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RESEARCH ARTICLE

Assessment and Evaluation of Occupational Stress among Safety Authorities: By Possibility of Cancer

Tayyebeh Jaddi Madarsara[1], Saeed Yari[2], Hamzeh Saeidabadi[3]

[1]B.Sc. of Industrial Engineering, Industrial Safety Tendency, Kar University of Qazvin, Qazvin, Iran. [2]Student Research Committee, Department and Faculty of Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. [3]MSc of Environmental Management (HSE), Islamic Azad University of Tehran, West Tehran Branch, Tehran, Iran.

Abstract

Introduction: Protecting the workforce (the main factor in production entities) in the workplace is a top priority for any country. Therefore, the Ministry of Cooperation, Labor and Social Welfare, in order to achieve this and implement Article 85 of the Labor Code, has prepared and approved the bylaws on the use of safety officials in the workshops as liaison between industries and departments of Cooperation, Labor and Social Welfare, This confirms the special role of the safety authorities and, consequently, the job stresses of these industry workers. **Methods:** This descriptive-analytical study was conducted in 2017 with a population of 33 people (14 women and 19 men) from safety authorities working in Alborz industries with a working experience of 5.93±3.99. A 35-item questionnaire from the British Health and Safety Executive was used to investigate the factors affecting stress, it has a strong correlation between the 7 elements of the questionnaire (Role 0.92, relationship 0.73, authority support 0.75, coworker support 0.63, control 0.87, demand 0.85 and changes 0.22) and its Cronbach's alpha is 0.78. **Results:** By examining the frequency of questionnaire data in 7 identified areas, eight demand items (including expectations of different working groups, high workloads, lack of time to rest), two items of work relationship (tolerance of ugly words and misconduct, tension between colleagues), one manager support (working time constant) And one case of changes (stresses in work relationships) were stressful factors in the workplace. **Conclusion:** The results of this study showed that due to high workload and stress and workplace stressors, safety authorities have a great deal of work stress. and it is necessary to conduct training courses, familiarity with the requirements and rules of the workplace, control of false emotions, anger and stress management as well as identifying, evaluating and controlling the harmful factors and risks in the workplace to improve the workplace and reduce stress. it should be noted that with regard to the prevalence of breast cancer among women and 42.5% of the target group of women, the likelihood of work-related breast cancer is not out of the question.

Keywords: Job stress- HSE Job Stress Questionnaire- heart disease- cancer- industry safety authorities

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Introduction

Stress is a nonspecific reaction that is caused by various stressors and threatens one's physical and mental health. One of the most important sources of stress in every person's life is their job and career [1-2]. In fact, job stress is a process that results in a confluence with the person and the workplace. Psychological factors of workplace and occupational stress, unlike other harmful factors in the workplace, are not specific to the job, and in all occupations, in various forms and degrees exist [3]. The International Institute for Occupational Safety and Health defines occupational stress as a harmful physical and psychological response that occurs due to a lack of coordination of job requirements with the abilities, support resources, and needs of the employed person [4]. In 1992, the United Nations declared occupational stress as a disease of the 20th century. The International Labor Organization estimates the costs to countries due to job stress to be 1 to 3.5% of GDP [5-6]. The Health and Safety Executive in the 2007 to 2009 estimated more than 13.5 million working days and more than £ 4 million annually due to occupational stress injuries [7]. The American Institute of Stress has identified stress as the leading

Corresponding Author:
Hamzeh Saeidabadi
MSc of Environmental Management (HSE), Islamic Azad University of Tehran, West Tehran Branch, Tehran, Iran.
Email: Saeedabadi.h@gmail.com

cause of 80% of injuries and the Confederation of British Industry (CBI) has identified stress as the second leading cause of work absenteeism [8]. According to statistics from international organizations and studies, experiencing stress can have detrimental effects on physical and mental health (such as hypertension, heart attacks, depression and anxiety) [9-11]. A number of studies have shown that stress can also cause musculoskeletal disorders [12-13]. Numerous studies have shown the role of occupational stress in the onset of illness symptoms, labor displacement, and early retirement [13-14]. also, people who are more affected by occupational stress are also more likely to suffer from work-related accidents and illnesses and to have lower physical and mental health and quality of life [15-18]. based on the above, the World Health Organization has estimated that mental illness, including stress, will be the second leading cause of disability by 2020, according to the Global Burden of Disease (GBD) index.

According to statistics provided by the officials of the Ministry of Cooperation, Labor and Social Welfare of the Islamic Republic of Iran, the death rate from work is shown in Table 1.

On average, 2.2 people die each day from work-related accidents, and at least 6 times as many as those from work-related illnesses. the direct compensation to those affected by the work done by the Social Security Organization in 2016 was 580 billion tomans (4% of GDP). according to international organizations, the average cost of illness and work-related accidents in countries is on average 4 to 6%. pursuant to Article 85 of the Labor Code and the promotion of safety in workplaces subject to the Labor Law and systematically employing qualified persons in the field of safety and the prevention of work-related accidents and for the protection of the country's human and material resources. Published in the Official Gazette on May 19, 2015 by the Order of the Minister of Cooperation, Labor and Social Welfare. and in accordance with Article 95 of the Labor Code, the employer or officials of the industrial units referred to in Article 85 of the Labor Code shall be responsible for enforcing the technical and occupational health and safety regulations, and whenever an accident occurs due to failure to comply with these regulations by the employer or authorities, the employer is responsible for the criminal and legal as well as the penalties provided for in this law. According to the above description, industry safety authorities should identify and control the harmful factors that lead to work-related illnesses and accidents. on the other hand, the existing laws and penalties make safety officers more vulnerable to job stress on a daily basis. in this study, we have thoroughly investigated the subject and factors leading to stress.

Materials and Methods

This study was a descriptive-analytical study in 2016. The target population of this study included 33 safety officials working in Alborz industries. a questionnaire developed by the British Health and Safety Executive (HSE) in the late 1990s was used to measure stress levels and factors.

The HSE Occupational Stress Questionnaire consists of 7 elements:

1. The role (understanding the personnel of their organization correctly) in Questions 1, 4, 11, 13 and 17 is presented.

2. Relationships (increasing practice and positive attributes to increase social communication and reducing workplace conflict) are presented in Questions 5, 14, 21, and 34.

3. Authorities' support (the amount of support the individual receives from management and his / her service organization) is provided in Questions 8, 23, 29, 33 and 35.

4. Partner support (the amount of support a person receives from his or her colleagues) is provided in Questions 7, 24, 27 and 31.

5. Control (how much can be said that a person is on the way to do things) is given in Questions 2, 10, 15, 19, 25 and 30.

6. Demand (topics such as workload, specifications and work environment) is presented in Questions 3, 6, 9, 12, 16, 18, 20 and 22.

7. Changes (how to organize and change an organization's forces) are presented in Questions 26, 28 and 32.

The questionnaire included a five-point Likert scale (never, rarely, sometimes, often, and always) rated on a scale of 1 to 5, and a high score on this questionnaire indicates less occupational stress [19-20]. Given the strong correlation between the factors extracted from factor analysis (0.92 role domains, 0.73 relationship, 0.75 authority support, 0.63 coworkers support, 0.87 control, 0.85 demand, and 0.22 variations), Cronbach's alpha 0.78 and split-half method 0.65. therefore, it has good validity and reliability for assessing job stress [21]. after assuring the reliability and validity of the questionnaire and justification and initial training to 33 safety officials, the questionnaire was distributed among the above individuals without inserting a name (so that people could answer the questions calmly and honestly). then questionnaires were collected and analyzed.

Results

The results of the questionnaire were determined by 33 Alborz County Safety Officers (19 men and 14 women) with a work experience of 5.93±3.99, that, the most important stressors for safety officials are: 1) 8 items related to demand (including expectations of different working groups, high workloads, lack of time to rest), 2) 2 items related to relationships (tolerance of ugly words and misconduct, tension between colleagues), 3) 1 item related to manager support (working time constant) and 4) 1 items related to change (workplace relationships are tense). frequency distribution of participants' questions in figure 1 were presented. Frequency distribution of 7 domains in figure 2 and figure 3 also indicate the non-response of participants to the number and percentage of questions were presented.

Table 1. Mortality from Work Accidents (2010-2016)

No.	Year	Mortality from work accidents (person per year)
1	2010	1167
2	2011	1273
3	2012	1199
4	2013	1092
5	2014	1084
6	2015	903
7	2016	814

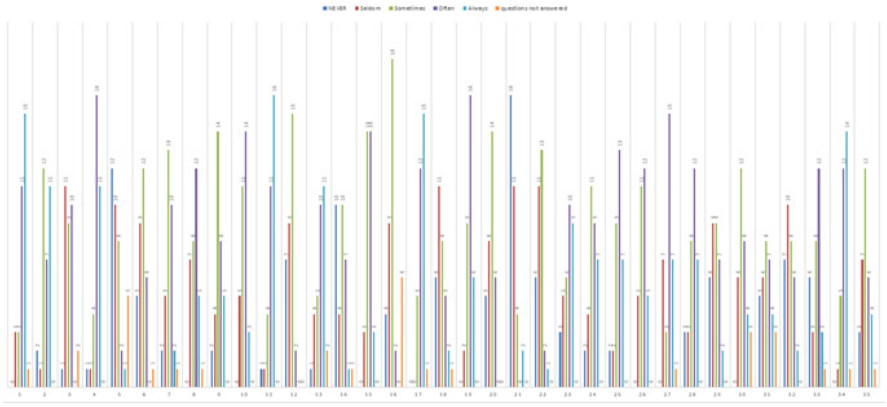

Figure 1. Frequency Distribution of Participants' Questions

Discussion

As noted, the most important stressors in workplace of safety authorities are the expectations of different working groups, the pressure and overload, lack of time to rest, tolerance of ugly words and the inappropriate behavior of others, tension between colleagues, constant working time and tension in working relationships. so, it is therefore recommended that the following be implemented.

1- Conduct training and retraining courses for employees and become aware of safety laws and regulations and emphasize the role of safety officials as law enforcers.

2- Conduct anger, stress and false emotion management courses for all employees and use existing techniques to overcome and control stressors in the workplace.

3- Identify, measure, and control workplace harmful factors such as noise, dust, and so on.

4- Identify, measure and control workplace hazards to prevent work-related accidents.

5- Maximum support from industry executives to safety officials for improvements in enforcement of safety laws and regulations.

It is noteworthy in this study that, after completing the study and monitoring the health of the study participants, over a period of 17 months, one of the study participants (with over 25 years' experience in the field of safety and health (Behvarz and Behgar) Who worked at a high-risk company.) Heart disease led to heart surgery. this confirms the results of various studies suggesting a direct relationship between stress and heart disease [9-11, 22-24].

The questionnaire was designed to allow people to report problems in the workplace as much as possible, therefore, a number of people are also responsible for identifying, assessing and confronting fire risks. and on the other hand, as recently as the Islamic Consultative Assembly, the fire service has been classified as a hazardous occupation, so, this is another stressor in the workplace. This result is consistent with the results of studies in this area [25-26]. It is recommended that this study be repeated, and given that 14 people in the study are women, it can be speculated that they will be exposed to cancer in the future due to the stress and pressure of job (especially breast cancer that is very common among women). because the study by Shriak et al. (2018) has clearly confirmed that stress in daily life increases the likelihood of breast cancer in women [27]. In the study of Smith et al. (2010), the relationship between chronic stress as a psychosocial factor and cancer progression was examined and clearly a direct relationship between them was presented. The only major point is that chronic stress, depression and social isolation have been reported and proven to be the cause of cancer progression for a long time (Studies over the past 40 years), and the only unresolved issue is whether or not stress causes cancer, so, with the above explanations, preventing stress is essential for the progression of diseases and cancers [14, 28-31].

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Figure 2. Frequency Distribution of 7 Domains and Indicate the Non-response of Participants to the Number and Percentage of Questions

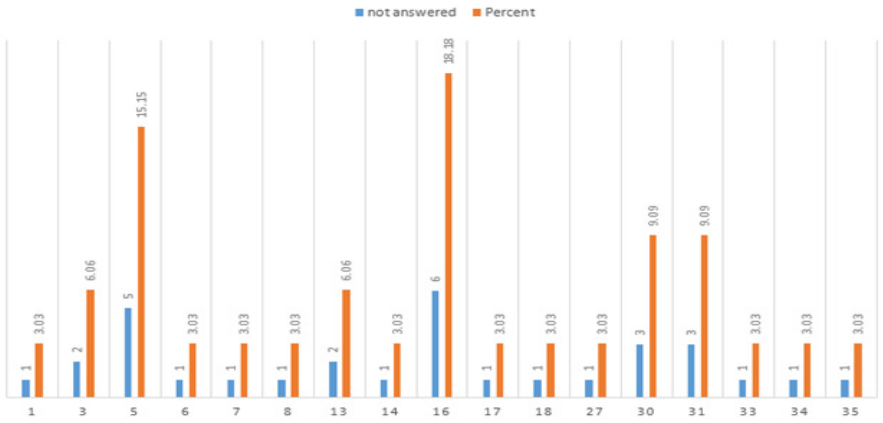

Figure 3. Percentage of Questions Not Answered

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