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By Dr. Saif-ur-Rehman, Muhammad Asif Khan, Zia-Ullah

*University of The Punjab-Lahore (Pakistan).*

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**Classification:** *GJMBR-B Classification: JEL Code: J28*



*Strictly as per the compliance and regulations of:*



# The Psychometric Impacts of Karasek's Demands and Control Scale on Employees' Job Dissatisfaction

Dr. Saif-ur-Rehman<sup>1</sup>, Muhammad Asif Khan<sup>2</sup>, Zia-Ullah<sup>3</sup>

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## I. INTRODUCTION

The Job Demand-Control (JDC) Model was introduced by the sociologist Karasek (1979), who drew attention upon two research directions of life, namely the job dissatisfaction directions (e.g., Caplan, Cobb, French, van Harrison, & Pineau, 1976; Kahn, 1981) and the job redesign convention (e.g., Hackman & Oldham, 1980). In both research studies, attempts were made to relate psychosocial job characteristics to employee health. The job dissatisfaction tradition

focused on "stressors" at work, such as high workload, work pace, role conflict, and role ambiguity (e.g., French & Kahn, 1962). The job redesign tradition focused mainly on job control, as it's primarily aim was to inform the (re)design of jobs in order to increase the effectiveness, motivation, satisfaction, and performance 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 job demands (i.e., job requirements) contributes importantly to the prediction of job satisfaction and active learning.

In this model, psychological job demands refer to a task's mental workload and the mental alertness or arousal needed to carry job under the given circumstances (Karasek & Theorell, 1990). Job control or decision latitude is a compound of the employee's autonomy to make decisions on the job and the extent of skills used by the employee on the job (skill discretion: Karasek, 1989). Theoretically, in the JDC model an interaction effect has been described as a joint effect of job demands and decision latitude (Karasek, 1989). Two perspectives, also known as the dissatisfaction and buffer theory (van der Doef & Maes, 1998, 1999), can be distinguished. According to the first perspective, the most adverse performance 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 performance. 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. Originally, Karasek (1979) found an interactive effect between job demand and job control. However, a decade later Karasek (1989) stated that: "for the Demand-Control Model, the existence of a multiplications interaction term is not the primary issue" (p. 144). Opinions differ on this matter, as can be seen in the diversity of operationalizations of demand-control interactions in empirical research (e.g., Landsbergis & Theorell, 2000).

About <sup>1</sup> : Dean Department of M.Com.PGCC Islamabad (Pakistan). saifurahman\_fg@yahoo.com

About <sup>2</sup> : Assistant Professor SZABIST Islamabad Campus, Pakistan.

About <sup>3</sup> : Institute of Administrative Sciences University of The Punjab-Lahore (Pakistan).

Karasek 1979; Karasek & Theorell, 1990 extended his three-dimensional job demands control support (JDCS) model that focuses on three job characteristics: job demands (stressors), job control (decision latitude) and social support (colleagues + supervisors) at workplace. De Jonge & Kompier, (1997) pointed out the theory of JDCS model is based on two central assumptions: the first one is psychological dissatisfactions or dissatisfaction which results particularly in work characterized by high job demands in combination with low job control and low social support, the second one standard work performance will occur in work characterized by high job demands, high job control and high social support. A number of studies have experienced the JDCS model in nursing (Landsbergis 1988, de Jonge & Landeweerd 1993, de Jonge 1995). The outcomes of these research studies normally point out that job control or autonomy seems predominantly to be associated to job satisfaction and productivity, whereas job demands and social support seem particularly to be associated with health complaints and absenteeism (Ab Landeweerd, 2004). Therefore, Karasek's (1979) job demands–job control model has been an powerful theoretical base for various studies of job dissatisfaction (e.g. Cooper, 2000; Van Yperen and Hagedoorn, 2003). The hypothetical argument necessary in this model is that individual physiological dissatisfaction results from the interactive effects of one's job demands and the amount of job control available at workplace. Particularly, Karasek's theory posits that in order to minimize physiological dissatisfaction, job demands should be coordinate to job control so that where ever job demands are high, job control should match the requirement. High job control enables participants to handle the job demands by developing appropriate behavioral response patterns to improve the job performance.

Accumulated evidences indicate that a large amount of research on the job demands–job control model has focused on the job of nurses (Fox et al., 1993; Schaubboeck and Merritt, 2003) and production workers in manufacturing industry (e.g. Wall et al., 1996). Some research studies have supported the proposed interaction effect of three variables (e.g. Fox et al., 1993), and others have demonstrated no such effect on job dissatisfaction (e.g. Landsbergis, 1988). Similarly, some researchers in this area have developed a contingency approach by investigating the extent to which the job demands–job control connection is moderated by individual-level characteristics such as locus of job control and social support. In addition, research on Karasek's model has largely focused on job demands such as workload and work pace (Fox et al., 1993; Van Yperen and Hagedoorn, 2003). Moreover, there have been a few studies that have applied the job demands–job control model to the social nature of work

job demands, that is, job challenges arising from managing interdependencies with other people in the workplace (S. S. Wong et al., 2007). Karasek and Theorell (1990) stated that their three models take up important position between two large bodies of literature, which associated with job dissatisfaction and to job description. The significant determinants of job dissatisfaction and active learning are the amount of decision latitude structured into job description. Karasek's highlighting leading to objective job characteristics as determinants of job dissatisfaction stands in predominantly sharp contrast to Lazarus and Folkman's (1984) whose point of view on the worker's judgment and locus of job control, and Caplan et al. (1975), and other members of the Michigan school's approaches on the fit between the job and the worker's capabilities or values of job. Siegrist (2000) noted that Karasek's models have not been accurately adjusted in providing a necessary corrective to these earlier ideas. In doing so, he advocated a clear picture for achieving the high levels of worker productivity, on the one hand, and high levels of worker independence, support and personal development, on the other side.

Nelson & Simmons, (2003) stated that Karasek's ideas have concerned with interest relates to their fundamental positive human values or standards. In this way his ideas are well-matched with, and may even have contributed to the current popularity of, the constructive psychology movement of working force. In spite of these constructive ideas, the theory is normally documented as being over or under simplified. Karasek's theory highlighted a few variance in job dissatisfaction by variables (Schreurs & Taris, 1998), mostly as it includes few predictors or mediators and moderators, at the same time as trying to clarify many outcomes associated factors. Karasek and Theorell (1990) protected the simplicity of the theory by suggesting that this is "essential for practical interdisciplinary applications and for the first stages of scientific research" (p. 56-57) (for a new researcher). They admitted that the effects of job demands and job control upon strain can be reduced to minimum level by adding a large number of other predictor variables to the equation job dissatisfaction.

Bradley, (2004) pointed out that before attempting to draw conclusions concerning the extent to which the models have been supported empirically, there is need to an agreement as to what constitutes a appropriate and acceptable test of the main hypotheses. Because of that there is lack of precision and consistency in Karasek's written work. Operationalised job demands broadly to include such stressors as role ambiguity or responsibility for others are faced into an overall evaluation of empirical status of Karasek's model. There should be studies of use separate outcomes such as job performance and life

satisfaction be considered genuine tests of the theory. Model should be statistical job controls enough the negative affectivity and duration of work experience. Furthermore, model is basically tested by evidence of additive (e.g., job demands + job control + support) effects, but is it necessary also to test for and find interactive (job demands x job control x support) effects (Bradley, 2004)? After reviewing accumulated research evidence, Van der Doef and Maes (1999) drew conclusions that "the literature gives considerable support for the dissatisfaction hypotheses, but support for the moderating influence of job control and social support is less consistent with each other" (p. 86) Bradley, (2004) further stated that if insufficient tests of the hypotheses are excluded, and those studies that meet at least minimum criteria are weighted in proportion to the quality of the methods used, it may be included on the ground that: (a) firstly, empirical support for the independent effects of job demands, job control and social support upon dissatisfaction is strong, (b) secondly, support for the additive effects of these three variables on dissatisfaction is mixed at various different combinations, (c) thirdly, support for the two-way interactions on dissatisfaction is relatively weak, (d) fourthly, support for the three-way interaction (job demands x job control x support) on dissatisfaction is, at best, marginal, but most promising in relation to the prediction of somatic complaints, (e) fifthly, support for the active-learning hypothesis is quite strong in respect of the role played by job control, but the evidence is weak and indirect concerning further contributions made to active learning by job demands and the job demands x job control interaction, and (f) finally, support for the extended personality-environmental model is limited. Therefore, it is cleared to greater extend that Karasek's fundamental theory is based on sound footing and supportive of empirical studies. On the other hand, a critic (Sauter, 1989) has claimed that the practical implications of what are often quite small effects; Frese (1985) has noted that the effects may be considerable for the extreme in the inhabitants. According to the above views of authors, authentication of Karasek's hypothesis mostly came from studies of large blue-collar samples that used cross-sectional designs of specific descriptive jobs. Social support for Karasek's models also vary with the type of statistical analyses performed with other variables.

## II. HYPOTHESES

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

- H1-Job demands are positively associated with job dissatisfaction;
- H2-Job control is negatively associated with job dissatisfaction;
- H3-Social support is negatively related to job dissatisfaction;

H4- Job control and social supports moderate the relationship between demands and job dissatisfaction.

H5-The additive effects of job demands and job control predicts levels of job dissatisfaction better than does either main effect alone.

H6- The additive effect of job demands, job control and job social supports predict levels of job dissatisfaction better than does either main effect alone.

## III. RESEARCH METHOD

### *Participants and Procedure*

This two time cross-sectional study is based on data obtained from two random samples consisting of nine distribution companies (DISCOs) of WAPDA working in all part of country (Pakistan) except Karachi region. Employees' Statistical Reckoning (2007-8) personnel records were used to select a simple random sample of 1000 working as regular employees in DISCOs. The target population was all those having graduate and post-graduate qualifications working on the various positions at BPS-9 to BPS-17. All other positions were excluded. 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 1000 selected employees were delivered personally a copy of the research materials both at T1 & T2. Questionnaires were returned by 401 at T1 and 388 at T2 of these employees with nine month time gap, and all of these were usable. The response rate was 40% at T1 and 38% at T2. Demographics at T1 showed that 95% of the sample was male, and mean age was 26.0 years (SD = 7.1, range 24-45). Mean working time in current organization was 10 years (SD = 8.33). Demographic characteristics of the respondents in the second study showed that the ages ranged from 25-48 years (M = 29, SD = 10.8). Most respondents were male: 98%, and mean working time was 11 years (SD = 6).

## IV. MEASUREMENT JOB FACTORS

The items measuring demands, control and social support 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 and total control, and 8 of social support items, measuring four different job factor domains were selected for use in Study 1 and 2.

### *1) Job Demands*

Job demands were measured by using a sub-dimension of Karasek *et al.*'s (1985) Job Content Survey and Bradley (2004). This dimension consists of 16 items scored on a 5-point Likert scale. Job demands were further divided into sub-set of four main groups



[Qualitative Demands (Questionnaires A1, A7, A11, A13), Employees Demands (Questionnaires A4, A14, A15, A16), Workload Demands (Questionnaires A2, A3, A6, A12) and Conflicts Demands (Questionnaires A5, A8, A9, A10); see Appendix E-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  $\alpha = 0.81$  (Daryl B. O'Connor *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  $[\alpha] T1 = 0.94$  and  $T2 = 0.90$ .

### 2) Job Control

We used Ganster's (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 reduced 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. Job control were further divided into sub-set of four main groups [Qualitative control (Questionnaires B1, B7, B11, B13), Employees control (Questionnaires B4, B14, B15, B16), Workload control (Questionnaires B2, B3, B6, B12) and Conflicts control (Questionnaires B5, B8, B9, B10); [see Appendix E-1]. 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  $[\alpha] T1 = 0.95$  and  $T2 = 0.94$ .

### 3) Social Support

Social Support was measured using Bradley, (2004), Caplan, Cobb, French, Van Harrison, and Pinneau's (1975) Social Support Scale and revised social support scale. This measure includes two

subscales: social support from supervisor (Questionnaire D1 to D4) and social support (E1 to E4) from work colleagues (see Appendix E-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 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  $[\alpha] = T1 0.89$  and  $T2 0.88$  (supervisor) and  $[\alpha] = T1 0.93$  and  $T2 0.92$  (colleagues). The Cronbach  $\alpha$  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.

### 4) Job Dissatisfaction

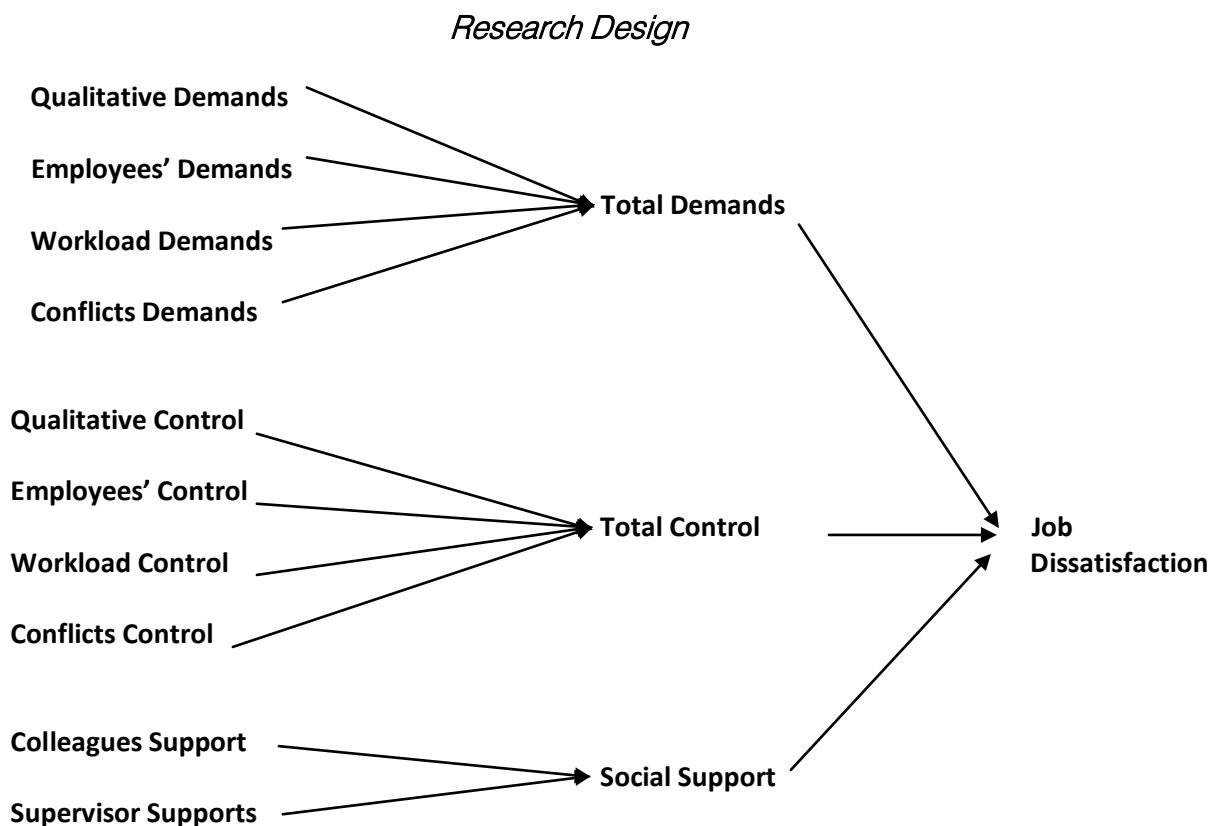
Employee's job satisfaction was measured by a four-item scale from Caplan *et al.* (1975), as adapted by McLaney & Hurrell (1988) and Bradley (2004). Items deemed inappropriate were excluded and appropriate items were included to extend the scale to 11 items. Each item is scored on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). Items included statements about the satisfaction with hours of work, rate of pay, opportunities to use one's abilities, and promotional policies. The items on this scale (see Appendix E-1 from C1 to C11) are similar to those measuring the same construct within Karasek's (1985) Job Content Questionnaire. Chay (1993), Sargent and Terry (1998), Sauter *et al.* (1983) and others have used this scale or modifications of it. Caplan *et al.* reported a reliability coefficient for their version of 0.85, McLaney and Hurrell reported a coefficient of 0.83, and Bradley (2004) reported a reliability coefficient of 0.899. Reliability and validity data is reported by Warr *et al.* (1979) of 0.83. The reliability coefficients produced by this research for total job dissatisfaction scale consisted of  $[\alpha] T1 = 0.84$  and  $T2 = 0.83$ .

## V. 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 hypothesized 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' job satisfaction (hypothesis 1-3). Our fourth hypothesis assumes that control and social support moderate the relationship between job demands and job satisfaction, and job demands and dissatisfaction. 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 & West, 1991; De Rijk, Le Blanc, Schaufeli, & De Jonge, 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' dissatisfaction (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 dissatisfaction on job characteristics; and regressing dissatisfaction on both job characteristics and well-being.



## VI. DATA ANALYSIS AND RESULTS

### *Tests of Job Dissatisfaction Hypotheses Correlation Analyses*

Table 1.1 & 1.2 show the zero-order correlations between the total job factors and job satisfaction outcomes. The three job factors variables were highly correlated (see tables) with job dissatisfaction. Job demands and its sub-scales, were high positively and significantly related to the expected job factors and job

dissatisfaction, whilst job control and social supports emphasis were also negatively (and slightly less significant) related to job demands and job dissatisfaction. Furthermore, the relative magnitude of these bi-variate correlations was consistent with original predictions. High levels of all job satisfaction variables were associated with social supports, although the correlation between employees demands at T2 and job factors emphasis was slightly less significant.

Table 1.1 : Correlation Matrix (N=402)

TIME 1															
Time Variables															
S. No.	Job Factors	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Qualitative Demands	1													
2	Employees Demands	.75	1												
3	Workload Demands	.85	.80	1											
4	Conflicts Demands	.82	.74	.85	1										
5	<b>Total Demands</b>	.93	.86	.95	.93	1									
6	Qualitative Control	-.68	-.64	-.70	-.68	-.73	1								
7	Employees Control	-.63	-.60	-.68	-.66	-.70	.84	1							
8	Workload Control	-.70	-.66	-.73	-.69	-.76	.86	.85	1						
9	Conflicts Control	-.61	-.58	-.67	-.63	-.68	.80	.81	.85	1					
10	<b>Total Control</b>	-.70	-.66	-.75	-.71	-.77	.93	.93	.96	.92	1				
11	Colleagues support	-.75	-.64	-.77	-.74	-.80	.69	.64	.69	.64	.71	1			
12	Supervisor support	-.79	-.68	-.79	-.76	.83	.72	.66	.71	.66	.73	.88	1		
13	Social supports	-.78	-.77	-.80	-.77	.82	.72	.65	.72	.64	.98	.96	.90	1	
14	Job dissatisfaction	.80	.68	.81	.80	.85	-.73	-.68	-.73	-.69	-.76	-.83	-.87	-.86	1

Table 1.2 : Correlation Matrix (N = 388)

TIME 2															
Time Variables															
S. No.	Job Factors	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Qualitative Demands	1													
2	Employees Demands	.38	1												
3	Workload Demands	.84	.37	1											
4	Conflicts Demands	.80	.39	.85	1										
5	<b>Total Demands</b>	.92	.56	.94	.92	1									
6	Qualitative Control	-.67	-.37	-.69	-.69	-.73	1								
7	Employees Control	-.61	-.31	-.65	-.63	.67	.80	1							
8	Workload Control	-.64	-.37	-.69	-.66	.71	.86	.80	1						
9	Conflicts Control	-.59	-.30	-.63	-.60	.64	.80	.73	.82	1					
10	<b>Total Control</b>	-.68	-.37	-.72	-.70	-.74	.94	.90	.94	.90	1				
11	Colleagues support	-.57	-.26	-.58	-.54	-.59	.49	.43	.48	.45	.50	1			
12	Supervisor support	-.79	-.36	-.80	-.75	-.82	.69	.60	.66	.62	.72	.62	1		
13	Social supports	-.63	-.24	-.62	-.58	-.64	-.45	.41	.44	.45	.46	.65	.77	1	
14	Job dissatisfaction	.81	.35	.84	.81	.85	-.75	-.68	-.72	-.68	-.77	-.66	-.86	-.67	1

## VII. LINEAR AND MULTIPLE REGRESSION ANALYSES

Tables 1.3 & 1.4 show that, at T1, and T2 the job factors explained significant amount of the variance in job dissatisfaction. These variances were analyzed as under:

*Table 1.3:* Hierarchical Regression Analyses of Job Factors Scales upon Job Predictors of Model and their Interactions.

Time 1 (N = 401)								Time 2 (N = 388)					
Independent	Dependent	$\beta$	SE $\beta$	Beta	t-Values	R <sup>2</sup> (Adjusted)	F-Values	$\beta$	SE $\beta$	Beta	t-Values	R <sup>2</sup> (Adjusted)	F-Values
Qualitative Demand	Job Dissatisfaction	.85	.025	.81	27.37	.65	749	1.00	.03	.79	25.66	.63	658
Employees Demand	Job Dissatisfaction	8.49	.45	.68	18.53	.46	343	.88	.03	.58	29.33	.58	860
Workload Demand	Job Dissatisfaction	7.83	.28	.83	28.13	.66	791	.91	.03	.82	28.27	.67	799
Conflicts Demand	Job Dissatisfaction	8.86	.31	.81	27.53	.64	757	1.10	.04	.78	25.01	.62	625
Total Demands	Job Dissatisfaction	9.02	.27	.86	33.22	.73	1104	1.32	.04	.83	29.71	.70	883
Qualitative Control	Job Dissatisfaction	-5.67	.26	-.74	-21.65	.54	468	-.85	.03	-.75	-22.48	.57	505
Employees Control	Job Dissatisfaction	-6.64	.35	-.69	-18.80	.47	353	-.82	.04	-.68	-18.54	.47	343
Workload Control	Job Dissatisfaction	-5.50	.25	-.73	-21.29	.53	459	-.76	.03	-.73	-20.91	.53	437
Conflicts Control	Job Dissatisfaction	-7.03	.36	-.70	-19.37	.48	375	-.92	.05	-.67	-17.85	.45	318
Total Control	Job Dissatisfaction	-6.96	.29	-.76	-23.44	.58	549	-.96	.04	-.77	-23.73	.59	563
Colleagues Supports	Job Dissatisfaction	-5.80	.19	-.84	-30.42	.70	925	-.61	.03	-.66	-17.27	.43	298
Supervisor Support	Job Dissatisfaction	-8.57	.24	-.87	-35.02	.75	1226	-1.09	.03	-.84	-29.98	.70	898
Social Supports	Job Dissatisfaction	-7.32	.204	-.87	-35.89	.76	1288	-.99	.06	-.64	-16.51	.42	272

**NOTE:**  $\beta$  = Unstandardized Co-efficient of Regression, SE  $\beta$  = Standard Errors in Beta (unstandardised). Beta = Standardized coefficients All Beta and F values are significance at  $p < .001$ .

Hierarchical multiple regression analyses were performed to assess the effects of the various job factors on job dissatisfaction. Main, quadratic and interaction effects were explored separately each for job demands, job control and social supports. This was done because each variable of has separate entity and requisites, all these analyses used the T1 & T2 data to develop the relationship between job factors and job dissatisfaction variables. Tables 1.3 and 1.4 summarize findings from the main and additive analyses. These regression models explained significant and consistent of variances in various sub-group domain analyses, but slightly smaller proportions of the variances in employees' job dissatisfaction. The job dissatisfaction

dimensions were associated with significant ( $p < .001$ ) R<sup>2</sup> adjusted values when entered together as a block in predicting each of the job factors. Job dissatisfaction predicted all job factors particularly supervisor support ( $p < .01$ ), but smaller prediction in qualitative demands. Social supports (colleagues + supervisor) were also emphasis 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 dissatisfaction.



### VIII. MAIN EFFECTS SPECIFIC JOB FACTORS CONTENT DOMAINS ON JOB DISSATISFACTION

The linear regression analysis was repeated this time, once for each of the specific job factor content domains. Results from these analyses are summarized

in Table 1.4 given below. Table show that at T1, and at T2 the specific job factors explained significant amount of the variance in job dissatisfaction. These variances were analyzed as under:

*Table 1.4:* Hierarchical Regression Analyses of Job Factors Scales upon Job Predictors of Model and their Interactions

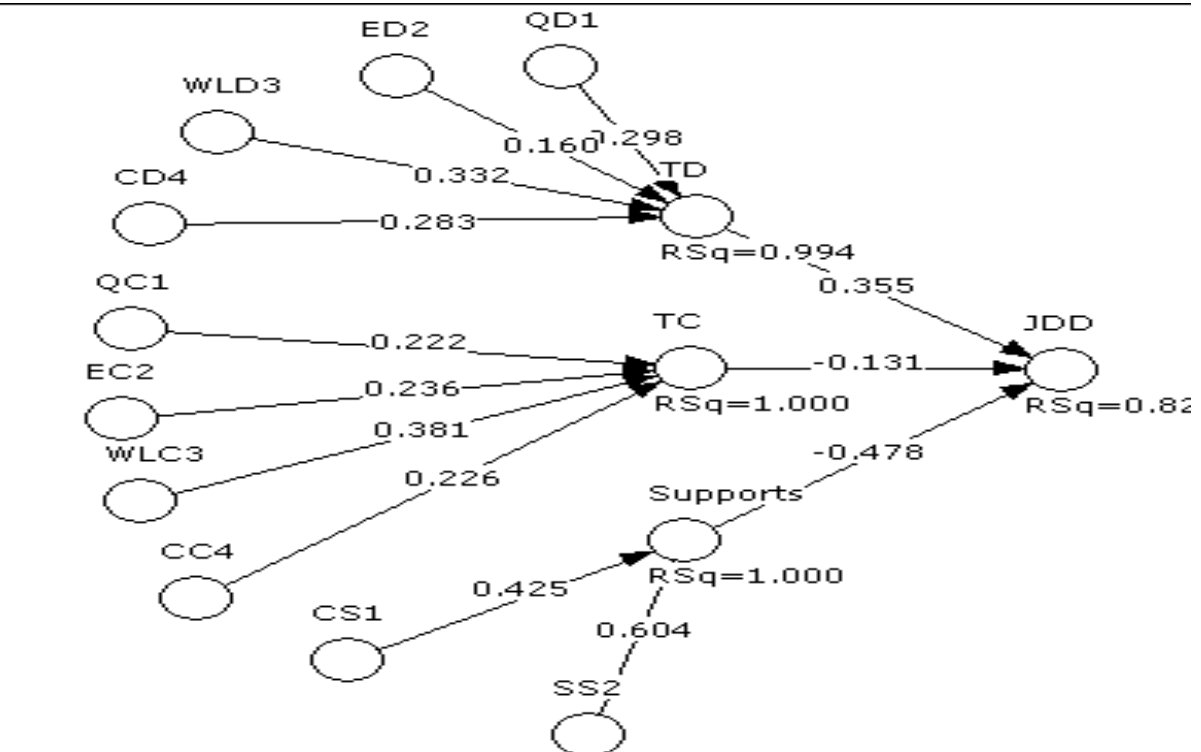
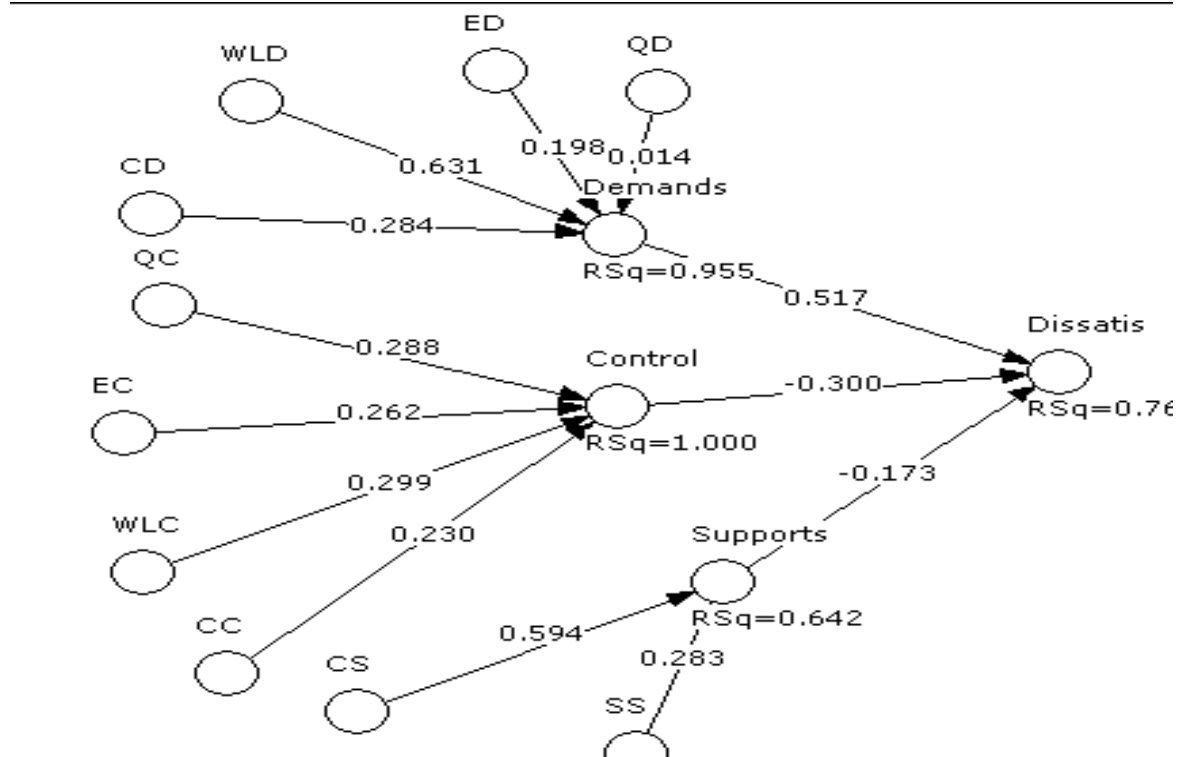
Time 1 (N = 401)								Time 2 (N = 388)					
Dependent	Independent	$\beta$	SE $\beta$	Beta	t-Values	R <sup>2</sup> (Adjusted)	F-Values	$\beta$	SE $\beta$	Beta	t-Values	R <sup>2</sup> (Adjusted)	F-Values
Job Dissatisfaction	Total Demands	7.01	.40	.67	17.28	.76	627.58	.93	.06	.59	15.05	.74	559.22
	Total Control	-.227	.35	-.25	-6.43			.42	.03	-.33	-8.50		
Job Dissatisfaction	Total Demands	4.41	.41	.42	10.59	.81	879.07	1.13	.05	.71	20.25	.71	485.70
	Social Supports	4.38	.33	-.52	-13.21			-.28	.05	-.18	-5.25		
Job Dissatisfaction	Total Control	-.226	.31	-.25	-7.18	.79	751.37	-.75	.04	-.60	-19.00	.70	444.12
	Social Supports	5.78	.28	-.68	-20.05			-.56	.04	-.36	-11.52		
Job Dissatisfaction	Total Demands	3.73	.45	.35	8.35	.82	610.46	.72	.06	.45	10.62	.76	419.69
	Total Control	1.20	.32	-.13	-3.79			-.42	.04	-.33	-9.09		
	Social Supports	4.01	.34	-.48	-11.79			-.30	.05	-.19	-6.05		

Tables above at T1 and at T2 show that the additive affects of job factors explained significant amount of the variances in job satisfaction variables. All factors were significant at the  $p < .001$  level, with additive and quadratic effects contributing significantly to job satisfaction variables. However, our findings in job performance were strongly significant and consistent to job satisfaction variables. 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. At both times,  $R^2$  changes for job factors were remained significant at  $p < .001$ . Several points are noteworthy. Firstly, none of the main, additive and quadratic effects for various job factors were non-significant, Secondly, additive effects were highly significant than that of main effect alone, and thirdly, all findings were consistent except qualitative demands which were slightly decline. Several

general points are noteworthy. Firstly, the specific job factors explained a significant proportion of the variance in the job dissatisfaction outcomes. Furthermore, the criterion of a reliable effect of employees' demands, qualitative control, total demands and social support were the highest predictors of dissatisfaction outcomes at both T1 and T2 study of regression analyses.

### IX. MODELING ANALYSES

Two 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.



Model 1 & 2: Modified Karasek's (1979) Core Model (Time-1 & 2)

## X. SUMMARY OF MAIN FINDINGS

This section summarizes findings relevant to the immediate outcomes of dissatisfaction hypotheses.

### *Hypothesis 1 Main Effects of Demands on Job Dissatisfaction*

Findings from total demands and specific factors domains provide impressive support for the predicted effect of job demands on dissatisfaction. The effects were consistent across job domains and dissatisfaction outcomes. Mostly strong effects were found for all demands scales on job dissatisfaction except qualitative demands scale. Therefore, hypothesis 1 was confirmed.

### *Hypothesis 2 Main Effects of Job Control on Job Dissatisfaction*

Most findings were supported the predicted effects of control on job dissatisfaction. The strongest relationships as compare to others were (a) additive effect of total demands + social support (b) total demands + total control + social support on job dissatisfaction, and (c) conflicts control on on job dissatisfaction. Regression analyses indicated that control over issues in the conflicts domain was a more reliable predictor of dissatisfaction than was control in other job domains.

### *Hypothesis 3 Main effects of Social Support on Job Dissatisfaction*

There was significant support for this hypothesis from the ANOVAs and linear regression analyses. However, the ANOVAs and the regression analyses both indicated that supervisor support explains significant amounts of unique variance in job dissatisfaction. On the other hand, colleagues support was also significant but slightly lower than supervisory support. The social support (supervisory support and colleagues support) was remained significant on all job factors, particularly, on job dissatisfaction.

### *Hypothesis 4 Additive Effects of Demands and Control on Job Dissatisfaction*

This hypothesis was supported using various angles of correlation and regression analysis. Findings were supported through additive and interactive analysis that job demands and job control explained significant amounts of variance in job dissatisfaction outcomes better than main effect alone. Furthermore, total demands and sub-scales (particularly employee's demands) for this effect was strongest as compare to total control domains when the outcomes job dissatisfaction.

### *Hypothesis 5 Additive Effects of Demands and Social Support on Job Dissatisfaction*

The demands - support additive hypothesis (Table 1.4)) reported highly significant prediction than any other

combination of job factors. This hypothesis was strongly confirmed in correlation as well as multiple regression analyses. The effects of the two additive terms - involving supervisory support and colleague support - varied with type of dissatisfaction.

### *Hypothesis 6 Additive Effects of Control and Social Support on Job Dissatisfaction*

Findings were much cleared relation to this hypothesis. In the regression analyses, the effect of control + social support predicts the job dissatisfaction better than the main effect alone. This difference between the two studies of control + social support at T1 & T2 was remained nearly same variance. Multiple regression analyses indicated that total control and social support was more reliable predictor of dissatisfaction than was sub-scales of total except in models that included control as a mediating variable.

### *Hypothesis 9 Additive Effects of Demands, Control and Social Support on Job Dissatisfaction*

This hypothesis received more support than did any of the other interaction hypotheses. Because of that in the multiple regression analyses, the total demands + total control + social support interaction were predicted job dissatisfaction significantly at T1, at T2. This hypothesis 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 & 2 multiple regression analyses yielded significant increases in explained variance at each step in several of the dissatisfaction outcomes. Evidence of this kind was stronger for hypothesis (demands + control + supervisory support) than for hypothesis carried dual or main effect alone.

## XI. DISCUSSION ON MAIN FINDINGS REGARDING DISSATISFACTION HYPOTHESES

Consistent with the prior researches and our Study 1 findings, demands, Control and social support had significant effects on dissatisfaction. Significant effects were typically associated with job demands and social support than with job control. The T1 job factors on T2 dissatisfaction have not been reported due to the greater instability and non-significance results. Significant findings were obtained for the hypothesized additive effect of demands and control, thus confirming Karasek's (1979, p. 287) outcomes that "dissatisfaction results not from a single aspect of the work factors, but from the joint effects" of demands and control. Whilst similar additive effects have been reported in past researches and T1, the current findings were noteworthy for their consistency, especially given the relatively high correlations between corresponding measures of demands and control (see Table 1.1 & 1.2). The total

proportion of variance in dissatisfaction explained by these two job factors was high enough (typically 70-95%). Furthermore, high or low level of correlation may be contributed through many variables potentially associated to dissatisfaction outcomes; it may be unrealistic to expect proportions of explained variance to be much higher than this (Semner et al., 1996 & Bradley, 2004). Karasek's original model is commonly interpreted as predicting a demands + control interaction upon dissatisfaction outcomes. Most of the past researchers reported their findings in (a) male or mixed sex, blue-collar samples, (b) cross-sectional designs, and (c) congruent and occupation-specific self-report measures of the job characteristics. In the current study, considerable support for the interaction hypothesis was obtained. Somewhat interestingly, in the light of T1 & T2 findings, evidence of the buffering effects of control was stronger in the study 2 than in the T1 analyses. The extent to which control buffered the effects of demands was shown too consistent across job domains and dissatisfaction outcomes. The qualitative demands, workload demands and workload control interaction term were particularly successful in predicting job dissatisfaction in those models that included stressors as a mediating variable, suggesting that interaction effects on dissatisfaction stronger than other two outcomes. Several researchers (e.g., Burke & Greenglass, 1995; Pomaki, 2001; Sheffield et al., 1994; Bradley, 2004) have found that social support does not correlate highly with dissatisfaction in samples of white collar employees. On the other hand, researchers such as Alloway and Bebbington (1987), Payne and Jones (1987) and Buunk and Peeters (1994), have concluded that significant findings occur significantly but not frequently than would be expected. Both studies (T1 & T2) included separate measures of supervisor and colleague support (scales of Caplan et al., 1975), both used cross-sectional designs with an nine-month time lag and both tested the buffering hypothesis using continuous interaction terms within the models and reported significant of interaction of social support. Bradley, (2004) reported in his cross-sectional correlations between social support and dissatisfaction in the region of -.20. Despite this modest mean, their bi-variate correlation, several main effects for social support were significant in the multivariate analyses. Similar analyses were found in our study I & II support from supervisors was a strong (negative) predictor of all three outcomes of job dissatisfaction, whilst support from colleagues was lower in study 1 highly predictive of job outcomes in study 2. Thus, Kahn and Byosiore (1992), Mitchell et al. (1982), and some others have indicated that the stressor x support interaction may hold only for particular combinations of job factors not all types of support and specific outcomes of job dissatisfaction. The demands + support, and control + support, hypotheses were strongly supported by the

current findings. The mean  $R^2$  adjusted associated with the control + social support prediction was .81 at T1, and .71 at T2. Indeed, the findings are more consistent with an additive than with main or independent effects with the model of the effects of demands and support upon dissatisfaction. Two possible exceptions to this general pattern of non-significant effects were the interactions between (a) colleagues support and employees' demands at T1, and (b) colleague support and all stressors at T2. These significant effects provided support to hypothesis but buffering effects are most pronounced when the type of support offered to meet the particular needs of the person who is experiencing dissatisfaction. According to this "dissatisfaction- matching concept" hypothesis, well-targeted and specific types of support are of much more use to those experiencing dissatisfaction than to those who are not, and hence the beneficial effects of such support varies between employees depending on their requirements and circumstances available at work environment. In the current context, it makes sense that qualitative demands, employees issues and workload were rendered less stressful by the provision of supervisor support (since supervisors generally have responsibility over such matters and have power to bring certain changes), whilst the impact of colleagues support may not alleviated or minimized the pressure of dissatisfaction (due to lack of decision latitude), who may be more likely than supervisors to provide empathy, opportunities for emotional release, and practical assistance in this domain. Consistent with past research, the present findings suggested that control + colleague support impacted more strongly on dissatisfaction than on any other dissatisfaction outcomes, whilst control + supervisor support had strong effects on both dissatisfaction and other outcomes of dissatisfaction. Therefore, evidence is accumulating in support of the views that the two job factors of control and social support operate in supplementary, rather than substitutive, ways to counteract all or at least some kinds of dissatisfaction. Whilst some studies were made for the additive effects of control and social support, the current research provides sufficient grounds to support a claim of an interactive effect of these two job factors on dissatisfaction. Given the current findings, there may be value in future researchers examining the impact of the control + social support interaction on this criterion. If replicated, the finding may have implications for reducing levels of staff turnover in an organization. This chapter reported findings from multiple regression analyses of several versions of two principal models and two additional models of the relationships between job factors and dissatisfaction. Findings from these analyses suggested that model choice depended upon the relative importance attached to goodness-of-fit and parsimony and also in consideration of work

environment. Model 1, (both T1 & T2) which specified direct effects from all job factors to all dissatisfaction outcomes yielded the best set of fit statistics, although greater parsimony was achieved by models that included mediating variables such as stressors and/or immediate dissatisfaction outcomes. Both models explained similar amounts of variance in the dissatisfaction outcomes. The direct effects version of model 1 tended to provide a better fit than did the corresponding hypothesized versions, a finding that is consistent with the evidence that the best compilation fit was provided by model 1 and model 2. Regression analyses significantly confirmed the hypothesized role of job demands in mediating the relationships between the job factors and job dissatisfaction. Finally, it was concluded that the findings from this study provide quite strong evidence of the additive effects of demands, control and social support upon self-reports of dissatisfaction, and more modest evidence of main effects of these three job factors. Terms representing the interactions between the job factors accounted for considerable variance in all seven measures of dissatisfaction. Given the number of tests conducted and the significant effects generally obtained, it seems reasonable to conclude that Study 2 provides qualified support to some level for Karasek's (1979; Karasek & Theorell, 1990) main and additive effects models of job dissatisfaction.

## XII. RECOMMENDATIONS FOR WAPDA MANAGEMENT

Focus of this study is on the following points, which are of great significance and are helpful to researchers and managers in future in energy sector (power wing of WAPDA) of Pakistan

1. This research study remained focused on individual employees in understanding the factors/stressors that influence whether someone working very hard feeling is stressed out, or whether they are feeling motivated, excited and committed or free of any organizational job dissatisfaction. Our research outcomes (T1 and T2) reported clearly that most of the employees are feeling significant amount of job dissatisfaction due to promotional policies and low salaries structure, poor training programs, low fringe benefits as compare to other commercial organizations of Pakistan like Oil & Gas Development Company and Atomic Energy Commission of Pakistan.
2. Minimizing job dissatisfaction, through the study of job redesign in light of variety of intra- organizational stressors (qualitative demands, employees' demands and conflicts demands), giving employees control and power to make job-related decisions, the flexibility to organize their work in the way they find

optimal and the authority to make improvements on how their job is done effectively.

3. This study enables managers (of WAPDA) to understand the sources of job dissatisfaction and make decisions how to improve the employee job satisfaction, performance and job description in consideration of our analysis of Demand Control Support Model.
4. These studies (T1 & T2) communicate clearly the significant effect of social support on immediate and remote outcomes of strain in the work environment of WAPDA. Supervisors can know how to provide guidance; support and to organize the level of job demands, on the worker's decision- making latitude, and on the quality of social support available from management and co-workers.
5. This study's reports (four subscales of each job demands, control and dissatisfaction; two subscale of social support) give recommendations to organization if the time and financial resources you invest in restructuring the recruitment policies (development of Human Resource Department), promotional policies, salaries structures, fringe benefits (in consideration of real wages) and training employees will pay huge dividends in reducing employees' job stress, job dissatisfaction, increasing productivity and minimizing turnover of competent and productive employees. Study also reports that training programs most likely to be successful in which workers played key roles in work restructuring and work reorganization.
6. Finally, it is suggested that re-structuring and other necessary reforms at WAPDA must be designed to boost efficiency, foster good corporate governance, cut off costs, and make these entities truly commercially viable enterprises. Because the operating costs and line losses of DISCOS are too high and it was necessary to undertake a comprehensive re-structuring program and split DISCOS into smaller companies and privatize them.

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## APPENDIX E-1

*Job Demands*

- A1 My capability and potential are not utilized.  
 A2 The job involved a lot of repetitive work.  
 A3 The job involved an excessive amount of work  
 A4 Different work than required in job description  
 A5 The job is not free from conflicting demands.  
 A6 The job required lots of physical/mental effort.  
 A7 The job does not required learning new things  
 A8 I occasionally have difficulties or conflicts with my superiors.  
 A9 I occasionally have difficulties or conflicts with my colleagues  
 A10 I occasionally have difficulties or conflicts with my management policies.  
 A11 I am frequently restricted by deptt. excessive, administrative paper work formalities  
 A12 The demands of my job take up many hours of my personal time.  
 A13 I frequently need training for my career development and for continuously growing Quality demand.  
 A14 I occasionally have difficulties & conflicts with the organization due to lack of funds materials consumables etc.  
 A15 I occasionally have difficulties & conflicts with the organization due to low salary.  
 A16 I occasionally have difficulties & conflicts with the organization due to promotional policies.
- Job Control*
- B1 Employee's level of creativity and motivation  
 B2 The extent to which my job involved a lot of repetitive work .  
 B3 The extent to which my job involved an amount of excessive work.  
 B4 The extent to I have to do different work than required in job description  
 B5 The extent to which my job is free from conflicting demands.  
 B6 The extent to which my job required lots of physical/mental effort.  
 B7 The extent to which my job required learning new things  
 B8 The extent to which I have difficulties and conflicts with my superior(s).  
 B9 The extent to which I have difficulties or conflicts with my colleagues.  
 B10 The extent to which I have difficulties or conflicts with mgt policies

- B11 The extent to which my department's policies and practices or formalities restrict me.  
 B12 The extent to which the work makes demands upon my personal time.  
 B13 The extent to which I have difficulties in getting, training for career development and for growing quality demand.  
 B14 The extent to which I have difficulties due to materials, funds and consumables etc.  
 B15 The extent to which I have difficulties or conflicts with my salary package.  
 B16 The extent to which I have difficulties with organization's promotion policies.

*Job Dissatisfaction*

- C1 I feel a great deal of dissatisfaction because of my job  
 C2 I put least effort into my work in the department  
 C3 Many stressful things happen to me at work  
 C4 There are number of jobs I would prefer over this one  
 C5 I often find it difficult to get motivated at work these days  
 C6 Overall, my job is satisfying.  
 C7 There is a good chance I would take a new job if offered me.  
 C8 Over the past month, I have seriously thought about seeking a transfer to another department or place.  
 C9 Over the past month, I have seriously thought about resigning from WAPDA altogether.  
 C10 Over the past month, I have seriously thought about making a real effort to enter a new and different occupation.  
 C11 I feel a great deal of dissatisfaction because of my career development and promotion policies.

*Supervisor Support*

- D1 How much do your department administration staffs go out of their way to make life easier for you?  
 D2 How easy is it to talk to members of your office administration?  
 D3 How much can your administration staff be relied on when things get tough at work  
 D4 How much are the members of our administration willing to listen to your personal problems?

*Colleagues Support*

- E1 How much do your colleagues go out of their way to make easier for you?  
 E2 How easy is it to talk to your office colleagues?  
 E3 How much can your colleagues be relied on when things get tough at work.  
 E4 How much are colleagues of our office willing to listen to your personal problems?



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