Investigating the Effective Factors on Task Force Occupational Stress of Firefighting Organization of Tehran Municipality

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Abstract

The most important factor for achieving optimum efficiency of the organization, is human resources efficiently. One of the things that makes reducing employee productivity and increasing direct and indirect costs, is employees stress and mental pressure factor. Effects of stress on physical and mental health as a reality of the present century, also his performance in personal and professional life and thus the survival and growth of the client organization and its performance, have many short-term positive and negative effects. Accurate and timely identification of stressors and preparedness to prevent and cope with them are among the fundamental tasks of dynamic individuals and organizations. It should be noted that failure to address the stressors can cause a lot of damage to the ability of human resources in the organization. Therefore, these factors can be identified and resolved in order to enhance staff productivity and ultimately effective organization. The aim of this study was to investigate the effective factors on task force occupational stress of Firefighting Organization of Tehran Municipality. Given that the function of firefighters in addition to their own health has a direct impact on the health of other members of society, this research has particular importance. In this study, it would be measured. Thus, according to one of the conventional means for obtaining reliable statistics, is data collection through questionnaires; the questionnaire has been designed to investigate the effective factors on task force occupational stress and given that the population of this study was task force of Firefighting Organization of Tehran Municipality. A total of 351 questionnaires according to the statistical sample used in the research is distributed and collected. After classification variables and collect the questionnaires, the reliability and validity were examined and tested and then relying on quantitative research methods and then performed univariate statistical analysis showed that in 95% of interpersonal relationships, job characteristics, organizational structure and material properties jobs are effective on stress in task force of Firefighting Organization of Tehran Municipality. It is suggested livelihoods of employees need special attention. Meanwhile, staff housing problem be solved as soon as possible.

Keywords: stress, job stress, Firefighting Organization of Tehran Municipality.
Introduction

Including difficult and stressful jobs in the world is firefighting. This group of employees’ jobs is ever alert and when all firefighters in the event of an accident are fleeing, and they are faced with unexpected events and situations, in this case things get out of control and that’s why every year a large number of these workers worldwide will lose their lives (Khanifar, 2008). Risk and high sensitivity, complex and uncertain working conditions, direct confrontation with a variety of events and harmful agents, shifts and the need to prepare staff at any hour of the day has caused the fire, including hard and hazardous jobs be classified. Economic journal Forbes with the introduction of 10 stressful jobs of 2015, announced firefighting as the first stressful job. This job due to constant exposure to life-threatening, has high (Ahmadi, 2000). Undoubtedly, firefighting is one of the hardest jobs that choose humanitarian people. When speaking of the dangers of the profession is often pointed to risks that led to the accident and the less he comes to this job pathogens (Asghari, 2013). Firefighters involved in the length of service over large and small events and sometimes lose their lives in this way. But what stayed away from the minds of students due to diseases that exposure to various chemicals in fire when they are suffering which in some cases leads to their premature failure. In developed countries, the fire department and its officers are the main component of the immune system and aid the country. High risk and direct exposure to harmful agents, potentially stressful, full of tension and constant anxiety, the fire department has classified hard and hazardous jobs (Hossein Zadeh, 2013 and Kazeronian, 2013) Firefighting Organization have been formed with the purpose of saving human lives and property and patriotic effort to reduce damages caused by man-made accidents and natural disasters. Firefighters are people who have the necessary training on the types of fire-fighting, rescue and relief in different events have taken and they are able to perform in the most critical hard and hazardous environmental conditions, using technical knowledge and expertise, skills and abilities and using rescue equipment and machinery rush to the aid of victims and bring safety to their community. According to fire statistics and fire events in Tehran, the number of injured and deceased firefighters and the explosions in different events threaten the health and lives of firefighters is very worrying. On the other hand seems very sophisticated effects and dangers for the profession with the occurrence and intensity of physical ailments, mental and spiritual. The professional health care providers' fire is making every effort to control harmful agents by taking advantage of lessons learned.

Problem Statement

Employment for the lives and survival of society is inevitable and the life of every person from work funded and self-sufficiency of each country depends on the performance of its employees. Occupational stress as one of the occupational hazards in the modern era and is very costly for organizations because it is followed by adverse effects such as desertion, absence from work, deployment of troops, the conflict between work and high cost of health staff that can directly or indirectly affect the quality of staff work. Research shows a high level of stress is associated with lower levels of job performance and therefore is less successful organizations in a competitive market. Physical and emotional effects of occupational stress occur when job requirements do not match the requirements of potential
employees in its implementation and the effects of health staff has been recognized as a major challenge. The word of stress, has different meanings in different medical experts, the subject of much attention has been stressed in recent years. However, the issue of stress in society is increasingly growing. Clinical psychologists and other mental health association between stress and carefully studied. In psychology, stress was placed under psychological pressure is defined. In this case the human psyche react to internal and external demands, pressure. When stress occurs when a person their reactions in the face of internal and external stimuli unable to, which is the consequence of which is the loss of mental balance. Sometimes the stress caused by external stimuli, and they sometimes have it as an individual response to some of the anxiety. New studies and theories about the stress emphasize community and the environment interacts. In every job there is stress, but the stress is different in different jobs, including jobs with high stress jobs of firefighters. Professional fire although hard and hazardous jobs, but jobs in the professional qualification of our fire with firefighters in developed countries, unfortunately in Iran particular attention has not been enough to providing economic and psychological conditions favorable for firefighters and this while the firefighting is as high-risk occupations in developed countries. Firefighters due to the characteristics of their jobs are always vulnerable to physical and mental. Firefighters in each mission normally subject to several conditions including complications from driving and traffic stress, smoke and toxic gases during operation, light and sound pollution, hormones and prepare the body's defense against high temperature in the fire, the impact of chemicals through skin contact, physical injuries during the operation, receiving rays and radiation from radioactive ions. In addition, firefighters during rescue operations are at risk for complications such as vision and grievous heartbreak scenes, side effects of the explosion on the scene, ergonomic issues fixtures, machinery and equipment, serve in shifts, lack of proper nutrition and appropriate professional, post-traumatic stress, working in polluted environments and wet. According to studies mentioned, fire department personnel are deployed in shifts during various firefighting and rescue operations. Events such as fire, falling in wells, trapping people in elevators, people drowning in open water, road accidents etc. often are more events that lifeguards of fire department are deployed for operations, are very chore. And hence the strength and negligence firefighters' analysis can be followed for the deadly effects for operations group. The operational managers for employees with specialized training in physical fitness organizations have prepared special programs in this regard. This study sought to identify the effective factors on task force occupational stress of Firefighting Organization of Tehran Municipality and looking for answers on the question of whether factors such as the characteristics of the job, interpersonal relationships, organizational structure and physical properties of the material addressing the jobs are associated with job stress and if yes how much is its intensity?

Importance and necessity of research

Stress is one of the most controversial and the most noteworthy concepts that play a role in human life and pervades all different aspects of human life. Of course there is stress in all different periods and left to its adverse effects but today, because of the complexities of relationships and the extent of communication and mechanical stresses of life has been more awareness of its dangers is essential for everyone. According to the scholars, as evidenced by
stress at work can reduce their capacities in various fields. Stress through affect the nervous system, can reduce people's focus and significantly increase the amount of errors. Increasing errors could affect the organizational variables, many of which can be said to reduce personal and organizational productivity. Therefore, it is necessary to reduce stress in the mind of the smartest investments the organization fully employed. Identify factors affecting stress in the workplace is the first step in the research process. As mentioned earlier, the damaging effects of stress on individual and social life was palpable and visible and staff are most vulnerable to stress. In recent decades the issue of mental health promotion in the workplace as one of the most important aspects of development and improvement of human resources in the organization has attracted the attention of many, whether in Iran or in other countries. Obviously, the use of a healthy workforce, thoughtful and creative in promoting economic efficiency in the institutions, services, training and equipment more effectively and ultimately the development of the country in all fields. It should be noted that the physical, psychological and intellectual manpower of a degree is important. Since the staff has been responsible for operations and in order to achieve the objectives of the organization are responsible, if attacks are stressed its negative impact will be to speed the performance of the organization.

Therefore, the present study first to identify these factors and then for each of these factors results-based strategies should be provided. Hence special attention to stress that exposure to stressful factors in this group and they have been required and to maintain health should stress factors and find solutions to overcome them take the necessary measures.

Research Methodology

The present according research categories based on research design (data collection), is a descriptive - analytical and case studies considered, for this study, the authors examined changes in parameters not established and the circumstances are examined. Also according to the division of research in terms of purpose, this study is an applied research.

Population and sample

The population of this study included task force of Firefighting Organization of Tehran Municipality that the number of them was 4092 people. Due to the quality of research and the number of variables to be specified, the minimum sample size of the target population of Cochran formula is obtained. So a sample size of 351 people is at the level of 5%.

Sampling Method

Sampling method was random. Given that the stations are located in 8 regions random sampling was conducted in each region separately. Questionnaires were distributed in 58 stations. Region one (9 stations), Region two (7 stations), Region three (9 stations), Region four (7 stations), Region five (7 stations), Region six (6 stations), Region seven (8 stations), Region eight (5 stations)
Data analysis method

In this chapter the results of questionnaire data (data collection) using descriptive statistical parameters such as frequency, percentage, mean and standard deviation, tables and charts are provided. And using techniques of inferential statistics (Friedman test and test simple average) research questions and hypotheses have been analyzed. In order to facilitate the calculation of SPSS and MINITAB statistical software package is used according to need.

Reliability of questionnaire

In this thesis, the range of reliability is fluctuating between periods of zero (no correlation) to +1 (perfect correlation). Cronbach's alpha reliability of this research tool is selected, the results of which will be in accordance with Table 1. According to Table 2, Cronbach's alpha coefficient of 81.1 percent, which was significant at the alpha level of 100% and showed that the reliability is very high measurement tool.

<table>
<thead>
<tr>
<th>Number of options</th>
<th>Number of questions</th>
<th>Cronbach's alpha with standard data</th>
<th>Cronbach's alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>40</td>
<td>0.803</td>
<td>0.811</td>
</tr>
</tbody>
</table>

Results and Discussion

Effective factors on the stress of task force of Firefighting Organization of Tehran Municipality as a main hypothesis is assessed and used univariate statistical tests whose results are in Table 3.

<table>
<thead>
<tr>
<th>Test statistics</th>
<th>Degrees of freedom</th>
<th>Significance level</th>
<th>Means test difference</th>
<th>Difference with 99% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Uppe r lower</td>
</tr>
<tr>
<td>41.25</td>
<td>350</td>
<td>0</td>
<td>0.84</td>
<td>0.8</td>
</tr>
</tbody>
</table>
Investigating this hypothesis by averaging all the items of the questionnaire (40 questions) and the average test done on the basis of Likert is 3.84. Skewed distribution of the above left (negative) and more data is concentrated in the first and second quarter. Elongation and show the distribution of data scattered pulled away slightly from the average. (Figure 1)

![Frequency distribution histograms of the main hypothesis](image)

Figure 1: Frequency distribution histograms of the main hypothesis

The above diagram shows the distribution of this issue is a question of following the normal distribution. The following statistical assumptions for verification and study of the original design.

\[H_0: \text{Interpersonal relationships, job characteristics, job characteristics and organizational structure are not effective on the stress of task force of Firefighting Organization of Tehran Municipality}\]

\[H_1: \text{Interpersonal relationships, job characteristics, job characteristics and organizational structure are effective on the stress of task force of Firefighting Organization of Tehran Municipality}\]

\[
\begin{align*}
H_0: \mu &= 3 \\
H_1: \mu &\neq 3
\end{align*}
\]

The null hypothesis means that there is no significant difference between the variables (interpersonal relationships, job characteristics, job characteristics and organizational structure) on the stress of task force of Firefighting Organization of Tehran Municipality and the alternative hypothesis means that there is a significant difference between the variables (interpersonal relationships, job characteristics, job characteristics and organizational structure) and on the stress of task force of Firefighting Organization of Tehran Municipality. According to Table 17-4, the significance level test is zero and lower than \(\alpha\), so with 95 percent of confidence, \(H_0\) is not accepted and \(H_1\) is accepted. The result is that the variables (interpersonal relationships, job characteristics, job characteristics and organizational structure) operations forces fire on stress is effective. Average of variables on the stress of task force of Firefighting Organization of Tehran Municipality with 95% of confidence is in the following of the confidence interval.
Also according to the target amount (3) or $H_0$ is not in confidence interval, so $H_0$ with 95% of confidence will not be accepted. (Figure 2)

Figure 2: Test scatter plot and confidence interval of the main hypothesis

As the hypothesis of this study is not accepted, the question arises whether all items of the questionnaire had the same effect on hypothesis and otherwise, is what the effect of the items. To answer this question arises in this test, Friedman test, a significant difference in the items are investigated and test results are according to Table 4.

Table 4: Results of Friedman test of the main hypothesis

<table>
<thead>
<tr>
<th>Number</th>
<th>$K_2$</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>351</td>
<td>7622.01</td>
<td>39</td>
<td>0</td>
</tr>
</tbody>
</table>

According to Table 4, the level of significance test is less than $\alpha$, so with 99% of confidence $H_0$ is not accepted and $H_1$ is accepted, the result is that there are significant differences between the statements of the variables and, in a sense, their effect on the rejection of $H_0$ is not similar. However, since that $H_1$ is accepted effect of each variable factors above is in accordance with the Table 5 and Figure 3.

Table 5: Ranking factors rejection of the main hypothesis

<table>
<thead>
<tr>
<th>Rank</th>
<th>Items</th>
<th>Mean</th>
<th>Rank</th>
<th>Items</th>
<th>Mean</th>
<th>Rank</th>
<th>Items</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>08</td>
<td>27.92</td>
<td>15</td>
<td>15</td>
<td>24.02</td>
<td>29</td>
<td>14</td>
<td>18.29</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
<td>27.73</td>
<td>16</td>
<td>12</td>
<td>23.73</td>
<td>30</td>
<td>16</td>
<td>18.24</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>27.72</td>
<td>17</td>
<td>01</td>
<td>23.34</td>
<td>31</td>
<td>25</td>
<td>17.79</td>
</tr>
<tr>
<td>4</td>
<td>02</td>
<td>26.49</td>
<td>18</td>
<td>13</td>
<td>22.97</td>
<td>32</td>
<td>39</td>
<td>16.89</td>
</tr>
<tr>
<td>5</td>
<td>05</td>
<td>26.1</td>
<td>19</td>
<td>26</td>
<td>22.81</td>
<td>33</td>
<td>35</td>
<td>16.56</td>
</tr>
<tr>
<td>6</td>
<td>22</td>
<td>25.82</td>
<td>20</td>
<td>30</td>
<td>22.8</td>
<td>34</td>
<td>18</td>
<td>13.07</td>
</tr>
<tr>
<td>7</td>
<td>03</td>
<td>25.69</td>
<td>21</td>
<td>19</td>
<td>22.24</td>
<td>35</td>
<td>38</td>
<td>12.91</td>
</tr>
<tr>
<td>8</td>
<td>17</td>
<td>25.52</td>
<td>22</td>
<td>31</td>
<td>21.89</td>
<td>36</td>
<td>23</td>
<td>12.59</td>
</tr>
<tr>
<td>9</td>
<td>04</td>
<td>25.29</td>
<td>23</td>
<td>32</td>
<td>21.22</td>
<td>37</td>
<td>34</td>
<td>10.23</td>
</tr>
<tr>
<td>10</td>
<td>28</td>
<td>25.08</td>
<td>24</td>
<td>07</td>
<td>21.14</td>
<td>38</td>
<td>37</td>
<td>7.41</td>
</tr>
<tr>
<td>11</td>
<td>09</td>
<td>25.03</td>
<td>25</td>
<td>33</td>
<td>20.5</td>
<td>39</td>
<td>36</td>
<td>4.69</td>
</tr>
</tbody>
</table>
Table 5 shows the item No. 8 (moral and material compensation after a successful operation to reduce stress) have the most impact and items 40 (effects of shift work for in creating stress) have the least impact on non-acceptance are the main hypothesis. So most attention should be directed towards moral and material compensation after a successful operation to reduce stress.

![Figure 3: Comparison of the statements of dot plot of the main hypothesis](image)

In the end, the rejection of the original hypothesis based on the research variables (interpersonal relationships, job characteristics, job characteristics and organizational structure) using Friedman nonparametric statistical test to determine the effect of each of the main variables research has been done. Test results are according to Table 6.

<table>
<thead>
<tr>
<th>Number</th>
<th>K$_2$</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>351</td>
<td>65.67</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

According to Table 6, the significance level test is lower than $\alpha$, so with 99 percent of confidence, $H_0$ is not accepted and $H_1$ is accepted.
According to Figure 4 highest and lowest factors in the main factor in the rejection of the main hypothesis of the study variables, respectively, organizational structure with 2.81 and job features with 2.11.

Conclusion

Tress is inevitable and necessary part of life. It is a phenomenon and basic human experience that it is essential for his/her survival and impact on everyone, regardless of age, gender, race, economic status or level of education. Although some stress is normal and necessary, but if the stress is severe, persistent or repetitive; the person is not capable of coping with it or sources of support are minimal, stress is a phenomenon that can cause negative physical and psychiatric illnesses. Work that constitutes a major part of human social life, can be an important source of stress for him/her. Job stress means the stress that occurs in certain of the specific factors involved in creating them, one of the problems is very important and growing is job health that it is one of the inhibiting factors is considered. Therefore, this study aims to examine the effective factors on task force occupational stress of Firefighting Organization of Tehran Municipality. The ultimate purpose of this research, was to accept or reject hypotheses and finally, providing suggestions for improving the organization status.
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