



The Factors Related to the Employees' Job Stress: A Meta-Analysis

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Abstract

Introduction: Identification of the factors related to the employee's job stress is very important in any organization, so in this study we investigated these factors by meta-analysis.

Methods: In this study, we searched the terms "job-related stress", "employees' job stress" and found 637 articles among seven English and five Farsi databases. After reviewing and screening these articles, sixty-three articles were finally selected. The selection criteria were based on the surveys which had investigated the correlation between job-related stress and other variables; also, just the variables that were investigated in more than four studies were included in this meta-analysis. The meta-analysis was calculated based on the correlation coefficients integrated with job-related stress and sample size by Stata 11 software, using Rosenthal-Robin method.

Results: The meta-analysis results suggested that seven variables had a significant relationship with the employees' job-related stress ($P < 0.001$). By increasing the workload, role conflict, role ambiguity, work-family conflicts, and total working hours per week increased the employees' job stress, and conversely increased job satisfaction decreased the employees' job stress; also, women were more exposed to job stress.

Conclusion: Organizations should pay more attention to time management training; the staff benefits from these skills and can use them in their business affairs and organize large volumes of work and work-family conflicts in order to reduce the impact of these stressors to a large extent. Also, description of the tasks that the employee is only obliged to carry out should be established.

Keywords: Occupational stress, Job stress, Organization, Meta-analysis

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Introduction

Job stress is an important factor affecting workforce productivity (1). In modern societies and new organizations, stress is one of the social phenomena (2). Job stress negatively affects the mental and physical health, attitudes, and working behaviors of the employees (3, 4). It is one of the problems of managers that has greatly reduced efficiency and caused conflict in organizations (2). Therefore, according to statistics published by the European Agency for Safety and Health at Work, 28% of the employees in European Union suffer from job-related stress and job stress and back pain is the second most common occupational disease (5).

At the individual level, the consequences of stress generally reduce the quality of life. However, for

those who suffer from job stress, the consequences of stress such as insomnia, constant tiredness and high blood pressure can be much more serious and heavier as it directly affects the health of the individuals, and nervous twitches are only a part of the individual consequences of job stress (6).

Also at the organizational level, complex work environments which are influenced by globalization, rapid technological advances, diminishing resources and rising costs, along with new employment trends, including longer working hours and increasing demands and pressures of management and also the lack of job security have caused the managers and organizational leaders to have stressful working conditions; therefore, job stress is a costly, time-consuming and problematic factor for managers (7).

Many researchers have conducted studies on the factors affecting job stress, and their results represent some variables as the factors related to job stress, but there is inconsistency in the results of some these studies. That is, certain variables were introduced as the enhancers of job stress in one study and as the reducer of it in another study (8). For example, in the study of Wales (2008) (9), the variable of supervision increased job stress, and in the study conducted by Farberdar (2003) (10), this variable reduced it. Accordingly, this study was done to investigate the factors influencing the staff job stress and its aim was to analyze the results of selected studies that were found by a systematic search to achieve integrated results in relation to the factors related to job stress.

The research questions of this study were as follows:

1. What are the factors related to job stress?
2. How much is each factor related to job stress?

Methods

The method used in this study was systematic review and meta-analysis. Meta-analysis refers to a statistical method in which the results of multiple independent studies on the issue or specific issues are combined with each other to achieve a unified and integrated result. Actually, in such a study, the results of correlation studies or different surveys in the form of certain formulas to calculate the effect size are combined with each other to make one or more research hypotheses of the test. Thus, it is possible to combine a number of studies through meta-analysis, using the same variables and to extract an integrated result (11).

Articles Search

The study population consisted of English articles published from 2000 to 2012 and Persian articles without time limit that were searched through an internet search system in seven English databases "Science direct", "Sage", "EBSCO", "ProQuest", "Springer", "Taylor & Francis" and "Emerald" by keywords "Job stress", "Source of Job stress", "Job Stress factors" and "Job Stressors" and five Persian databases "Magiran", "Noor mags", "Namamatn", "ISC" and "Sid" by Keywords "Job Stress", "Sources of job stress", "Factors Affecting Job Stress", and "Stressors".

Study Selection, Data Collection Process, and Data Items

The researcher searched the databases, identified duplicate articles, and excluded articles in which the inclusion criteria were not met. Two researchers

screened the full-text articles to independently confirm the included articles. The researcher extracted the following information from each study: first author, year of publication, study population characteristics, study design, sample size, correlation coefficients. Totally, 637 articles were found. Through reading abstracts, 366 of them were not appropriate in terms of purpose, so they were excluded and 271 articles remained. After studying the full texts, 63 studies were selected to be included in meta-analysis of the study based on eligibility criteria. (Figure 1)

Eligibility Criteria

The remaining articles, as the result of the initial screening, were screened based on the following eight criteria:

1. Articles that were in English and Persian languages.
2. English articles in the period of 2008 to 2012. (To limit the scope of research)
3. Articles that had implemented quantitative methods and were correlational survey studies.
4. Articles in which the population were not the staff in educational organizations.
5. Articles in which the factors affecting job stress were not genetic or nutritional ones.
6. Articles that had validity and reliability.
7. Articles in which job stress was the dependent variable.
8. Articles in which the coefficient of correlation between independent variables with job stress was mentioned.

As the result of the second screening according to the inclusion criteria, 63 studies were finally selected and the variables that had a correlation coefficient with job stress were extracted. Among the extracted variables, those present in four or more studies were selected for the combination of the results. 17 variables were provided with this condition, as shown in Table 1.

Meta-Analytical Procedures

In this study, for the combination of the correlation coefficients, Rosenthal and Rubin's method was used. When the correlation coefficients were used to measure the effect size, Hedges, Oaklyn, Rosenthal and Rubin believed that the effect size must be converted into a normal and standard quantitative measure (r Fisher converted to z). Thus, the first step was the conversion of correlation coefficient to z ; how we did this is shown in the following equation:

$$z = \frac{1}{2} \ln \frac{1+r}{1-r}$$

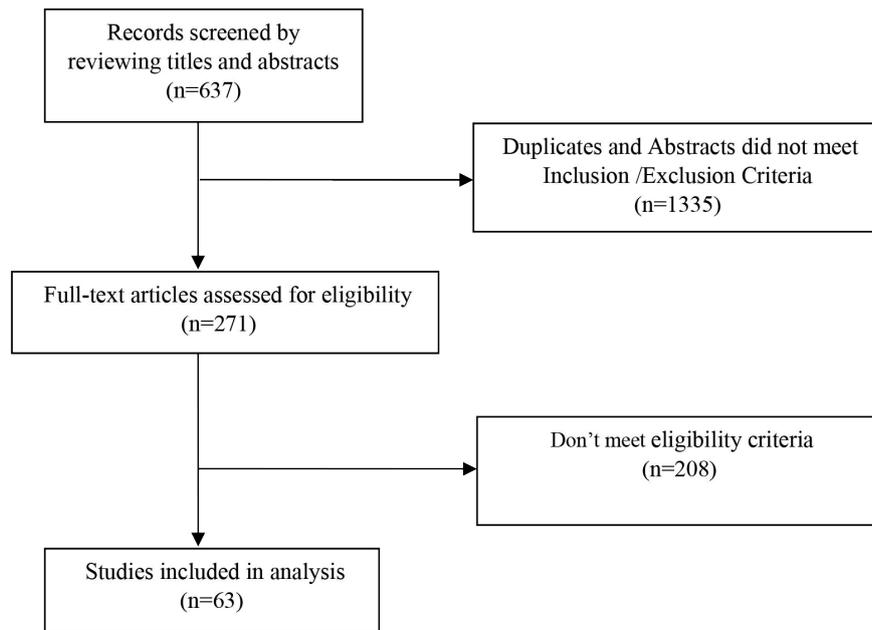


Figure 1: The flowchart of the selection of studies for the meta-analysis

Table 1: Selected independent variables of the study

Num.	Variables
1	Gender
2	Age
3	Race
4	Education
5	Relationship
6	Years of Service
7	Role Conflict
8	Job Demand
9	The Satisfaction of Career Opportunities
10	Role Ambiguity
11	Workload
12	Job Satisfaction
13	Organizational Commitment
14	Work-Family Conflict
15	Providing Information
16	Role Control
17	Total Working Hours Per Week

After obtaining Z pooled values from various studies, the correlation coefficient[®] and corresponding confidence intervals can be obtained by reverse conversion (12):

$$r = \frac{e^{2z} - 1}{e^{2z} + 1}$$

All calculations for each of the selected variables were done using Stata and Excel software.

Results

Based on the results of calculations, only 7 out of 17

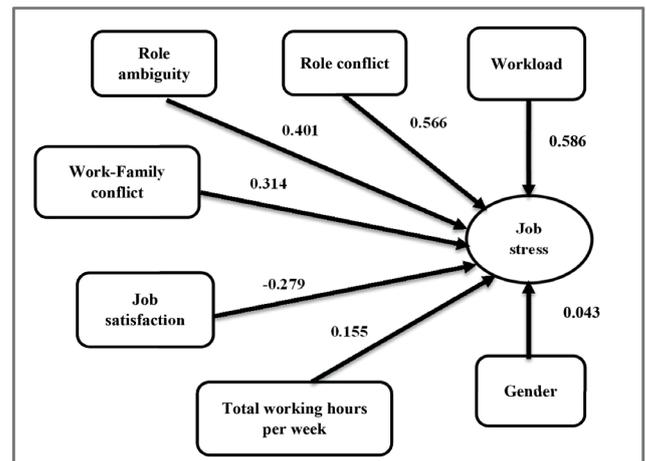


Figure 2: Factors affecting job stress with the method of meta-analysis

variables had a significant relationship with job stress as follows: workload, role conflict, role ambiguity, work-family conflicts, job satisfaction, total working hours per week, and gender. Seven variables found to be the factors influencing job stress are shown in Figure 2. Of the seven variables, workload had the highest correlation coefficient (0.586) and gender had the lowest coefficient of correlation (0.043).

The significant relationship was determined by confidence interval of the effect size, as shown in Table 2.

It should be noted in this Table that if zero was not within the confidence interval, the correlation was significant.

Discussion

Based on the results obtained, the most influential

Table 2: The findings of the meta-analysis of the studies on job stress factors using Rosenthal and Robin correlation coefficients

Num.	Relation between Job Stress and:	Number of studies	Total sample population	Z statistics	Z confidence interval	Effect size	Confidence intervals of effect size	Homogeneity Index: The significance level
1	Workload	6	3940	0.672	(0.843, 0.501)	0.590	(0.690, 0.461)	P<0.001
2	Role Conflict	8	4276	0.642	(0.822, 0.462)	0.570	(0.680, 0.431)	P<0.001
3	Role Ambiguity	5	3714	0.425	(0.605, 0.246)	0.041	(0.540, 0.242)	P<0.001
4	Work-Family Conflict	4	5336	0.325	(0.497, 0.153)	0.313	(0.461, 0.150)	P<0.001
5	Job Satisfaction	10	2307	-0.287	(-0.105, -0.469)	-0.272	(0.100, 0.441)	P<0.001
6	Total Working Hours Per Week	4	1599	0.156	(0.205, 0.107)	0.150	(0.201, 0.111)	P<0.001
7	Gender	13	8530	0.044	(.085, 0.003)	0.041	(0.081, 0.003)	P<0.001

factor on job stress was workload and by increasing it, job stress also increased. In other studies, also the first cause of stress was high workload. Most accomplished studies have mentioned high workload as one of the main factors causing stress (13). This result corresponds with the following studies: Jamal (2011) (14), Tourigny (2010) (15), Gaither (2008) (16), Hesieh (2005) (17), Mortaqy Ghasemi (2011) (18), Jazani (2010) (19), Gholam Nejad (2009) (20), and Khaghanizade (2008) (21).

Tasks and work load in some administrative and managerial jobs are so much that they are higher than the capacity of the staff, so they cause stress. Generally, people in the organization tend to have multiple responsibilities. On one hand, they consider having wide-range responsibilities as a sign of the importance of their jobs. On the other hand, people are generally less willing to cede authority to their subordinates and colleagues, so high workload renders them unable to perform their duties and be accountable for their responsibilities on time and properly. These are the reasons that show high workload increases the job stress.

The second factor affecting job stress was role conflict, which had the effect size of 0.57. According to the positive coefficient, with the increase in role conflict, job stress also increases. Jamal (2011) (14), Ram (2011) (22), Tourigny (2010) (15), Gaither (2008) (16), Mohr (2007) (23), Higgins (2006) (24), Hesieh (2005) (17), and Jazani (2010) (19) have also reached similar conclusions in their studies. Role conflict occurs when one accepts that a set of job requirements is inconsistent with accepting the other set of job requirements or is totally impossible, which leads to job stress in people.

Generally, organizations have clear instructions and written job descriptions for the work done by their staff. However, these instructions are formal and informal relations can easily affect the organizational

procedures. Accordingly, when people have more belonging to informal groups, they have a choice between complying with the specified procedures and instructions and commitment and adherence to their obligations to informal groups, which provides the background for job stress in the workplace. This can be seen with more intensity in countries like Iran where informal relations are more important than formal relations.

The third factor affecting the job stress is role ambiguity, which has the effect size of 0.40. According to the above-mentioned positive coefficient, with the increase in role ambiguity, job stress also increases. Ram (2011) (22), Jamal (2011) (14), Tourigny (2010) (15), Gaither (2008) (16), and Jazani (2010) (19) have also reached similar conclusions in their studies. Role ambiguity is a kind of conflict and occurs in a role when job descriptions are not precisely specified in the organization and there are some expectations of people that have not been clear to them in advance. When someone does not have necessary information about the task assigned to him/her or information given to him/her to carry out the task is not clear, certainly he/she cannot do it properly and this increases the stress.

The fourth factor affecting job stress is work-family conflict, which has the effect size of 0.31. According to the above-mentioned positive coefficient, with the increase in work and family conflict, work-family conflict also increases. This result is consistent with those of the studies of Chiang (2010), Kashefi (2009) (25), Gaither (2008) (16), and Arizi Samani (2011). Work-family conflicts directly affect job stress.

It is natural that most people have responsibilities outside the organization, including dealing with parents, wife and children. Not doing any of these duties makes its negative impact on the minds and actions of people in the workplace. Because people (including managers, supervisors, employees and

workers), instead of focusing on doing their assigned duties in the workplace, are constantly thinking about the roles and responsibilities with regard to their personal life, their job stress increases.

The fifth variable influencing job stresses was job satisfaction, which had the effect size of -0.28. According to the above-mentioned negative coefficient, with the increase in job satisfaction, work-family conflict decreases. Chysman (2012) (26), Owen(2006) (27), Azad Marzabadi (2005) (28), Ansari (2010) (29), Najarpur Ostadi(2008) (30), Razmi (2010) (31), Lavasani (32), and Askari (2010) (33) have also reached similar conclusions in their studies. In general, with the lack of job satisfaction, job stress also increases.

In order to explain these findings, we can say that for professional purposes job stress phenomena constitute an inevitable part of professional life and this situation in low levels can be considered as a motivational force for people to increase and improve their work. However, in high levels, it leaves adverse consequences and when a person is faced with do's and don'ts in the workplace which has no relationship to his current capacity or his needs and desires, he/she will experience disharmony and conflict. When a person is unable to maintain balance and harmony with his living conditions and in relation to others, he/she is not pleased with employment and business activity; in other words, he/she will have low job satisfaction that is the cause of job stress.

The seventh and last influential variable in this model was gender which had the effect size of 0.04. According to the above-mentioned positive coefficient, job stress increases depending on gender. As to gender, women, because of a conflict between job responsibilities and family ones, are more exposed to stress than men. Zimmer also shows that the level of stress is higher in women because they are not supported by their heads and co-workers(26). However, according to the study conducted by Khaghaniadeh (2008), men had more job stress that is justified because the family, community and workplace have more expectations of men, which leads to an increase in working hours and workload in these people, in a way that they may not be able to respond to these expectations. Jurik and Halemba (1984) also concluded that gender did not have a significant impact on job stress (34). According to the study of Dial (2010), gender is an important factor in relation to stress even more than other demographic variables (35).

Conclusion

Based on the results of the meta-analysis, since

workload and role conflict have the greatest impact on job stress, organizations should pay more attention to these factors and use different strategies to reduce job related stress.

In the case of stress caused by the workload, time management training should be emphasized, especially for the sectors with a large number of clients. Whereas the staff benefits from time management skills, they can also use them in their business affairs and organize large volumes of work in order to reduce the impact of these stressors to a large extent.

To reduce the stress of role conflict, description of tasks, which the employee is only obliged to carry out, should be established, and in the event of any inconsistency of expectations and desires with established duties, the employee refrains from carrying out them. Of course, there are sometimes exceptions; for example, the superior may ask his subordinate to do something that is not his job, according to the expediency and discretion and specific conditions.

To reduce the stress of role ambiguity, methods such as clarifying organizational roles, negotiating role, redesigning job, and targeting can be used.

Work-family conflicts lead to individual, family and organizational problems for the staff. Finding the right solution to deal with and prevent conflict between work and life is one of the priorities of the career including methods of balancing the two areas and time management training.

Other researchers' studies and experiences show that time management training has an effective role in reducing work-family conflicts in the scope of both work and life. Managers and supervisors must determine the total working hours per week in accordance with standards because increase in working hours might initially increase the efficiency, but after a while, it causes increased fatigue, can interfere with work and life, and reduces productivity, all ultimately leading to increased stress.

The future studies are recommended to be conducted on the impact of time management skills on reducing work-related stress because based on results these variables might have more critical effects on job stress.

Limitations

The limitations of this study were the lack of access to some databases such as ProQuest. Also in this research, books, theses, and unpublished papers (gray literature) were not examined; moreover, because the number of studies was very high, there might have

been many invalid studies among them.

Conflict of Interest: None declared.

References

- Hoboubi N, Choobineh A, Kamari Ghanavati F, Keshavarzi S, Akbar Hosseini A. The Impact of Job Stress and Job Satisfaction on Workforce Productivity in an Iranian Petrochemical Industry. *Safety and health at work*. 2017;8(1):67-71.
- Jazani N, Habibi M, Nasr S. Analysis of Job stress factors and Solution to Management of them. *Journal of Management and Human Resource in petroleum industry*. 2010;11:127-49.
- Jex SM, Yankelevich M. Work stress. *CooperJournal of Organizational Behavior*. 2008;1:498–518.
- Boyd NG, Lewin JE, Sager JK. A model of stress and coping and their influence on individual and organizational outcomes. *Journal of Vocational Behavior*. 2009;75(2):197-211.
- Cox T, Griffiths A, Rial-Gonzalez E. Research on Work-related Stress European Agency for Safety and Health at Work. 2000.
- Greiner A. An economic model of work-related stress. *Journal of Economic Behavior & Organization*. 2008;66(2):335-46.
- Lovelace KJ, Manz CC, Alves JC. Work stress and leadership development: The role of self-leadership, shared leadership, physical fitness and flow in managing demands and increasing job control. *Human Resource Management Review*. 2007;17(4):374-87.
- Beehr TA, Glaser KM, Canali KG, Wallwey DA. Back to basics: Re-examination of demand-control theory of occupational stress. *Work & Stress*. 2001;15(2):115-30.
- Wells JB, Minor KI, Angel E, Matz AK, Amato N. Predictors of job stress among staff in juvenile correctional facilities. *Criminal Justice and Behavior*. 2009;36(3):245-58.
- Fairbrother K, Warn J. Workplace dimensions, stress and job satisfaction. *Journal of managerial psychology*. 2003;18(1):8-21.
- Golparvar M, Arizi H. Meta-analysis of the relationship between organizational commitment and job alternatives, the desire to stay and feel free to leave. 2088;33:85-100.
- Field AP. Meta-analysis of correlation coefficients: a Monte Carlo comparison of fixed-and random-effects methods. *Psychological methods*. 2001;6(2):161.
- Gholamnejad H, Nikpeima N. Causes of occupational stress in nurses. *Journal of Iran Occupational Health*. 2009;1:22-7.
- Jamal M. Job stress, job performance and organizational commitment in a multinational company: An empirical study in two countries. *International Journal of Business and Social Science*. 2011;2(20).
- Burke RJ, Tourigny L, Baba VV, Wang X. Stress episode in aviation: the case of China. *Cross Cultural Management: An International Journal*. 2010;17(1):62-78.
- Gaither CA, Kahaleh AA, Doucette WR, Mott DA, Pederson CA, Schommer JC. A modified model of pharmacists' job stress: The role of organizational, extra-role, and individual factors on work-related outcomes. *Research in Social and Administrative Pharmacy*. 2008;4(3):231-43.
- Hsieh A-T, Yen C-H. The effect of customer participation on service providers' job stress. *The Service Industries Journal*. 2005;25(7):891-905.
- MortaghyGhasemy M, Ghahremani Z, Vahediane Azimi A, Ghorbani F. Nurses Job Stress in Therapeutic Educational Centers in Zanjan. *Journal of Nursing and Midwifery, Gorgan*. 2011 [In Persian];8(1):42-51.
- Jazani N, Habibi M, Nasr S. Analysis of factors affecting job stress and its management solutions (Case Study: Region 3 gas transmission operation). *Management and human resources in the oil industry 2010* [In Persian];4(11):127-48.
- Gholam Nejad H, Nikpeima N. The causes of stress among nurses. *Iran occupational health journal*. 2009 [In Persian];6(1):22-7.
- Khaghanizadeh M., Ebadi A., Cirati nair M., Rahmani M. The study of relationship between job stress and quality of work life of nurses in military hospitals. *Journal of Military Medicine*. 2008;10(3):175-84.
- Ram N, Khoso I, Shah AA, Chandio FR, Shaikih FM. Role conflict and role ambiguity as factors in work stress among managers: A case study of manufacturing sector in Pakistan. *Asian Social Science*. 2011;7(2):113-8.
- Mohr AT, Puck JF. Role conflict, general manager job satisfaction and stress and the performance of IJVs. *European Management Journal*. 2007;25(1):25-35.
- Tewksbury R, Higgins GE. Prison staff and work stress: The role of organizational and emotional influences. *American Journal of criminal justice*. 2006;30(2):247-66.
- Kashefi M. Job satisfaction and/or job stress the psychological consequences of working in

- 'high performance work organizations'. *Current Sociology*. 2009;57(6):809-28.
26. Cheeseman KA, Downey RA. Talking 'Bout My Generation' The Effect of "Generation" on Correctional Employee Perceptions of Work Stress and Job Satisfaction. *The Prison Journal*. 2012;92(1):24-44.
 27. Owen SS. Occupational stress among correctional supervisors. *The Prison Journal*. 2006;86(2):164-81.
 28. Azad-Marzabadi E., Salimi S. H. Study on Job Stress in a Military Unit. *Journal of Military Medicine*. 2005;6(4):279-84.
 29. Ansari MI, Mir Ahmad MR, Zabihzadeh K. The relationship between job stress, job satisfaction, organizational commitment and organizational citizenship behavior. *Journal of management and human resources in the oil industry*. 2010 [In Persian];4(13):153-66.
 30. Najarpur Ostadi S, Aghdami B, Khedive A. Examine the relationship between perceived social inequality, social work, low job stress and job satisfaction among staff at the University. *Journal of Management Sciences*. 2008 [In Persian];2(6):57-78.
 31. Razmi S, Nemati sogoliteh F. The Moderating Role of Self- Efficacy in Relationship between Occupational Stress with Psychological Health and Job Satisfaction of Saderat Bank's Staffs of Tabriz. *Iran Occupational Health Journal*. 2011;8(2):17-0.
 32. Gholam Ali Lavasani M, Keyvanzadh M, Arjmand N. Spirituality, job stress, organizational commitment, and job satisfaction among nurses in Tehran. *Contemporary Psychology*. 2008 [In Persian];3(2):61-73.
 33. Asgari P, Nakl Zade M. The relationship between job stress, social support and job satisfaction of employees Drilling Services. new findings in psychology (social psychology). 2010 [In Persian];5(14):35-50.
 34. Jurik NC, Halemba GJ. Gender, Working Conditions and the Job Satisfaction of Women in a Non-Traditional Occupation: Female Correctional Officers in Men's Prisons. *The Sociological Quarterly*. 1984;25(4):551-66.
 35. Dial KC, Downey RA, Goodlin WE. The job in the joint: The impact of generation and gender on work stress in prison. *Journal of Criminal Justice*. 2010;38(4):609-15.