinary Officer	47	39.17
	Assistant Director	13	10.83
	Extension Officer	24	20.00
	Assistant Manager	13	10.83
	Deputy Manager	23	19.17
Age (in years)	Young (Up to 35)	34	28.33
	Middle (36-50)	52	43.34
	Old (Above 50)	34	28.33
Gender	Male	102	85.00
	Female	18	15.00
Marital status	Married	103	85.83
	Unmarried	17	14.17
Education qualification	UG/PG Graduates	21	17.50
	Professional UG (B.V.Sc. & AH)	75	62.50
	Professional PG (M.V.Sc.)	24	20.00
	Ph.D.	00	00
Rural/urban background	Rural	96	80.00
	Urban	24	20.00
Family occupation	Farming	87	72.50
	Non-farming	33	27.50
Work experience	Low (<5.96)	27	22.50
	Medium (5.96 to 26.21 years)	71	59.17
	High (>26.21 years)	22	18.33
Training received	No training	15	12.50
	1 to 2 numbers	28	23.33
	3 to 4 numbers	57	47.50
	More than 4 numbers	20	16.67
Social participation	No participation	72	60.00
	Membership in 1 to 3 organisations	35	29.17
	Membership in more than 3 organisations	6	5.00
	Officer bearer in any organisation	7	5.83
<i>Socio-psychological profile</i>			
Attitude towards work	Less favourable (<26.13)	23	19.17
	Favourable (26.13 to 32.44)	78	65.00
	More favourable (>32.44)	19	15.83
Job involvement	Low (<21.43)	21	17.50
	Medium (21.44 to 26.93)	85	70.83
	High (>26.93)	14	11.67
Achievement motivation	Low (<22.20)	27	22.50
	Medium (22.20 to 26.85)	77	64.17
	High(>26.85)	16	13.33
Job stress	Low (<12.97)	12	10.00
	Medium (12.97- 18.29)	97	80.83
	High(>18.29)	11	9.17
Job satisfaction	Dissatisfied (<23.12)	24	20.00
	Moderately satisfied (23.12 to 31.87)	82	68.33
	Highly satisfied (>31.87)	14	11.67
<i>Organisational profile</i>			
Organisational climate	Less favourable (<29.91)	22	18.33
	Favourable (29.91 to 39.74)	86	71.67
	Most favourable (>39.74)	12	10.00
<i>Communicational profile</i>			
Information seeking behaviour	Low (<22.8)	26	21.67
	Medium (22.8 to 31.2)	77	64.17
	High (>31.2)	17	14.16

Table 2. Test of sampling adequacy and its significance level (n=120)

KMO and Bartlett's Test		
Kaiser-Meyer-Olk in measure of sampling adequacy		.687
Bartlett's Test of Sphericity	Approx. Chi-Square	821.651
	df	136
	Sig.	.000

Table 3. Eigen values, cumulative explained variance (%) and communalities of the factor (n=120)

Factor	Eigen values	% of Variance	Cumulative %	Initial communalities	Extracted communalities*
F1	4.328	25.461	25.461	.673	.840
F2	2.247	13.217	38.678	.892	.887
F3	1.670	9.823	48.501	.295	.234
F4	1.529	8.995	57.496	.478	.447
F5	1.205	7.089	64.585	.442	.540
F6	.960	5.648	70.233	.364	.341
F7	.824	4.848	75.081	.351	.775
F8	.808	4.755	79.836	.907	.891
F9	.608	3.578	83.414	.498	.496
F10	.587	3.450	86.864	.236	.252
F11	.466	2.739	89.603	.470	.543
F12	.442	2.601	92.205	.446	.476
F13	.408	2.401	94.606	.380	.358
F14	.358	2.108	96.713	.395	.311
F15	.296	1.739	98.452	.435	.445
F16	.210	1.238	99.691	.364	.420
F17	.053	.309	100.000	.324	.429

*Sequential extracted communalities is of the variables (F1-F17) taken in Table 1.

retained for final multiple regression analysis Table 3.

Multiple regression analysis was analyzed to identify the contributing variables which contribute, significantly towards the variation in role performance of the respondents. The findings from Table 4 indicated that the R² value with twelve independent variables turned out to be 0.5344 with F value 10.236 which was found to be significant (P<0.01). Thus, it indicated that 53.44% of the significant variation in the role performance was explained by the independent variables covered under the study.

Detailed explanation of dependent variables through multiple regression analysis

It was found that only six variables namely job satisfaction (P<0.01), marital status, job involvement and information seeking behaviour (P<0.05), family occupation and attitude towards work (P<0.10) were found to be significant at 1%, 5% and 10% level of significance; whereas other six variables namely designation, age, work experience, educational qualification, training received and organisational climate of FEFs had non-significant relationship with their role performance (Table 4).

Age and experience had non-significant relationship with role performance of FEFs as with growing years the FEFs got experienced and get adopted to routine activities. It was also due to the reason that with increase in experience, FEFs might have acquainted the differentiating ability to perform selected activities with the available resources and manpower. This result was in conformity with the findings of Rao and Sohal (1985), Reddy *et al.* (1995), Manjunath and Shashidhra (2011) and Ratnayake and Gupta (2014) who reported that there was non-significant association between experience and role performance. The results were not in accordance with Goyal *et al.* (2013), who reported

Table 4. Multiple linear regression analysis of the independent variables with role performance

Variable number	Independent variable	'b' value	SE	't' value	'p' value
	Intercept	22.243	13.758	1.616	0.108
X1	Designation	-1.608	1.133	-1.418	0.158
X3	Age	0.164	0.219	0.751	0.454
X4	Marital status	-7.069	3.182	-2.221	0.028**
X5	Educational qualification	2.343	1.745	1.342	0.182
X7	Family occupation	-3.281	1.961	-1.673	0.097*
X8	Work experience	0.090	0.253	0.357	0.721
X9	Training received	0.510	0.669	0.762	0.447
X11	Attitude towards work	0.819	0.449	1.823	0.070*
X12	Job involvement	0.880	0.386	2.281	0.024**
X15	Job satisfaction	0.750	0.233	3.214	0.001***
X16	Organisational climate	0.197	0.190	1.039	0.300
X17	Information seeking behaviour	0.453	0.227	1.994	0.048**

$$R^2 = 0.5344 \quad F = 10.236^{***}$$

$$Y = 22.243 - 1.608X_1 + 0.164X_3 - 7.069X_4 + 2.343X_5 - 3.281X_7 + 0.090X_8 + 0.510X_9 + 0.819X_{11} + 0.880X_{12} + 0.750X_{13} + 0.197X_{16} + 0.453X_{17}$$

Dependent variable, Role performance; ***Significant at the 0.01 level of significance; R², Coefficient of determination; **Significant at the 0.05 level of significance; *Significant at the 0.10 level of significance. 'b' value, Regression coefficient value; SE, Standard error.

that there was a positive and significant relationship between work experience and job performance of veterinary officers of Haryana.

Marital status of FEFs had negative and significant relationship with their role performance ($P < 0.10$). The probable reason was that mostly married respondents were of medium to old age and they had more experience than younger ones. With time, they had attained maturity in their job. While, in case of unmarried respondents, they were mostly young and had less experience and consequently belonged to low performance category. The above finding was in line with the finding of Patel (2006) who reported that marital status had negative relationship with role performance of extension personnel of Gujarat.

Educational qualification of the respondents had non-significant relationship with their role performance. Most of respondents were recruited on the basis of B.V.Sc & AH, which might be the reason of non-significant association of education with their role performance. Role performance not only depends on the level of formal education but also on the others factors like practical orientation, integration of knowledge and skills, good communication skills, favourable attitude towards work, competency etc. This finding was in line with the findings of Mishra *et al.* (2011), Ratnayake and Gupta (2014) and Goyal *et al.* (2015), who also reported non-significant relationship between the education and role performance.

Family occupation of FEFs had negative and significant relationship with their role performance ($P < 0.10$). This shows that the family occupation (non farming) had negative significant influence on role performance of FEFs. The probable reason for it was that if the respondents were having farming as family occupation then, s/he is somewhat close to the agriculture sector and closely recognises the needs and problems of farmers and wants to address those problems and needs. This finding was not in accordance with Sundraswamy and Perumal (1992) who reported that rural/urban background did not significantly affect the job performance of AAOs, and was in line with Gogoi and Talukdar (1998) who found that family background significantly associated with role performance of scientist.

Training received by FEFs was found to be non-significantly associated with role performance of FEFs. This could be due to the fact that nearly half of the respondents received only 3–4 numbers of training in their whole career, which is insufficient to increase their level of performance, and therefore number of trainings should be increased. The result was not in line with the results obtained by Patel (2005) and was in line with Sandika *et al.* (2007).

Attitude towards work of FEFs had significant relationship with their role performance ($P < 0.01$). It could be concluded that FEFs with positive attitude towards work had higher level of role performance. Attitude is a psychological variable upon which other variables like concentration, commitment and dedication of FEFs are built up and hence ultimately it has influence on their role performance. This finding is in accordance with that of Patel

(2006).

Job involvement also had a significant relationship with respondents' level of role performance ($P < 0.01$). The probable reason for better role performance might be due to the fact that the job involvement of respondents made them to consider work as an important part of life and he/she had an affinity with whole job situation *viz.*, the work itself, their co-workers and the organization, which resulted in better job performance. The finding is in line with Patel (2006) and Goyal *et al.* (2015).

Job satisfaction level of FEFs had highly significant relationship with their role performance ($P < 0.01$). It is an established fact that the performance of any individual is largely affected by the satisfaction which leads to qualitative and quantitative improvement in overall role performance. Satisfaction in job induces motivation and interest in work and role performance depends on one's motivation which is ultimately determined by power of existing incentives as well as disincentives aimed at transformation of the ability to do in to will to do. This finding is in accordance with Patel (2006) and Manjunath and Shashidhra (2011) who found positive association between job performance and level of job satisfaction of extension personnel.

Organisational Climate (OC) had non-significant relationship with role performance of FEFs. It is due to the fact that majority of respondents perceived that the organisational climate in which they were working was favourable to their working. The findings were contrary to findings of Manjunath and Shashidhra (2011), who found that OC is significantly and positively correlated with job performance of extension workers of Dharwad, Karnataka.

Information seeking behaviour of respondents had significant relationship with role performance ($P < 0.05$). It might be due to the fact that the person who consult various sources of information got acquainted with new ideas, different methods and techniques of approaching problems; collected practical knowledge and skills on various aspects of problems of job which developed confidence in the individual which in turn motivated him to do his best in his assigned work. Hence, significant relationship was observed between information seeking behaviour and role performance of FEFs. The results were in line with Goyal *et al.* (2015) who found significant and positive relationship between role performance and sources of information utilization while results were not in line with Sandika *et al.* (2007), who found that information seeking behaviour positively associated with job performance of veterinary officers and village livestock inspectors of Belgaum district of North Karnataka.

Role performance of FEFs is governed by several factors which affect working of FEFs, and it is very important to predict the influencing factors so that the performance of FEFs can be increased efficiently. From the study, it can be concluded that majority of FEFs had medium level of role performance, which needs to be increased. The study also revealed that marital status, family occupation, attitude towards work, job involvement, job satisfaction and

information seeking behaviour were the six main contributing factors that influenced the role performance of FEFs. Policy makers of both departments need to pay more attention on elements of human resource management strategies especially in terms of awards, rewards, appreciation of hard work, policies related to promotion and transfer; so that FEFs can feel more satisfied with their job. Various information sources should be made available to FEFs for gathering information related to their job which can increase their professional knowledge. Job schedule should include some interesting activities to encourage their involvement in their job. In a phased manner, it is desirable to improve infrastructural facilities and resource availability of FEFs for efficient livestock service delivery.

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