

Factors Contributing to Organizational Job Stress among Dairy Scientists

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Abstract

In the Indian Council of Agricultural Research system, all the scientists, irrespective of their specialization are expected to devote their time and efforts in certain domains like research, teaching and extension; and in each of these perspectives, they may undergo some job stress. This study was conducted to measure and compare the level of organizational job stress among dairy scientists and to find out the factors responsible for organizational job stress. A total of 120 scientists, with a minimum five years of job experience were purposively selected. The level of stress was found moderate. Scientists were found to be having slightly more amount of stress than other categories. Personal and organizational factors were found to be most important factors contributing to job stress with 44.47 per cent variance. The factors yielded when regressed with job stress, accounted for 57.80 per cent variance. Only social factors showed a positive and significant relation with stress.

Introduction

Development of a nation depends on its scientific advancement and its application in enhancing the 'quality of life' (QOL) of its people. Further, the importance of science in agriculture is very crucial, particularly in developing countries like India, where agriculture is still contributing around 25 per cent to total Gross Domestic Product (Rai, 2004).

The main strength of any scientific organization is its scientists. They are very different in their needs, desires, aspirations and way of working than individuals in other enterprises. In the ICAR system, all the scientists, irrespective of their specialization are expected to devote their work time and efforts in certain domains like research, teaching and extension; and in each of these perspectives, they may undergo some sort of job stress. Keeping in view these facts, the study included the following specific objectives:

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1. To measure and compare the level of organizational job stress among dairy scientists
2. To find out the factors responsible for organizational job stress

According to Robbins (1999) a high level of stress, or even a moderate amount of stress sustained over a long period of time, eventually takes its toll, and performance declines.

Methodology

The National Dairy Research Institute, Karnal alongwith its two regional stations was selected, purposively, as this institute happens to be an important constituent of the Indian Council of Agricultural Research system. A total of 120 scientists (across three different cadres/ designations), with a minimum five years job experience were purposively selected, as the respondents of this study. The data were collected personally through interview schedule. Respondents included 108 males and 12 female scientists. The selected variables were classified as antecedent, intervening and consequent variables. Antecedent variables were further categorized into personal, social, psychological and organizational variables.

Findings

For the measurement of organizational job stress the scale developed by Singh (1989) was adopted with little modifications. The Scale contained ten dimensions. The level of stress prevailing among the scientists of NDRI was quantified by computing simple mean of the total score obtained by individual scientists. The mean scores obtained by different categories of scientists may be seen in Table 1. The maximum score one can obtain on the scale is 125 and the minimum is 25.

Table 1: Mean Stress Scores of different Scientists' Categories (N = 120)

S.No	Scientists category	N	Mean	S.D
1	Principal Scientists	40	54.85	14.25
2	Senior Scientists	40	55.87	11.03
3	Scientists	40	58.02	10.93
	Total	120	56.25	12.14

The level of stress experienced by the present sample ranged from 25 to 87. On the basis of the obtained score, respondents were classified into five categories, viz. very low, low, moderate, high and very high stress.

Table 2: Different levels of stress

(N = 120)

S.No	Level of stress	Number of scientists	Percentage
1	Very low	11	9.17
2	Low	31	25.83
3	Moderate	37	30.83
4	High	30	25.00
5	Very high	11	9.17
	Total	120	100

Slightly more than one- fourth of the sample (30.83 %) fell under moderate category, followed by low (25.83 %) and high (25 %) categories (Table 2). The moderate to high level of stress may be due to various job demands in terms of work load, responsibility, role conflicts, building professional competence of scientists' cadre, dead lines, academic pressure etc.

Further, student 't- test' was employed to know the mean difference in stress scores for different categories of scientists. All values were found to be not significant. However, it could be noticed that the Scientists (cadre) are having slightly more amount of stress than other categories of scientists viz., Senior Scientists and Principal Scientists. The reasons might be due to problems of adjustment with the norms and culture of the organization, as they were having a relatively shorter stay in the present institute and might also be due to high work enthusiasm, role ambiguity, failure to meet targets, hindrances in the attainment of goals, etc.

Identification of Factors

The data were subjected to factor analysis so that the variables could be grouped into meaningful factors. Principal component factor analysis with varimax rotation was used to extract the factors and these factors were used for further analysis.

The whole sample data were subjected to factor analysis and rotated component matrix was obtained. Four groups of factors were yielded from analysis, which underlie the job stress of dairy scientists. Since the aim of the analysis was to investigate the factors responsible for stress, the factors were first identified, as to which category they belonged to, viz., personal, social, psychological and organizational or any combination (Table 3).

Table 3: Factor Loadings of antecedent variables with respect to Job Stress
(N = 120)

S.No	Variables	Factor I	Factor II	Factor III	Factor IV	Community
1.	Age	0.961	0.07552	0.04785	0.112	0.925
2.	Job experience	0.960	0.04793	0.03618	0.06913	0.930
3.	Individual performance in Scientific Research	0.762	0.143	0.1420	0.01150	0.621
4.	Marital Status	-0.278	0.560	-0.395	0.404	0.710
5.	Family type	0.08929	-0.05781	0.138	0.892	0.827
6.	Promotion	0.217	0.614	-0.02599	-0.383	0.572
7.	Interpersonal trust	0.193	-0.09906	-0.759	-0.004497	0.623
8.	Motivational organizational climate	0.189	0.651	0.256	-0.286	0.606
9.	Physical facilities	0.246	0.143	0.632	0.156	0.505

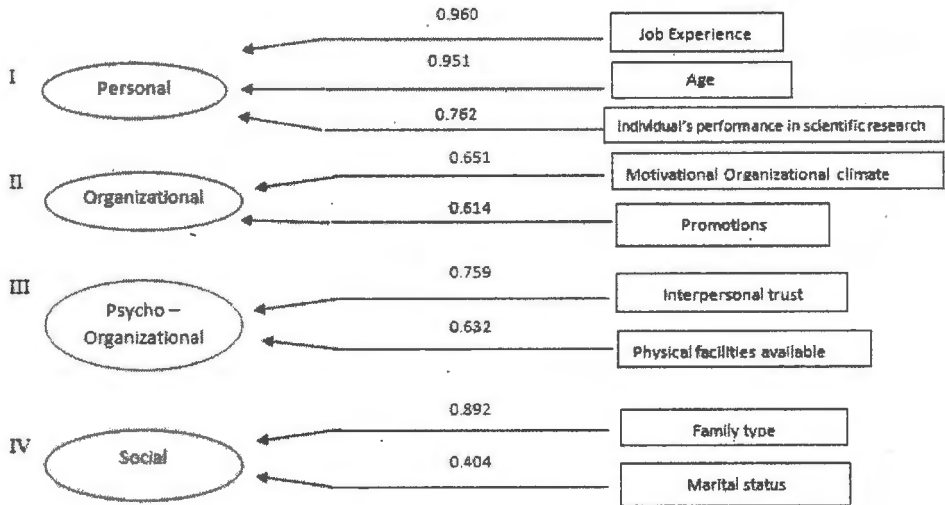
It is evident from Table 3 that there were 3 variables in factor 1, two variables each in factor II, factor III and factor IV, which were observed to have significant factor loadings. The four groups of factors with their loadings are presented in Figure 1.

Age (0.961), job experience (0.960) and individual's performance in scientific research (0.762) can be seen in Table 3. The first factor accounted for 29.163 per cent of variation. These three variables were considered as high loading variables. These characteristics had shown direct bearing on the organizational stress of dairy scientists. Hence, this factor is identified as a 'personal' factor.

The variables, viz., motivational organizational climate (0.651) and promotions (0.614) had significant factor loading on factor II. This second factor accounted for 15.313 per cent of total variation. This factor is an 'organizational' factor, as these variables belonged to the organizational group of antecedent variables.

Fig.1. Variables with factor loadings under different factors for Stress among Dairy Scientists

(N = 120)



Variables like interpersonal trust and physical facilities available were found to have high significant loading on factor III. This factor accounted for 13.670 per cent of the total variance explained by the variables. This factor is named as a 'psycho – organizational' factor.

In the fourth factor, there were two variables that showed significant loadings to the factor. These included family type (0.892) and marital status (0.404). This 'social' factor explained the extent of 12.072 per cent variation on stress.

Table 4 presents the factors obtained along with their Eigen values. The factors with Eigen values of more than one were considered significant. The fourth column gives the cumulative percentage of variance contributed by each factor.

Table 4: Eigen values and Percent Variance explained by the Factors

(Total sample)

Factor	Eigen value	Percent of variance	Cumulative percent
1.	2.625	29.163	29.163
2.	1.378	15.313	44.477
3.	1.230	13.670	58.146
4.	1.086	12.072	70.218
5.	0.828	9.203	79.421
6.	0.738	8.198	87.619
7.	0.618	6.867	94.485
8.	0.458	5.084	99.570
9.	0.0387	0.430	100.00

Relationship between Selected Variables and Stress of Dairy Scientists

The estimated correlation coefficient between stress and selected variables indicated that individual's performance in scientific research, motivational organizational climate, work involvement, work motivation and job satisfaction had high negative and significant relationship ($P < 0.01$) with stress.

The negative and significant " r " value of work involvement, work motivation and job satisfaction is because stress interferes with the work morale of scientists. These findings are in agreement with the findings of Harris and John (1982), Swarnalatha (2000) and Lakshmi (2001).

Multiple Regression Analysis (MRA) between Factors Extracted and Stress

MRA is an effort to identify the factors which have a bearing on the stress of scientists. It could be seen that 57.8 per cent (R^2 value) of the variation in stress was explained by the combined effect of the four factors. Table 5 reveals negative and significant relationship between personal factors and stress. This implies that more the age, job experience and individual's performance in scientific research, lesser is the stress experienced by the respondents. These findings are in line with Jamuna and Ushasree (1990) who observed that age was negatively associated with stress.

Table 5: Multiple Regression Analysis with Factors on Job Stress of Dairy Scientists

S.No.	Factors	Regression Coefficient	Standard error	Computed 't' value
1.	Personal	-2.143	0.735	-2.915**
2.	Organizational	-8.553	0.735	-11.636**
3.	Psycho-organizational	-2.117	0.735	-2.880**
4.	Social	1.729	0.735	2.351*

$R^2 = 0.578$, $F = 6.683$; ** Significant at $P < 0.01$; * Significant at $P < 0.05$

Negative and significant relation between organizational factors and stress indicates that lesser the promotions acquired by the respondents, more is the stress. It is quite natural that as respondents acquire promotions, their sense of achievement and self-confidence would increase thereby minimizing the stress confronted by them. 'Psycho - organizational' factors had negative and significant relationship with regard to job stress.

As the level of interpersonal trust and availability of physical facilities increased, stress decreased. The premises that if trust and confidence between employees and superiors in an organization ascends, it would help the employees to reduce their job demands, work load and job responsibilities, and these, in turn, would minimize the stress experienced by the employees (Table 6).

Table 6: Correlates of Selected Variables with Stress

S. No.	Variables	r- value
1.	Age	-0.2057 *
2.	Job experience	-0.2023*
3.	Individual's performance in scientific research	-0.6111**
4.	Marital status	0.1190
5.	Family type	0.0730
6.	Interpersonal trust	0.0972
7.	Promotion	-0.2215 *
8.	Motivational Organizational Climate	-0.6875 **
9.	Physical facilities available	-0.1912
10.	Work involvement	-0.5490 **
11.	Work motivation	-0.5031 **
12.	Job satisfaction	-0.4181 **

** significant at $P < 0.01$; * significant at $P < 0.05$

Regarding availability of physical facilities, provision of adequate physical facilities would improve the work morale and work enthusiasm and non-availability of such facilities would hinder the work involvement and work motivation, and might create tension in the mind of the scientist.

Social factors had significant and positive relation with stress. This implies that the respondents who were married and belonged to nuclear families experienced more stress. With marriage, his/ her familial responsibilities would increase, hence it would naturally cause some sort of stress. Nuclear families would have less social support in handling familial responsibilities and might feel stressed. These findings contradicted the results of Singh et al (1983) and Apte (1984).

Conclusion

The major factors influencing stress were personal and organizational factors. Further, it was noticed that scientists (cadre) were having more stress than other cadres/ designations. Therefore, it is suggested that efforts may be made by higher authorities to minimize the stress confronted by scientists (cadre). Increased attention would be necessary for improving the present status of physical facilities available to scientists to minimize stress.

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