



## Association between Job Satisfaction and Occupational Accidents among Operating Staff at a Cement Factory, 2018

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### Abstract

**Background:** Job Satisfaction can lead to better performance and a reduction in occupational accidents, thereby increasing organizational productivity. This study aims to investigate the relationship between job satisfaction and occupational accidents in the operating staff of a cement industry.

**Materials and Methods:** This descriptive study was conducted at Lamerd Cement Factory in the Fars Province. All employees at that factory were considered the target population of the study (n = 53). The census method was used in this study to assess the incidence rate and to complete the job satisfaction questionnaire. Besides, data analysis was performed using the independent samples t-test and the one-way ANOVA in SPSS 24.

**Results:** The average job satisfaction is correlated with the number of accidents (p = 0.003), which shows people with more than once accident have less job satisfaction. Besides, the number of trainings has a direct correlation with the average job satisfaction (P = 0.016), and married people are more satisfied than single ones.

**Conclusion:** Occupational hazard evaluations have a direct effect on the level of job satisfaction. Due to the direct relationship between training and the increase in job satisfaction, providing relevant trainings is emphasized.

**Keywords:** Job Satisfaction, Accident, Industry.

### Introduction

In today's world, various industries play a leading role in economic growth and production of societies. In contrast to large industries, such as oil, gas, and automotive industries, safety and health of employees may be neglected in small industries for different reasons, such as financial problems and market fluctuations [1].

The cement industry in Iran plays a leading role among other industries and is considered a

strategic industry. Products of the cement industry play a key role in many infrastructure projects and increase the power of competition in international trade. Accordingly, about 70 million tons of cement is produced annually in Iran, with Iran being one of the largest cement exporters in the world [2].

Job satisfaction affects many organizational variables. Research shows that job satisfaction is an effective factor in enhancing productivity, employee empathy for the organization, and their

interest in the workplace; in addition, it increases quality and quantity of the work, builds good human relationships at work, and raises employee interest in the work [3]. Job satisfaction is the sense of satisfaction in a person with their organizational job, which is caused by the congruity between the work and talents, the degree of job success, provision of logical factors, prosperity of talented individuals, job progress, successful experiences, and organizational climate [4]. Job satisfaction is effective in reducing accidents and damage caused by the work, protecting employee health, as well as reducing costs of accidents and damage. In this context, employee motivation increases, thereby improving employee performance and the quality of organizational performance. Research on job satisfaction shows that it could be achieved in different environments for different groups, which has different aspects and dimensions. Some studies report that increasing the salary and payment, job equity, modifying working time and shift plans, providing opportunities for the employees to further their careers, and continuing education are important issues in increasing job satisfaction [5-7].

In the research conducted in Finland, it was found out that employees with less job satisfaction were more negatively affected by accidents, or accidents were more damaging to them [8]. Annual job incidents (2005) have been responsible for more than 300,000 deaths and have hurt more than 300 million people worldwide [9-11]. This large number of accidents causes severe human and financial damage to communities [12]. Most of occupational accidents are preventable. Apart from disability, loss of income, and changes in workers' quality of life and their family life, occupational accidents also exert considerable adverse effects on the production and economy of the country [13]. Thus, the increase in financial costs of work-related accidents reflects the effect of this issue on employee job satisfaction.

Job satisfaction, against the presence of a variety of harmful factors in the workplace, can lead to better performance and reduced job accidents, thereby increasing organizational productivity. In this context, sufficient satisfaction with working conditions increases employee motivation and improves organizational performance. This study aims to investigate the relationship between employee job satisfaction with harmful factors in the workplace and the occurrence of occupational accidents among employees of a cement factory.

## Materials and Methods

In this descriptive study, all 53 employees of the operations and mechanics department of a cement factory entered the study by the census method. The participants were selected from the three departments of cement, cooking, and raw materials, because of the stable working shifts in each department. Next, they were studied in terms of the rate of accidents by filling out the job satisfaction questionnaire. The common features of the mentioned three departments include the contact of employees with machines and dangerous equipment as well as their exposure to harmful elements, such as dust, noise, and heat tensions.

In this study, the research objectives and process were explained to the subjects, and they were informed on the voluntary nature of the participation in the study. In addition, written informed consent was obtained from all individuals, they were ensured about confidentiality of their information, and ethical standards were met. Besides, the present research received no specific funding from any funding agency in the public, commercial, or not-for-profit sectors.

Data collection was carried out using the two demographic and job satisfaction questionnaires. These two questionnaires measured harmful factors, noise, heat tensions, and dust. In addition, demographic data included age, work experience, education, marital status, number of safety trainings, and number of occupational accidents.

To measure job satisfaction in this study, the Minnesota job satisfaction questionnaire was used. This questionnaire has 20 questions, with the purpose of which being to review job satisfaction in six dimensions of the payment system, job type, development opportunities, organizational environment, leadership style, and physical conditions in Iran [14]. These questions have been used in different studies, including those of Mohammadi, Khandan, and Doostkam [15-16]. In the present study, the questions were rated on a five-point Likert scale, which included totally agree=5, agree=4, not being sure=3, disagree=2, and totally disagree=1. In addition, the MSQ utilized a five-point Likert scale, including 1=very dissatisfied, 2=dissatisfied, 3=neutral, 4=satisfied, and 5=very satisfied. Reliability of the questionnaire in this study was 0.86., and its validity was reported to be acceptable in Iran. The highest score that could be obtained in the questionnaire is 100, and the lowest score is 20;

besides, score 60 corresponds to the middle point representing neutral satisfaction. When a score approaches 20, the level of satisfaction decreases, and when it approaches 100, the level of satisfaction increases. The Minnesota job satisfaction questionnaire consists of 20 items and 3 subscales, with features determining low, medium, and high levels of satisfaction [17]. The numbers reported in the section of pollutants were taken from results of the annual pollution test at the factory. Data analysis was performed using an independent samples t-test, the Pearson's correlation test, and the one-way ANOVA in SPSS 24.

**Results**

The mean age of the participants was 33.49 ± 5.10

years, and their average work experience was 7.74 ±3.72 years. Besides, the average job satisfaction score was 67.62 ± 12.30, and %92.45 of the participants were married, with all of them having been male. Most of the participants had a high school diploma (%52.83), and %60.37 of them had no experience of any accidents. Besides, %8 of the employees had not received any trainings. Table 1 shows other demographic data of the participants in the study.

Results of the independent samples t-test showed that there was a significant difference between the mean score of job satisfaction in the married employees and the single ones; accordingly, the married employees had a higher level of job satisfaction than the single ones (P = 0.040).

**Table 1.** Distribution of the subjects' demographic characteristics

Variables	Number	Percent	
<b>Educational level</b>	<b>High school diploma</b>	28	52.83
	<b>Associate's degree</b>	11	20.75
	<b>BSc</b>	13	34.52
	<b>MSc</b>	1	1.88
<b>Number of accidents</b>	<b>0</b>	32	60.37
	<b>1</b>	14	26.41
	<b>2</b>	7	13.20
<b>Number of trained workers</b>	<b>0</b>	1	0.8
	<b>1</b>	14	10.8
	<b>2</b>	12	9.2
	<b>3</b>	14	10.8
	<b>4</b>	5	3.8
<b>Marital status</b>	<b>5</b>	7	5.4
	<b>Single</b>	4	7.54
	<b>Married</b>	49	92.45

According to Table 2, the average job satisfaction score of employees for the educational level showed that employees with an associate's degree had the highest average job satisfaction score and standard deviation of 68.90 ± 4.13. In addition, employees with an MSc and higher education levels had the lowest average job satisfaction

score (2.95). Results of the Pearson's correlation test showed no significant relationship between age and job satisfaction (p = 0.362). In addition, job satisfaction had a significant relationship with education (p = 0.657) and work experience (p = 0.331).

**Table 2.** Comparison of average job satisfaction scores among people with different levels of education

Job satisfaction and education	N	Mean	Standard deviation	P-value
<b>High school</b>	28	66.92	2.51	0.657*
<b>Associate's degree</b>	11	68.90	4.13	
<b>BSc</b>	13	68.69	2.63	
<b>MSc</b>	1	59.00	0.00	
<b>Total</b>	53	67.62	12.30	

\* The one-way ANOVA test at a significance level of 0.05

As Table 3 shows, the average job satisfaction scores of the cement factory employees have been

calculated in terms of the number of accidents. Accordingly, individuals with more accidents (2

events and more) had lower average job satisfaction scores. Besides, the average job satisfaction variable had a statistically significant

relationship with the number of accidents ( $p = 0.003$ ), which shows that people with more than once accident had a lower job satisfaction level.

**Table 3.** Comparison of average job satisfaction scores among people with different number of accidents

Number of accidents	Average job satisfaction	Standard deviation	P-value
0	68.46	2.00	0.003*
1	69.92	3.75	
2 or more	59.14	4.13	
<b>Total</b>	67.62	12.30	

\* The one-way ANOVA test at a significance level of 0.05

According to Table 4, employees with a higher number of trainings received had a higher job satisfaction score. Based on the results of the one-way ANOVA test, there is a significant relationship between the average job satisfaction score and the number of different safety trainings received ( $p =$

0.016). However, according to the Pearson's correlation test, the number of trainings has a significant relationship with the number of accidents ( $p = 0.399$ ); accordingly, this indicates that employees having received a higher number of trainings are less likely to have accidents.

**Table 4.** Comparison of average job satisfaction scores in employees with different numbers of safety trainings received

Number of safety trainings	Average job satisfaction score	Standard deviation	P-value
0	71.00	0.00	0.016*
1	63.21	3.70	
2	68.33	2.84	
3	67.00	3.29	
4	67.80	6.90	
5	75.85	3.78	
<b>Total</b>	67.62	12.30	

\* The one-way ANOVA test at a significance level of 0.05

**Discussion**

Job satisfaction, according to many experts, is one of the most challenging organizational concepts and the basis for formulating management policies to enhance organizational productivity and efficiency<sup>18</sup>. The average job satisfaction score of the participants of this study was  $67.62 \pm 12.30$ , which is based on the categories and levels of job satisfaction. Zare, in his study, achieved a similar result [19]. In the current study, there was no significant relationship between job satisfaction and age, education, and work experience. The study of Faramarzpoo et al on age and job satisfaction reported no significant relationship between them, being consistent with the current study [20]. The same result was obtained in the study of Monjamed et al [21] and that of Movahhed [22]. However, in the study of Tourangean, a significant relationship was reported between age and job satisfaction [23]. Nevertheless, in the study of Asghari et al, a significant relationship was reported between age and job satisfaction because with an increase in age, satisfaction levels increased [24]. In addition, Arab reported that there was no significant relationship between job

satisfaction with job experience and marital status, being inconsistent with the results of the present study [25]. Results of data analysis, in the present study, revealed that people with higher education levels had higher job satisfaction levels; in contrast, people with fewer accidents had lower job satisfaction levels.

**Conclusion**

The results indicate that the periodic evaluation of occupational hazards has a direct positive effect on the job satisfaction level. Some of the limitations of this research could be lack of accuracy in answering the questionnaire and the small size of the sample. To achieve more precise results, limitations above are suggested to be removed in future studies.

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**Conflict of interest:** None declared.

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