

Full Length Research Paper

Stress in banker's life: Demands-control model as predictors of employee's activity participation

Saif ur Rehman¹, Muhammad Aslam Khan^{2*}, Hasan Afzal³, Waheed Akhter⁴ and Imran Ali⁴

¹Federal Government College of Commerce, Sector H-8/4, Islamabad, Pakistan.

²Faculty of Business Administration, Preston University, Islamabad, Pakistan.

³Independent Researcher, Hong Kong, 1903 Un Shing House, Un Chau Estate, Cheung Sha Wan, Kowloon, Hong Kong.

⁴Department of Management Sciences, COMSATS Institute of Information Technology (CIIT), Lahore, Pakistan.

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The aim of this study was to provide the reliability and validity of job factors and to analyze its association with demands-control model and activity participation in two time cross-sectional study of private and public sector commercial banks of Rawalpindi-Islamabad region. Two time self-reported cross-sectional surveys were conducted, the study samples consisted of 250 respondents at T1 and 200 respondents at T2. Appropriate internal consistencies of the five scales: demands, control, job stress, activity participation and social supports, were obtained. Finally, all five measures were associated with a highly significant ratio of job stress, and the effect was strongest for the AP ratio as predicted by fundamental theory.

Key words: Work overload, work control, organizational support, activity participation, demands-control-support model.

INTRODUCTION

Job stress has been documented as one of the most important workplace health hazards for employees in developed and developing countries (Paul, 2002; Danna and Griffin, 2002). Cartwright and Cooper (1997) further pointed out that in the short term stress can lead the employees to stomach disorder, headaches, sleeplessness, emotional distress and loss of energy/motivation, and in the long term it can result in serious illness and even early death, most likely due to cardiovascular disease (heart diseases). Furthermore, job stress appears to be endemic to the current workplace, as American national surveys have shown that a large number of employees report feeling highly

stressed at work (Sauter et al., 1999). There are a number of workplace factors, called job stressors that make jobs stressful and difficult for number of employees in services as well as manufacturing industries. Additional stressors concern interpersonal relationships at work, such as conflicts with the behavior of supervisors, conflicts with colleagues, conflicts with subordinates and conflicts with management policies (Paul, 2002). Kahn and Byosiere (1992), Taylor (1999) and Paul (2002) further pointed out that there are some other stressors in the organizational context, such as having insufficient resources to do the job (e.g., defective equipment or inadequate supplies), or low salaries structure. Research has clearly demonstrated that all of these job stressors are connected with employees' health and well-being. As is characteristically found in various studies, higher levels of stressors (e.g., heavy workload and uncertainty about supervisors' expectations) were associated with physical

*Corresponding author. E-mail: aslamkhan_6491@hotmail.com.
Tel: 00923005555084.

symptoms, such as headaches, and poor job attitudes.

In spite of these positive and negative arguments the job demands-control model (Karasek, 1979) has become a dominant model of the relationship between work, stress and performance (De Jonge and Kompier, 1997). Karasek's model also indicates that job control buffers the effects of job demands on job stress and well-being of employees.

Some research studies examining three-way interactions among job demands, job control, and social support have also produced contradictory results (e.g., De Jonge et al., 1996). To date, empirical tests of the job demand-control-support (JDSCS) models have neglected the comprehensive role of control and locus of control that is, personality variables.

Past researches on JDSCS model have identified many antecedents and correlates of stress, and have confirmed that the experience of stress over prolonged periods of time is associated with a range of adverse consequences, including physical upsets, psychological pressure, interpersonal conflicts, performance deficits, absenteeism and turnover of employees (Kahn and Byosiere, 1992; Travers, 2001). Study of job factors (job demands, job control, social support at work place) with association of immediate outcomes (job anxiety, job dissatisfaction, somatic symptoms) and remote outcomes (mastery scale, job consideration, job participation, job performance, and vigor activity) of stress gives the workers sound knowledge to understand their own work environment within assigned job description and enables them to promote the quality of work and to maximize the output of organization.

The job demand-control (JDC) model was introduced by the sociologist Karasek (1979), who drew attention to two research way of life, namely the occupational stress directions (e.g., Caplan et al., 1976; Kahn, 1981) and the job redesign convention (e.g., Hackman and Oldham, 1980). In both research studies, attempts were made to relate psychosocial job characteristics to employee health. The occupational stress tradition focused on "stressors" at work, such as high workload, work pace, role conflict, and role ambiguity (e.g., French and Kahn, 1962). The job redesign tradition focused mainly on job control, as it's primary aim was to inform the (re)design of jobs in order to increase the effectiveness, motivation, satisfaction, and activity participation at workplace. According to Karasek (1979), the relations between job demands placed on the discretion available to the employee to decide how to meet these demands (that is, job control) contributes importantly to the prediction of stress and active learning.

According to the first perspective, the most adverse health effects are expected in a high demands – low control work situation. The second perspective proclaims

that (high) control can act as a buffer and thus minimize the potentially negative impact of high demands on employee's activity participation. While these perspectives are not mutually exclusive, they have different statistical implications. But the first perspective implies that the nature of the interaction is additive, the second perspective assumes an interaction over and above the main effects.

According to the objectives of our study we predicted the following nine hypotheses:

H₁: Job demands are negatively associated with job performance, job participation and job consideration.

H₂: Job control is positively associated with job performance, job participation and job consideration.

H₃: Social support is positively related to job performance, job participation and job consideration.

H₄: Job control and social supports moderate the relationship between demands and activity participation.

H₅: The main effects of job demands and job control predicts a level of activity participation better than either combine/additive effects does.

H₆: The main effect of job demands, job control and job social supports predict levels of activity participation better than does either combine/additive effect alone.

RESEARCH METHODS

Participants and procedure

This two time cross-sectional study is based on data obtained from two random samples consisting of all commercial financial institution's employees working in six large organizations situated in Rawalpindi-Islamabad region. Employees' regional personnel records were used to select a simple random sample of 300 working as regular employees in Commercial Banks throughout the Rawalpindi-Islamabad region. The target population was all those having graduate and post-graduate qualifications working on the various positions. All other positions were excluded. These two analyses produced no significant terms, indicating that the attrition was random.

Finally, it is noted that there was no structured, planned intervention in both studies. No natural and minor organizational changes took place, which had to do with some organizational renewal and personnel changes between the two waves. The 300 selected employees were delivered personally a copy of the research materials both at T1 and T2. Questionnaires were returned by 250 at T1 and 200 at T2 of these employees with six month time gap, and all of these were usable. The response rates was 83% at T1 and 66% at T2. Demographics at T1 showed that 90% of the sample was male, and mean age was 28.0 years (SD = 6.1, range 22 – 43). Mean working time in current organization was 5.8 years (SD = 9.25). Demographic characteristics of the respondents in the second study showed that the ages ranged from 23 – 45 years (M = 33.3, SD = 10.7). Most respondents were male: 91.6%, and mean working time was 10.6 years (SD = 7).

MEASUREMENTS

Measurement job factors

The items measuring demands, control and stressors developed for use in study 1 and study 2 were subjected to correlation and regression analyses. On the basis of these analyses, 16 of the original total demands, total control and total stressor items, measuring four different job factor domains were selected for use in study 1 and 2.

Job demands

Job demands were measured by using a sub-dimension of Karasek et al. (1985) Job Content Survey and Bradley (2004). This dimension consists of 16 items scored on a 5-point Likert scale (Appendix A-1). Respondents are asked to rate their present job on a 5-point Likert scale ranging from 1= completely false to 5= completely true. The reliability and validity of the measure are available elsewhere (Karasek et al., 1985). Internal reliability for this scale with the current sample was = 0.81 (Daryl et al., 2000). Cammann et al. (1983) reported the coefficient of reliability of 0.65, and Bradley (2004) reported a reliability of 0.746 and weighted reliability of 0.939. The reliability coefficients produced by this research for total job demands subscales consisted of [alpha] T1 = 0.91 and T2 = 0.89.

Job control

We used Ganster (1989) validated measure of job control. Ganster's original scale had 22 items, each asking the subject how much control they possessed over the various facets of their work. We trimmed the scale to 16 items, removing those items that were not applicable to the employees in our sample; these included questions about control over job demands. The control-scale consisted of two dimensions; skills discretion and decision authority. Skills discretion was measured by four items ("keep learning new things", "job requires skill", "job requires creativity", "repetitive work", control over the physical conditions of one's work station, or control over the ability to decorate or personalize the work area.

Decision authority was measured by some items ("have freedom to make decisions", "can choose how to perform work"), with Cronbach's alpha of .70. Scores on the items were averaged to provide an aggregate index of the amount of control perceived they had over their job, a high score indicates greater perceived control. All the items were scaled on a five-point Likert scale, ranging from 1 = have virtually no control to 5 = have complete control. Ganster (1989) reported internal reliability for this scale of also 0.85 and Bradley (2004) reported a reliability of 0.824 and weighted reliability of 0.947. The reliability coefficients produced by this research for total job control subscales consisted of [alpha] T1 = 0.89 and T2 = 0.94.

Social support

Social support was measured using Bradley (2004), Caplan et al. (1975) social support scale and revised social support scale. This measure includes two subscales: social support from supervisor (Questionnaire E1 to E4) and social support (F1 to F4) from work colleagues (Appendix A-1). The measure asks the respondents to identify the extent to which four items of support are received from

each of these two sources. Example of items include: How much do your department administration staffs go out of their way to make life easier for you? And how much do your colleagues go out of their way to make easier for you? The participants responded on a five-point Likert scale where 1 = not at all to 5 = very much. High scores indicate high levels of social support. The measures' internal consistency was tested with Cronbach's alpha statistic.

The reliability coefficients produced by this research for the two social support subscales consisted of [alpha] = T1 0.92 and T2 0.90 (supervisor) and [alpha] = T1 0.88 and T2 0.86 (colleagues). The Cronbach estimate of reliability for the non commissioned officers support scale was 0.87 whereas Bradley (2004) reported reliability of 0.887 (supervisor) and 0.903 (colleague). Caplan et al. report reliability coefficients of 0.83 for the supervisor support and 0.73 for the colleague support scales. Internal consistency reported by subsequent researchers is typically in excess of 0.70, and often approximates 0.90.

Dependent measures in study 1 and 2

Job stress

Subjective stress was measured by a four-item scale developed by Motowidlo et al. (1986) as adopted by Bradley (2004). An illustrative item is "I feel a great deal of stress because of my job". Responses were on a five-point scale from 1 (strongly disagree) to 5 (strongly agree). Motowidlo et al. (1986) reported a coefficient alpha of 0.83 for this scale. Bradley reported a coefficient alpha of 0.898 for this scale. The reliability coefficients produced by this research for job stress subscales consisted of [alpha] T1 = 0.90 and T2 = 0.93.

Activity participation

Activity participation was measured through 15-item scale adopted by Bradley, (2004) in the form of leadership style. This behavior is measuring three dimensions of activity participation, namely, performance emphasis, participation, and consideration. Definitions of these dimensions were based on Yukl (Yukl and Kanuk, 1979; Yukl and Nemeroff, 1994), as follows:

Performance emphasis: the extent to which seniors emphasize the importance of subordinate performance, tries to improve subordinate productivity and efficiency, sets challenging goals, and tries to keep subordinates working up to their required capacity.

Participation: the extent to which seniors/management consults with subordinates and otherwise allows them to participate in making decisions.

Consideration: the extent to which seniors/management behave in a friendly, considerate, open and honest manner in dealing with subordinates. Scales to measure these dimensions of activity participation were constructed by Bradley (2004) by giving reasons that existing scales (including those of Barnowe, 1975; Cammann et al. cited in Cook et al., 1981; Fleishman, 1953; House and Dressler, 1974; Stodgill, 1963; Vroom, 1960; Yukl and Kanuk, 1979; Yukl and Numeroff, 1979) were considered inadequate due either to length, content coverage, psychometric properties, and/or occupational or cultural bias. The final activity participation scale comprised three sub-scales, each of which contained five items requiring responses on a 5-point from 1 (not at all) to 5 (to a great extent) (Appendix E-3: job performance: D1, D4, D7, D12, and D15;

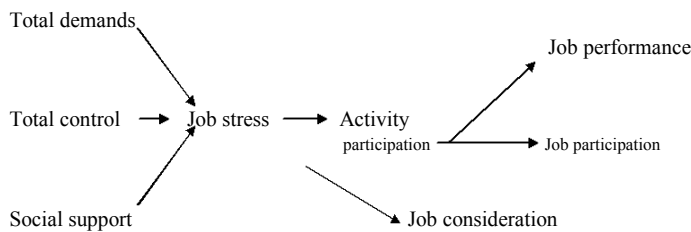
participation: D2, D5, D8, D10, and D13; and consideration scales: D3, D6, D9, D11 and D14). One item from each scale was negatively worded and required reverse-scoring. Sample items were [My supervisor...] maintains “high standards of staff performance” (performance emphasis), allows “staff to participate in important decisions” (participation), and “is really interested in whether staffs are satisfied in their work” (consideration).

Statistical treatment

Pearson correlations were computed to assess zero-order relationships between the variables. In addition, moderator and mediation models were used to test the hypothesised relationship between demand, control and support, and the outcome measures (Bradley, 2004)). Linear regression analyses were performed to test the joint influence of job demands, job control and social support on employees’ stress and activity participation (Hypothesis 1 - 3). Our fourth hypothesis assumes that control and social support moderate the relationship between job demands and activity participation, and job demands and performance.

In order to test this hypothesis, Baron and Kenny (1986) suggested that independent variables were entered into the equation in four successive steps (cf., Aiken and West, 1991; De Rijk et al., 1998; Rodríguez et al., 2001). Hierarchical regression analyses were also performed to test to what extent job demands, job control and support effects on employees’ performance were mediated by employees stress (Hypothesis 3). According to Baron and Kenny (1986), in order to test for mediation one should estimate three regression equations: regressing well-being on job characteristics; regressing performance on job characteristics; and regressing performance on both job characteristics and well-being.

THEORETICAL FRAMEWORK FOR RESEARCH STUDY



DATA ANALYSIS AND RESULTS

Tests of activity participation hypotheses

Scale validation

Table 1 shows internal reliability results for all job predictors scales. A Cronbach alpha of 0.70 or higher was regarded as evidence of high internal reliability of factors and outcomes.

These three outcomes were studied through various reliability and statistical techniques as activity participation variables. Also reported are findings from a series of more elaborate models that investigate the role of the activity participation variables as predictors of stress, and

the role of the job factors as moderator of the activity participation-stress relationships. Findings pertaining to these predictions are reported using three data analytic techniques: simple correlations, linear, and multiple regressions. Sub-group analyses were performed because significant results made good predictions regarding the effects of the dimensions of activity participation. Activity participation measures were taken in study 1 and are compared with study 2 to draw final recommendation.

Correlation analyses

Tables 2 and 3 show the correlations between the activity participation variables, total job factors and stress outcomes. The three activity participation variables were highly negatively correlated (Tables) with job demands and job stress. Job performance, job participation and job consideration were high positively and significantly related to the expected job factor, whilst job performance emphasis was also negatively (and slightly less significant) related to job demands and job stress.

Furthermore, the relative magnitude of these bi-variate correlations was consistent with original predictions. Specifically, the activity participation dimension of job performance correlated most highly with all three job factors (rather than each activity participation dimension predicting a different job factor). High levels of all activity participation variables were associated with social supports, although the correlation between job participation and job consideration emphasis and stress was slightly higher significant.

Linear and multiple regression analyses

Hierarchical multiple regression analyses were performed to assess the effects of the activity participation variables on separate analyses, total demands, total control, and supervisor support. Main, quadratic and interaction effects were explored separately each for job performance, job participation and job consideration. This was done because each variable has separate entity and requisites, all these analyses used the T1 and T2 data to develop the relationship between job factors and activity participation variables. The followings tables summarize findings from the main and additive analyses. These regression models explained significant and consistent variances in various sub-group domain analyses, but slightly smaller proportions of the variances in employees’ job consideration. The three activity participation dimensions were associated with significant ($p < .001$) R^2 adjusted values when entered together as a block in predicting each of the job factors. As shown in

Table 1. Internal validity of constructs.

Job predictors	Time 1 Cronbatch alpha	Time 2 Cronbatch alpha	Number of items
Total demands	0.91	0.89	16
Total control	0.89	0.94	16
Job stress	0.90	0.93	16
Colleagues supports	0.88	0.86	04
Supervisor supports	0.92	0.90	04
Social supports	0.93	0.76	08
Activity participation	0.81	0.88	15

Table 2. Correlation matrix (N = 250).

Time 1											
Time variables		1	2	3	4	5	6	7	8	9	10
S/No.	Job factors										
1	Job demands	1									
2	Job control	-.75	1								
3	Job stress	.79	-.73	1							
4	Colleagues supports	-.81	.72	-.82	1						
5	Supervisor supports	-.78	.71	-.84	.88	1					
6	Social supports	-.82	.73	-.85	.96	.98	1				
7	Job performance	-.73	.65	-.72	.77	.72	.76	1			
8	Job participation	-.72	.67	-.74	.78	.74	.79	.82	1		
9	Job consideration	-.69	.58	-.68	.74	.70	.74	.82	.81	1	
10	Activity participation	-.77	.68	-.76	.81	.77	.81	.94	.93	.94	1

Table 3. Correlation matrix (N = 250).

Time 2 (N = 200)											
Time variables		1	2	3	4	5	6	7	8	9	10
S/No.	Job factors										
1	Job demands	1									
2	Job control	-.71	1								
3	Job stress	.82	.75	1							
4	Colleagues supports	-.80	.68	-.86	1						
5	Supervisor supports	-.25	.60	-.77	.88	1					
6	Social supports	-.48	.66	-.84	.97	.90	1				
7	Job performance	-.82	.69	-.87	.95	.80	.87	1			
8	Job participation	-.74	.68	-.77	.80	.70	.77	.84	1		
9	Job consideration	-.72	.60	-.73	.77	.67	.74	.80	.83	1	
10	Activity participation	-.82	.70	-.85	.88	.78	.85	.90	.91	.91	1

the table's job consideration was a significant ($p < .001$) predictor of all three job factors. Job participation predicted all job factors particularly supervisor support

($p < .01$), but smaller prediction in job consideration. Job performance also emphasize the entire job factors especially additive effects of job factors. These findings

are consistent with above developed hypothesis main effect of job factors on job performance, job participation and job consideration.

Tables above at T1 and at T2 showed that the job factors explained significant amount of the variances in job performance activity participation variables. All factors were significant at the $p < .001$ level, with additive and quadratic effects contributing significantly to activity participation variables. However, our findings in job performance were strongly significant and consistent as compared to other two cases of activity participation variables (job participation and job consideration). Specifically, there was a significant enhancing main effect for the demands, control and social support interaction in the basic model ($p < .001$), than that of additive effects.

Modeling analyses

Four principal models were tested using PLS (partial least square). All models assumed that job demands and control co-varied or demands, control and social supports co-varied and that there was significant interaction term with AP variables. The models also included covariance paths between the residuals in all endogenous variables specified at the same step in the hypothesized sequence.

Summary of findings of activity participation variables

Findings reported in T1 and T2 demonstrate that the activity participation variables and job factors were highly associated. In fact, activity participation variables operate as antecedents to the job factors in that the hypothesized versions of the different models of study consistently provided a better fit than did the corresponding reversed-effects versions. However, as detailed above, there was sufficient support for the predicted relationships between three activity participation dimensions and particular job factors.

H₁: Job demands are negatively related to job performance, job participation and job consideration

The findings considerably support the hypothesized negative relationship between performance emphasis and job demands. In both correlation and regression analyses, the relationship between these variables was negative and significantly predicted. The hypothesized structural model yielded a significant estimate for the performance emphasis-total demands parameter, and total demands explained: 54% at T1, and 68% at T2, of

job performance, 53% at T1 and 55% at T2 of job participation and 48% at T1 and 52% at T2 of job consideration. In the saturated model, the parameter was negative and significant. In Tables 4 and 5 job demands, only in one of the four best fitting job factors was the predicted significant, negative relationship evident.

H₂: Job control is positively related to job performance, job participation and job consideration

The findings provided strong evidence for the hypothesized effect of participation on job control. The simple correlation between these variables was positive and highly significant. However, the full regression analysis indicated that job performance was a highly significant predictor of control. The hypothesized job factors included an estimate of the job factors-control relationship that was positive and significant, and job control explained: 43% at T1, and 48% at T2, of job performance, 45% at T1 and 47% at T2 of job participation and 34% at T1 and 36% at T2 of job consideration of the variance. The relationship was significant in the saturated version. On balance, hypothesis 2 (main effects of job control) was further confirmed.

H₃: Job social support is positively related to job performance, job participation and job consideration

Like job control relationship, the hypothesized positive relationship between job performance and job factors were confirmed in all analyses. The simple correlation between these variables was very high as $r = .98$ at T1, and $r = .87$ at T2. Indeed, social supports explained: .59% at T1, and 76% at T2, of job performance, 62% at T1 and 60% at T2 of job participation and 55% at T1 and 56% at T2 of job consideration of the variance in the hypothesized structural model. Effects of social support were sufficient and considerable with job factors in developing pathway in the saturated versions of the models. In all analyses, supervisory support remained high predictor of job performance better than colleagues support. Therefore, the hypothesis 3 was confirmed.

H_{4, 5}: Additive effects of demands, control and social support on activity participation

These hypotheses received slightly less support than did any of the other interaction hypotheses. Because, in the multiple regression analyses, the total demands + total control + social support interaction predicted job

Table 4. Hierarchical regression analyses of job factors scales upon job predictors of model and their interactions.

1 (N = 250)		Time 2 (N = 200)											
Independent	Dependent	SE	Beta	t-values	R ² (Adjusted)	F-values	SE	Beta	t-values	R ² (Adjusted)	F-values		
Job demands	Job performance	-.53	.03	-.73	-18.33	.54	335.91	-1.05	.04	-.83	-22.52	.68	507.27
Job demands	Job participation	-.54	.02	-.73	-18.13	.53	328.88	-.66	.03	-.74	-17.13	.55	297.61
Job demands	Job consideration	-.48	.02	-.69	-16.34	.48	267.09	-.60	.03	-.72	-16.00	.52	256.21
Job demands	Activity participation	-.51	.02	-.76	-20.20	.58	408.40	-.77	.03	-.82	-22.08	.67	487.51
Job control	Job performance	.41	.02	.65	14.71	.43	216.20	.68	.03	.69	14.85	.48	220.56
Job control	Job participation	.42	.02	.67	15.39	.45	236.89	.46	.03	.68	14.35	.47	206.04
Job control	Job consideration	.35	.02	.58	12.32	.34	151.97	.39	.03	.60	11.64	.36	135.80
Job control	Activity participation	.400	.02	.68	15.73	.46	247.57	.51	.03	.70	15.37	.50	236.33
Social supports	Job performance	.43	.02	.76	20.36	.59	414.58	.91	.03	.87	27.10	.76	735.50
Social supports	Job participation	.44	.02	.79	21.84	.62	477.17	.56	.03	.77	18.56	.60	344.65
Social supports	Job consideration	.40	.02	.74	18.68	.55	349.09	.51	.03	.71	17.18	.56	257.16
Social supports	Activity participation	.42	.01	.81	23.92	.66	572.54	.66	.026	.85	25.42	.73	646.57

= Unstandardized co-efficient of regression; SE = standard errors in beta (unstandardized); Beta = standardized coefficients.
All beta and F values are significant at ***p < .001.

performance, job participation and job consideration significantly at T1, at T2, particularly job performance. These hypotheses received some special support from the regression analyses, and from the cross-sectional one-way ANOVAs. Support was also obtained from evidence that entry of all three job factors as predictors in study 1 and 2 multiple regression analyses yielded significant increases in explained variance at each step in several of the activity participation outcomes, particularly job performance. Evidence of this kind was stronger for hypothesis (demands + control + supervisory support) than for hypothesis carried dual or main effect alone. On balance, hypotheses 4 and 5 (additive effects of job factors) were further confirmed.

Discussion regarding activity participation hypotheses

The aim of the current study was to verify and extend Karasek (1979) and Karasek and Theorell, (1990) models by confirming the role played by activity participation variables as organizational antecedents to the job factors. Each of the three dimensions (job performance, job participation and job consideration) was expected to have particularly strong and positive or negative effects upon a specific job factor. Management's emphasis on achieving performance standards was hypothesized to influence job demands; management's encouragement of participation in decision-making was hypothesized to influence perceived job control; and management's consideration of

the well-being of their employees was hypothesized to influence perceptions of social support. The effects of these activity participation variables upon the job factors were further expected to have implications for levels of employee's stress in a manner consistent with Karasek and Theorell's models. Whilst previous researches have reported direct effects of activity participation on stress (Bass, 1990), no previous research was located that tested the hypothesized (direct) effects of the selected activity participation variables on Karasek's job factors, or the hypothesized (indirect) effects of the activity participation variables on stress (Morrison et al., 1996). Given measures of the activity participation variables were considered to be insufficient for meeting the required outcomes. Previous

researchers like Yukl (Yukl and Kanuk, 1979; Yukl and Nemeroff, 1979) and Bradley (2004) developed original scales of these variables through one, two or three pilot studies. The developed scales were shown to have satisfactory levels of reliability. Despite attempts to select items that minimized overlap between the three measures, the observed inter-correlations were higher than expected.

However, regression analyses revealed that a three or more-factor model fitted the data significantly better than did one- or two-factor models (Table 5), providing evidence of differing validity of T1 and T2. The measure of performance emphasis was moderately and significantly related to job demands, but in the direction opposite to that of performance. The measure of participation was related to perceived control in the predicted direction, and was significant in the context of multivariate models and explained considerable of the variance in this job factor in these models. The measure of consideration was so highly correlated with supervisor support and additive effects of three job factor as to suggesting the existence of some conceptual and/or measurement between these variables. Consideration also explained more of the variance in job demands and control slightly lower than did performance emphasis and participation, respectively. In all analyses, the proportion of the variance in the job factors explained by the activity participation variables was substantial in the case of supervisor support and additive effect, but slightly less in the case of main effect of demands and control. Findings did not only confirm the expected pattern of relationships between the activity participation and job factors, the findings were broadly consistent with a model that included the activity participation variables as remote influences upon stress outcomes, and demands, control and supervisor support as more immediate determinants of job stress. Thus, in different models that explore for neuroticism (negative affectivity), significant total effects on at least some measures of stress were obtained for all three activity participation variables.

These effects on stress were stronger for job performance than for the other two activity participation dimensions (job participation and job consideration). Consistent with these findings, the current study showed the activity participation dimensions to be more highly correlated with job dissatisfaction, supervisory support, job stress, turnover intentions and job participation, than with job demands and job control. However, more sophisticated structural models (including the job factors as mediators) indicated that the activity participation variables explained a greater proportion of the variance in the former, than the latter, set of stress outcomes. The apparent contradiction may be attributed to the job factors being more strongly related to stress outcomes

and supervisor support, than to other stress outcomes. The unexpectedly high correlations between the job factors were of construction of activity participation scale. This high correlations between self-report measures of activity participation has been previously reported (Teas, 1983) and low correlation reported by Bradley, (2004). In the current study, the high correlations may have been partly due to consistency of the items used in questionnaire from the three scales. One consequence of these high correlations was that the activity participation dimensions of performance emphasis and participation were of core area of interest that included multiple paths from each activity participation variable with most significant effects associated with the other two dimensions.

In short, the attempt was made to test and expand Karasek and Theorell (1990) models by including antecedent organizational variables in the form of three dimensions of activity participation met with considerable success (Bradley, 2004). These three activity participation variables predicted the job factors and outcomes of stress, and, to this extent, the findings are at least consistent with the view that particular styles of activity participation may contribute significantly to immediate outcomes of job stress. However, further work on scale development is recommended in order to provide the standardized scale for valid tests of specific activity participation-stress hypotheses. Given the design and measurement of psychological human problems noted above, the study has contributed a significant and consistent amount to an understanding of the likely usefulness of interventions aimed at alleviating accumulated stress through changes in activity participation variables. We found a high percentage of employees with both job stress and dissatisfaction and an imbalance characterized by high demands and low control in their professional life. This work environment obviously calls for preventive measures. Necessary changes should probably include several aspects; first of all job description, job specification, attractive salary structure, and good promotional policy. In addition, management should support employees in improving their interpersonal skills, since during the last couple of years customers have become more difficult clients. The additive relationship between these two job factors (job demands and job control) suggests that maximum reductions in job dissatisfaction require reasonable job demands and increasing job control. At the same time it may also improve productivity levels.

On the other hand, if the relationship is interactive, and demands only increase job stress and dissatisfaction under conditions of low control, this suggests a practicable approach to improving job-related well-being without sacrificing worker performance. Our findings

Table 5. Hierarchical regression analyses of job factors scales upon job predictors of model and their interactions.

		Time 1 (N = 250)						Time 2 (N = 200)					
Dependent	Independent	SE	Beta	t-Value	R ² (Adjusted)	F-Value	SE	Beta	t-Value	R ² (Adjusted)	F-Values		
Job performance	Job demands	-.40	.04	-.55	-9.30	.56	183.68	-.85	.06	-13.36	.70	282	
	Job control	.15	.03	.23	3.88			.21	.05	.22			4.29
Job performance	Job demands	-.23	.04	-.32	-5.12	.62	238.58	-.48	.05	-8.71	.82	522	
	Social supports	.28	.03	.51	8.11			.60	.03	.57			13.06
Job performance	Job control	.12	.03	.19	3.55	.61	221.99	.21	.04	5.22	.78	422	
	Social supports	.35	.03	.62	11.42			.77	.04	.73			17.95
Job performance	Job demands	-.20	.03	-.27	-4.01	.63	161.16	-.43	.06	-7.03	.82	356.21	
	Job control	.06	.03	.10	1.73			.09	.04	.09			2.29
	Social supports	.26	.03	.47	7.18			.57	.04	.54			12.16
Job participation	Job demands	-.37	.03	-.52	-8.71	.58	187.23	-.46	.05	-8.97	.60	178	
	Job control	.18	.03	.028	4.67			.21	.04	.31			5.33
Job participation	Job demands	-.19	.03	-.25	-4.23	.65	261.54	-.33	.05	-6.10	.65	217	
	Social supports	.32	.03	.58	9.55			.35	.04	.48			7.96
Job participation	Job control	.12	.03	.20	3.76	.64	256.48	.21	.03	5.94	.65	215	
	Social supports	.36	.02	.64	12.32			.42	.03	.56			10.95
Job participation	Job demands	-.14	.04	-.20	-3.00	.65	178.69	-.24	.05	-4.11	.67	158	
	Job control	.08	.03	.13	2.29			.14	.03	.21			3.87
	Social supports	.30	.03	.53	8.41			.31	.04	.42			6.93
Job consideration	Job demands	-.40	.04	-.58	-9.02	.49	137.99	-.49	.05	-9.37	.54	136	
	Job control							.12	.04	.18			2.95
Job consideration	Job demands	-.19	.04	-.27	-4.02	.57	193.81	-.30	.05	-5.63	.61	182	
	Social supports	.28	.03	.52	7.81			.32	.04	.46			7.26

Table 5. Contd.

Job consideration	Job control	.06	.03	.09	1.57	.55	178.68	.13	.03	.20	3.47	.58	160
	Social supports	.36	.03	.067	11.50			.42	.03	.61	10.87		
Job consideration	Job demands	-.19	.05	-.26	-3.67	.57	157.47	-.27	.05	-.32	-4.55	.61	122
	Job control	.0005	.03	.000	.003			.05	.03	.08	1.39		
	Social supports	.28	.038	.52	7.40			.30	.04	.44	6.68		

stated that the performance of employees (individually and collectively) and the organization as a whole can be improved by the re-design of jobs description to incorporate greater worker control (personal financial need, personal social needs, and personal esteem) with reasonable job demands.

RECOMMENDATIONS

In consideration of aforementioned strengths and limitations of current study, the main recommendations of research are reported in the succeeding paragraphs.

In the current research, some reliable interaction effects on strain or activity-participation were observed. Furthermore, control encompasses the effect of social support and enables the worker to cope with work environment. In spite of this general proposition, it could be argued that priority should be placed on interventions that target enhanced worker control (through healthy training programs based on need assessment), on the grounds that (a) the current research demonstrated stronger and more consistent effects on activity-participation for control (including the effects of social support) than for the other two job factors, and (b) control-enhancement is less likely than demands-reduction to impact negatively on

performance of workers.

Social support can be enhanced to job control by providing greater recognition of achievements, increasing opportunities to reduce tensions at work, and building a culture in which staff and supervisors are valued and co-operative. A power of control can be enhanced by decentralizing authority and responsibility within organizations to enrich jobs, providing information, and involving employees in decision-making processes which are closely relevant to them.

It is advisable for policy makers to develop specific strategies to create the conditions for ergonomic work environment so that job demands may be manipulated by re-distributing workload in consideration of labor's skills, clarifying work roles, redesigning the work schedule and streamlining working systems.

Findings from current research suggest control must be classified into (a) personal skill and ability to manipulate, (b) colleagues support in work activity, and (c) supervisory support to exercise power and assistance in carrying out work activity. Most of the researchers suggest that constructive and career building interventions in work environment involving different combinations of the three job factors may be required to effect positive changes in accumulated strain and activity outcomes.

In fact, our empirical research invites attention of

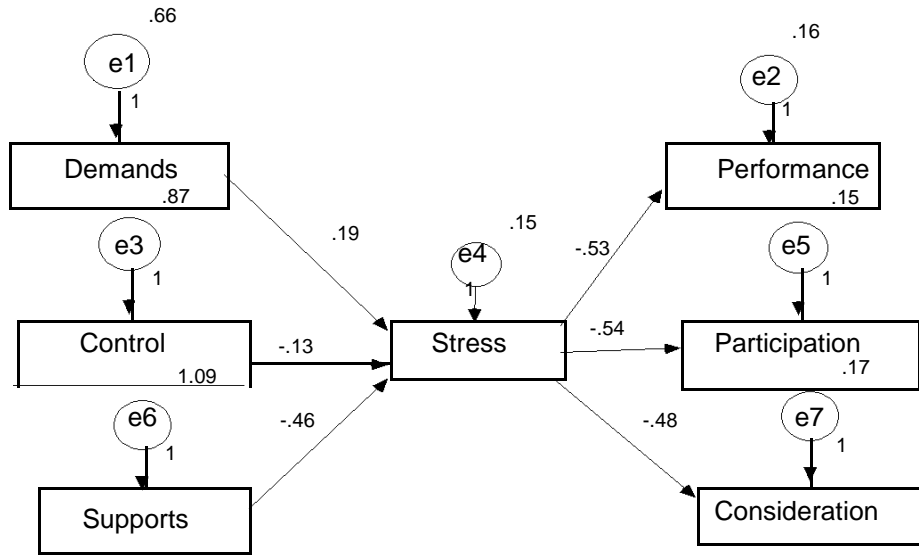
new researchers on several limitations of his previous models. Firstly, the additive or interactive effects of demands and control at both the group and organizational levels were not considered. Secondly, the potential stressors of specific types of job demands and control were not assessed. Thirdly, the role played by job demands and job control on job stress and dissatisfaction were not explored. Finally, the theory was not adequately precise to determine the exact mathematical relationship between job demands and job control. Future research is obviously needed to extend the existing relationship between job factors and activity participation by providing new information about issues inherent in job stress research. However, we encourage researchers to examine the assumption of stable instruments before conducting substantive analyses of data. Although there is still room to sophisticate the DC scale as described earlier (that is, items similarities of both demands and satisfaction, the stability of the job control constructs, as well as the way of response rating and reliability), the one-step response format in the latest version seems to be applicable to all kind of working employees. Finally, the methodological approaches proposed here offer several benefits in studying the stability of DC constructs and operationalizations. Moreover, it extends it into the job stress and impact on activity participation where this kind of conceptual

advance pay huge dividend to organizations concerned.

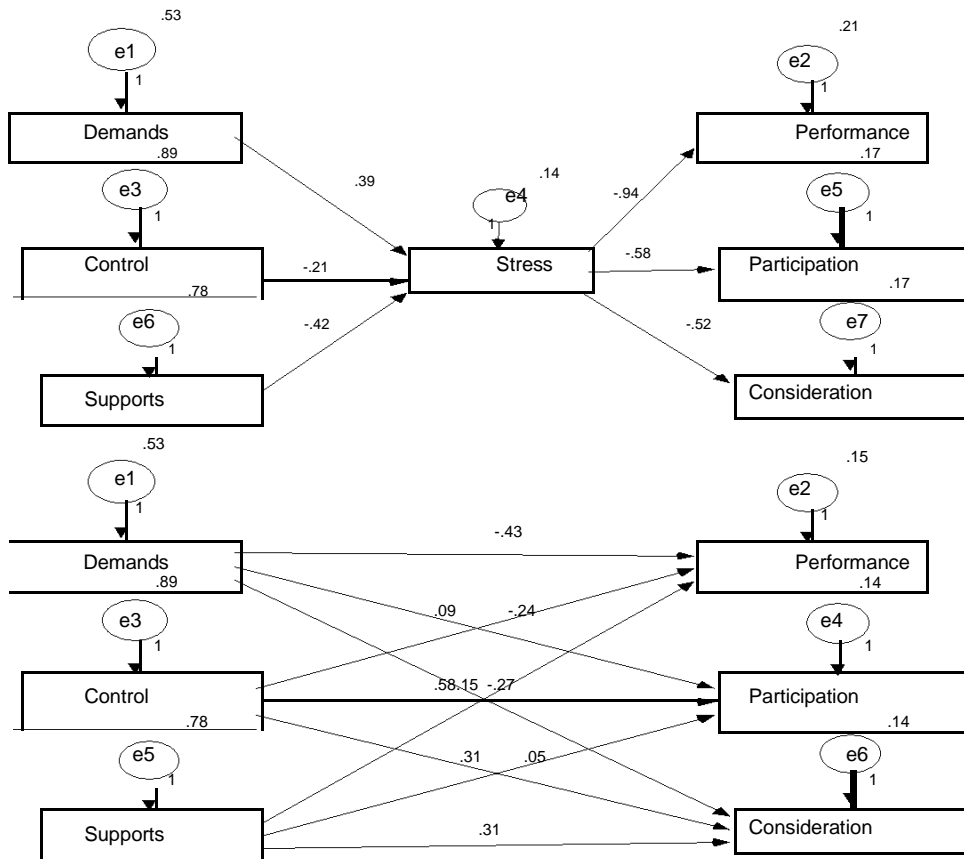
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MODELS



Model 1 and 2. Modified Karasek's (1979) Core model (Time-1).



Model 3 and 4. Modified Karasek's (1979) Core model (Time-2).