



Investigating role stress in frontline bank employees: A cluster based approach

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Abstract An effective role stress management programme would benefit from a segmentation of employees based on their experience of role stressors. This study explores role stressor based segments of frontline bank employees towards providing a framework for designing such a programme. Cluster analysis on a random sample of 501 frontline employees of commercial banks in Jammu and Kashmir (India) revealed three distinct segments – “overloaded employees”, “unclear employees”, and “underutilised employees”, based on their experience of role stressors. The findings suggest a customised approach to role stress management, with the role stress management programme designed to address cluster specific needs.

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Introduction

Stress at the workplace is a growing phenomenon across the globe (Horwitz, 2010). Among the identified potential causes of work related stress, role stress has been recognised as a significant contributor to work stress (Boles, Wood, & Johnson, 2003; Vandenberghe, 2011). Existing empirical evidence suggests that role stress is likely to influence an individual employee’s psychological well-being

(Singh & Dubey, 2011), physical health (Netemeyer, Johnston, & Burton, 1990), and behavioural intentions (Babin & Boles, 1998) which may negatively impact their job performance (Nelson & Burke, 2000). Designing an effective role stress management programme requires a clear understanding of the employee experience of role stressors. Segmenting employees based on the extent of their experience of role stressors may provide a useful framework for designing an effective role stress management programme. However, the available framework for comprehending the role stressor based segments of employees is inadequate, and particularly so in the context of frontline bank employees who occupy boundary spanning positions and face increasing role pressures (Rigopoulou, Theodosiou, Katsikea, & Perdikis, 2012).

The objective of this study is to explore role stressor based segments of frontline bank employees. The specific research questions addressed in this study are (i) Do frontline bank employees differ on the experience of role stressors? (ii) Can frontline bank employees be grouped in distinct segments

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based on their experience of role stressors? (iii) What are the different segments of frontline bank employees based on their experience of role stressors? (iv) Do the profiles of the identified segments of frontline bank employees differ significantly? Using cluster analysis on a random sample of 501 frontline bank employees in the state of Jammu and Kashmir in India, the study reveals that (i) frontline bank employees differed significantly on the basis of their experience of role stressors and merit to be categorised into distinct segments; (ii) frontline bank employees could be grouped into three distinct segments namely "overloaded employees", "unclear employees" and "underutilised employees"; (iii) the profile of the frontline bank employees falling in the above distinct segments was also found to be significantly different. The findings of the study have important implications for practitioners and researchers alike.

The rest of this paper is organised in the following way. In the next section, the existing literature is critically reviewed and summarised. The subsequent section discusses the methodology used in the study, followed by the study results. The section after that discusses the findings of the study and its implications for practitioners and researchers. The final section discusses the limitations of this research and possible scope of future research in this area.

Literature review

Over the past few decades, role stress has been the focal point of an increasing number of research studies being conducted in the area of management (Frone, 1990; Holdsworth & Cartwright, 2003). Kahn and Quinn (1970) defined role stress as "anything about organisational role that produces adverse consequences for the individual" (p. 41). The basic research issues dealt with by a majority of the prior studies on role stress have been: (a) manifestation of role stress (Aziz, 2004; Lehal, 2007); (b) antecedents of role stress (Conner & Douglas, 2005; Jena & Pradhan, 2011); (c) consequences of role stress (Adiguzel, 2012; Tourigny, Baba, & Wang, 2010) (d) moderators of role stress (Bhagat et al., 2010; Jaramillo, Mulki, & Boles, 2011); and (e) interventions to reduce role stress (Nonis, Sager, & Kumar, 1996). However, in spite of the existence of vast literature, the current state of knowledge regarding manifestation of role stress has not evolved satisfactorily.

Existing empirical evidence points to the manifestation of role stress through role stressors (Pareek, 1983; Sen, 2012). Role stressors are defined as those demands, constraints, and events that affect an individual's role fulfilment (Beehr & Glazer, 2005), thereby leading to role stress. Several empirical studies have been conducted to investigate the manifestation of role stress; however, the researchers are not unanimous with respect to its manifestations. While several studies have focussed on two key role stressors i.e. role conflict and role ambiguity (Dubinsky, Michaels, Kotabe, Chae Un, & Hee-Cheol, 1992; O'Driscoll & Beehr, 2000), many studies have also included the dimension "role overload" along with role conflict and role ambiguity (Hang-yue, Foley, & Loi, 2005; Singh & Dubey, 2011). Other researchers have focussed on examination of higher number of role stressors (Fernandes & Tewari, 2012; Sayeed & Kumar, 2010). The focus on varied

role stressors may be due to the fact that the manifestation of role stress is likely to change with the change in the context. For example, the role stressors among executives and frontline employees are likely to be different (Ahmad & Shah, 2007). Hence, in order to frame an effective role stress management programme, an understanding of the extent of experience of role stressors by employees in a specific context is required. Research suggests that the employee's extent of experience of distinct role stressors is likely to vary (Hillhouse & Adler, 1997) and hence, segmentation of employees on the basis of their extent of experience of distinct role stressors may be useful in comprehending role stress. Specifically, there is a dearth of studies which have empirically investigated the phenomenon of role stress in the context of frontline bank employees (Rigopoulou et al., 2012). Frontline employees are organisational representatives who directly interact with the customers (Bettencourt & Brown, 2003).

Role stressor based segmentation of frontline bank employees is relevant due to numerous reasons: (a) Existing empirical studies investigating the role stressors of bank employees are based on the assumption that the target population is homogenous with reference to the extent of experience of distinct role stressors (Ahmad & Shah, 2007; Sen, 2012). This approach may be inaccurate and inadequate; (b) productivity of frontline employees is one of the most decisive factors in the success of banks and their experience of role stress is likely to have a negative impact on their performance at the workplace (Rigopoulou et al., 2012); and (c) the performance of the banking sector is crucial for the financial stability of emerging economies such as India (FICCI, 2010).

The present study aims to fill the above mentioned gap in the literature by investigating the role stressor based segmentation of frontline bank employees.

Research methodology

Sample design

The data was collected through a survey wherein a pre-tested structured questionnaire was administered to 600 full time frontline employees of 11 commercial banks of Jammu and Kashmir (India). The main offices of each commercial bank at Jammu and Kashmir were identified for this purpose. Simple random sampling method was used to select the respondents for the study. Two methods were utilised for the collection of data. In the first case, respondents completed the questionnaires and returned them to the branch manager, which were then collected by the first author. In the second case, respondents completed the questionnaires and returned them to the first author. The total usable responses were 501 (83.5% of the sample size), which form the basis of the study.

Measure of role stress

For the measurement of role stress, indicators were adopted from a 50-item five point Likert type "organisational role stress" scale developed by Pareek (1993), wherein the respondents were asked to state their extent of experience

of the role stressors (ranging from *never* to *always*). The construct and content validity of the initial 50 items of the organisational role stress scale was assessed by 15 experts. The experts were asked to provide comments on the relevance, content and understandability of the items included in the scale in the context of measuring the role stress of frontline bank employees. They were also asked to identify any of the scale items that were not truly measuring the role stress in the context of frontline bank employees. The suggestions provided by the experts were incorporated to arrive at a truncated 30-item role stress scale. The truncated scale was tested for internal consistency using cronbach's alpha on a sample of 100 respondents (usable sample 70). Inter item cronbach's alpha was assessed for each item to arrive at a final 22-item role stress scale. The cronbach's alpha of the 22 item role stress scale was 0.805, which was above the recommended minimum acceptable value of 0.6 (Funfgeld & Wang, 2009).

Respondent profile

The profile of the respondents in the final survey is given in Table 1. Of the respondents, 50.2% were from public sector commercial banks and 49.8% from private sector commercial banks. Other details of the sample are as follows: 38.3% of the respondents were in the age group of 21–30 years; 54% of the respondents belonged to nuclear families and 46% to joint families; 51.1% of the respondents were graduates, followed by post graduates (41.5%); and 33.7% had a monthly salary between Rs. 20,001 and Rs. 30,000. In terms of promotions received, 54.1% of the respondents had not received any promotion till the date of filling of the questionnaire, while 36.9% had received one promotion; 56.1% had not received any reward, while 23.4% had received one reward; and 27.7% had been appreciated more than three times at work while 19.6% of respondents did not receive any appreciation at work.

Results

In this section, first the results of the test of dimensionality of the role stress scale are discussed. Next, the results of the cluster analysis are discussed. Finally, the profiling of the sample respondents is made based on cluster results. SPSS version 14.0 has been used to estimate the results.

Factor analysis

The role stress scale is examined for the factorability of 22 items measuring this scale. First, the correlation method is used, followed by factor analysis. The correlation method reveals that all 22 items correlate to a score of at least 0.3 with any one of the remaining items. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy for the 22-item scale is above the minimum acceptable value of 0.60 which means data is adequate for factor analysis. Principal component analysis of the 22 items, using varimax rotation, is conducted and eight factors are extracted explaining the 60.35% variance. The careful analysis of items under factor 1 through 8 in Table 2 manifests role stressors namely role indistinctness, role excess, role

Table 1 Profile of the study respondents (N = 501).

Category	Percentage	Frequency
Type of bank		
Public	50.2	252
Private	49.8	249
Age (years)		
Up to 20	0.6	3
21–30	38.3	192
31–40	26.7	134
41–50	20.4	102
Above 50	14	70
Type of family		
Nuclear	54	269
Joint	46	232
Education		
Undergraduate	4.6	23
Graduate	51.1	256
Post-graduate	41.5	208
Others	2.8	14
Monthly Salary (Rupees)		
Below Rs. 10000	12.6	63
10,001–20,000	31.9	160
20,001–30,000	33.7	169
30,001–40,000	17	85
Above 40,000	4.8	24
Promotion		
Nil	54.1	271
One	36.9	185
Two	6.8	34
More than two	2.2	11
Rewards		
Nil	56.1	281
One	23.4	117
Two	11.2	56
More than two	9.4	47
Appreciation		
Nil	19.6	98
Once	20.8	104
Twice	22.6	113
Thrice	9.4	47
More than three times	27.7	139

invasiveness, role divergence, role augmentation, self diminution, role fortification and resource shortage, respectively.

The first role stressor *role indistinctness* suggests that respondents experience role stress because of vagueness and non-clarity in the role. The *role excess* factor indicates that employees have a surplus amount of work and they are unable to pay enough attention to the quality of work.

Role invasiveness is another important role stressor due to which employees feel unable to devote time to family and other pursuits. The divergent potential of the role where the employee may get contradictory, conflicting, and opposing expectations at work is manifested by *role divergence*. *Role augmentation* reveals a lack of scope for escalation of role as indicated by lack of prospects for growth and the lack of time for preparation for growth. *Self-diminution* reflects personal shortcoming in employees

Table 2 Dimensionality and reliability of role stress scale.

Role stress scale items	Factor loadings**								KMO	Cronbach's alpha***
	F1	F2	F3	F4	F5	F6	F7	F8		
I know what the people I work with expect of me.*	-0.75								0.714	0.625
I have to work under vague and unclear directions.	0.73									
I am not clear on the scope and responsibilities of my role.	0.66									
I cannot do much more than what I have been assigned.		0.73								
I have so much work that I do not have time to think about maintaining quality.		0.72								
I am assigned tasks without much resource to complete it.		0.6								
I feel that the amount of work I have to do is more than it should be.		0.49								
I have various other interests (social, religious, etc.) which remain neglected because I do not get time to attend to these.			0.77							
I am not able to give time to my family because of work.			0.64							
My family and friends complain that I do not spend time with them due to the heavy demands of my work role.			0.61							
I am not able to satisfy the demands of clients and others, since these are conflicting with one another.				0.7						
I have adequate knowledge to handle the responsibilities in my role.*				-0.57						
I am able to satisfy the conflicting demands of various people above me.*				-0.53						
I see many growth opportunities for myself.*					-0.72					
I have enough time and opportunities to prepare myself for the future challenges of my role.*					-0.65					
If I had full freedom to define my role, I would be doing some things differently from the way I do them now.						0.76				
I need more training and preparation to do my work properly.						0.53				
I should have given more attention to the development of skills which I need.						0.45				
I have been given too much responsibility.							0.72			
I want more challenging tasks to do.							0.64			
I feel isolated at work.								0.78		
I do not lack the necessary facilities needed to carry out different varieties of tasks in my role.*									0.78	
										-0.46

Notes: * indicates statements coded reversely; $n = 501$. Eigen Value > 1 . ** indicates Factor loadings > 0.40 ; *** indicates value of Cronbach's alpha (based on standardised items) for the scale.

due to inadequacy of skills, knowledge, and expertise on the part of the individual or due to a lack of freedom to define the role the way the individual wants. *Role fortification* indicates that prevalence of routine and monotonous tasks and the lack of challenge at work leads to role stress. *Resource shortage* role stressor constitutes a feeling of isolation and shortage of resources.

The internal consistency of the role stress scale on the complete sample ($N = 501$) was measured using Cronbach's alpha. The Cronbach's alpha of the role stress scale was found to be above 0.6, which was adequate (Funfgeld & Wang, 2009). Table 3 presents the descriptive statistics and inter-correlation of each of the role stressors explored through factor analysis.

Cluster analysis

Cluster analysis is used as a means of representing the potential structure of data to identify groups of frontline bank employees who are alike in their experience of role stressors. In the present framework, this approach is particularly relevant due to its ability to minimise within-group variance and maximise the between-group variance resulting in heterogeneous groups with homogenous contents (Satish & Bharadhwaj, 2010). It also offers a statistically sound means of delineating natural groupings within data (Hillhouse & Adler, 1997).

The role stressors explored from the factor analysis were used to construct the variables for cluster analysis. Accordingly, an overall score for each component was calculated by adding the scores for each included item and dividing this by the number of items in the component (Funfgeld & Wang, 2009) so that the frontline bank employees could be segmented on the basis of their factor scores. *First*, the existence of outliers was assessed using single linkage method which indicated non-existence of outliers. This was necessary as cluster analysis is sensitive to outliers (Schaufeli, Bakker, Van der, & Prins, 2009). *Second*, using the eight average factor scores as variables, a hierarchical cluster procedure with Ward's linkage and squared Euclidean distance as the dissimilarity measure were used to identify the number of clusters and define group centroids. Such agglomerative procedures use an algorithm that initially adds the same combinations to the clusters. When the score of the identical subjects can no longer be combined, two clusters are combined so that internal heterogeneity is least increased. This process is

performed until the last merger step when the last two remaining clusters are united.

The cluster solution ranging from two to five clusters was tested. The highest percentage change in the agglomeration coefficient (12.67%) was noticed for the shift from three to two clusters which was also reinforced by a visual inspection of the dendrogram. Though Ward's method has been found to be appropriate for meeting a clustering pattern that reflects somewhat equally sized clusters (Hair, Anderson, Tatham, & Black, 2006) and offers a good criterion for the number of possible clusters, the main disadvantage is that the allocation of subjects is final, with no possibility of reassignment to another (more appropriate) group during the procedure (Funfgeld & Wang, 2009). This requires the conjunction of a non-hierarchical clustering approach along with a hierarchical clustering approach. In the *third* step, the non-hierarchical cluster analysis K means method was used to improve the results of Ward's method as it appeared to be more robust than any of the hierarchical methods (Punj & Stewart, 1983). Its optimising algorithm checks as to whether in each case the previous assignment from the hierarchical analysis is really best or whether with another assignment, the homogeneity of the new target cluster is less affected than with the previous one. The results obtained through the K-means method further confirmed the existence of 3 cluster solution. *Fourth*, one-way ANOVA was performed to test the significance of the contribution of each role stressor towards cluster membership. As shown in Table 4, results of one-way ANOVA suggested that (i) each role stressor significantly contributed to clusters, and (ii) respondents were also evenly segregated into three clusters. *Fifth*, the careful examination of each of the three cluster's profile on specific role stressors suggested that respondents can be grouped into three distinct clusters, namely overloaded employees, unclear employees, and underutilised employees.

Segmentation profile

The grouping of the respondents into three distinct clusters namely, overloaded employees, unclear employees, and underutilised employees has been done on the basis of the distinguishing characteristics prevalent in the three segments of the respondents, revealed through final cluster centres. Table 4 provides a simplified overview of the characteristics of the three clusters.

Table 3 Means, standard deviations and inter-correlations among role stressors.

Role stressors	Mean	Standard deviation	1	2	3	4	5	6	7
1 Role indistinctness	7.97	2.80							
2 Role excess	10.25	2.70	0.83						
3 Role invasiveness	8.33	2.39	-0.14*	0.34*					
4 Role divergence	6.91	2.42	0.33*	0.27*	-0.02				
5 Role augmentation	5.87	1.73	0.22*	0.25*	0.11*	0.21*			
6 Self diminution	8.43	1.81	0.12*	0.26*	0.18*	0.15*	0.11**		
7 Role fortification	5.74	1.60	-0.19*	0.3*	0.28*	-0.09**	0.09**	0.16*	
8 Resource shortage	6.3	1.94	0.07	-0.03	-0.11	-0.07	0.07	-0.07	-0.07

Note: * $p < .01$, ** $p < .05$.

Table 4 Profiling of frontline bank employee clusters (based on final cluster centres) and *F*-test results comparing clusters.

Role stressors	Clusters			<i>F</i> -value
	Overloaded employees (<i>N</i> = 178)	Unclear employees (<i>N</i> = 163)	Underutilised employees (<i>N</i> = 160)	
Role indistinctness	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***

Note: * $p < .01$, *** $p < .10$.

The overloaded employees cluster represents respondents who experience high *role excess*, *role invasiveness*, and *role fortification*, but low *self diminution* and *resource shortage* at work. The unclear employees cluster comprises those respondents who experience high *role indistinctness* and *role divergence*, but low *role augmentation* and *role fortification*. Those respondents who experience high *role augmentation*, *self-diminution*, and *resource shortage* but low *role indistinctness*, *role excess*, *role invasiveness* and *role divergence* comprise the underutilised employees cluster.

Discussion and implications

The objective of this study is to explore the role stressor based segments of frontline bank employees. The findings of the study suggest that frontline bank employees can be grouped in three distinct segments namely, overloaded employees, unclear employees and underutilised employees, based on their experience of role stressors.

The overloaded employees cluster represents those respondents who experience workload in excess of their expectations (high role excess), which may also be monotonous and routine (high role fortification) leading to compromise with quality of work and lack of time for their family, friends and other personal interests (high role invasiveness). As depicted in Table 5, majority of overloaded employees are those working in public sector banks, in the age group of 31–40 years and earning a monthly salary of Rs. 20,001–Rs. 30,000. These respondents are also those who have received promotion, rewards, and appreciation at work.

The unclear employees cluster relates to the respondents who lack adequate knowledge required for meeting the role responsibilities (high role divergence) and are experiencing ambiguous situations at work (high role indistinctness). Table 5 suggests that a majority of unclear employees are

Table 5 Profiling of frontline bank employee clusters (based on personal variables).

Overloaded employees	
Age	31–40 years*
Type of bank	Public sector**
Type of family	Nuclear
Education	Graduation
Salary	Rs. 20,001–Rs. 30,000**
Promotion	≥1***
Rewards	≥1*
Appreciation	2 times*
Unclear employees	
Age	≤30 years*
Type of bank	Public as well as private sector**
Type of family	Joint
Education	Graduation
Salary	Rs. 10,001–Rs. 20,000**
Promotion	Nil***
Rewards	Nil*
Appreciation	≤1 times*
Underutilised employees	
Age	≤30 years*
Type of bank	Private sector**
Type of family	Nuclear
Education	Graduation
Salary	Rs. 10,001–Rs. 20,000**
Promotion	Nil***
Rewards	Nil*
Appreciation	≥3 times*

*Chi-square value significant at 1% level of significance; **chi-square value significant at 5% level of significance; *** chi-square value significant at 10% level of significance.

those in the age group of less than or equal to 30 years and earning a salary of Rs. 10,001–Rs. 20,000 per month. These respondents have also received appreciation less often (\leq one time), and no promotion and rewards.

The underutilised employees cluster corresponds to those respondents who do not see many growth opportunities for themselves (high role augmentation), feel short of skills and knowledge (high self diminution) leading to their isolation at work (high resource shortage). Profiling of these respondents based on personal variables suggests the majority of them to be employed in private sector banks, of less than or equal to 30 years of age, earning a monthly salary of Rs. 10,001–Rs. 20,000. These respondents have not received any promotion and reward, but have received appreciation (\geq 3 times) at work.

The above discussion suggests that having the same role stress management programme for all employees could be sub-optimal. Hence the effectiveness of the role stress management programme is likely to increase if it is designed to address the cluster specific needs. In order to reduce the role stress of the overloaded employees cluster, the specific interventions should aim at managing their workload. Interventions adopted should address the source of work overload and assist employees in managing work overload. Job redesigning, job sharing, and other support mechanisms may be utilised for this purpose. The role stress of “unclear employees” is likely to reduce if the interventions target reducing their ambiguity at work. Interventions adopted should address the source of work ambiguity through defining and documenting role expectations and responsibilities clearly and assisting employees by training them adequately to undertake the role responsibilities. Providing frequent and regular performance feedback on an informal as well as a formal basis can provide valuable information that can help reduce ambiguity at work. For reducing the source of role stress of the underutilised employees cluster, interventions should aim at training and development for role specific capacity building. Professional counselling platforms for discussing and resolving career related issues can also alleviate role stress of this cluster. This study, therefore, underlines the heightened relevance of a customised approach to role stress management.

Limitations and directions for future research

The findings of the study are constrained by the following limitations. *First*, the data collected was cross-sectional. *Second*, the measures were self-reported by the respondents which can result in social desirability bias. *Third*, the constructs used in this study were measured by responses from the same participants. This measurement practice is prone to create common method variance. *Fourth*, the role stress scale used in this study is context specific, which cannot be generalised for other contexts without its being tested for validity and reliability. Future research may want to employ longitudinal designs coupled with objective and subjective measurement of role stressors from multiple sources which can enrich the understanding of role stress. Examining the influence of various organisational and individual related moderators like organisational

support, personality and so on on role stressors would also be interesting to note. Moreover, future research can incorporate examination of change in cluster membership of the respondents on account of time as well as due to the interventions adopted by the organisations.

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