Predictors of Occupational Stress: An Exploratory Study

Alok Chandra & Baldev R. Sharma

Based on an exploratory study using a purposive sample of 53 managerial employees of a public sector organization, this paper has tried to assess the level of occupational stress experienced by the respondents. A subsequent search for the predictors of stress revealed that, out of the eight potential predictors used for the study, only two emerged as the critical determinants of stress. Both of these predictors turned out to be aspects of the organizational climate, suggesting thereby the greater role played by the situational factors (as against the attributes of the person) in creating occupational stress. If subsequent research studies come up with similar findings, the outcome of this exploratory study should be of interest to both academicians as well as practitioners.

Alok Chandra is a serving officer in the Indian Army (E-Mail: alok_chandra04@yahoo.com). ***Baldev R. Sharma*** is Professor Emeritus, International Management Institute, New Delhi.(E-mail: baldevsharma@imi.edu).

Occupational Stress

Occupational stress has been defined as the non-specific response of the body to any demands made upon it (Selye 1976). According to Cooper et al. (1994), it is a negatively perceived quality which stems from inadequate coping with sources of stress and which results in negative consequences in terms of mental as well as physical health. Stress is considered to be an internal state or reaction to anything consciously or unconsciously perceived as a threat, whether real or imagined (Clarke & Watson 1991).

Various research findings confirm the relationship between stress and lack of motivation, prolonged strikes, anxiety, absenteeism, burnout, high turnover, increased late coming, missing deadlines, making careless mistakes, and so on (Schabracq & Cooper 2000, Murphy 1995, McHugh 1993). Chusmir and Franks (1988) have suggested that the aforementioned consequences of stress have an adverse effect on the overall organizational efficiency and effectiveness. Organizations are now realizing the implications of the negative consequences of occupational stress and feel

the need to investigate stress- related problems. This study is an attempt to ascertain the level of stress among the managers of a public sector company and to determine the role of various factors that contribute to occupational stress.

Correlates of Stress

The factors that are associated with stress are usually called stressors. The word "stressor", like another term called "driver", has a strong causal connotation. In the kind of research reported in this paper, it is not possible to establish cause- and-effect relationship between variables. Hence we prefer to use terms like correlates or predictors when referring the relationship between stress and some other independent variable(s). Previous studies on the subject have identified three broad categories of predictors of occupational stress. Occupational stress may be caused by environmental, organizational and personality-related variables (Matteson & Ivancevich 1999, Cook & Hunsaker 2001). Some individuals, irrespective of their occupation, experience unacceptable levels of job-related stress (Schultz & Schultz 2002). On the other hand, certain organizational factors are also known to induce stress and strain for employees at the workplace (Greenhaus & Bentell 1985).

Organizational Factors: in two review articles on occupational stress, Cooper (1983, 1985) summarized the following six groups of organizational variables as correlates of stress:

(1) Factors intrinsic to the job (e.g., heat, noise, chemical fumes, shift work.

(2) Relationships at work (e.g., conflict with co-workers or supervisors, lack of social support).

(3) Organizational role (e.g., role ambiguity).2

(4) Career development (e.g., role of prospects for promotion, lack of a career path, job insecurity).

(5) Organization structure and climate (e.g., lack of autonomy, lack of opportunity to participate in decision-making, lack of control over the pace of work).

(6) Home and work interface (e.g, conflict between domestic and work roles).

The above mentioned factors are termed as organizational stressors since they serve as agents that trigger the various stress/strain reactions (Von Onciul 1996). Foot and Venne (1990) discovered a positive relationship between barriers to career advancement and stress. According to Kanungo (1981), when workers believe that there is a separation between their own job and other work-related contexts, it creates a sense of frustration that is eventually manifested in a behavioual state of apathy. This is particularly intense for employees whose social needs are high. Working alone on one's supervisors would lead to occupational stress (Mirovisky & Ross 1986, Eugene 1999). Work overload, both quantitatively and qualitatively, has been found to be linked to a variety of psy-

chological and beha-vioural symptoms (Beehr & Newman, 1978, Greenhaus et al. 1987, Miller & Ellis 1990, Roberts et al. 1997).

Personal Attributes: Matteson and Ivancevich (1999) suggest that stress is influenced by certain personal attributes. Past studies have also indicated that certain personality traits have an impact on stress (Goldberg 1993), Deary and Blenkin 1996, Snyder & Ickes 1985). For example, locus of control, a personality trait, is found to have a relationship with stress. Weiner (1977) proposed that individuals with an internal locus of control attribute success and failure to their own actions, whereas persons with an external locus of control relate their performance to task difficulty and luck. Since there is an inverse relationship between perceived control over daily events and stress (Averill 1973, Bernardi 1997), persons with internal locus of control (who believe that they have control over events) experience lesser amount of stress. Spector (1986) conducted a meta-analysis and found significant correlations between locus of control and occupational stress.

Apart from locus of control, it should be of some interest to find out whether personal attributes in terms of demographic background have any role to play in influencing occupational stress. In our review of literature, we have not come across studies that investigate this relationship. Most of the studies were carried out in the Western world. It would, therefore, be of interest to find out whether the organizational factors and personality traits found as the correlates of stress in Western societies are also applicable in the Indian situation. Therefore, we propose to examine the role of age, gender, education, grade and work experience to find out whether these factors have an impact on occupational stress.

About this Study

This study is aimed at examining the relationship between occupational stress and a number of its potential predictors. Based on this examination, it is intended to isolate a set of critical determinants that together explain maximum variance in occupational stress. Guided by the preceding review of literature, the following, two sets of potential predictors were selected for the present study:

(1) Personal Attributes

(a) Locus of Control

(b) Demographic Factors

(2) Situational Factors

(a) Job Content

(b) Organizational Climate

The hypotheses that are sought to be tested through this study are:

Hypothesis 1: The managers with "internal" locus of control experience a lower level of stress.

Hypothesis 2: The managers who perceive their jobs as "enriched' and "empowering" experience a lower level of stress.

Hypothesis 3: The managers who perceive their organizational climate (in terms of the selected dimensions) more positively experience a lower level of stress.

The sample for this study is a purposive one of 53 managerial employees working in a large public sector company. The company is engaged in manufacturing high precision technical projects and its units are located at various sties all over India. Since the purpose of the study was not to generalize the findings for the company as a whole, we decided to cover only one of its units located in the National Capital Region (NCR). The unit covered was the Planning Division of the headquarters of the company. The total strength of managerial employees of the Planning Division was 90 out of which sample covered (N=53) constituted 59 per cent. Grade-wise distribution of the sample vis-à-vis the total strength) is given in Table 1.

Table 1: Grade-wise Distribution of the Sample

Sl.	Designation (Grade)	Total Strength	Sample	Per Cent
1.	Assistant GM	17	11	64.7
2.	Senior Dy.GM	8	3	37.5
3.	Deputy GM	10	8	80.0
4.	Sr. Manager	8	5	62.5
5.	Manager	21	14	66.7
6.	Dy. Manager	26	12	46.2
	Total	90	53	58.9

Data were collected with the help of a self-administered "structured" questionnaire over a period of four days in the month of August, 2009. The questionnaire consisted of the following variables:

(1) Occupational Stress: This 10-item scale was specially designed by the first author for purposes of this study. Response to each statement was sought on a four-point scale ranging between 0 (strongly disagree) and 3 (strongly agree). Being an even-number scale, it did not allow a person to give a "neutral" response as each person was required to either agree (2, 3) or disagree (0, 1) with every statement. The overall score that a person got in terms of stress ranged between 0 and 30. The higher the score of a person, the more stressed he would be and vice versa.

(2) Locus of Control: To measure this personality trait, we used the scale developed by Rotter. The scale has 10 pairs of statements of which one measures "internal" and the other "external" locus of control. The respondent is asked to tick mark only one statement from each pair that comes close to his own frame of mind. A score of 1 was assigned if the selected statement belonged to internal locus of control and 0 if the selected statement belonged to external locus of control. Since our objective was to measure the extent to which a respondent manifested internal locus of control, the overall score for this personality trait ranged between 0 (lowest) and 10 (highest).

(3) Job Content: A five-item scale to measure job content (or job characteristics) was previously developed and standardized by the second author. Since response to each statement was scored on a four-point scale (0 to 3), the overall score for all five statements ranged between 0 and 15.

(4) Organizational Climate: Organizational climate is a multidimensional construct. For purposes of this study, we have chosen the following six dimensions of climate the scales for which were previously developed and standardized by the second author:

(a) Benefits

(b) Career Opportunity

(c) Decision Making

(d) Objectivity & Rationality

(e) Recognition

(f) Training

Each of the above six dimensions of climate was measured with the help of five statements using the four-point rating scale (0 to 3) already explained. The score range for each dimension was between 0 (lowest) and 15 (highest).

Findings

Table 2 presents in a summarized form the level of occupational stress and its potential predictors in the organization under study. Also presented in this table are the details of each of the nine variables used in this study. Barring two variables (locus of control & benefits),

Table 2 : The Level of Occupational Stress and the Status of its Potential Predictors (N=53)

Var.No.	Variable	No. of Items	Score Range	Alpha	Mean Score	Std.Dev.	$\overline{X}$ Score as %
	Dependent Variable						
1.	Occupational Stress	10	0-30	.82	7.94	4.45	26.45
	Independent Variables (Personal)						
2.	Locus of Control	10	0-10	.58	7.32	2.00	73.20
	Independent Variables (Situational)						
3.	Benefits	5	0-15	.54	7.96	2.09	53.07
4.	Career Opportunity	5	0-15	.72	8.19	2.36	54.60
5.	Decision Making	5	0-15	.66	9.34	2.00	62.27
6.	Job Content	5	0-15	.70	10.42	1.76	69.47
7.	Objectivity	5	0-15	.71	8.98	2.31	59.87
8.	Recognition	5	0-15	.82	7.98	2.47	53.20
9.	Training	5	0-15	.81	8.28	2.31	55.20

the remaining seven variables have emerged as highly reliable. In spite of the sample size being relatively limited in size, Cronbach Alpha in the region of .7 and .8 is considered to be quite high.

Looking at the last column of Table 2, it is quite clear that the managerial employees of this organization do not experience high degree of occupational stress. However, any amount of stress experienced by people at work is dysfunctional for both the employees as well as the organization. It is, therefore, desirable that even the present low level of stress (26.45 per cent) be further reduced if not removed entirely.

To pinpoint the incidence of occupational stress more precisely, we carried out microscopic examination of the data on hand. Stress was measured through agreement or disagreement with each of the 10 statements specially designed for this purpose. If a person disagreed with all the 10 statements, it would mean that he was experiencing no stress at all. If, on the other hand, someone agreed with all the 10 statements, it would mean that the person experienced stress to the extent of 100 per cent (which, of course, is highly unlikely to happen). Using responses to the 10-item questionnaire, therefore, we have categorized the precise incidence of occupational stress among the sample of 53 managerial employees (Table 3).

It should be clear from the above distribution of respondents that 45 per cent of them experience no stress at all. There are, however, 55 per cent of the employees who experience varying degrees of occupational stress as shown above. For the sample as a whole, the incidence of stress is found to be quite low.

Table 3: Incidence of Occupational Stress among the Managerial Employees

Level of Stree (%)	No. of Employees	Per Cent
0	24	45.28
10	8	15.09
20	8	15.09
30	4	7.55
40	4	7.55
50	1	1.89
60	3	5.66
70	1	1.89
	Total: 53	100

Most of them are prone to attribute success and failure in life to their own ability, effort and/or actions instead of attributing their poor performance to task difficulty or bad luck.

Judging by the very high mean score (73.20 per cent) for locus of control, it is obvious that a vast majority of the employees fall in the category of "internals". In other words Most of them are prone to attribute success and failure in life to their own ability, effort and/or actions instead of attributing their poor performance to task difficulty or bad luck. Such employees are indeed a valuable asset to the organization they work for. The status of the situational factors is arranged in a descending order in Table 4.

Table 4: Status of the Situational Factors

S.No.	Situational Factor Score (%)	Mean
1.	Job Content	69.47
2.	Decision Making	62.27
3.	Objectivity	59.87
4.	Training	55.20
5.	Career Opportunity	54.60
6.	Recognition	53.20
7.	Benefits	53.07

Out of the seven situational factors studied, job content has been given the highest rating by the respondents.

Out of the seven situational factors studied, job content has been given the highest rating by the respondents. This shows that the employees of this organization find their jobs to be well-designed in so far as there is (a) variety as well as challenge in their work activities, (b) an element of discretion to carry out the job responsibilities, (c) clarity about what they are expected to do, and (d) opportunities to utilize their abilities and expertise in their jobs. Because of the presence of these job characteristics, the employees feel that their jobs contribute to their professional development.

With a mean score of 62 per cent, decision-making has also received a fairly high rating. This indicates that the management has empowered the employees to take independent decisions without interference from their seniors and also to develop their subordinates through actions such as job rotation, training and performance appraisal. The decision-making in the company is perceived as fair and transparent and the management is viewed as supportive of spot decisions taken by the employees during crisis situations.

Objectivity is the third situational factor that has been given a high rating (60 per cent) by the respondents. As seen through the eyes of the employees, persons are recruited and promoted in this company by merit and not through favouritism based on caste, creed or religion, etc. The performance appraisal system of the company is seen as transparent and fair and the personnel policies of the company are followed uniformly in all cases. Even though the three situational factors described above are reasonably well looked after by the management, there is still scope for further improvement in each of these areas.

The remaining four situational factors (training, career opportunity, recognition and benefits) are only moderately well-looked-after, as reflected in their mean scores ranging between 53 and 55 per cent. In other words, there is much more scope for the management of this organization to improve their HR policies and practices that impinge upon these four situational factors.

Analysis of Data

Apart from assessing the level of occupational stress and the status of its potential predictors, the other objective of this study was to identify the critical

predictors of occupational stress. In our search for those predictors, we begin by looking at the bi-variate relationships between and among the selected variables. Table 5 presents the 9 × 9 inter-correlation matrix. A look at column 1 (or row 1) will show that, except for just one variable (training), each of the remaining seven independent variables is negatively and significantly related to occupational stress.

The observed relationships between occupational stress and each of its predictors are consistent with the theoretical model on which the present study is based. Employees who scored higher in terms of "internal" locus of control are found to experience less occupational stress than those who scored lower on this personal attribute. Likewise, employees who gave more positive ratings to the various situational factors (except training) were found to experience less stress than those who gave lower ratings to the said factors.

Table 5: Inter-Correlation Matrix for the Selected Variables (N = 53)

Variable		Occup. Stress	Locus Of ctl.	Benefits	Career Opp.	Decision Making	Job Content	Object -ivity	Recogn.	Training
		1	2	3	4	5	6	7	8	9
Occup. Stress	1	1.00	-.431**	-.514**	-.316*	-.329*	-.410**	-.596**	-.352**	-.143
Locus of Ctl.	2	-.431**	1.00	.155	.252	.381**	.301*	.502**	.395**	.189
Benefits	3	-.514**	.155	1.00	.445**	.265	.579**	.466**	.286*	.384**
Career Opp.	4	-.316*	.252	.445**	1.00	.511**	.647**	.530**	.634**	.668**
Decision Mkg.	5	-.329*	.381**	.265	.511**	1.00	.539**	.464**	.516**	.442**
Job Content	6	-.410**	.301*	.579**	.647**	.539**	1.00	.533**	.462**	.378**
Objectivity	7	-.596**	.502**	.466**	.530**	.464**	.533**	1.00	.496**	.330*
Recognition	8	-.352**	.395**	.286*	.634**	.516**	.462**	.496**	1.00	.609**
Training	9	-.143	.189	.384**	.668**	.442**	.378**	.330*	.609**	1.00

*P<.05 **P<.01

The relationships among variables depicted in Table 5 are only zero-order correlations, which can sometimes be spurious. To identify the true relationship between any two variables (say, x and y), it is necessary to introduce additional variables to find out whether the observed correlation between x and y is genuine and not a reflection of the influence of some other variable (s). The latter possibility is always there where the so-called independent variables are themselves highly inter-correlated, as is the case in the present study. In such cases, it is essential to undertake multivariate analysis of data instead of relying only on bi-variate relationships presented in Table 5.

To discover the critical predictors of occupational stress, it was decided to use multiple regression as the tool for further analysis of data. The purpose of this

analysis is to identify (out of a large number of combinations possible) the one combination of independent variables that explains the highest amount of variance in the dependent variable (occupational stress). That combination may be of any size, but it must satisfy the additional condition that the individual contribution of each predictor of stress in the selected regression equation must not only be statistically significant (P<.05) but also negative (as postulated in the model). Step-wise linear regression analysis helped us in identifying the best equation presented in Table 6.

Out of the eight potential predictors of occupational stress selected for this study, only two have emerged as critical. These are two situational factors called "objectivity" and "benefits", which together explain a little over 42 per cent of the variance in stress. Moreover, the individual contribution of each predictor is not only statistically significant but is also negative as hypothesized. Between these two predictors, "objectivity" plays a more important role than "benefits" in influencing occupational stress. When the effect of these two predictors is held constant (that is, controlled), the relationship between stress and each of the remaining six variables becomes non-significant, as shown in Table 7.

Table 6: Critical Predictors of Occupational Stress (N = 53)

Sl.No.	Predictors	Zero-Order Correlation	Std. Beta Coefficient	Individual Contribution
		(A)	(B)	(A × B)
1.	Objectivity	-.596**	-.455**	.271180
2.	Benefits	-.514**	-.303*	.155742
$F_{2,50} = 18.611$ P<.01			Total (R^2):	.426922

* P<.05 ** P<.01

Table 7: 2nd - Order Partial Correlations Between Occupational Stress and each of the "Excluded Variables"

Sl.No.	Excluded Variables	Partial Correlation	t Value	d.f.	P
1.	Career Opportunity	.098	.682	49	n.s.
2.	Decision Making	-.056	-.391	49	n.s.
3.	Job Content	.013	.092	49	n.s.
4.	Locus of Control	-.239	-1.722	49	n.s.
5.	Recognition	-.061	-.4251	49	n.s.
6.	Training	.180	.281	49	n.s.

Note: "n.s." stands for not significant.

Role of Background Variables

Apart from the variables already discussed in this paper, the questionnaire had also sought data regarding the background profile of the respondents with reference to the following five parameters: age, work experience, grade, education, and gender. Data relating to gender and education could not be used for further statistical analysis due to the absence of adequate variation among the respondents. To illustrate, out of the 53 respondents, 49 (92.5 per cent) were males, while 47 (88.7 per cent) were graduates or post graduates. There was, however, adequate variation in terms of the remaining three variables.

An employee's grade being an ordinal-scale variable cannot be used for purposes of correlation. Hence, we divided the sample into two groups: grades 1 and 2 (low) with N = 26; and grades 3 to 6 (high) with N = 27. Treating these two groups as independent samples, we compared their mean scores on occupational stress. The results of the t-test show that employees in higher grades experience greater stress than those in lower grades (Table 8).

Table 8: Comparison of Mean Scores on Occupational Stress

Grade	N	$\overline{X}$ Stress Score	Standard Deviation	t Value	d.f.	P
Grades 3 to 6 (high)	27	9.59	4.68	2.947	51	P<.01
Grades 1&2 (low)	26	6.23	3.52			
Total	53	7.94	4.45			

Age and work experience were correlated with occupational stress and both of them were found to be significantly and negatively related to stress (Table 9).

Table 9: Correlation between Stress, Age & Experience

	Stress	Age	Experience
Stress	1.00	.332*	.347*
Age	.332*	1.00	.979**
Exp.	.347*	.979**	1.00

*P<.05 **P<.01

Since age and experience are highly correlated (r=.979), each of them is a mirror reflection of the other. As shown below, when the effect of one of these two variables is controlled, the partial correlation between the other variable and stress becomes non-significant.

(a) Partial correlation between age and stress, controlling for the effect of work experience. ….. -.040 (n.s)

(b) Partial correlation between work experience and stress, controlling for the effect of age. ….. .114 (n.s)

As both age and experience are individually correlated with stress, it was decided to add both of them to the list of 8 independent variables already discussed for carrying out another regression analysis. The purpose of the additional analysis was

to ascertain whether age and/or experience, in conjunction with certain situational variables, turns out to be critical predictor(s) of stress. The revised calculations showed once again that the same combination of the two variables (objectivity and benefits) is a critical predictor of occupational stress. When the effect of these two predictors is controlled, the partial correlation between stress and the two background factors becomes non-significant, as shown below:

(a) 2nd-order partial correlation between age and stress, controlling for the effect of "objectivity" and "benefits" … .102 (n.s.)

(b) 2nd-order partial correlation between work experience and stress, controlling for the effect of "objectivity" and "benefits" … .055 (n.s.)

Conclusion

This exploratory study was designed to assess the level of occupational stress among the managerial employees of a public sector organization. The other objective of the study was to identify the factors that contribute to occupational stress. As the findings show, the respondents of this study experience a fairly low level of stress (26.45 per cent). One possible reason for this low level of stress could be the choice of the unit selected as the sample for this study. Work in the Planning Division of an organization is generally of an autonomous nature free from bureaucratic hassles and interpersonal conflict. This view is corroborated by "job content" scoring the highest rating (69.47 per cent) among the seven situational variables.

To discover the factors that contribute to occupational stress, we had selected a set of eight potential predictors on the basis of review of previous studies on the subject. Barring just one variable (training), each of the remaining seven variables was found to be negatively and significantly correlated with stress. Subsequent multivariate analysis revealed only the following two situational factors as the critical determinants of occupational stress:

(a) objective and impartial decision-making; and

(b) adequate welfare benefits.

In other words, subjective and partial decision-making and inadequate welfare benefits are found to cause resentment that leads to stress among the employee.

Subjective and partial decision-making and inadequate welfare benefits are found to cause resentment that leads to stress among the employee.

Although the incidence of occupational stress is not very high among the managerial employees of the organization covered by this study, 55 per cent of the respondents do experience some degree of stress. If the management of this organization were to reduce or eliminate even this low level of stress, they will have to concentrate on the two

areas of concern to the employees – namely, objectivity and benefits. An improvement in these two areas is likely to reduce occupational stress among the employees.

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