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The relationship of job demands and job control in job design on job stress and subjective well–being of Isfahan Petrochemical Company personnel in Iran

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ABSTRACT
The main purpose of this research is to determine the effect of job demand and job control in job design on job stress and subjective well-being. The population of the research was all the personnel of Isfahan Petrochemical Company in Iran from which 151 persons were randomly selected via simple random technique. The research method was correlational. To gather the required data, the following three instruments were used: Job Design Questionnaire of Wall, Jackson and Mullarkey (1995), Subjective Well-being Questionnaire of Mollavi (1386), and Job Stress of Eliot (1994). The obtained data were analyzed via one group MANOVA and multiple regressions. The findings were as follow: The relationships between job demand with job stress ($P < 0.05$) and positive affect ($P < 0.01$) were significant. Also, the relationships between job control with job stress ($P < 0.01$), subjective well-being ($P < 0.01$), positive affect ($P < 0.01$) and negative affect ($P < 0.01$) were significant. In the current research, employees were categorized as the Technical, Support and General staff. The results of subgroup analysis via one- way ANOVA showed that the job stress and subjective well-being of three groups have a significant difference.

Introduction

The development and rapidity of scientific progress and technology influenced by them have been accompanied by many social changes and economic developments. On this basis, there has been such a profound change in human life and employment. Also, there has been a difference in the amount of attention to the human being as a complex creature, his adaptability to the environment, his endeavor to meet his needs and equipment and changes in the work environment and organization. The reason for such difference is that man today is forced to adapt himself to the social and occupational environment and bears constraints and pressures and consequently a successful job satisfaction over time may become a source of discontent and discord and this in turn will lead to his drop out of the normal routine and his suffering from job stress; subsequently, his health will be at risk (Zahrakar, 2005).

According to the previous studies, one's demands and his communication and contact, his individual autonomy and the degree of received support are among the factors which deal with his health. Occupations with high demands from the people or those in which people has no right for making decision and do not receive social support in the working environment might cause one to have job stress and might lead to his burnout (Bakker & Schauffli, 2000).

Moreover, subjective well-being is one of the factors which are very important in the working environment. It is related to the way people evaluate their lives and is consisted of some variables like life satisfaction, mood, positive affect and lack of stress and anxiety (Myers, 2000). The variables consisting subjective well-being (SWB) are life satisfaction, vitality, optimism, pessimism and positive-negative affect which are transformed to positive affect and negative affect in the present study (following Mulavi's (2008) study with regard to validating subjective well-being questionnaires). Shafi-Abadi (2005) had pointed to the relationship between subjective well-being and job design. He found that some jobs would endanger one's subjective well-being.

In this regard, in efficient organizations, the managers know that it is necessary to ensure employees' subjective well-being to meet organization's goals and one of the characteristics of a healthy organization is the equality of the attention devoted to employees' physical and mental health and the attention devoted to the organization's productivity.

In a healthy society the manufacturing organizations' responsibility is not merely producing more goods and giving beneficial services and the organizations' managers of such societies know that more production is the result of efficient management and this cannot be gained without paying attention to employees' subjective well-being (Saatchi, 2005). One of the actions performed for increasing peoples' health and increasing organization's efficiency is job design, which has attracted a great deal of attention recently.

Job design has a great impact on people's subjective well-being and organization's success. It is in two fields of organizational and industrial psychology and had made a significant combination between these two fields. Job design theory is related to motivation theories in organizational psychology and has attracted some of the basic concepts of industrial psychology like job analysis. So, it is related to both fields and industrial and organizational psychology is combined in it (Karasek, 1979).

One of the most important theories in which subjective well-being is related to job design and can be regarded as one of the models of job stress is job demand-control (JDC) model (Karasek, 1979; Karasek & Theovell, 1990). This model is

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focused on two dimensions of job demand and job control in the working environment. Job demand points to one's duties in the working environment as well as the demands and time limits related to their performance; while, job control is the act of controlling working process that is decision-making power and the opportunity to enforce control on the work in order to perform it.

High job demands which are associated with high levels of job control will not result in mental pressure, since active jobs gives the person the opportunity to develop defensive behaviors. Inactive jobs with high demands and low control will not invoke defensive behaviors and as a result of low activity people will experience high pressure. The comparison of jobs with equal job demands and different job independence showed that the decrease in independence is related to a higher pressure. An increase in demands, when job independence is fixed, will lead to an increase in stress level (Karasek, 1979).

The main idea of this model is quite clear: stress-making situations are those situations in which employees are facing high job demands and low control for the decisions related to their job. One way to investigate demand-control model is that control and demands are interacting in the way that when job control is low, job demands has a more strong relationship with job stress.

Some of labour jobs are working according to the high demands-low control model, i.e. those who are expected to work or produce a lot but still say that they do not know how to perform their duties or how the organization is managed (Karasek, 1979).

Moreover, this model suggests that job demands can have two consequences: job stress and consequences related to the learning in working environment. So, the combination of high job demands and low job control will lead to physical and mental pressure (which is called job stress). While, jobs in which there are high demands and high control will lead to pride, efficiency and success (which are called active learning). As a result, job demand-control model is based on the hypothesis that job control, when job demands are high, not only is a barrier to physical and mental pressure but will bring a feeling of competency, efficiency and success (Karasek & Theovell, 1990).

There have been a number of studies on this issue. For instance, Jonge et al. (2000) found that job demands and job control might show several interaction effects on employee's well-being and health, but only in specific occupational groups. Their findings showed that high-strain jobs (high demand, low control) are conducive to ill health (i.e., emotional exhaustion, psychosomatic health complaints). In addition, their results showed that active jobs (high demands, high control) give rise to positive outcomes (i.e., job challenge, job satisfaction). In another study Schaubroeck and Jones (2001) showed that having high job control decreases the linkage between job demands and poor health among individuals with high self-efficacy and those who perceived that they were not often responsible for negative job outcomes. Conversely, they found that having high job control exacerbated the association between job demands and poor health among inefficacious individuals. Implications for promoting more healthful work environments and facilitating employee's coping were discussed in their work.

Moreau and his collogue in a study entitled "Occupational stress and incidence of sick leave in three sectors of activity of the Belgian workforce: the belstress study" showed that job stress is an important factor of sick leave. Moreover, they reported that within the Karasek model those job characteristics that played a major role in the relation between job stress and sick leave were job control and social support at work.

Devin, Reay, Stainton and Collins (2003) in their study entitled "Downsizing outcomes: Better a victim than a survivor?" on employees involved in a major downsizing program found that those employees who were survived after downsizing experienced more stress because of their lower control on their job. So, they had lower levels of job satisfaction, life quality and health.

De Lange, Taris, Kompier, Houtmans and Bongers (2004) in a longitudinal study on a heterogeneous sample of 668 Dutch employees examined the causal relationships between job demands, job control and supervisor support on the one hand and subjective well-being on the other. They hypothesized that work characteristics affect subjective well-being and examined reversed causal relationships (subjective well-being influences work characteristics). Their results provided evidence for reciprocal causal relationships between the work characteristics and subjective well-being, though the effects of work characteristics on well-being were causally predominant.

Nirel, Shirom and Ismail (2004) conducted a study to examine the relationship between the numbers of jobs of the consultant and overload, burnout, and job satisfaction on a random sample of physicians. Their results showed that the number of jobs and weekly work hours were independently and positively correlated with job overload and burnout. Their results showed that public employment compared to employment as an independent physician and age had a negative relationship with job overload and burnout and holding multiple jobs and working many hours were found to have a negative impact on the consultants' quality of work life.

Fernet, Guay and Senecal (2004) in a study examining the dynamic interplay among job demands, job control, and work self-determination in order to predict burnout dimensions found that job control moderates the unhealthy effects of job demands in predicting emotional exhaustion and depersonalization only for employees with high levels of work self-determination. In addition, they found that job control increases the relation between job demands and the sense of personal accomplishment only for employees with high levels of work self-determination.
Fischer, Goliveira, Nagai, Teixeira, Junior and Latorre (2005) in a study entitled "Job control, job demands, social support at work and health among adolescent workers" found that psychological job demands were related to body pain, higher risk of work injuries, reduced sleep duration in weekdays and reduced subjective well-being. Moreover, they found that lower decision authority in the workplace and higher job security were related to longer daily working hours.

Martinussen, Richardsen and Burke (2007) in a study on 223 Norwegian police officers found that both job demands and job resources were related to burnout, especially work-family pressure was an important predictor for all of the three burnout dimensions.

In another attempt, Cieslak, Knoll and Luszczynska (2007) studying 247 workers of five occupations concluded that high job demands predicted low support from supervisors and low job control predicted low support from supervisors. Among individuals with low neuroticism, high support from supervisors predicted high job control.

Mauno, Kinnunen and Ruokolainen (2007) investigating the experience of work engagement and its antecedents among 409 Finnish health care personnel found job resources predicted work engagement better than job demands. Also, they concluded that job control and organization-based self-esteem proved to be

the best lagged predictors of the three dimensions of work engagement.

Wong and Lin (2007) examining the role of job control and job support in adjusting service employee' s work- to- leisure conflicts concluded that job control, job demands and supervisors' support had a significant and direct affect on adjusting service employee' s work- to- leisure conflicts.

In another study, Rod, Ashill and Carruthers (2007) found that there were a number of significant relationships between job demands stressors, service recovery performance and job outcome variables.

Carlan and Nored (2008) investigating the job stress of police officers found that municipal police departments in which the police officers who are exposed to large number of demands would experience high job stress. Their results pointed to a need for counseling. The authors concluded that police departments should consider requiring mandatory and periodic counseling for all officers, a procedural tactic that camouflages counseling need while concurrently treating the source of officer stress.

Jonge et al. (2010) found a positive relationship between job demands and job satisfaction in case of high job control, whereas this relationship was negative in case of low control. Moreover, significant demand/control interactions were found for mental and emotional demands, but not for physical demands. In addition, they found that the relation between job demands and psychosomatic health symptoms/sickness absence was negative in case of high job control and positive in case of low control.

Canjuga et al. (2010) found partial support for the job demand- control model. Their findings showed some support for the strain hypothesis, but mainly they showed that physical or psychologically demanding jobs were associated with a higher prevalence of neck and back pain. Job demands, especially the physical kind, had the most powerful effect. None of the interaction terms showed a significant effect.

In a quite recent study, Bakker et al. (2011) applying the job demands-resources model to the work-home interface found that the combination of high job demands and low job resources was positively related to partner ratings of the employee's WHI. When job resources were high, most job demands were not related to WHI. Their findings showed that the JD-R model is a conceptual framework that can be fruitfully applied to the work-family interface.

To date, to the best of the researchers' knowledge, no study had been conducted on job demands and job control with subjective well-being. Few studies had investigated the relationship between stress-making variables and mental health; however, it should be considered that subjective well-being is very broader than mental health. So, this study intends to cover this gap by investigating the relationship between job control and demands with job stress and employees' subjective well-being. Suggestions made in the concluding section help managers of organizations' human resources to decrease job stress and improve and enhance employees' subjective well-being. In addition, a comparison has been made with regard to the degree of subjective well-being and job stress of technical, support and general staff and some suggestions are made to handle or overcome the stress.

Research hypotheses:

1. There is a relationship between job demand and subjective well-being.
2. There is a relationship between job demand and job stress.
3. There is a relationship between job control and subjective well-being.
4. There is a relationship between job control and job stress.
5. There is a relationship between job demand and positive affect.
6. There is a relationship between job demand and negative affect.
7. There is a relationship between job control and positive affect.
8. There is a relationship between job control and negative affect.
9. There is a difference between technical, support and staff with regard to subjective well-being.
10. There is a difference between technical, support and general staff with regard to job stress.

Methodology

Participants, instruments and the types of data analysis used in this correlational study will be elaborated in this section.

Participants

The population of this study consists of employees of Isfahan petrochemical company in Iran (N = 510) who were working in three groups of technical, supportive and general staff in 2008. 151 were selected based on a stratified random sampling and responded to job design, subjective well-being and job stress. The appropriateness of the sample was checked based on the statistical power (0.99).

Instrumentation

For the purpose of the present study, a number of instruments were used that will be described in order.

Job design questionnaire

To measure the job demand and job control, Wall, Jackson and Mullarkey's (1995) questionnaire was used. This questionnaire has 24 questions; the first 10 questions were related to job control and the rest related to job demands. A 3-point likert scale (0-2), yes, to some extent and no was considered for each question. The reliability and validity of the questionnaire was acceptable in Wall et al.'s (1995) study and in the present study, the validity of the test was checked by a group of colleagues and the reliability was 0.80.

Job stress questionnaire

To measure employees' job stress Eliot's (1994) questionnaire was used. A 3-point likert scale ranging from 1 = never to 4 = usually was used for each question. The validity of this questionnaire was specified by Eliot and its reliability was checked using Cronbach's alpha coefficient (0.72) and in the present study it was 0.75.

Subjective Well- being Questionnaire

To measure employees' subjective well-being the modified version of Molavi's (2008) was used. This questionnaire is consisted of positive and negative affect (Diener, 2005), life satisfaction (Andrews and Withey, 1976) vitality (Myers, 2000) and optimistic-pessimistic (Tsaousis, 2007). In the new version of this questionnaire vitality, depression, stress, will and neurotic is used. In this questionnaire two subscales of positive and negative affect are used. To have the positive affect mark happiness is added to will and t have the negative affect mark neurotic is added to stress-depression. The questions of the questionnaire were tried to be as brief as possible to avoid mental fatigue in the participants. A 5-point likert scale ranging from 1 completely wrong to 5 completely true was considered. The Cronbach's alpha coefficient was 0.92 in the present study. The reliability of the subscales (positive affect and negative affect) was 0.92 and 0.89 respectively.

Ethics and Procedures

After conducting sampling procedures and coordinating with the relevant coordinators, some invitations were sent to the employees to participate in the response session. The meetings

were held in a working day, on three occasions and each was planned for approximately 50 employees. The participants were asked to answer the questions carefully and honestly and they were ensured about the confidentiality of their answers and were promised feedback on their performance and the results of the study.

Data Analysis

In order to provide plausible answers to the research questions posed above, first, descriptive statistics were given (mean and SD) and the obtained scores were checked in terms of the normality of distribution. In addition Pearson Product correlation was used to check the relationship between job demands, job control and job stress and employees' subjective well being. Moreover, to investigate the relationship between job demand, job control, job stress and employees' subjective well being one-group MANOVA was used. In addition to test the subsidiary hypotheses, multiple regression analysis was used and in order to compare the means of job stress and people's subjective well-being in different job groups (technical, support and general staff) one-way ANOVA was used.

Results

In this section, descriptive indices of research variables, the relationship between the variables, the results of one-group MANOVA and multiple regression analysis are provided. In addition, variables of subjective well-being and job stress are compared based on demographic variables of the work type and with the use of one-way ANOVA.

Descriptive Statistics for Research Variables

Table 1 presents descriptive statistics, i.e. mean and SD, for dependent and independent variables. As can be seen in the table, job stress is the variable with highest mean and SD while job control is the variable with the lowest mean and SD.

(Table 1 about here)

Inferential Statistics for Research Variables

(Table 2 about here)

As can be seen in Table 2, job demand has a significant positive relationship with job stress ($p < 0.05$, $r = 0.19$) and a significant positive relationship with positive affect ($p < 0.05$, $r = 0.20$). In addition, job control has a significant negative relationship with job stress ($p < 0.01$, $r = - 0.37$) and a significant positive relationship with positive affect ($p < 0.01$, $r = 0.27$) and a significant negative relationship with negative affect ($p < 0.01$, $r = - 0.31$) and its relationship with subjective well-being is positively significant ($p < 0.01$, $r = 0.34$).

(Table 3 about here)

According to Table 3, there is a significant relationship between independent variables (job control and job demand) with dependent variables at the 0.01 level of significance.

(Table 4 about here)

As can be observed in Table 4, job demand has a significant relationship with job stress ($\beta = 0.22$, Sig = 0.02). So, the second research hypothesis which stated that there is a relationship between job demands and job stress is confirmed. Moreover, job demands has a significant relationship with positive affect ($\beta = 0.23$, Sig = 0.01) and in this regard our fifth hypothesis is confirmed. Moreover, based on Table 4, there are no relationships between job demands and subjective well-being ($\beta = 0.10$, Sig = 0.19) on the one hand and job demands and negative affect ($\beta = 0.10$, Sig = 0.92) on the other. Job control has a negative significant relationship with job stress ($\beta = -0.36$, Sig = 0.00) and a positive significant relationship with subjective well-being ($\beta = 0.34$, Sig = 0.00) and these results confirm our third research hypothesis (in that there is a relationship between job control and subjective well-being) and our forth hypothesis (in that there is a relationship between job control and job stress). Moreover, job control has a significant relationship with negative affect ($\beta = -0.31$, Sig = 0.01) and this will confirm our seventh (the relationship between job control and positive affect) and eighth (the relationship between job control and negative affect) hypotheses.

The comparison between subjective well-being variables based on demographic variables of the work type

In this section the means of subjective well-being variables and job stress in three working groups (technical, support and general staff) are compared using one-way ANOVA.

The results of comparing the means of demographic variables of the work type applying one-way ANOVA are presented in Table 5 and Table 6.

(Table 5 about here)

As the results of Table 5 show, there is a difference between these three occupations with regard to the level of subjective well-being ($p< 0.05$).

(Table 6 about here)

As can be observed in Table 6, there is a significant relationship between the degree of subjective well-being of technical and general staff groups ($p < 0.05$).

The comparison between job stress means based on demographic variables of the work type.

(Table 7 about here)

According to Table 7, there is a difference between three jobs with regard to the level of stress ($p< 0.05$).

(Table 8 about here)

As the results of Table 8 show, there is a significant difference between technical and general staff group with regard to the stress level ($p< 0.05$)

Discussion and Conclusion

Based on the findings obtained from the one-group MANOVA, it was found that job demands have nonsignificant relationship with staff's subjective well-being (Beta = 0.10, Sig = 0.19), but they have a significant positive relationship with positive affect which is a subscale of subjective well-being (Beta = 0.19, Sig = 0.01). So, the first subsidiary hypothesis was confirmed.

The results of this study are in line with previous studies which showed a significant positive link between job demands and subjective well-being subscales (De lange et al., 2004; Fernet et al., 2004; Fischer et al., 2005; Jonge et al., 2000; Nirel et al., 2004; Schaubroeck and Jones, 2001).

This relation can be explained with regard to the Karasek's (1979) job demand-control model. Based on this model, job demand has a positive relationship with positive affect since one of the outcomes of job demand is active learning. Job demand will lead to sense of competence, effectiveness and being successful (which is called active learning). As a result of the sense of competence and being successful positive affect will increase and consequently it will lead to an increase in one's subjective well-being.

Moreover, we can explain this topic based on Hackman and Oldham's (1980) job characteristics model. People often desire to have challenging jobs and doing routine works make them tired. So, based on this model jobs with various demands will give a good feeling to the person which helps him to have a better performance and cause an increase in his subjective well-being.

Moreover, the results of one-group MANOVA showed that job demand has a significant relationship with mental pressure at work (Beta = 0.11, Sig = 0.02). The result of testing the second hypothesis was in line with previous findings (Carlan and

Nored, 2008; Jonge et al., 2000; Martinussen et al., 2007; Nirel et al., 2004).

The reason for this relationship can be explained using Karasek's (1979) model. This model states that there is a relation between job control and job stress. Job control will not accompany pressure since active jobs will give the person an opportunity to expand defensive behavior but in the jobs with no control such defensive behaviors will not be evoked and as a result of low activity, disability will be taught and there will be an increase in one's stress.

Moreover, based on the DSC model, lack of resources which have limited supply makes the business harder. Such limitations would keep the person away from the maximum of support benefits and affect the way they cope with demands. Based on this model, jobs with high support and low limitations are not stressful but in the case of low support and high limitations, the working person will experience job stress. So, there is a negative relationship between job control and job stress.

In addition, this can be explained in accordance with the role overload concept that expresses when people do not have enough time to do all the things that fit into the assigned job, or when the person lacks enough skills to do the various activities, he will experience stress in his job.

Moreover, the findings of this study showed that job control has a significant positive relationship with subjective well-being (Sig = 0.00 and Beta = 0.27). Also, the results of statistical analysis showed that job control has a significant relationship with subjective well-being subscales, i.e. positive affect (Sig = 0.01 and Beta = 0.27) and negative affect (Sig = 0.01 and Beta = -0.31).

The results obtained for this hypothesis are in accordance with previous studies (De lange et al., 2004; Fernet et al., 2004; Fischer et al., 2005; Jonge et al., 2000; Mauno et al., 2007; Schaubroeck and Jones, 2001) findings.

This issue can be explained based on JD-C and JD-R model, which were previously used for explaining the findings of first hypothesis.

The results of statistical analysis, also, showed that there is a significant relationship between job control and mental stress (Sig = 0.00 and Beta = -0.36). The findings obtained for this hypothesis were in line with Devin et al. (2003), Moreau et al. (2003), Fischer et al. (2005) and Mauno et al. (2007).

It should be considered that developing control power through making decision about the job is valuable in respect of decreasing or prohibiting job stress. The study carried out by Frankenhaeuser (1981) showed that employees, who are capable of justifying the job pace, i.e. those who can decide about their duties, are less likely to experience job stress in comparison to those who lack such control. Moreover, the explanation given for the results of the first hypothesis based on JD-R and the second hypothesis based on DSC models can be used for this hypothesis. Therefore, job control has a negative relationship with mental stress at work.

The results of one-way ANOVA revealed that the mean of people's subjective well-being, in technical and general staff working groups, differ significantly (Sig = 0.03). A similar trend was seen for the mean of mental stress at work (Sig = 0.03). Pointing to the roles of support, technical and general staff groups in the organization can elaborate this finding.

The employees of a general staff group of a productive-industrial company are working away from the region of production. It can be hypothesized that this group of employees are working in a quiet place far from any pollution (including noise pollution, air, chemical, and the like) and coordinate the affairs of the organization in the official sector. The personnel of administration, recruitment and selection, finance and accounting, and the like are working in this sector. Though, it is possible that the employee may also be under stress of the job, they will tolerate less pressure in comparison to the technical staff groups, due to the type of job. The staff of the support group of a production - industrial organization, also, has the role of the supplier of the materials and resources for the group. These employees are closer to the production line in comparison to the general staff. But, again, they feel less pressure in comparison to the technical group.

This difference can be explained by considering the fact that technical staffs are dealing with tools and machinery and lack of attention in the short term may cause accidents or it may cause irreparable damage. Moreover, in some industries and jobs, due to the type of technology used, it is necessary to divide the shifts of work. Petrochemical company is one of those companies in which shift work is common. Among these three occupational groups, technical groups' occupation, have this condition. This difference can be explained by noting that one of the factors that can cause stress in people's jobs and reduce their subjective well-being is shift work.

Since shift work will directly and indirectly influence mental performance and work motivation and one's being away from the society (hanging with friends at work and being excluded from participation in certain social activities like parties or social club activities) will increase one's stress-depression (negative affect subscales) and as a result negative affect level will increase and consequently subjective well-being of technical staff will decrease.

The subjects of this study were mainly married men with an average of 42, it is suggested that further studies be conducted on different samples in various companies, with samples of both sexes, from different age groups and different occupational groups. In addition, it is suggested that in further research people's characteristics such as self-efficacy and social support variables be taken as mediator variables in the relationship between job control and job demands with subjective well-being and stress. Moreover, observation approaches and interviews can be used to have a deeper understanding of such relationships.

Suggestions to managers and officials

1. The necessity for more attention to psychological variables: for this purpose leaders and experts in the field of industrial and organizational psychology and health professionals should reduce the negative psychological consequences of their action Intervention to design jobs for increasing control on important business processes so that in this way one's productivity and organization's productivity be increased.
2. Developing educational programs to help supervisors to increase social protection of workers.
3. Considering people's characteristics in their appointment in different occupational positions to increase their subjective well-being and motivation level and consequently to increase their productivity.
4. Strengthening psychological and counseling services in the organizations to increase their adaptation and adjustment when experiencing stress at job.

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Table1. Descriptive statistics for variables

Variable	Mean	Standard Deviation
Job demand	4.20	1.10
Job control	2.40	0.95
Job stress	38.82	6.52
Subject well-being	3.28	2.70
Positive affect	8.01	1.10
Negative affect	4.73	1.34

Table2. Simple correlation coefficients between dependent and independent variables

Variable	2	3	4	5	6
1.Job demand	-0.02	0.19*	0.10	0.20*	0.01
2.Job control		-0.37**	0.34**	0.27**	-0.31**
3.Job stress			-0.57**	-0.37**	0.57**
4. Subjective Well-Being				0.81**	-0.89**
5. Positive affect					-0.64**
6.Negative affect					-

*p < 0.05. **p < 0.01.

Table3. One group MANOVA between dependent and independent variables

Variables	F	Hypothesis df	Error df	Sig	Partial eta squered	Observed power
Job demand	6.21	5.00	144.00	0.00	0.19	0.99
Job control	5.43	5.00	144.00	0.00	0.17	0.99

Table4. Results of one-group MANOVA for the relationships between dependent and independent variables

Source	Dependent variable	Sum of Squares	df	Mean Square	F	Sig	Partial Eta Square	Observed Power	Beta
Job demand	Job stress	209.59	1	209.59	5.82	0.02	0.08	0.72	0.22
	Subjective Well-Being	6.46	1	6.46	1.71	0.19	0.01	0.25	0.10
	Positive affect	7.10	1	7.10	6.61	0.01	0.08	0.72	0.23
	Negative affect	0.02	1	0.02	0.01	0.92	0.00	0.05	0.01
Job control	Job stress	819.62	1	819.62	22.74	0.00	0.13	0.99	-0.36
	Subjective Well-Being	74.28	1	74.28	19.62	0.00	0.12	0.99	0.34
	Positive affect	13.10	1	13.10	12.20	0.01	0.09	0.93	0.27
	Negative affect	24.10	1	24.10	15.20	0.00	0.10	0.97	-0.31

Table5. Between and within group ANOVA

Source	Sum of Squares	df	F	Sig
Between group	30.89	2	3.75	0.03
Within group	640.40	148		
Total	640.29	150		

Table6. Scheffe test result

Type I	Type II	Mean Difference	Std. Error	Sig
Technical staff	Support staff	-0.65	0.39	0.27
	General staff	-1.07	0.39	0.03
Support staff	Technical staff	0.65	0.39	0.27
	General staff	-0.42	0.43	0.63
General staff	Technical staff	1.07	0.39	0.03
	Support staff	0.42	0.43	0.63

Table7. Between and within group ANOVA

Source	Sum of Squares	df	F	Sig
Between group	282.67	2	3.44	0.03
Within group	6093.01	148		
Total	6375.98	150		

Table8. Scheffe test result

Type I	Type II	Mean Difference	Std. Error	Sig
Technical staff	Support staff	1.57	1.26	0.47
	General staff	3.29	1.26	0.03
Support staff	Technical staff	-1.57	1.26	0.47
	General staff	1.72	1.36	0.45
General staff	Technical staff	-3.29	1.26	0.03
	Support staff	-1.72	1.36	0.45