An Examination and Analysis of Employees' Job Stress in Gas Refinery Company of Ilam

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Abstract: The aim of the study is to investigate and analyze employees' job stress and also to find out the drivers for job stress, which contribute to create job stress which ultimately reduce efficiency. The study is mainly based on review of the existing literature and collection of data through an adopted questionnaire survey, conducted from the selected sample of employees working in Ilam gas Refinery Company.140 employees were selected among 230 subjects of population using simple sample way, which are suitable for analysis purpose respecting Kerjcie and Morgan table. In order to examining significance of research questions, t test and explorative factor analysis was applied. The results of research show that personal, group and out-organizational factors have effect on job stress, but outer-organizational factors had no significant effect on employees' job stress and also, the level of employees' stress is medium. The implications of the paper include implementation of the results provided by researcher to decrease the employees' level of stress. The study is conduced first time in the field specifically highlighting the stress factor. It can be a base for the future research in this area.

Keywords: Job stress; Job stressor factors; Gas Refinery Company of Ilam province

JEL Classification: M1

1. Introduction

With gradual inclination of societies towards modern living, one of main concerns during recent decades is stress. Along with industrialization, this phenomenon has gained special importance and has influenced widely and increasingly on employees' health.

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During recent decades, job transition has caused some complicacies in the area of job, human relations in working environments. Job stress is one of most important outcomes of this phenomenon (Tarshizi, Saadatjou, 2012, P 201).

The main issue of present study is that organizations have no access to lots of information about job stressor factors. This can be true in population of the study; hence researcher is seeking for factors causing job stress and protective skills in employees.

Since increase of efficiency, achieving to high indicators of effectiveness, improving technology and innovation in technology, rising level of competitiveness, respecting human dignity and considering human resources are considered as the main assets of organization. Realizing these objectives requires removing some obstacles, which make achieving to it difficult. One of these obstacles is not to pay attention to stresses and job stresses employees are facing with. Offering some solutions to reduce stressor factors may contribute to reaching for predetermined objectives of the organization (Jazani et al, 2010, p. 129).

Experts and human forces of Gas Refinery Company of Ilam that mostly have high level of acceptable knowledge and capabilities and due to their job nature, must offer desirable job quality and quantity, and in case of facing to job stressor factors, they must be able to overcome by their organization's management. On the other hand, through recognizing these factors, employees must be informed about their professional problems and harmful sources and apply the way of protecting against its unfavorable effects. Due to scientific gap in the field of effect of job stress on employees within workshop environments and companies of gas refinery and also because of legal and application necessity, examination and analysis of employees' job stresses in gas Refinery Company seems inevitable.

Remaining matters of present study are as follows:

First theoretical consideration is addresses, then a review of experimental literature on job stress if offered. Finally in order to finding answer to the research questions, hypotheses are tested, results are examined, and discussion and conclusions are offered.

2. Brief Review of Theoretical Consideration on Job Stress

Fontana (1989) considers the root of the word stress in ancient word of Destress, which means to get in trouble and hard mental and physical situations. This word in middle English is written as "Distress", which after omitting "Di" is transformed into stress (Ranjbar, 2011, p. 24).

Hans Seyle states psychological stress in terms of physical responses in relating to any needs. During this condition, two different and opposite psychological stress is appeared.

1. Eustress: it is helpful or good stress related to happy feeling, exhilaration, and accomplishment (Rowland Croucher, 2002) and stimulate the person for performance and making better opportunities and challenges (Sime, 2002).
2. Distress: it is unhelpful, which is long-term. It causes many psychological stresses and results from high needs and unfavorable tasks (Alvani, 2010, p 295).

Job stress: emotional and physical responses that occurs due to lack of correlation of obligations and job demands with individual's accessible resources and capabilities (Del Valle& Bravo, 2007, p 610)

Job stressors: it is mutual interactions between working situations and personal characteristics, so that it is working environment requirement sand subsequently related stresses, with which employee can cope (Khajeh pour, 1998). In addition, lack of correlation between job requirements with capabilities, resources, or employees' needs is called job stressors (institute of well-being and job safety, 2002), (Ranjbar, 2011, p 21).

Operational definition

Job stress: stress one of states occurring for most of people and it differs for different people during different situations and times. The response, which the respondr makes in gas Refinery Company of Ilam to questions regarding stress within questionnaire, can offer a definition of stress operationally.

2.1. Mental Stress Factors

There are different factors causing stress related to environmental and cultural conditions of organization, some of which are common within most of organization and some others are different. Stressors or mental stress factors are derived from the person, from the group, from inside the organization and out of it (Boroumand, 2001, p 197).

2.1.1. Personal factors

1. Interpersonal conflict

Conflict occurs when two or more conflicted stimulus or tensions compete for appearing (Parsa, 1991, p 235).

2. Role ambiguity

It is a certain job situation in which some required information for implementing job favorably are inadequate or misleading, hence employee does not know how he is expected about his job (Alavi, 1993, p 62).

3. Overloaded role

Overloaded role means that if the person is not able to accomplish a task as a part of a certain job, he would get stressed.

4. Low role

Low role means a situation in which individual's skills are not used perfectly and completely. Stress resulted from this situation is called low role.

5. Role incompatibility

Incompatibility occurs when embracing a body of job obligations is inconsistent or impossible with approving other body of job regulations (Filippo, 2002, p 19).

2.1.2. Group Stressors
1. Lack of group integrity and solidarity

The most important factor in proceeding organization and establishing peace among employees is the sense of organizational membership and finally forming an organizational identity for individuals, so that they would consider failure of organization as their own failure and its success as their own success.

2. Lack of social support

Human is a societal creature, whose performance is so influenced by others' support. When his performance is not supported by the group due to any reason, the individual gets lost and deprived from the reference evaluating his performance, which is considered as his source of support.

3. Intergroup conflict

In some cases, it is possible to occur some conflicts among different units within an organization, so that it may consume all of person's ability and energy. Due to any reason, such conflicts may lead to stress and anxiety with individuals and groups (Baratvand, 2004, p 22).

2.1.3. Organizational factors

1. Organizational structure

Organizational structure indicates official relations between different positions. Organizational structure makes clear where obligations and regulations were determined. If the way of legislation is not determined in organizational structure, it may lead to mental stress.

2. Organizational atmosphere

By implementing various leadership styles, which subsequently may lead to some practices such as dismissal, separation, and layoff, managers can make organizational atmosphere stressful and offer fears, and concerns for them within the workplace (Sinaee, 2002, p 69).

2.1.4. Environmental factors_ External factors

Various factors external to the organization cause stress for individuals within the organization, some of which are mentioned below:

1. Social changes: since nowadays people are entrapped in a kind of life full of running, hastening, urbanization, overcrowding, and quick transforming, their welfare is diminished and potential possibilities causing stress within workplace is increased (Lotanz, 2004, p 398).
2. Economic changes: In societies, in which people are forced to have second job to afford their life's needs. This reduces relax and recreation time and accomplishing family duties and rises employees' stress.
3. Family environment: family conditions including a trivial crisis like family conflict or illness of family members or unfriendly relations to spouse or kids for a long time may play a vital role as a significant stressor for employee (Karami, 2011, p 39).
4. Political instability: changes within stable political systems are regular and based on systematic process, which have no significant social effects, subsequently may not lead to mental stress, while within instable countries, these changes cause mental stresses.
5. Technology: Today's advanced equipment such as computer and automatic machines cause stress and anxiety for people who are no so familiar with them, hence it lead to mental stress (Parsaeeyan, A'arabi, 1998, p 116).

2.2. The Level of Mental Stress of Life Events

The effect of various events and the level of their stressfulness differ. During individual's life, some events may occur causing mental stress. A score is attributed to any event, which is compatible to the importance of the event indicating the level of individual's stress. Greater scores show higher mental stress and demand more adaptive behaviors.Underlying logic of this indicator is that accumulating change events during lifetime reduces body's resistance and endangers individual's well-being. Studies show that people who their total score of mental stress is less than 150 per year, they would have better general well-being during next year, while a total score of 150-300 may lead to 50% catching to acute illness during next year and this group of people are listed within precarious mental illness. If

their total score is greater than 300, with probability of 70%, they catch chronic illness during next year (Shiri, 2012, p 135).

3. A Review of Experimental Studies

Lee and Shin (2010) in a study examined the relation between job stress and job satisfaction. They classified stressor factors into tree physical, environmental, and psychological categories and examined the effect of these factors on job satisfaction through data mining techniques. Results of their study confirmed a negative significant effect of job stress on job satisfaction.

Catalina (2011) in a study entitled "job stress and organizational commitment in Romania's state organizations" concluded that high level of stress lead to reducing organizational commitment and subsequently causes low overall efficiency of organization.

Shariati et al (2011) examined effective factors on job stress of educates working in Tehran police stations. According to results of this study, there is no relation between personal characteristics of employees and environmental resources and employees' job stress; however there was a significant relation between education, role characteristics, and organizational structure.

Enayati et al (2012) in a research examined the relation of organizational stressor sources with employees' job stress in Gas Company of Mazandaran. Findings showed that there was a significant relation between eight factors causing stress, six factors of organizational expectation, communications, co-workers' support, role characteristics, authorities supporting, work changes and employees' stress. Moreover, there is no significant relation between two factors of authority and physical environment (external factors) and stress.

Kamali Ardakani et al (2013) in a study examined job stress and effective factors upon it for medical students. Findings of their research showed that the level of stress for older individuals is more than who are younger. The stress score is greater for individuals who smoke and also for who get tranquilizer medications and all of mentioned results are statistically significant.

4. Methodology

In terms of research purpose, present study is an applied research, and in terms of nature and research method, it is regarded as a correlative descriptive study. In order to data analyzing, inferential, descriptive statistics was applied. In the part of descriptive statistics, by applying some statistical features such as frequency,

frequency percentage, mean, Standard deviation, minimum and maximum, the sample of study was examined. In the part of inferential statistics, in order to determine normality of data, Kolmogorov – Smirnov test was applied, then for answering research questions, unilateral T tests and explorative factor analysis were used.

4.1. Population of Study and Sampling Method

Population of study consists of all of 230 employees working in Ilam Gas Refinery Company and in order to choosing research sample, random sampling method based on Morgan table was applied and 140 questionnaires were distributed.

4.2. Data Collecting Tools

Research questionnaire consisted of three sets of questions. The first set was determined to signifying attributes of sample in terms of gender, age, marital status, education, service experience. The second set of questions were considered to testing 4 first questions of research and third set of questions were intended to testing the last question of research based on an experienced way as follows;

1. Personal characteristic, through which data relating gender, age, education, marital status, and service experience was collected.

2. Job stress factors include questions relating to personal, group, organizational, and external factors.

3. Events occurred during last year to employees.

Research questions

1. Do personal factors cause job stress to employees of Ilam gas Refinery Company?

2. Do group factors cause job stress to employees of Ilam gas Refinery Company?

3. Do organizational factors job stress to employees of Ilam gas Refinery Company?

4. Do external factors job stress to employees of Ilam gas Refinery Company?

5. What is the level of job stress for employees of Ilam gas Refinery Company?

In this research, items 1-10 of questionnaire answer to fisrt question of study, items11-16 answer to second question of study, items17-37 provide answer to third question of study, items38-46 answer to fourth question within Likert's scale. Items of third set of questionnaire form 1 to 28 provide answer to the last question of study.

4.3. Validity and Reliability of Questionnaire

In order to reaching face validity during present study, a primary questionnaire was provided and was corrected based of experts' opinion and finalized. Before final setting of questionnaire and t evaluate its validity and reliability, it was tested upon 30 subjects within population of study. Calculated alpha for personal, group, inter-organizational, and external factors was respectively, 0.75, 0.77, 0.81, and 0.80 indicating its suitable reliability.

5. Research Findings

5.1. Findings of Descriptive Statistics

among all of statistical population of employees in Ilam refinery company, approximately 13.6 % was at age 30 and below, 62.9% was 30-35, 17,1&% was 35-40,4.3% was 40-45, and 2.1% was over45.the highest percent was devoted to 30 -35. There was 3.6% high school diploma, 14.3% was associate degree, 57.9% was bachelor, 24.3% was master degree and higher. The highest degree was devoted to bachelor degree with approximately 57.9%. About 41.4% of sample was usual staff, 35.7 % was expert,16.4% was responsible, and 6/4% was boss with the highest percent of 41.4 for usual staff. About 15% of respondents had 5 years or less of work experience, 50.7%had 5-10 yrs., 27.9% had 10-15yrs, 3.6% had 15-20yrs, and 2.9% had over 20 years of work experience. 87.1% of respondents stated that no events occurred to them, 10.7% stated that between 1 to 3 years has had no event, and 2.1% stated that no events occurred to them since more than 3 years.

5.2. Findings of Inferential Statistics

In order to examine normality of data distribution, Kolmogorov - Smirnov test was applied to making sure about normality of data. Obtained results from this test indicate that data distribution is normal. Here, for finding answers to the research questions, the questions are raised and required tests are done.

5.2.1. Personal Factors

In order to finding personal factors affecting on employees' mental stress, one-sample T test and factor analysis were applied. (See appendix A)

According to obtained results, among personal factors, hesitation,, expectation, accomplishment, capability, enough time (opportunities), skill, and ability, have the mean of more than moderate in Likert's scale (3) that indicates that these factors are effective on employees' job stress and other factors (decision, mismatching, and inconsistency), whose mean is less than moderate level in Likert scale(3) has no

significant effect on employees' mental stress. Moreover, respecting statistic of T test for personal factors indicated that factors of hesitation, expectation, accomplishment, capability, enough time (opportunities), skill, and ability have higher t calculated than t of table in significance level of 0.05 and they have upper and lower limits of confidence interval greater than zero (positive), then claim of this hypothesis for these factors is confirmed. Therefore, with confidence interval of 95% it can be stated that these factors have significant effect on employees' job stress and by respecting calculated t for other factors; factors of decision, mismatching, inconsistency have no significant effect on employees' mental stress.

First factor analysis was examined on research samples using Bartlett test sampling adequacy index (KMO).

The value of KMO statistic equals 0.767, which indicates that factor analysis is approved and its results can be generalized to the population. Moreover, value of Bartlett's test is significant at level of 0.01; hence the conditions for accomplishing explorative factor analysis are obtained.

Among ten questions relating to personal factors of job stress, seven variables (hesitation, expectation, accomplishment, capability, enough time (opportunities), skill, and ability), whose mean is greater than 3 were considered as main variables. Varimax rotation method was applied to realize substructure factors of variables and also for determining its simple structure.

According to results, questions 6, 7,8,4,10,2,5 with factor one are so correlated. These seven questions indicate the level of role's expectation and knowledge; hence the term role's ambiguity is appropriate for them.

5.2.2. Group Factors

For finding group factors affecting on employees' mental stress, one sample T test and factor analysis were applied. (See appendix B)

According to obtained results, among group factors, intimacy, job problem, responsible, and respect, have the mean of greater than moderate in Likert's scale (3) that indicates that these factors are effective on employees' job stress and other factors (tension, combining), whose mean is smaller than moderate level in Likert scale (3) has no significant effect on employees' mental stress. Moreover, respecting statistic of T test for group factors indicated that factors of intimacy, job problem, responsible, capability, and respect have higher t calculated than t of table in significance level of 0.05 and they have upper and lower limits of confidence interval greater than zero (positive), then claim of this hypothesis for these factors is confirmed. Therefore, with confidence interval of 95% it can be said that these factors have significant effect on employees' job stress and by respecting calculated

t for other factors; tension and combining have no significant effect on employees' mental stress.

First factor analysis was examined on research samples using Bartlett test sampling adequacy index (KMO).

Among six questions relating to group factors of job stress, 4 questions (intimacy, job problem, responsible, respect), whose mean is greater than 3 were considered as main variables. Varimax rotation method was applied to realize substructure factors of variables and also for determining its simple structure.

According to results, these 4 questions are placed in the same factor that shows that all of variable of group factors such as lack of integrity, lack of support, and contradiction are considered as group factors of mental stress based on one main factor.

5.2.3. Organizational Factors

In order to find organizational factors affecting employees' mental stress, one-sample T test and factor analysis were applied. (See appendix C)

According to obtained results, among organizational factors, vertical surfaces, job title, educational degree, job description, getting guidelines, follow guidelines, cooperation, partnership, freedom, coordination, encouragement, disagreement, working interest, interrelationship, toxics, and appropriate means have the mean of greater than moderate in Likert's scale (3) that indicates that these factors are effective on employees' job stress and other factors (independent, authority, regulations, noise, and lighting), whose mean is smaller than moderate level in Likert scale (3) has no significant effect on employees' mental stress. Moreover, respecting statistic of T test for group factors indicated that factors of vertical surfaces, job titles, educational degree, job description, getting guidelines, follow guidelines, cooperation, partnership, freedom, coordination, encouragement, disagreement, working interest, interrelationships, toxics, and appropriate mean shave higher t calculated than t of table in significance level of 0.05 and they have upper and lower limits of confidence interval greater than zero (positive), then claim of this hypothesis for these factors is confirmed. Therefore, with confidence interval of 95% it can be said that these factors have significant effect on employees' job stress and by respecting calculated t for other factors; decision and inconsistency have no significant effect on employees' mental stress.

First factor analysis was examined on research samples using Bartlett test sampling adequacy index (KMO).

Among 21 questions relating to organizational factors of job stress, 16 questions whose mean is greater than 3 were considered as main variables. Varimax rotation

method was applied to realize substructure factors of variables and also for determining its simple structure.

Respecting the results, it can be said that:

1. Questions 32, 31, 28, 33, 37, 29, 37, 27 are so correlated with factor 1. These 8 questions show organizational culture and environment, therefore the term organizational atmosphere is appropriate to them.
2. Questions 18, 23, 20, 21 have significant correlation to factor 2. Respecting this question indicates task description and guidelines; hence the term officialism is appropriate to them.
3. Questions 36, 24, 25 are so correlated with factor3. These 3 questions show authority and independence, hence the term centralization is appropriate to them. Questions 24, 25 are the base of centralization, and question 36 indicating unsafe conditions causes decrease of centralization.
4. Questions 17 and 19 are so correlated with factor 4. These questions show organizational levels; hence the term complicacy is appropriate to them.

5.2.4. External Factors

In order to find external factors affecting on employees mental stress, one-sample T test and factor analysis were applied. (See appendix C)

According to obtained results, among external factors, relatives death and financial status have the mean of greater than moderate in Likert's scale (3) that indicates that these factors are effective on employees' job stress and other factors (education, recreation, residence place, holding party, new member of family, and technology), whose mean is smaller than moderate level in Likert scale (3) has no significant effect on employees' mental stress. Moreover, respecting statistic of T test for external factors indicated that factors of relatives' death and financial status have higher t calculated than t of table in significance level of 0.05 and they have upper and lower limits of confidence interval greater than zero (positive), then claim of this hypothesis for these factors is confirmed. Therefore, with confidence interval of 95% it can be said that these factors have significant effect on employees' job stress and by respecting calculated t for other factors; education place, recreation, political activity, residence place, holding party, new member of family, and technology have no significant effect on employees' mental stress.

First factor analysis was examined on research samples using Bartlett test sampling adequacy index (KMO).

Among 9 questions relating to external factors of job stress, 2 questions whose mean is greater than 3 were considered as main variables. Varimax rotation method was applied to realize substructure factors of variables and also for determining its simple structure.

According to results, these 2 questions are placed in the same factor that shows that factors of family environment and economic changes contradiction are considered as substructure variable of external factors.

5.2.5. The Level of Job Stress

While the values greater than 300 indicate high job stress of employees and the values smaller than 150 indicate low job stress, finding the level of employees' job stress is done as follows;

Hypotheses H0 andH1 are defined as follows;

Null hypothesis: Low job stress of employees. H0: $\mu \leq 150$

Alternative hypothesis: Not low job stress of employees: H1: $\mu > 150$

In order to testing this hypothesis, observed mean and theoretical mean of measurement index were compared using parametric test for comparing one-sample mean. (See appendix E)

As shown, SD equals 59.201 and the mean is 169.25 that is greater than 150. It means that employees have low mental stress. Obtained statistic of t is 3.84 with significance level of 0.00 is greater than t of table. Therefore, H0 is rejected and alternative is accepted. Also it can be concluded by respecting statistical analysis; employees have not low mental stress.

Then in order to find out whether the level of employees' mental stress is high, hypotheses H0 and H1 are defined as follows;

Hypotheses H0 andH1 are defined as follows;

Null hypothesis: not high job stress of employees. H0: $\mu \leq 300$

Alternative hypothesis: \ high job stress of employees: H1: $\mu > 300$

In order to testing this hypothesis, observed mean and theoretical mean of measurement index were compared using parametric test for comparing one-sample mean. (See appendix F)

As shown, SD equals 59.201 and the mean is 169.25, which is greater than 300. It means that employees have not high mental stress. Being negative, the value of statistic T is _26.13, and mean of employees' mental stress smaller than 300. Therefore, there is no reason to reject null hypothesis and it can be said that according to statistical analysis, the hypothesis of high mental stress of employees and managers is rejected.

Considering two mentioned hypotheses and their tests, it can be concluded employees' mental stress is between 150 and 300 that means employees will be faced to moderate mental stress during next year.

6.   Discussion and Conclusions

During present study, first demographic data relating to considered sample, frequency indices, and variables scattering were explained and in the inferential part through applying research indices and SPSS and one-sample T tests, research questions were analyzed. Then in order to determine important factors in making job stress after experiencing, factor analysis was done and required explanations were accomplished.

Respecting results of factor analysis, only one substructure factor of role ambiguity (the level of knowledge and role expectations) have effective role in job stress. Results of present study are consistent with findings of Muhamadkhani (2007) and Rezaeeyan (2012).

All of variables in group factors such as lack of integrity, lack of support, and inconsistency are considered as group factors of mental stress based on a main factor. Results of this part are consistent with results of Rezaeeyan (2012).

Factors of organizational atmosphere (organizational culture and environment), officialism (task description and guidelines), centralization (authority and independence), and complicacy (organizational levels) have effective role on job stress. Results of present study are consistent with findings of Sinaee (2004).

According to obtained results, it was observed that hypothesis of low and high job stress has been rejected and employees' job stress during next year would be between 150 and 300 (moderate). Results of this part are consistent with findings of Giurian et al (2010) and Kabirzadeh et al (2008).

• Employees under 30 years old are more facing to low mental stress and would have good well-being during next month. Employees with 30 years and over are more facing to moderate mental stress and would develop severe diseases with probability of more than 50%. Considering these results, the company must pay more attention to employees over 30. The results of this part are consistent with findings of Kamaliardakani et al (2013), however they have no consistency to findings of Rezaeeyan (2012).

• Difference in educational degree was no effective on job stress, so that in all of educational levels, employees are more facing to moderate mental stress and by changing in the level of education, there was no change in frequency distribution.

The results of this part have no consistent to findings of Givarian et al (2010) and Rezaeeyan (2012).

- Single individuals are more facing to low mental stress and married one are more facing to moderate mental stress. With probability of more than 505, they would develop severe diseases. The company must pay more attention to married individuals. The results of this part are consistent to findings of Al-Omar (2003), but opposed to Rezaeeyan findings (2012).

- Employees at level of usual staff are more facing to low mental stress, but employees in other organizational levels are more facing to moderate mental stress. With probability of more than 50%, they would develop severe diseases during next year. Results of this part are consistent to findings of Rezaeeyan (2012).

- Employees with fewer than 5 years of work experience are more facing to low mental stress, but those with more than 5 years are more facing to moderate mental stress. With probability of 50% they would severe diseases during next year. Results of this part are consistent with findings of Rezaeeyan (2012). However thet have no consistency to Gvarian et al (2010).

- Employees at all of event levels are more facing to moderate mental stress and with probability of 50% they would severe diseases during next year.

7. Suggestions Based on Research's Findings

1. Conflicts resulted from lack of balance between professional life and family life causes mental stress. Therefore, it is suggested to managers to provide flexible agenda and various advantages of working for establishing a kind of balance between work life and family.

2. Role ambiguity is accompanied with increase of stress. Most of employees are trained for certain tasks, but some other tasks and activities may be referred to them, which are inconsistent to their expectations and job description, for example some tasks may be delegated from senior managers to employees that are contrary to the standards and regulations of organization and in case of resist it may lead to dissatisfaction of senior managers. Moreover, it is possible to refer some task to employees, which are beyond their skills and trainings. Here, it is probable that the tasks are accomplished with low quality and lead to employee's stress. Therefore, it is suggested that employees get informed of guidelines and regulations through studying and participating in training courses on the arrival to Gas Company.

3. Since task description and guidelines can be considered as one of factors making stress for employees, it is probable that some of regulations are incomplete and not appropriate to current conditions of company, hence managers who are responsible and have authority must review and determine these regulations according to

culture, equipment, needs, and capability of society and reduce current stresses through reasonable adjustments and making them more flexible.

4. Applying personality tests to get information from personality dimensions appropriate to professional activities is suggested, based on which personality dimensions every individual is served according to his profession and the level of stress.

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Appendix A

Hypotheses H0 and H1 are defined as follows;

Null hypothesis: personal factors cause no mental stress for employees. H_0: $\mu \leq 3$

Alternative hypothesis: personal factors cause mental stress for employees. H1: $\mu > 3$

If statistic of calculated T test is more than the value of T in the table with significance level of 0.05 (1.645), null hypothesis is rejected indicating ineffectiveness of factors on job stress.

Results of T test, mean, and SD

Personalfactors questions		Value of test-3					Confidence limits	
		Mean	SD	T	Freedom degree	Significance level	High	Low
1	Decision	2/14	0/69	-14/59	139	0/000	-0/74	-0/97
2	Hesitation	3/22	0/94	2/77	139	0/006	0/38	0/06
3	Mismatch	2/81	0/82	-2/65	139	0/009	-0/05	-0/32
4	Expectation	3/96	0/84	13/50	139	0/000	1/10	0/82
5	Accomplishment	4/2	0/68	20/86	139	0/000	1/31	1/09
6	Capability	3/66	0/84	9/3	139	0/000	0/81	0/52
7	Enough time	3/61	0/94	7/72	139	0/000	0/77	0/46
8	Skill	3/41	0/75	6/35	139	0/000	0/53	0/28
9	Inconsistency	2/4	0/91	-7/78	139	0/000	-0/45	-0/75
10	Ability	4/28	0/6	25/19	139	0/000	1/38	1/18
Mean		3/37	0/44	9/833	139	0/000	0/44	0/295

Values of KMO and Bartlett

Sampling adequacy index (KMO)	Bartlett's test		
	Chi-square statistic	Freedom degree	Significance level
0.767	130.09	21	0.000

Factor loads

Factors	1
5	0.66
2	0.66
10	0.64
4	0.59
8	0.59
7	0.53
6	0.48

Appendix B

Hypotheses H0 andH1 are defined as follows;

Null hypothesis: group factors cause no mental stress on employees. H0: $\mu \leq 3$

Alternative hypothesis: group factors cause mental stress on employees. H1: $\mu > 3$

If statistic of calculated T test is greater than the value of T of table with significance level of 0.05 (1.645), null hypothesis is rejected indicating ineffectiveness of factors on job stress.

Results of T test, mean and SD

Group factors questions		Value of test-3						
		Mean	SD	T	Freedom degree	Significance level	Confidence limits	
							High	Low
11	Tensions	2/61	0/82	-5/67	139	0/000	-0/26	-0/53
12	Intimacy	3/76	0/81	11/16	139	0/000	0/9	0/63
13	Job problem	3/62	0/8	9/09	139	0/000	0/76	0/49
14	Combining	2/8	0/78	-3/00	139	0/003	0/07	-0/33
15	Responsible	3/54	0/94	6/74	139	0/000	0/69	0/38
16	Respect	4/19	0/69	20/21	139	0/000	1/31	1/08
Mean		3/42	0/56	8/74	139	0/000	0/515	0/325

Values of KMO and Bartlett

Sampling adequacy index (KMO)	Bartlett's test		
	Chi-square statistic	Freedom degree	Significance level
0.716	133.04	6	0.000

Factor loads

Factors	1
16	0.86
12	0.76
13	0.65
15	0.60

Appendix C

Hypotheses H0 andH1 are defined as follows;

Null hypothesis: organizational factors cause no mental stress on employees.

H0: $\mu \leq 3$

Alternative hypothesis: organizational factors cause mental stress on employees.
H1: $\mu > 3$

If statistic of calculated T test is more than the value of T in the table with significance level of 0.05 (1.645), null hypothesis is rejected indicating ineffectiveness of factors on job stress.

Results of T test, mean and SD

Organizational factors questions		Value of test-3						
		Mean	SD	T	Freedom degree	Significance level	Confidence limits	
							High	Low
17	Vertical surfaces	3/21	1	2/45	139	0/000	0/37	0/04
18	Job titles	3/58	1/15	5/94	139	0/000	0/77	0/39
19	Educational degree	3/51	0/98	6/08	139	0/000	0/67	0/34
20	Job description	3/79	0/94	9/86	139	0/000	0/94	0/63
21	Get guidelines	3/65	0/96	7/95	139	0/000	0/81	0/49
22	Independent	2/63	1/06	-4/13	139	0/000	-0/19	-0/55
23	Follow guidelines	4/25	0/84	17/41	139	0/000	1/39	1/11
24	Cooperation	3/63	0/85	8/73	139	0/000	0/77	0/49
25	Partnership	3/47	1/05	5/28	139	0/000	0/65	0/3
26	Authority	2/49	1/15	-5/2	139	0/000	-0/31	-0/7
27	Freedom	3/5	0/97	6/04	139	0/000	0/66	0/34
28	Coordination	3/63	0/93	7/91	139	0/000	0/79	0/47
29	Encouragement	3/37	1/1	3/96	139	0/000	0/56	0/19
30	Regulations	2/87	0/96	-1/57	139	0/118	0/03	-0/29
31	Disagreement	3/29	1/07	3/14	139	0/002	0/47	0/11
32	Working interest	3/75	1/16	7/62	139	0/000	0/94	0/56
33	Interrelationships	3/76	0/91	9/81	139	0/000	0/91	0/6
34	Noise	2/86	1/03	-1/55	139	0/122	0/04	-0/31
35	Lighting	2/62	1/11	-4/01	139	0/000	-0/19	-0/56
36	Toxics	3/31	1/26	2/86	139	0/005	0/52	0/1
37	Appropriate means	3/62	1/04	7/05	139	0/000	0/8	0/54
Mean		3/37	0/45	9/72	139	0/000	0/445	0/295

Values of KMO and Bartlett

Sampling adequacy index (KMO)	Bartlett's test		
	Chi-square statistic	Freedom degree	Significance level
0.839	744.146	120	0.000

Rotated factor loads

Factors	1	2	3	4
32	0/76			
31	0/72			
28	0.72			
33	0/71			
29	0/68			
37	0/65			
37	0/65			
18		0/73		
23		0/72		
20		0/57		
21		0/53		
24			0/68	
36			-0/62	
25			0/55	
17				0/72
19				0/48

Appendix D

Hypotheses H0 andH1 are defined as follows;

Null hypothesis: External l factors cause no mental stress on employees. H0: $\mu \leq 3$

Alternative hypothesis: External factors cause mental stress on employees. H1: $\mu > 3$

If statistic of calculated T test is more than the value of T in the table with significance level of 0.05 (1.645), null hypothesis is rejected indicating ineffectiveness of factors on job stress.

Results of T test, mean and SD

Organizational factors questions		Value of test-3						
		Mean	SD	T	Freedom degree	Significa nce level	Confidence limits	
							High	Low
38	Education place	2/79	1/06	-2/38	139	0/019	-0/04	-0/39
39	Recreation	4/42	1/04	-6/54	139	0/000	-0/4	-0/75
40	Political activity	2/43	0/99	-6/77	139	0/000	-0/4	-0/74
41	Residence place	2/39	1/13	-6/40	139	0/000	-0/42	-0/8
42	Holding party	2/98	1/01	-0/25	139	0/803	0/15	-0/19
43	Relatives' death	3/69	0/99	8/13	139	0/000	0/85	0/52
44	Financial status	3/74	1/02	8/61	139	0/000	0/91	0/57
45	New member of family	2/55	1/09	-4/86	139	0/000	-0/27	-0/63
46	Technology	2/38	0/98	-7/46	139	0/000	-0/46	-0/79
Mean		2/81	0/61	-3/48	139	0/000	-0/07	-0/28

Values of KMO and Bartlett

Sampling adequacy index (KMO)	Bartlett's test		
	Chi-square statistic	Freedom degree	Significance level
0.5	21.39	1	0.000

Factor loads

Factors	1
32	0.83
31	0.83

Appendix E

Results of T test- mean and SD

Low job stress of employees	Value of test-150						
	Mean	SD	T	Freedom degree	Significance level	Confidence limits	
						High	Low
	169.25	59.201	3.84	139	0.00	29.14	9.36

Appendix F

Results of T test- mean and SD

High level of job stress of employees	Value of test-150						
	Mean	SD	T	Freedom degree	Significance level	Confidence limits	
						High	Low
	169.25	59.201	_26.13	139	0.00	_120.86	_140.64