Indian Journal of Extension Education
Vol. 54, No. 2, 2018 (83-88)

Occupational Stress of Farm Scientists Working in Agricultural Universities

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ABSTRACT

Right from the day of entering into service till the day of retirement, a farm scientist is invariably exposed to various stressful situations for one reason or others. In the field of work and organizational psychology, too, the concept of stress has obtained its own position under job stress. Stress is the mental and physical condition. The stress of the farm scientists was measured through the Occupational Stress Indicator (OSI) scale of Cooper *et al*. (1987) and Job Satisfaction was measured with the Quin and Shepard (1974) Scale. This research work was conducted in Bidhan Chandra Krishi Viswavidyalaya and Uttar Banga Krishi Viswavidyalaya. The complete enumeration method was followed and sample size was ninety six. Major contributing factors associated with the occupational stress of the farm scientist were organizational communication, task performance, skills utilization and psychological "feel" in organization and out of these four factors task performance was the best single predictor of job satisfaction in relation to OSI. Twenty two variables were clustered in six factors.

Keywords: factor analysis, job satisfaction, regression, task performance

INTRODUCTION

Farm scientists working in an agricultural university must have to work with the goals of the organization. Right from the day of entering into service till the day of retirement, a farm scientist is invariably exposed to various stressful situations for one reason or other. In the field of work and organizational psychology, too, the concept of stress has obtained its own position under job stress. Job stress refers to a situation wherein job related factors interact with the worker to change, *i.e.,* disrupt or enhance, his or her psychological and /or physiological condition such that the person is forced to deviate from normal functioning. Job stress is the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker. Stress is the mental and physical condition that results from a perceived threat of danger (Greca, 1985); mental reactions to stressors or stimuli in the environment *i.e.* the boss, co-workers, human resource management policies *etc*. (Ivancevich, 1995), predictable arousal of psychological system (Gangopadhyay, 1996). Pace of change within the industry, new technological development, quantitative workload, staff shortages (Broadbridge, 2002); work overload, time pressures, poor quality of supervision, insecure job climate, lack of personal control, inadequate authority to match responsibilities, role conflict and ambiguity (Newstrom and Davis, 2002); no proper facilities in the work environment, solving technical problems and delay in promotion were expressed as major job stress sources (Shankar and Murthy, 2002); poor organizational

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structure, climate and interpersonal relations; work inhibitions, lack of resources, inconsiderate superior and role ambiguity (Kang and Singh, 2004); turnover intention and role difficulties generated the strongest predictive relationships with job stress (Dowden and Tellier, 2004); interference of job in personal life, unsupportive colleagues, work overload, and continuous pressure for improved performance (Sing, 2005) had been found to be causing stress. Occupational stressors contribute to organizational inefficiency, absenteeism, sickness, decreased quality, and quantity of practice, increased costs of health care, and decreased job satisfaction (Reddy and Poornima, 2012). The present investigation was conducted with the objective to assess the job satisfaction of farm scientists in relation to their job stress.

METHODOLOGY

The study was conducted at the main campus of Bidhan Chandra Krishi Viswavidyalaya and Uttar Banga Krishi Viswavidyalaya in West Bengal. All the farm scientists working in the main campus of both universities for more than three years were the respondents of the study. The sample size was 96. Since the respondents were highly educated, henceforth, it was found to develop an appropriate questionnaire for the collection of necessary required data. For the assessment of job satisfaction the scale developed by Quinn and Shepard (1974) was administered, however for Occupational Stress Indicator (OSI) the scale of Cooper *et al.* (1987) were employed. For the Analysis of the data the SPSS-PC was administered.

RESULTS AND DISCUSSION

The reliability was estimated through Cronbach's alpha. Cronbach's alpha is used as an appropriate method for instruments with items scored along a continuum (on a Likert scale) (Mueller, 1986). The Cronbach's alpha was 0.717 (N=7) for job satisfaction scale and for OSI scale the Cronbach's alpha was 0.886 (N=22). So, the scale had passed the Reliability Statistics for internal consistency as the reliability coefficient of 0.70 or higher is considered "acceptable" in most social science research situations.

The above stated table (Table 1) was the perusal of interrelationship of Occupational Stress Indicators (OSIs) with the job satisfaction, obtained through the Pearson product-moment correlation coefficient. From the above table, it was interesting to note that

Table 1: Correlation Coefficient between job satisfaction and Occupational Stress Indicators

n=96

Occupational Stress Indicators	*r*-value
Communication and way information flow's around your organization (X_1).	0.416**
The relationships you have with other people at work (X_2).	0.243*
The feeling you have about the way your efforts are valued (X_3).	0.315**
The actual job itself (X_4).	0.176NS
The degree to which you feel motivated by your job (X_5).	0.374**
Current career opportunities (X_6).	0.349**
The level of job security in your present job (X_7).	0.345**
The extent to which you may identify with the public image or goals of your organization (X_8).	0.107 NS
The style of supervision that your superior use (X_9).	0.306**
The way changes and innovation are implemented (X_{10}).	0.390**
The kind of work or task you are required to perform (X_{11}).	0.459**
The degree to which you feel that you can personally develop or grow in your job (X_{12}).	0.304**
The way in which conflicts are resolved in your organization (X_{13}).	0.379**
The scope your job provides to help you achieve your aspirations and ambitions (X_{14}).	0.337**
The amount of participation which you are given in important decision making (X_{15}).	0.359**
The degrees to which your jobs tap the range of skills which you feel you possess (X_{16}).	0.445**
The amount of flexibility and freedom you feel you have in your job (X_{17}).	0.342**
The psychological "feel" or climate that dominates in your organization (X_{18}).	0.469**
Your level of salary relative to your experience (X_{19}).	0.196 NS
The design or shape of your organization's structure (X_{20}).	0.243**
The amount of work you are given to do whether too much or too little (X_{21}).	0.342**
The degree to which your feeling extended in your job (X_{22}).	0.363**

*Significant at the 0.05 level. ** Significant at the 0.01 level. NS =Non Significant.

all the factors of OSIs were positively correlated with the job satisfaction. However, nineteen factors of OSI were positively and significantly correlated with job satisfaction and out of these nineteen factors, eighteen factors were correlated with at 0.01 level of significance these attributes were organizational communication (X_1), way efforts were valued (X_3), motivation in job (X_5), current career opportunities (X_6), job security (X_7), style of supervision (X_9), innovation implementation (X_{10}), task performance (X_{11}), personal growth in job (X_{12}), conflicts resolution in organization (X_{13}), achieving aspirations and ambitions in job (X_{14}), participation in decision making (X_{15}), skills utilization (X_{16}), flexibility and freedom in job (X_{17}), psychological "feel" in organization (X_{18}), organizational structure (X_{20}), workload (X_{21}) and feeling extended in job (X_{22}). The variables those were not significantly related with the job satisfaction were actual job itself (X_4), identification with the public image or goals organization (X_8) and level of salary relative to experience (X_{19}).

The result of the Stepwise Multiple Regression Analysis from the above Table 2 reveals that variables communication of organization (X_1), task performance (X_{11}), skills utilization (X_{16}) and psychological "feel" in organization (X_{18}) had jointly explained 37.20 per cent of the variance to the dependent variables job satisfaction. R-value *i.e. multivariate equivalent* indicates the strong relationship between the combination of independent variables (X_1, X_{11}, X_{16} and X_{18}) and job satisfaction. Result also indicated that task performance (X_{11}) was the best single predictor of job satisfaction as it alone explained 23.20 per cent variation.

Table 2: Result of the Stepwise Multiple Regression of job satisfaction on four significant variables of occupational stress

Independent Variables entered stepwise in equation	Multiple R	R Square
X_{11}	0.482	0.232
X_{11} and X_{18}	0.542	0.293
X_1 X_{11} and X_{18}	0.585	0.342
X_1, X_{11}, X_{16} and X_{18}	0.610	0.372[#]

[[#]While in natural science research it is not uncommon to get R square values as high as 0.99, a much lower value (0.10 – 0.20) of R square is acceptable in social science research (Gaur and Gaur, 2006)].

In the present investigation universe was the sample (As complete enumeration had been adopted) hence Factor Analysis was used. To bring out an easily comprehensible simple structure of determinants of job satisfaction, Factor Analysis of the 22 variables was done with the responses obtained from the total number of 96 respondents. For extraction of factors, the Principal Component Analysis method was followed with Varimax rotation. In the present study, the Eigenvalues which were greater than 1 were retained. The perusal of table 3 is given below-

In respect of the independent variables, the following Eigenvalues were greater than 1.

6.738, 2.728, 1.749, 1.589, 1.182, 1.023.

The total variance per cent explained by the Eigenvalues were as below.

30.626, 12.402, 7.949, 7.221, 5.373, 4.652.

The cumulative percentage of the Eigenvalues were

30.626, 43.028, 50.977, 58.198, 63.571, 68.223.

Total Variance Explained, we see that the Eigenvalue for the first factor is quite a bit larger than the eigenvalue for the next factor (6.738 versus 2.728). Additionally, the first factor accounts for 30.63% of the total variance. This suggests that the scale items are unidimensional (Table 3).

For interpretation of the factors, variables with high factor loadings and high communality were taken into consideration. The six factors represented about 68 per cent of the total data variance. The rotated factor (Varimax) matrix of the independent variables with their communalities is presented in the Table 3.

Factor 1:

Factor 1 accounted for 31 per cent of the total data variability. Five determinants of job satisfaction with high factor loadings and high communality were taken for interpretation this factor. These variables were X_9 (Style of supervision by superior), X_{10} (Way

Table 3: Rotated Component Matrix of Occupational Stress Indicators

Var.	Factors						Communality
	1	2	3	4	5	6	
X_1	0.704	**0.199**	**0.0074**	**0.0298**	**0.353**	**0.133**	**0.679**
X_2	0.220	**0.684**	0.112	-0.151	0.096	-0.138	0.581
X_3	**0.621**	0.041	0.197	-0.235	0.506	0.210	0.782
X_4	-0.072	0.047	0.144	0.161	**0.742**	-0.025	0.605
X_5	**-0.123**	0.768	**0.270**	**0.131**	**0.145**	**0.0256**	**0.716**
X_6	0.213	0.111	**0.715**	0.142	0.196	-0.0817	0.635
X_7	0.054	0.192	**0.723**	0.140	-0.104	-0.0606	0.597
X_8	0.326	0.207	-0.0771	-0.079	**0.748**	-0.056	0.719
X_9	0.851	**0.150**	**-0.0104**	**0.147**	**0.0442**	**0.142**	**0.791**
X_{10}	**0.848**	0.159	0.032	-0.0815	0.124	0.164	0.794
X_{11}	0.269	0.350	**0.476**	0.469	0.0714	-0.149	0.668
X_{12}	0.0741	**0.715**	0.0323	0.152	0.332	0.166	0.679
X_{13}	**0.466**	**0.0995**	**0.151**	**0.0643**	0.556	**0.354**	**0.689**
X_{14}	0.248	0.158	0.323	**0.528**	0.340	0.0815	0.592
X_{15}	**0.709**	-0.170	0.184	0.396	-0.118	-0.0766	0.743
X_{16}	0.282	0.453	0.192	**0.510**	-0.0345	0.0615	0.587
X_{17}	**0.128**	0.686	**0.0817**	**0.236**	**-0.130**	**0.342**	**0.684**
X_{18}	0.408	0.245	0.251	0.256	0.0219	**0.485**	0.591
X_{19}	-0.191	0.033	**0.729**	-0.047	0.178	0.387	0.752
X_{20}	0.418	0.0812	-0.120	0.183	0.0320	**0.753**	0.797
X_{21}	-0.141	0.0374	0.0687	**0.795**	0.0734	0.214	0.710
X_{22}	0.173	**0.552**	0.0144	0.529	0.0499	0.0505	0.620

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax.

changes and innovation implemented), X_{15} (Participation in decision making), X_1 (Communication and way information flow's around organization) and X_3 (Way efforts of employee are valued). The factor loadings of these five variables were all positive and factor loadings were 0.851 (X_9), 0.848 (X_{10}), 0.709 (X_{15}), 0.704 (X_1) and 0.621 (X_3) respectively. These five variables were found to be positively and significantly correlated with each other.

Factor 2:

Factor 2 had explained 12 per cent of total data variability. Five variables were chosen for interpretation of the factor. These variables were X_5 (Degree of motivation in job), X_{12} (Feeling on personal development or grow in job), X_{17} (Flexibility and freedom in job), X_2 (Relationships with other people at work) and X_{22} (Feeling extended in job). Loadings of these variables were positive and loadings were 0.768 (X_5), 0.715 (X_{12}), 0.686 (X_{17}), 0.684 (X_2) and 0.552 (X_{22}) respectively. These five variables were found to be positively and significantly correlated with each other.

Factor 3:

Factor 3 had explained near about 8 per cent of total data variability. Variables those were chosen for interpretation of the factor were X_{19} (Level of salary relative to experience), X_7 (Job security in job), X_6 (Current career opportunities) and X_{11} (Work or task required to perform) and factor loadings of these determinants of job satisfaction were all positive and loadings were and 0.729 (X_{19}), 0.723 (X_7), 0.715 (X_6)

and 0.476 (X_{11}) respectively. These four variables were found to be positively and significantly correlated with each other.

Factor 4:

Factor 4 accounted for 7 per cent of the total data variability. Variables those were chosen for interpretation of the factor were X_{21} (Workload), X_{14} (Achieving aspirations and ambitions) and X_{16} (Jobs taps the range of skills which you feel you possess) and factor loadings of these determinants of job satisfaction were all positive and value of loadings were 0.795 (X_{21}), 0.528 (X_{14}) and 0.510 (X_{16}). These three variables were found to be positively and significantly correlated with each other.

Factor 5:

Factor 5 accounted for 5 per cent of the total data variability. Three variables were chosen for interpretation of this factor. Factor loadings of these variables were all positive. The variables were X_8 (Identifying with the public image or goals of organization), X_4 (Actual job itself) and X_{13} (Way in which conflicts are resolved in organization) and their loadings were 0.748 (X_8), 0.742 (X_4) and 0.556 (X_{13}). These three variables were found to be positively and significantly correlated with each other.

Factor 6:

Factor 6 accounted near about 5 per cent of the total data variance. Variables those were chosen for interpretation of the factor were X_{20} (Design or shape of your organization's structure) and X_{18} (Psychological "feel" or climate of organization) and factor loadings of these determinants of job satisfaction were all positive and loadings values were 0.753 (X_{20}) and 0.485 (X_{18}). These two variables were found to be positively and significantly correlated with each other at 1 per cent level.

CONCLUSION

For the Agricultural Universities, the resource limitation is the main barrier for the continuing growth. These resources are two types human and non-human (such as physical and financial *etc.*). Among these resources, human resource is the most vital. Because non-human resource can be better utilized by motivating human resource. Human Resource management experts conceptualized that each human being is born as something new, something that never existed before. Each is born with the capabilities and limitations. So, organization should give special emphasis for human resource management and development. Fact is that as Farm Scientists work in agricultural universities they had experiences number of stress generating factors and these factors were associated with Job satisfaction. From the study it might be concluded that –

Occupational Stress Indicators (OSIs) those were positive significantly correlated with job satisfaction were communication of organization, way efforts were valued, feel motivated by job, current career opportunities, job security, style of supervision, innovation implementation, task performance, personal growth in job, conflicts resolution in organization, achieving aspirations and ambitions in job, participation in decision making, skills utilization, flexibility and freedom in job, psychological "feel" in organization, organizational structure, workload and feeling extended in job. Major contributing factors associated with OSI were communication of organization, task performance, skills utilization and psychological "feel" in organization and out of these four factors task performance was the best single predictor of job satisfaction in relation to OSI. So, aforesaid factors influenced job satisfaction of the farm scientists. From this result, it can be concluded that these occupational stress indicators should be managed properly for better job satisfaction of the farm scientists in agricultural universities.

The variables style of supervision, way changes and innovation implemented, Participation in decision making, Communication of organization and way efforts valued showed similar type of trend and consequent those were under factor one. However, the variable feel motivated by job, personal growth in

job, flexibility and freedom in job, relationships have with other people at work and feeling extended in job were clubbed into Factor another and named as Factor Two. Under the Factor three there were four variables and those were level of job security job, Current career opportunities and kind of work or task required to perform. The variables those were under Factor Four were workload, job provides to achieve aspirations and ambitions and jobs taps the range of skills. Identifying oneself with the public image or goals of organization, the actual job itself and way conflicts were resolved in organization were placed in Factor five. The organizational structure and psychological "feel" or climate that dominates in organization were under the Factor six. So, occupational stress indicators should be considered in association as per Factors, rather than isolation for getting better job satisfaction of farm scientists in agricultural universities.

Paper received on : December 11, 2017
Accepted on : December 27, 2017

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