DETERMINANTS OF ROLE STRESS BASED ON EMPLOYEE SEGMENTATION: A MULTINOMIAL LOGIT ANALYSIS

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Received: 25. 5. 2012
Accepted: 9. 11. 2012

Original scientific paper
UDC: 658.3

Organizations face many challenges and managing role stress has assumed great importance due to its debilitating effects on employees and organizations. The aim of this paper is to identify the determinants of clusters of employees segmented on the basis of role stress experienced at the workplace using empirical data collected from 550 frontline employees of commercial banks of Jammu and Kashmir State (India). Multinomial Logit Regression is used to investigate the impact of organizational, demographic, personality and performance determinants on the clusters of employees using E-Views 6.1and SPSS 14.

1. INTRODUCTION

The integration of an individual within an organization takes place through a system of roles which constitutes key aspects of an employee's job-related functions. Roles include expectations that the employees have of each other and expectations they have of the jobs they perform within the organization (Pareek, 1993). Stress, originating from the concept of the role of a person (Jena and Pradhan, 2011; Fernandes et al., 2009; Dasgupta and Kumar, 2009) and its interface with the role occupant (Aziz, 2004), has been acknowledged as an important concern in organizational settings (Cox and Griffiths, 2010). Of the

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many challenges organizations face, managing role stress has assumed great importance due to its debilitating effects on employees and organizations. However, the multifaceted phenomenon of role stress requires dissecting the phenomenon of role stress, from its various facets and dimensions, which amounts to an important research objective needed to make an informed decision on various interventions for managing it. An investigation into the interface between the individuals and the role environment they experience may present specific cues to manage the phenomenon of organizational role stress. In view of that, this study aims to ascertain the influence of various determinants of role stress on role stress based employee segments. The next section reviews the literature followed by a detailed discussion on the methodology adopted. The ensuing sections discuss the results followed by the conclusion and implications emanating from the study.

2. LITERATURE REVIEW

The demands placed by the roles, assigned to an individual at work, may put one in a great deal of stress that arises from a perceived imbalance between the demands and the capabilities to cope with them (Cox, 1993). A number of aspects of role have been linked to stress, such as role ambiguity, and role conflict (Glazer and Beehr, 2005; Bettencourt and Brown, 2003; Brown and Peterson, 1993; Burke, 1988; Nelson and Burke, 2000; Kahn et al., 1964), the absence of clarity and predictability in the role (Beehr et al. 1976), resource inadequacy (Aziz, 2003), role overload, etc. (Narayanan et al. 1999; Glazer and Beehr, 2005; Margolis et al. 1974). Role stress caused by such type of hurdles and demands has been dealt with broadly and has been found to impact employee performance, attitude, job satisfaction, organizational commitment, etc. (Shahu and Gole, 2008; Knight et al. 2007; Choo, 1986; Anderson, 1976; Schlenkar and Gutek, 1987; Pestonjee and Singh, 1982; Dubinsky and Yammarino, 1984; Pestonjee and Singh, 1983; Kemery et al. 1985). Role conflict and role ambiguity negatively influence job satisfaction (Montgomery, 2012) and the latter may also affect the intention to quit one's job (Calisir and Gumussoy, 2011). Role stress also leads to psychological strain which occurs when organizational stress leads to ineffective cognitive functioning (Beehr and Glazer, 2005; Beehr, 1995; Jackson and Schuler, 1985).

However, previous studies suggest that role stress may result from a complicated interaction between individual personal factors and the work environment (Beehr and Newman, 1978; Payne, 1988; Swanson et al. 1998; Tankha, 2006; Masood, 2011). The personal attributes are a part of what an individual brings to the workplace. The heterogeneity is manifested in age,

marital status, salary, education, etc. making the role stress phenomenon more complex and multifaceted. It should be noted that previous studies in this direction have yielded varied results as far as relationship between personal variables and role stress is concerned. Clayson and Frost (1984) and Chandriah et al. (2003) established a relationship between age and stress while Saravanan and Lawrence (2007) found no causal relationship between stress and age or marital status of employees but identified its relationship with a number of dependents on the person in the family and the amount of salary an individual receives. Moreover, the sector which the organization belongs to can also be one of the determinants of role stress for employees (Sankpal et al. 2010; Malik, 2011).

Some studies also noted that the factors inherent in the personality of an individual can exert a significant impact on the perceived role stress experienced by the individual (Eysenck, 1983; Ivancevich et al. 1982; Wofford, 2002; Srivastava, 2009; Judge et al. 2003, Martin et al. 2005). Other studies also indicated that anxious people might be more stressed at work and dissatisfied when things do not go as planned (Cooper and Roden, 1985; Spector et al. 1988). It was reported that employees, who perceive themselves more in control, experience fewer role stressors than their colleagues who perceive themselves less in control (Ganster and Fusilier, 1989). Tidd and Friedman (2002) suggested that individuals may be able to reduce the negative individual impact of role conflict in their environment by adopting positive behavioral styles. Similarly, performance can be another contextual variable in the dynamic whirlpool of role stress. Fried et al. (2008) indicated that role stress is related to job performance both directly and indirectly through job satisfaction and propensity to leave. Anton (2009) identified role ambiguity as the critical predictor of workers' performance and job satisfaction. Shahu and Gole (2008) found that higher stress level was related to lower performance, while Gmelch and Chan (1994) noted that insufficient stress leads to boredom, a lack of concentration, and a lack of motivation to put in the best possible effort. Finally, an inverted U-shaped relationship between stress and performance was supported by Choo (1986).

A review of the existing literature suggests that a variety of organizational and personal factors are linked to role stress. There is a dearth of comprehensive studies which assess the experience of role stress, not only its aspects but also its various determinants, particularly in Third World countries like India. A noteworthy limitation of the literature on role stress is that most of the studies consider the whole population as a homogeneous set of individuals suffering from the same stressors. If, for example, role overload emerges as a dominant

stressor in a sample, then it is assumed that everyone is inflicted with the same stressor. However, the role stress factors may not be consistently related to the role stress experiences of all employees, and the predictors of role stress may differ across groups of employees. Furthermore, although one-to-one employee handling might not be practically feasible "distinct employees" segmentation and its association with various organizational, personal and other related factors may nonetheless provide a channel for focusing one's stress-busting efforts towards the narrower base of employees. With this backdrop in mind, the present study has been undertaken to analyze the impact of various organizational, demographic, performance and personality-related variables on distinct role stress based groups of employees. The null hypothesis for the present study has been framed as:

H_0: *There is no significant difference between the different groups of employees segmented on the basis of their experience of role stress at work with respect to their personal and organizational factors.*

3. METHODS

3.1. Database and Sample

One of the major challenges the banks face in present dynamic era is meeting the ever increasing customer expectations (FICCI, 2010), which is forcing the employees to routinely engage in highly demanding interactions with customers. The experience of conflicting feelings in attempting to fulfill the requirements of the job (Boles et al. 1997) leads to role stress (Wetzels et al. 2000), which makes it pertinent to identify the prevalence of role stress in the banking sector. Further, the nature of the work of frontline employees makes them experience more problems, pressures and even encumbrance from external customers, apart from the pressure of the demands imposed by the internal people which makes their role more vulnerable to stress as compared to other employees. Although research into the role stress of frontline employees of commercial banks of India and particularly the states like Jammu and Kashmir is scant (Ahmad and Shah, 2007; Shah, 2003), it has reinforced our decision to confine the study to the frontline employees only. Moreover, the banking sector can play an important role in rescuing the country from economic setback that it has been suffering, which reinforces the decision of confining the study to this part of India only. Accordingly, a structured questionnaire was distributed to 600 full-time front-line employees of both public as well as private sector commercial banks, who were contacted at their workplace during the period

from January to May, 2010. The sample profile of the respondents is shown in Table 1.

Table 1. Sample profile of respondents

Category		**Frequency**	**%**
Type of bank	Public	252	50.2
	Private	249	49.8
Age (years)	Less than or equal to 20	3	0.6
	21-30	192	38.3
	31-40	134	26.7
	41-50	102	20.4
	50 above	70	14
Work experience (in years)	Mean	12.56	
	Mode	3	
	Std. Deviation	10.63	
	Range	3-40	
Monthly salary (Rupees)	Rs.10, 000 or less	63	12.6
	10,001 to 20,000	160	31.9
	20,001 to 30,000	169	33.7
	30,001 to 40,000	85	17
	Above 40,000	24	4.8
Category		**Frequency**	**%**
Increments	Mean	1.60	
	Mode	0	
	Std. Deviation	1.37	
	Range	0-6	
Promotion	Nil	271	54.1
	One	185	36.9
	Two	34	6.8
	More than Two	11	2.2
Rewards	Nil	281	56.1
	One	117	23.4
	Two	56	11.2
	More Than Two	47	9.4
Appreciation (No. of times)	Nil	98	19.6
	Once	104	20.8
	Twice	113	22.6
	Thrice	47	9.4
	More than thrice	139	27.7
Additional Work	Nil	268	53.5
	One	127	25.3
	Two	57	11.4
	More than two	49	9.8

The main offices of a total of nine public sector and all of the three private sector banks were covered. Particular attention was devoted at the time of data collection that the sample was representative of the front line employees having different job roles within the banking organization. The survey yielded 550 responses (response rate 91 percent). Applying list-wise case deletion method, the cases with values more than 3 standard deviations below or above the mean (Shaufeli et al. 2009) on each scale were considered as outliers and based on this, 49 responses were eliminated resulting in 501 usable bank employees' responses. Therefore, the final responses of 501 employees were used for the analysis.

In case of present usable sample of 501 employees, it is to be highlighted that the majority of the employees (38 percent) belong to the age bracket of 21-30 years and a maximum (34 percent) earns a salary between Rs. 21,000 and Rs. 30,000 per month. Of all, the maximum number of respondents is married and the majority of the sample has a graduation degree. Public and private sector commercial banks are equally represented in the sample and the work experience of the employees ranges from 3 to 40 years, with a mean experience of 12.5 years.

3.2. Measures

The study uses a structured questionnaire measuring a number of psychological concepts that have been well-publicized in the stress literature. The survey included measures of role stress, organizational, demographic, performance and personality factors of the employees. The role stress experienced by bank employees has been measured using a well-designed pre-tested scale. The research instrument for the present empirical work was developed using measurement scales, namely, Organizational Role Stress (ORS) scale by Pareek (1983) and the role stress measure by Rizzo et al. (1970). Taking into consideration the requirements of employees of commercial banks at the regional level of Jammu and Kashmir State in India, a 30-item scale was designed to tap the role stress (e.g. *"I am not able to give time to my family because of work", "I am able to satisfy the conflicting demands of various people above me", "I am not clear on the scope and responsibilities of my role"*, etc.) of individuals in the organizations.

The modifications for the same were made after interviewing a total of 100 employees, before the final design of the questionnaire. The responses on the scale was given using a five-point Likert-type scale ranging from "Never" to "Always". The codes 1, 2, 3, 4, 5 were assigned to all the positive statements

which indicate the reasons for role stress whereas the negative statements were coded reversely. Similarly, the coping style (Seek professional help, Delegate responsibility instead of assuming it, etc.) was determined by presenting the respondents with an inventory of 20 coping strategies of approach and avoidance designed by referring to the studies of Hariharan and Rath (2008), Sharma and Sharma (2008), Holahan and Moos (1987), Koeske et al. (1993), Lang and Markowitz (1986), Billings and Moos (1981).

The responses on the scale were measured using the five-point scale ranging from 'highly used' to 'never used'. The total score on coping style ranges from 20 to 100 – thus, providing an array of coping styles from approach to avoidance. Further, the organizational climate was used to identify the features of the work environment and the same was measured in the present study after taking cues from the existing work of Pelz and Andrews (1976); Sen (1981); Abbey and Dickson (1983).

Accordingly, the climate of the organization was assessed through presence/absence of work-group contact, task orientation, rewards and recognition of individual merit precursors. Besides, peer stress was considered to ascertain employee narration of the role stress experienced by colleagues on a five-item scale. The items like *"My colleagues do not know how to understand the unclear aspects of their jobs"* were included in the scale in order to make the respondents share their experiences at work by giving an account of the peer stress. Further, the individual propensity to stress was determined on account of propensity for time deadlines, supervision, quantity of work, difficulty, predictability and stability which have been identified as stress propensity indicators by Caplan (1985). The behavioral strain (Angry, Relaxed, etc.) was measured using indicators like angry, worry, depressed, relaxed, exhausted, etc. reported in the works of Akinnusi (1994), Blanc et al. (2008), Wofford (2002), Cooper (1981), Vaez and Laflamme (2008).

All the above designed scales were subjected to further review by inviting comments from renowned academicians/researchers in the area of stress management. On the basis of suggestions given by these experts, the scale items were rephrased and few vague and ambiguous items deleted. Further, the viewpoints of experts in the field and the employees of banking sector regarding the modified scales were also taken into account which ensured its face validity. An assessment of the reliability of the scale on a sample of 100 employees, using inter-item Cronbach Alpha, resulted into the retention of 22 statements assessing the role stress. Whereas, in the case of other scales, no items were deleted. The measured value of Cronbach Alpha of the above final scales on a

sample of 100 employees, ranges from 0.805 to 0.811 which is far above the desired prescribed limit of 0.60 as suggested by Nunnally and Bernstein (1994) and Donio et al. (2006) and establishes the reliability of the modified scale. Furthermore, the construct validity measures the extent to which items in a single scale measure the same construct (Flynn et al. 1991) and in order to ensure the same, factor analysis was used (Sabharwal et. al. 2010) on the 501 responses in which all the statements of a single scale were loaded on a single factor, ensuring unidimensionality of each construct. All the constructs have an average variance extracted of more than 0.40 (Hair et al. 2006) and thus all the items were retained.

Locus of Control (LOC) is an important variable describing individual differences and predicting behavior in organizational settings (Spector, 1982). It was assessed using the standardized inventory of Rotter (1966) which has been widely used to explain employee behavior (Renn & Vandenberg, 1991; Ferrando et al. 2011) and considered as a relatively stable trait that once formed, can be difficult to change (Lawrence & Winschell, 1975). This inventory using a forced choice format measures individual differences in their tendency to believe that environmental events are within one's control (categorized as 'Internals') as opposed to being outside one's control (categorized as 'Externals').

However, the original Rotter's (1966) LOC inventory was truncated after retaining only those items which are more of a personal rather than of a general characteristic. The reliability of adapted version of LOC inventory was estimated using parallel forms method on a sample of 100 employees and was found to be reliable.

Furthermore, the demographic variables such as age, monthly salary and work experience were used to check their impact on role stress experience of employees. Apart from these, employee belongingness to the type of bank, either public or private, was also explored. Four variables were introduced as performance indicators, namely, number of promotions, rewards, appreciation and increments received for good performance. The amount of additional work carried out by the employee was also sought as an organizational variable.

Table 2. gives information on various independent variables used in the study. The final instrument so developed was then used for the survey. The estimation of the model was carried out using E-Views 6.1 and SPSS 14.0.

Table 2. Independent variables

Type of bank	
Public	0
Private	1
Climate	Aggregate score
Peer stress	Aggregate score
Additional work	
Nil	1
Otherwise	0
Work experience (in years)	Absolute value
Salary (in Rs.)	
<=20000	0
Otherwise	1
Age	
<=30	0
Otherwise	1
Rewards	
Nil	1
Otherwise	0
Increments (in numbers)	Absolute values
Appreciation	
<=1	1
Otherwise	0
Promotion	
<=1	1
Otherwise	0
Propensity to stress	Aggregate score
Behavioral symptoms	Aggregate score
Coping style	Aggregate score
Locus of control	
External	1
Internal	0

3.3. Research Methods

In the present study, the employees were segmented into three categories using the cluster-analytical approach on the basis of their experiencing role stress. Cluster-analytical approach is particularly relevant because of its ability

to minimize within-group variance and maximize the between-group variance resulting in heterogeneous groups with homogenous contents (Satish and Bharadhwaj, 2010). A hierarchical method in conjunction with non-hierarchical clustering methods were used in the present case as initially the hierarchical method could be used to determine the number of cluster solutions and then the non-hierarchical clustering method to refine each of the solutions (Sharma and Kumar, 2006).

The application of cluster analysis using the Ward's Hierarchical method, with squared Euclidean measure of distance to cluster the respondents, resulted into the amalgamation of two clusters, at each step, that resulted in the smallest increase in the overall sum of the squared within-cluster distances. The overall score for each construct identified after applying factor analysis was calculated by adding the scores for each included item and dividing this by the number of items in that component (Fünfgeld and Wang, 2000) as the factor scores are often less interpretable and generalizable than using simpler approaches such as summing or averaging the items that load on the factors (Gorsuch, 1988). That way the employees were segmented (see Appendix I).

The agglomeration coefficient results obtained using the Ward's Hierarchical method to cluster the respondents indicated an increase in the case of five to four clusters of 5.0 percent; four to three clusters of 8 percent, three to two clusters of 12.67 percent; and two to one cluster of 10.49 percent. Since the highest percentage increase occurred when going from three to two clusters, it seemed that a three-cluster solution would be the optimal choice. A visual inspection of the dendrogram also indicated a three-cluster solution to be a valid choice. Moreover, the use of other methods of cluster analysis and the comparison of resulting solutions for interpretation of the clusters was also suggested (Sharma and Kumar, 2006), the application of which further substantiates the idea that employees can be best divided in 3 clusters. The results obtained through K-means, a non-hierarchical cluster analysis approach also supplemented the 3-cluster solution. The choice of the three-cluster solution was also supported when one-way analysis of variance was performed taking the cluster membership as a factor variable and role stress constructs as dependent variables. On all the constructs of role stress, the clusters were significantly different at 1 percent and 10 percent level of significance and respondents were also evenly divided into three clusters.

Considering all these issues, the sample of employees is considered to be better segmented in three clusters. The stability of cluster should be endorsed by the cross-validation procedure (Breckenridge, 2000) and the same was carried

out to ensure the validity of this three-cluster solution. The naming of the clusters was determined by the distinguishing characteristics prevalent in the three segments of the respondents revealed through mean values scored on each of the constructs of role stress. The three clusters were named 'Overloaded' ('OL', N=178), 'Unclear' ('UC', N=163), and 'Underutilized' ('UU', N=160). The 'overloaded' cluster of employees was found to be weighed down with excess amount of work. The 'unclear' cluster, on the other hand, is the one the most bothered by the ambiguity at workplace which is evident in the unclear duties, responsibilities, expectations and directions in their roles. Lastly, the 'underutilized' cluster consists of that set of employees who feel that their potential is not fully used at work. Cluster groups and their association with demographic and performance related variables was assessed and found to be significant (see Appendix I).

In order to assess the relationship of various organizational, demographic and personality related variables with role stress experiences of employees who have been so grouped, the multinomial logit (MNL) analysis was used. As the explained or dependent variable, i.e. clusters of employees, is a qualitative/categorical variable in nature comprising three categories, namely, OL, UC, UU, the polychotomous or MNL with nominal scale has been preferred over the ordinary least square model to measure the relationship. The application of MNL encompassed situations involving more than two choices in a criterion variable (Lee et al. 2005). With three outcomes, multinomial logit is better instead of running three binary logits comparing outcomes 1 to 2, 1 to 3, and 2 to 3 (Long, 1997). The MNL analysis estimates the log-odds ratio, marginal effects and the related indicators which facilitates the comparison of levels of the criterion variable.

In this study, the overloaded cluster (OL) was used as the base (reference category), enabling a direct comparison of the unclear cluster (UC) and the underutilized cluster (UU) with the OL cluster. OL was documented as the major source of stress irrespective of the organization and status (Janice, 1995) and pointed out as most obvious case of stress at work (Statt, 1994). In addition, overloaded employees are more likely to make mistakes, feel anger or resentment toward their employers, co-workers, experience poorer health and work-family balance and seek employment elsewhere (Galinsky et al., 2001; Kalleberg, 2008). Given such potential repercussions, OL was used as the reference category in the present study. In the MNL analysis based on the cumulative logistic distribution function, two log-odds ratios were estimated:

$$\ln (P_{UC}/P_{OL}), \text{ and } \ln (P_{UU}/P_{OL}) \quad (1),$$

where:

- P_{UC} = probability that an individual belongs to the unclear cluster,
- P_{UU} = probability that an individual belongs to the underutilized cluster,
- P_{OL} = probability that an individual belongs to the overloaded cluster.

While estimating the MNL model[1] for dependent variables with categories m (3 in the present case), the calculation of m-1 (3-1 in the present case) equations is desired, one for each category relative to the reference category (OL in the present case), to describe the relationship between the explanatory variables and the dependent (explained) variable. For each category of the dependent variable except the reference category, the equation can be written as (Menard, 2001 and Hosmer and Lameshow, 2000):

$$g_h(X_1, X_2, X_3..., X_k) = e^{(a_h + b_{h1}X_1 + b_{h2}X_2 + ... b_{hk}X_k)} \quad (2),$$

where h=1, 2. The subscript k refers to specific explanatory variables X and subscript h refers to specific values of the explained variable Y. For the reference category, $g_0(X_1, X_2, X_3,\ldots, X_k) = 1$ (Menard, 2001) the probability Y is equal to any value h except h_0 is:

$$P\left(Y = h/X_1, X_2,..., X_k\right) = \frac{e^{\left(a_h + b_{h_1}X_1 + b_{h_2}X_2 + ... + b_{h_k}X_k\right)}}{1 + \sum_{h=1}^{2} e^{\left(a_h + b_{h_1}X_1 + b_{h_2}X_2 + ... + b_{h_k}X_k\right)}} \quad (3),$$

where h=1, 2 and for h_0 category:

$$P\left(Y = h_0/X_1, X_2,..., X_k\right) = \frac{1}{1 + \sum_{h=1}^{2} e^{\left(a_h + b_{h_1}X_1 + b_{h_2}X_2 + ... + b_{h_k}X_k\right)}} \quad (4),$$

where h=1,2. In this way, the two logit functions can be defined as:

$$\ln\left(\frac{P\left(Y = h/X\right)}{P\left(Y = 0/X\right)}\right) = a_h + b_{h_1}X_1 + b_{h_2}X_2 + ... + b_{h_k}X_k \quad (5),$$

where $h = 1$ and:

[1] Results are estimated applying the Maximum Likelihood Method.

$$\ln\left(\frac{P\left(Y = h/X\right)}{P\left(Y = 0/X\right)}\right) = a_h + b_{h_1}X_1 + b_{h_2}X_2 + ... + b_{h_k}X_k \quad (6),$$

where $h = 2$.

Further, the marginal effects[2], which are the probability that an employee, with certain characteristics, is in a specific cluster category i.e. OL, UC and UU, were also estimated.

Here, it is pertinent to note that in the case of odds ratio, the estimated values are relative to a particular cluster category while in the case of marginal effects, the results are interpreted across the three cluster categories. The odds are equal to the exponential of the coefficients with all other independent factors held constant.

4. RESULTS AND DISCUSSION

The relationship of the clusters of employees, segmented on the basis of homogeneity in their role stress experiences at workplace, with the various variables under study demonstrates the multidimensional nature of the phenomenon. Table 3. provides specific information on the effects of each predictor variable.

The value of the -2log likelihood is statistically significant ($p \leq .01$) when compared with tabulated values of the chi-square distribution. This implicates that the null hypotheses is rejected (i.e. $b_1=b_2=\ldots=b_k=0$) and concludes that including explanatory variables in the model allows to make better predictions of P(Y = h) in comparison to the situation that could have been without the presence of these explanatory variables used in the model.

The statistical significant values of Cox and Snell, Nagelkere and sufficiently high value of McFadden for pseudo R^2 indicates the model fitness for the purpose of the study. The overall hit ratio i.e. the number of cases correctly classified is 73.5 percent whereas for cross-validated group it is 69.3 percent (see Appendix II).

[2] Marginal effects are estimated using mean scores.

Table 3. Results of Multinomial Logit Analysis: Parameter Estimates

	Model I - $\ln(P_{UC}/P_{OL})^{\#}$			**Model II - $\ln(P_{UU}/P_{OL})^{\#\#}$**		
	B	**Standard Error**	**Odds Ratio**	**B**	**Standard Error**	**Odds Ratio**
Intercept	21.555*	3.054		45.578*	4.062	
Organizational Variables						
Type of bank	1.006*	0.328	2.734	1.136*	0.423	3.114
Climate	-0.263*	.057	0.769	-0.470*	0.075	0.625
Peer stress	-0.410*	0.073	0.664	-0.521*	0.089	0.594
Additional work	0.728**	0.315	2.072	0.222	0.410	1.248
Demographic Variables						
Work experience	-0.043**	.021	0.958	-0.060**	0.028	0.942
Salary	0.845**	0.351	2.329	0.391	0.454	1.478
Age	0.410	0.424	1.507	1.356**	0.539	3.881
Performance Variables						
Rewards	0.937*	0.335	2.552	0.773***	0.424	2.165
Increments	-0.112	0.121	0.894	0.026	0.155	1.027
Appreciation	0.191	0.303	1.211	-0.411	0.398	0.663
Promotion	-0.048	0.320	0.953	0.096	0.433	1.101
Personality Variables						
Propensity to stress	-0.538*	0.080	0.584	-0.970*	0.103	0.379
Behavioral symptoms	-0.166*	0.042	0.847	-0.427*	0.057	0.652
Coping style	0.067*	0.024	1.070	-0.007	0.034	0.993
Locus of control	-0.228	0.321	0.796	-0.872**	0.412	0.418
Cox and Snell R^2	0.642					
Nagelkerke R^2	0.723					
Mcfadden R^2	0.468					
Likelihood ratio	-292.37					
-2log likelihood	514.95*					
Chi-square	508.93*					

Notes:

$\ln(P_{UC}/P_{OL})$ - probability of being in unclear cluster over overloaded cluster;
$\ln(P_{UU}/P_{OL})$ - probability of being in underutilized cluster over overloaded cluster;
* statistically significant at 1 percent level of significance,
** statistically significant at 5 percent level of significance,
*** statistically significant at 10 percent level of significance.

4.1. Role Stress Based Clusters and Organizational Variables

The odds ratio estimated in the MNL regression model describes the ratio of the odds of an event occurring in one group to the odds of it occurring in another group. A look at the odds ratios (see Table 3.) demonstrates that employees of private sector banks are more likely to be segmented in the UC and UU clusters in comparison to the OL cluster.

It is found that there are 2.734 and 3.114 odds in favor of the UC and UU clusters respectively for private sector banks. It implies that employees, in private sector banks, perceive the lack of properly using their capabilities and the non-clarity in role expectations to be the relatively greater cause of their role stress.

Further, the marginal effects (presented in Table 4.), which depict the probability that an employee with a certain characteristic is in a specific cluster, specifies that there are 17 percent less chances that an employee from private sector bank would fall in the OL cluster.

Besides, the results indicate that the perceived unfavorableness of climate leads to an increase in odds for the OL cluster. A similar kind of evidence has been provided by marginal effects, which also signify that the unfavorableness of organizational climate results makes it more likely for employees to be a part of the OL cluster (5.2 percent) and less likely to be a part of the UU cluster (4.8 percent).

In addition, when employees perceive higher peer stress, the chances of their segmentation in the OL cluster also increases as odds are in favor of the OL cluster and marginal effects also show a resultant increase in the employee membership chances in the OL cluster by 7.2 percent.

Further, employees having no additional work are more likely to be segmented in the UC cluster as compared to the OL cluster. Though the interpretation of the estimated coefficients for a continuous variable is similar to that of nominal scale variables the primary difference is that a meaningful interpretation must be addressed for the continuous variable (Hosmer and Lameshow, 2000).

Table 4. Results of Multinomial Logit Analysis: Estimated Marginal Effects

		Overloaded		Unclear		Underutilized	
Variables	**Mean**	**dy/dx**	**Std. Error**	**dy/dx**	**Std. Error**	**dy/dx**	**Std. Error**
Organizational Variables							
Type of bank	0.497	-0.17*	0.051	0.099	0.065	0.069	0.059
Climate	13.82	0.052*	0.009	-0.003	0.011	-0.048*	0.009
Peer stress	13.435	0.072*	0.011	-0.033*	0.013	-0.038*	0.011
Additional work	0.535	-0.095***	0.052	0.149**	0.063	-0.054	0.059
Demographic Variables							
Work experience	12.561	0.007**	0.003	-0.002	0.004	-0.005	0.004
Salary	0.507	-0.116**	0.055	0.156**	0.071	-0.039	0.065
Age	0.610	-0.112	0.073	-0.063	0.084	0.175*	0.068
Performance Variables							
Rewards	0.561	-0.149*	0.056	0.13**	0.065	0.017	0.058
Increments	1.597	0.011	0.019	-0.031	0.025	0.019	0.022
Appreciation	0.403	-0.004	0.048	0.098***	0.059	-0.094***	0.054
Promotion	0.369	0.0009	0.051	-0.024	0.067	0.023	0.065
Personality Variables							
Propensity to stress	22.101	0.108*	0.012	-0.006	0.015	-0.101*	0.013
Behavioral symptoms	26	0.039*	0.006	0.015***	0.008	-0.054*	0.007
Coping style	51.303	-0.007***	0.004	0.017*	0.005	-0.01**	0.005
Locus of control	0.323	0.067	0.054	0.049	0.062	-0.116**	0.051

Note:
* Statistically significant at 1 percent level of significance,
** Statistically significant at 5 percent level of significance,
*** Statistically significant at 10 percent level of significance.

4.2. Role Stress Based Clusters and Demographic Variables

On the demographic variables front, an employee with more work experience is less likely to be segmented in the UC and UU clusters. It seems that the experience gained by the employee aids in clearing the ambiguity at work and in satisfying the urge for proper utilization of capabilities, however, it may also lead to work overload. On the other hand, contradictory results have been reported for age variable where increasing age increases the chances of an employee grouping in the UU cluster. Rani (2001) also corroborated the relationship between age and role stress and emphasized that role stagnation, depicted by perception of underutilization, is experienced more by older employees as compared to younger ones. In addition, with an increase in salary, the odds are in favor of employee segmentation in the UC cluster. The results of marginal effect also point out that there are 11.6 percent less chances that an employee with a salary of more than Rs. 20,000 would fall into the category of OL whereas there are 15.6 percent more chances that such an employee would fall in the UC cluster.

4.3. Role Stress Based Clusters and Performance-Related Variables

Amongst the performance related predictors, it was revealed that an employee is more likely to be clustered in the UC and UU segments when he did not receive a reward for his performance. It indicates that administration of no rewards to the employees is associated with non-clarity and perception of underutilization at work. This is being reinforced by marginal effects which confirm that an employee with no rewards is found to have 13 percent chances of falling in the UC cluster. Although the odds ratio of other performance related variables, namely, promotion, increments and appreciation did not show statistically significant results on cluster membership, the marginal effects of appreciation were nonetheless found to be statistically significant at 10 percent level of significance for the UC and UU clusters. It was revealed that the chances of employees coming together in the UC cluster rise by 9.8 percent and fall for the UU cluster by 9.4 percent when employees receive at most one appreciation.

4.4. Role Stress Based Clusters and Personality Related Variables

Higher stress propensity and behavioral strain increases the probability of employee segmentation in the OL cluster. This is also corroborated by the results of marginal effects which put in view that the chances of falling in the OL cluster rise by 10.8 percent and 3.9 percent for employees with higher

propensity and behavioral symptoms respectively. Similar relationships were found for the association between role overload, role ambiguity and outcomes like fatigue, tension, anxiety and anger-irritation (Beehr et al. 1976; Harrison, 1978). A positive relationship between behavioral symptom and role overload was also been reported by Keenan and McBain (1979). Furthermore, the avoidance coping style predicts employee membership in the UC cluster over the OL cluster. In this direction, Havlovic and Keenan (1991) also suggested that ambiguity may restrain an employee from using direct action. The results point out the role played by personality in determining the role stress based segments where stress propensity and behavioral strain may add to the employees' perception of being overloaded and avoidance coping style may reinforce non-clarity. Moreover, Latack (1986) and Havlovic and Keenan (1991), also suggested that the less frequent use of direct action may be likely in the face of ambiguity in roles. Similarly, external locus of control increases the probability of employee segmentation in the OL cluster in comparison to its counterparts. While exploring the relationship between locus of control and role stress, Malik and Sabharwal (1999) also found that one of the areas in which individuals with external locus of control received more stress is role overload. The reliance of 'externals' on chance and other individuals may limit their capacity to take active steps towards shedding off that extra workload which consequently, leads to even greater work overload.

5. CONCLUSION AND IMPLICATIONS

The foregoing analysis has added to the comprehension of the heterogeneity in the predictors of role stressed workforce of commercial banks implying that substantial differences exist in the three segments of the role stressed employees. The role stress based employee segments, namely overloaded, unclear and underutilized are, therefore, qualitatively distinct segments and must not be lumped together.

In terms of policy suggestions, it may be argued that public sector commercial banks must institute mechanism to rationalize work amongst its workforce as the OL cluster is found to be more prevalent there as compared to other clusters. The private sector commercial banks, on the other hand, must initiate the development of platforms to intensify communication throughout the workplace which would not only reduce ambiguity at work but also help employees to prioritize the tasks for better management of work. Employee perception of underutilization is also of prime concern to the private sector banks as the odds of the UU cluster have been found to be more in comparison to the OL cluster.

The commercial banks are also required to wake up to the fact that role stress has multifaceted relationship with performance-related benefits. Where performance benefits can lower the perception of underutilization at workplace, it may also increase the workload of employees. Nevertheless, an organization aiming at reducing the role stress at work faces an uphill task in optimizing utilization of the capabilities of its workforce and at the same time not increasing the workload of employees beyond a functional level. The demographic variables also provide important information for the role stress management as, for example, the commercial banks must make sure that, with increasing work experience, the employees are not bombarded with work overload. It has been revealed in the study that the rise in work experience has been associated with a probability for an employee to fall in the OL cluster. Therefore, proper mechanisms should be instituted for employee assistance in the role. Moreover, increasing age raises the chances of employee grouping in the UU cluster which indicates the need for a well-knit human resource function emphasizing the development, utilization and maintenance of employees.

The results also imply the contribution of personality factors in determining the dynamics of role stress at workplace. The high propensity and behavioral symptoms demonstrated by the overloaded cluster of employees point out one of the important determinants of work overload of employees which may lie hidden in their personality. The role stress based clusters of employees are associated to their coping style and locus of control. Emphasizing the role of personality in relation to role stress in the workplace could lead to perceiving role stress as a personal weakness. The relation of personality variables with role stress based clusters of the bank employees implies the usefulness of employee training in managing the personality attributes like propensity, locus of control, work behavior, etc. for the role stress management. Management development programs, workshops and activities can also be used to create awareness of the nature of role stress and assist employees to cope effectively. Behavioral modification and psychological therapy methods may be structured so as to focus on the personality constructs.

The study adds to the literature on role stress and the impact of various factors on role stress of employees. Not only is it theoretically meaningful to understand the heterogeneity in the experience of role-stress but also the analysis of clustered employees has important implications for role stress based employee segmentation and targeted role stress management interventions. Careful and well-planned implementation strategies conducive to the requirements of each cluster can provide fruitful results to the employees and organization.

6. LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The study has contributed to the comprehension of a number of determinants of role stress based segments of employees. However, while drawing conclusions, it is important to keep in mind the limitations of the self-reporting nature of survey responses. Although the fact that self-report questionnaires increase the chances of common method variance effects (Fairbrother and Warn, 2003), the use of Harman's one-factor method test to identify the problem of common method variance with the application of factor analysis (Padsakoff et al. 2003) in the present composition reveals that neither a single factor nor a general factor account for the majority of the variance. Moreover, the findings derived from the study are only limited to the front-line employees working in commercial banking organizations. This limits the findings from other population working in back-end operations in the banking sector and employees working in organizations other than the banking sector. Future research can also incorporate examination of change in cluster membership of the respondents on account of the and the interventions adopted by organization and employees. Some elements of longitudinal data could be an enormous help in making a stronger contribution to the field of role stress. Furthermore, the type of role stressors experienced by an employee and their segmentation on that basis can be further validated by studying the responses from their peers, family members, friends, etc. Finally, future research can be planned to validate the robustness of the model through the lens of qualitative research methods which can also provide more authenticity to it.

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ODREDNICE STRESA ZASNOVANOG NA SEGMENTACIJI ZAPOSLENIKA: MULTINOMNA LOGISTIČKA ANALIZA

Sažetak

Organizacije se suočavaju s brojnim izazovima, pri čemu je upravljanje stresom dobilo na značaju, s obzirom na njegove izrazito negativno učinke na zaposlenike i organizaciju u cjelini. Cilj je ovog rada utvrditi odrednice stvaranja klastera zaposlenika, zasnovanih na temelju stresa, doživljenog na radnom mjestu. Pritom su empirijski podaci prikupljeni za 550 operativnih zaposlenika komercijalnih banaka u saveznim državama Jammu i Kašmir (Indija). Uz pomoć multinomne logističke regresije analizirane su odrednice klastera zaposlenika, koje se odnose na organizaciju, demografiju, osobnost i performanse, pri čemu se korišteni softverski paketi E-Views 6.1 i SPSS 14.

APPENDIX I

CLUSTERING VARIABLE MEANS INDICATING PROFILING OF EMPLOYEES' CLUSTERS AND F-TEST RESULTS COMPARING CLUSTERS

Factors	**Clusters**			**F-Value**
	Overloaded Employees	*Unclear Employees*	*Underutilized Employees*	
Role Indistinctiveness	7.36 (Medium)	9.93 (High)	5.89 (Low)	302.543*
Role Excess	12.32 (High)	10.12 (Medium)	5.89 (Low)	164.221*
Role Invasion	9.45 (High)	7.75 (Medium)	7.4 (Low)	78.105*
Role Divergence	7.41 (Medium)	8.28 (High)	4.97 (Low)	102.155*
Role Augmentation	6.16 (Medium)	5.01 (Low)	6.43 (High)	33.274*
Self-Diminution	7.83 (Low)	8.56 (Medium)	8.76 (High)	13.186*
Role Fortification	6.12 (High)	5.12 (Low)	5.6 (Medium)	14.520*
Resource Shortage	5.3 (Low)	6.83 (Medium)	6.89 (High)	2.679**
Number of Respondents	178 **35.52**	163 **32.53**	160 **31.93**	

Notes:
1. * and ** significant at 1 percent and 10 percent level of significance, respectively.
2. Table provides the simplified overview of clusters related to the factors and numbers, which reflect the mean value score of respective factors for each cluster. Bold values represent the percentage.

APPENDIX II

CLASSIFICATION RESULTS

	Cluster	Predicted Group Membership			Total
		Overloaded Cluster	*Unclear Cluster*	*Underutilized Cluster*	
Original	Overloaded Cluster	144 **80.9**	29 **16.3**	5 **2.8**	**178**
	Unclear Cluster	37 **22.7**	104 **63.8**	22 **13.5**	**163**
	Underutilized Cluster	9 **5.6**	31 **19.4**	120 **75.0**	**160**
Cross-validate*	Overloaded Cluster	135 **75.8**	37 **20.8**	6 **3.4**	**178**
	Unclear Cluster	42 **25.8**	96 **58.9**	25 **15.3**	**163**
	Underutilized Cluster	11 **6.9**	33 **20.6**	116 **72.5**	**160**

* Note: Leave one out method has been used for cross-validation purpose.

a. 73.5% of original grouped cases correctly classified;
69.3% of cross-validated grouped cases correctly classified.