

## Job Control Mediates between Workplace Stress and Organizational Performance: A case study of Air Traffic Controllers of Pakistan<sup>1</sup>

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**Abstract:** The purpose of the study is to investigate the mediational affect of job control between air traffic controllers' workplace stress and organizational performance.

The study is mainly based on review of existing literature and collection of data through a self-developed and administered questionnaire validated through a pilot study. Sample was selected from air traffic controllers of Civil Aviation Authority (CAA) using technique of proportionate random sampling. The model is good fitting and the hypothesis was accepted at a significant 'p' value. A total of 134 questionnaires were distributed; while 122 respondents returned the questionnaires, which were utilized for analysis.

As hypothesized, the study results confirm that there is a partial mediational affect of job control between air traffic controllers' workplace stress and organizational performance.

The practical implications of the paper include implementation of the results provided by the researcher to reduce workplace stress thereby increasing organizational performance.

**JEL Classifications:** M12, N75, R41

**Keywords:** Workplace stress, Job control, Air traffic controllers, Organizational performance

### 1. Introduction

Tynan (2009) describes stress as a person's physical or emotional response to demands or pressures, comes in different forms and impacts different areas of lives - family, relationships, finances, health and work. Stress is viewed as the result of an imbalance in the demands and constraints placed on an individual in relation to the support available to that individual (Fletcher, 1991), which was also supported as a perception that the resources available do not match the demands made (Bonn & Bonn, 2000). Most employees experience pressure due to excessive work, role demands and no opportunity or career progression at their workplace.

Air traffic controllers' job is stressful and demanding, and their performance directly affects the organizational productivity. The job of an air traffic controller is specialized and highly skilled, which paramount (Hick, 2008). Mitchell (2008) stated that the job of a controller is to control the planes from the airport, out of the runway, into the sky, and all the way to wherever they are destined, until they are parked at the airport again. Giovanni study (as cited in Ammerman et al. 1987) identified six main activities of air traffic controllers, situation monitoring; resolving aircraft

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conflicts; managing air traffic sequences; routing or planning flights; assessing weather impact; and managing sector / position resources); which include 46 sub-activities and 348 distinct tasks.

Control is a term in psychology that refers to a person's belief about what causes the good or bad results in his life, either in general or in a specific area such as health or academics. It also refers to an individual's generalized expectations concerning where control over subsequent events resides.

## **2. Literature Review**

### **2.1. Task Demand**

Stewart (1976) concluded that the workload was one of the first aspects of work to receive attention. Employees often become overloaded if they could not cope with the amount of work or type of work they asked to do. Gail (2004) study finds that almost one-half of the 2004 respondents said that their workloads were unmanageable. One respondent commented: Overwork has now become institutionalized: everyone expects it.

According to Hick (2008), the air traffic control, being overtired and overworked, can cost lives. Number of decisions to be made becomes a stressful condition when the controllers' decision-making capacity is stretched to the maximum; this can lead, in case of overload, to a very risky situation defined as loss of picture (Costa, 1995). Boesveld (2009) states that research show that increased workloads and time demands are huge in terms of stress on the employees

### **2.2. Role Demand**

Role stress is seen as detrimental to individual and organizational outcomes (Fisher and Gitelson, 1983; Jackson and Schuler, 1985; Van, et al., 1981) and diminished organizational commitment and performance (Johnston, et al., 1990; and Jackson and Schuler, 1985). According to Business Dictionary (n.d.), a role ambiguity is a lack of clarity about expected behaviour from a job or position; while role conflict refers to lack of compatibility between different expectations from a job or position.

Connor and Worley (1991) study states that role ambiguity can produce stress because of the uncertainty about the job's scope and responsibilities, or from uncertainty about what supervisors expect. Employees deal with role ambiguity, which simply means the employee is unclear about the goals of his or her job, or the methods of performing the job are unclear (Nebenzahl, 2006). Being able to work a heavy, complex traffic requires many things, which include elimination of ambiguity (Tucker C., 2009).

Jennifer, et al. (2009) study concludes that the managerial disorganization, interpersonal conflict and a lack of training frequently contribute to workers' stress levels. Rashid and Lin (2010) suggest that organizations should tackle role ambiguity with highest priority and relieve work-leisure conflict to effectively retain employees under job stress.

### **2.3. Organizational Performance**

Dr. Bobby (2008) states that the term performance management is commonly used today to describe a range of managerial activities designed to monitor, measure and adjust aspects of individual and organizational performance through management controls and the performance management integrates the management of organizational performance with the management of individual performance. The study further states that an organizational performance management is

the activities of its various departments in planning, implementing, reviewing and reporting, the effectiveness of its policies and procedures.

The objective of performance management is to introduce orderly controls in the performance management process by means of decision, and action to attain agreed goals. Managers decide what is required to be done, and how to control the progress in terms of finance, customer, process, and people. According to Allison (2010), many industries say that dispensing with performance appraisal can increase productivity, harmonize workplace communications, and lighten stress and focus outputs to achieve the company's strategic direction more quickly. Elovainio, et al. (2002) study concludes that occupational stress consequently low organizational performance. Kazmi, et al. (2008) study finds that there is an inverse relationship between job stress and job performance. According to Laiba, et al. (2011) there is a negative relationship between job stress and employees' performance and job stress significantly reduces the employee's job performance.

#### **2.4. Job Control**

Evidence is growing that enhanced control at work can be an important element in employees' health and well-being (Paul, 2002). The study concludes that individuals who perceived they had control over job stressors were likely to see the situation as a challenge to be overcome and would likely engage in behaviours designed to do just that. Employees with low control can become frustrated and feel underappreciated (Medibank, 2008). Job control is defined as having influence over the work environment, including ability to influence the execution and the planning of work tasks (Mark et al., 2006). Task control was found to buffer the effects of workload on stress and of acute strains on musculoskeletal symptoms; while rest breaks received less consistent support as a moderator variable (Burnfield, 2005).

Control can be over any aspect of work, including location, scheduling, and how tasks are done. Control over one's work (deadlines, outputs etc) has a strong impact on perceived stress, affecting both an individual's self esteem, as well as their ability to achieve work goals. Employees with low control can become frustrated and feel underappreciated (Medibank, 2008). Low job control is recognized as another important source of stress (European Risk Observation Report, 2009).

According to Medibank (2008), employees with low control can become frustrated and feel underappreciated. Newton et al. (2008) study concludes that negative impact of the stressor on employee adjustment is buffered by high decision latitude. Boesveld (2009) study indicates that sharing ideas with your boss on how you could do your job more effectively would help bring a sense of control.

### **3. Relationship between Job Control and Organizational Performance**

According to Karasek (1979), there are two important elements involved in the job stress process: 'control and demands'; and a person with a heavy workload and control over it, will be confident s/he can keep the workload within tolerable limits. Collie (2005) study indicates that out the 'lack of control' as one of the top ten workplace stressors.

According to European Risk Observation (2009) report, low job control was recognized as another important source of stress. Spector, et al. (1988) study shows that low level of perceived control is associated with a variety of strains: anxiety, frustration, physical symptoms like headache and stomach upset; and frequent visits to doctor. Derek, et al., (2011) study concludes that there is an evidence of heavy job demands and low control resulting in multiple negative consequences for

employees and their families. Costa (1995) finds that the job of an air traffic control entails, on the whole, high psychological demands while being subjected to a considerable degree of external control and this feeling of lack of personal influence that air traffic controllers often complain of can be a powerful stressor, also taking into account that the job requires high levels of responsibility. This feeling of lack of personal influence that air traffic controllers often complain of can be a powerful stressor, also taking into account that the job requires high levels of responsibility.

According to Gupta, et al. (2009), managers considered the most important sources of work stress to be lack of control and work life balance. Costa (1995) is of the view that the feeling of lack of personal influence that air traffic controllers often complain of can be a powerful stressor, also taking into account that the job requires high levels of responsibility. Vanessa (2005) maintains that the staffs have been downsized, so they had to do more with fewer people; and a lot of workers are experiencing increased demands and do not feel a lot of control over their environment and their ability to respond.

According to Burnfield (2005), task control was found to buffer the effects of workload on stress and of acute strains on musculoskeletal symptoms; while rest breaks received less consistent support as a moderator variable. The Star (2010) report reveals that workers who have more control over the pace of their work are better able to cope with that high-pressure situation. Day et al. (2009) study finds that lack of perceived control over one's job relates to exhaustion and they further concluded that job control buffered some of the stressor.

**Hypothesis:** Job Control mediates the relationship between Workplace Stress and Organizational Performance.

#### 4. Conceptual Framework

The objective of this study is to identify a significant variable - job control, which mediates between air traffic controllers' workplace stress and organizational performance keeping the scenario of Pakistan Civil Aviation Authority in view. So resultantly this research will provide a practical implication for the further insight as to what extend can the selected variable mediates between workplace stress and organizational performance.

Mark et al. (2006) define the job control as having influence over the work environment, including ability to influence the execution and the planning of work tasks.

Keeping in view the reviewed literature of the variables, their relationships are illustrated in Figure-1. Job control partially mediates between air traffic controllers' workplace stress and organizational performance:

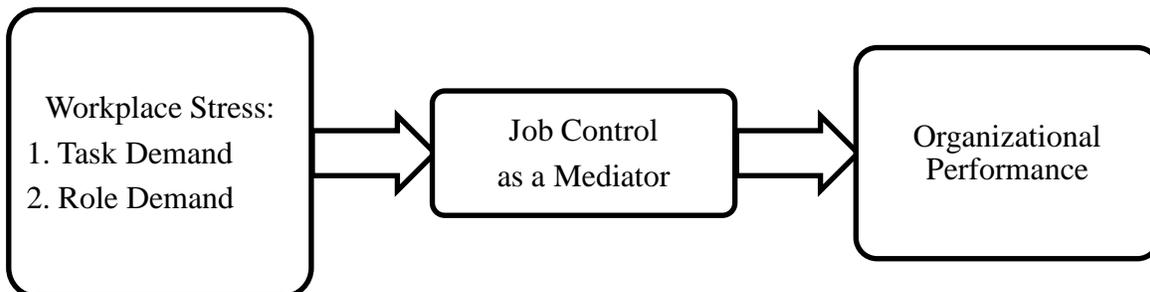


Figure 1. Conceptual Framework

The above framework can be hypothesized as: Job control mediates between workplace stress and organizational performance.

## 5. Methodology

### 5.1. Population and Sampling

Population for the current study includes air traffic controllers of Pakistan Civil Aviation Authority, as the target population working in four international airports – Karachi, Lahore, Islamabad, and Multan. These airports were randomly selected where 81% of total aircraft movements reported; 87% of total passengers travelled; and 95% of total cargo handled. Total population for the current study includes 670 air traffic controllers of Pakistan Civil Aviation Authority. 20% of the total population was selected as sample. Detail of drawing sample from the whole population is given in Table 1.

Researcher distributed 134 questionnaires to the respondents randomly out of which 122 air traffic controllers completed the questionnaire and the rest did not return it for unknown reasons.

The response rate was 91% which is very much acceptable in social sciences research (Fowler, 1988).

Table 1. Population and Sample Statistics

Name of Airport (Population)	Total Air Traffic Controllers (Element)	Proportionate Sampling	
		(20% of the elements)	Questionnaire Received
Karachi	325	65	64
Lahore	280	56	51
Islamabad	30	6	4
Multan	35	7	3
<b>Total</b>	<b>670</b>	<b>134</b>	<b>122</b>

### 5.2. Instrument Development

Researcher has self-developed and administered the questionnaire for the current study, validity of which was tested through pilot study and deliberation in the focus group’s meeting based on which certain changes were made in the final instrument so that local values and traits could also be included for greater validation. Total 128 questions were included in the questionnaire having different sections. First section of the questionnaire was related to demographics of the respondents, consisting of 8 questions, which covered variables like age, gender, education, marital and job status, number of children, leave record and service record of respondents. For analyzing the tasks demand, role demand, job control and organizational performance variables, 12 questions for each variable were included in the questionnaire.

A five-point Likert Scale, in which 1 indicated ‘strongly disagree’, 2 indicated ‘disagree’, 3 indicated ‘neither agree nor disagree’, 4 indicated ‘agree’, and 5 indicated ‘strongly agree’ is used for measuring the response.

### 5.3. Data Analysis

For this study, job control was identified, which has mediational affect between workplace stress and organizational performance. Baron and Kenny (1986) four steps method was applied in which several regression analyses were conducted and significant of the coefficients was examined at each step.

### 5.4. Reliability

Reliability of the items was verified by computing the Cronbach alpha. Nunnally (1978) suggested that a minimum alpha of 0.6 sufficed for early stage of research. Reliability test show that our variables are under acceptable range. Table-2 shows the descriptive statistics and the reliability tests as well.

**Table 2.** Descriptive Statistics

Variable Name	Reliability	Mean	Std. Deviation
Task Demand	0.809	3.0622	0.47037
Role Demand	0.800	3.3507	0.43224
Job Control	0.816	3.1455	0.48015
Organizational Performance	0.838	2.3966	0.56999

The descriptive statistics analysis presented in Table 2 shows high positive correlations among variables. Thus it is a good fitting model.

The Pearson correlation coefficients confirm that most of the study variables are highly correlated, which is shown in Table 3. The correlational analysis shows that the workplace stress is negatively correlated to the organizational performance with a value of -0.600 which shows that workplace stress can negatively affect performance of the organization.

Workplace Stress is positively correlated with job control with the value 0.856. Organizational Performance is positively correlated with job control at value 0.576 and negatively correlated with workplace stress with the value of -0.600.

Sr. No.	Variable Name	1	2	3
1	Organizational Performance	1	-.600**	.576**
2	Workplace Stress	-.600**	1	.856**
3	Job Control	.576**	.856**	1

**Table 3.** Correlation Analysis

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Job Control is positively correlated with organizational performance and workplace stress with the values of 0.576 and 0.856 respectively. All the values are significant either at the 0.01 or 0.05 levels.

**5.5. Hypothesis Testing**

After correlational analysis, the researcher tested the proposed hypothesis against the collected data as follows:

**Hypothesis:** Job Control mediates the relationship between Workplace Stress and Organizational Performance.

For analyzing the hypothesis, four steps method of Baron and Kenny (1986) was used applying several regression analyses. Based on results, the hypothesis was accepted. Job control had partial mediational affect between workplace stress and organizational performance. The four steps method of Baron and Kenny (1986) used in the study is explained below.

**The Four Steps** - The results of the four steps (Baron and Kenny,1986) are summarized in Table 4.

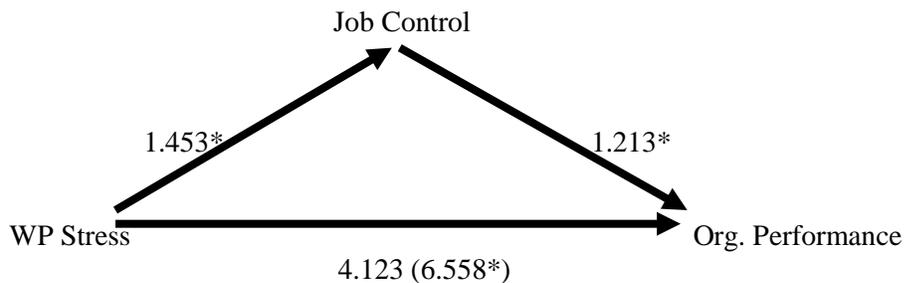
**Table 4.** Results of the four Baron and Kenny (1986) steps for Hypothesis

Steps	Path	Estimates	95% CI	Beta	p
1	c	6.558	1.654to11.462	0.248	0.009
2	a	1.453	0.412 to 3.123	0.312	0.011
3	b	1.213	0.794 to 2.102	0.436	<0.001
4	c'	4.123	-0.435 to 7.678	0.182	0.067

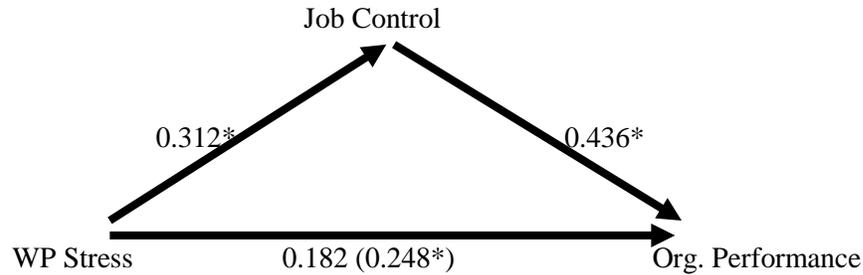
The effect of Workplace Stress on Organizational Performance or path ‘c’ is equal to 6.558 (p = .009), with a 95% confidence interval of 1.654 to 11.462 and a medium effect size (d = .514). Step 1 is passed. The effect of Workplace Stress on Job control or path ‘a’ is equal to 1.453 (p = .013), with a 95% confidence interval of .412 to 3.123. Step 2 is passed. The effect of Job control on Organizational Performance controlling for Workplace Stress or path ‘b’ is equal to 1.213 (p < .001), with a 95% confidence interval of .794 to 2.102. Step 3 is passed.

The effect of Workplace Stress on Organizational Performance controlling for Job control or path ‘c’ is equal to 4.123 (p = .089), with a 95% confidence interval of -.435 to 7.678. The least squares mean for Workplace Stress Controls is equal to 12.784 and the least squares mean for Workplace Stress Treated is equal to 16.782. Step 4 is passed.

A mediational diagram for un-standardized estimates is shown in Figure 2 and for standardized estimates is shown in Figure 3. Hence, it is proved from the results that there is a partial mediation.



**Figure 2.** Mediation Diagram with Un-standardized Coefficients  
\* indicates statistical significance level of p < 0.05



**Figure 3.** Mediation Diagram with Standardized Coefficients  
\* indicates statistical significance level of  $p < 0.05$

## 6. Conclusion

The current study concludes that job control has partial mediational affect between air traffic controllers' workplace stress and the organizational performance. The study is mainly based on review of existing literature and collection of data through a self-developed and administered questionnaire, which was also validated through a pilot study testing. Sample was selected from Air Traffic Controllers of Civil Aviation Authority by using the technique of proportionate random sampling. The model is good fitting and the hypotheses were accepted at a significant 'p' value.

As hypothesized, the study results confirm that there is a partial mediational affect of job control between air traffic controllers' workplace stress and organizational performance. The hypothesis was accepted.

Since control over one's work (deadlines, outputs etc) has a strong impact on perceived stress, affecting both an individual's self esteem, as well as their ability to achieve work goals, organizations should get their workers onboard introducing any change – micro or macro level.

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