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

Zahra Kavosi¹, Habibollah Ranaei Kordshouli², Maryam Zare Saadabadi³, Azime Ghorbanian⁴,⁵

¹Health policy Research Center, Institute of Health, Shiraz University of Medical Sciences, Shiraz, Iran
²Associate Professor of Management, Shiraz University, Shiraz, Iran
³Master of Industrial Management, Shiraz University, Shiraz, Iran
⁴Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
⁵Health Human Resources Research Center, School of Management & Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

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

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 of 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:

$$z = \frac{1}{2} \ln \frac{1 + r}{1 - r}$$
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After obtaining Z pooled values from various studies, the correlation coefficient and corresponding confidence intervals can be obtained by reverse conversion (12):

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

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 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
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 third factor affecting 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

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

<table>
<thead>
<tr>
<th>Num.</th>
<th>Relation between Job Stress and:</th>
<th>Number of studies</th>
<th>Total sample population</th>
<th>Z statistics</th>
<th>Z confidence interval</th>
<th>Effect size</th>
<th>Z confidence interval</th>
<th>Effect size</th>
<th>Homogeneity Index: The significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Workload</td>
<td>6</td>
<td>3940</td>
<td>0.672</td>
<td>(0.843, 0.501)</td>
<td>0.590</td>
<td>(0.690, 0.461)</td>
<td>0.590</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>2</td>
<td>Role Conflict</td>
<td>8</td>
<td>4276</td>
<td>0.642</td>
<td>(0.822, 0.462)</td>
<td>0.570</td>
<td>(0.680, 0.431)</td>
<td>0.570</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>3</td>
<td>Role Ambiguity</td>
<td>5</td>
<td>3714</td>
<td>0.425</td>
<td>(0.605, 0.246)</td>
<td>0.041</td>
<td>(0.540, 0.242)</td>
<td>0.041</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>4</td>
<td>Work-Family Conflict</td>
<td>4</td>
<td>5336</td>
<td>0.325</td>
<td>(0.497, 0.153)</td>
<td>0.313</td>
<td>(0.461, 0.150)</td>
<td>0.313</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>5</td>
<td>Job Satisfaction</td>
<td>10</td>
<td>2307</td>
<td>-0.287</td>
<td>(-0.105, -0.469)</td>
<td>-0.272</td>
<td>(0.100, 0.441)</td>
<td>-0.272</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>6</td>
<td>Total Working Hours Per Week</td>
<td>4</td>
<td>1599</td>
<td>0.156</td>
<td>(0.205, 0.107)</td>
<td>0.150</td>
<td>(0.201, 0.111)</td>
<td>0.150</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>7</td>
<td>Gender</td>
<td>13</td>
<td>8530</td>
<td>0.044</td>
<td>(0.085, 0.003)</td>
<td>0.041</td>
<td>(0.081, 0.003)</td>
<td>0.041</td>
<td>P&lt;0.001</td>
</tr>
</tbody>
</table>
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 Khaghamiadeh (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**


25. Kashefi M. Job satisfaction and/or job stress the psychological consequences of working in
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