

A social work study on measuring the impact of age and job title on stress: A case study of hydro-power employees

Akbar Iravani^a, Mohammad Reza Iravani^{b*}, Gholamali Iravani^c, Mahdi Khorvash^d and Seyed Esmael Mosavi^d

^aPameNoor University, Iran

^bDepartment of Social Work, Islamic Azad University of Khomeinishahr, Khomeinishahr Branch, Daneshjou Blvd, Iran

^cApplied and Technical University

^dConsulting department, Islamic Azad University of Khomeinishahr, Khomeinishahr Branch, Daneshjou Blvd, Iran

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ABSTRACT

The study performs an empirical study based on the implementation of ANOVA and LSD tests to measure the impact of stress among people with different job titles and ages in a hydropower unit located in city of Esfahan, Iran. The study performed the survey among all 81 people who were working for customer service section of this company and consisted of two parts, in the first part; we gather all private information such as age, gender, education, job experience, etc. through seven important questions. In the second part of the survey, there were 66 questions, which included all the relevant factors impacting employees' stress. Cronbach alpha was calculated as 0.946, which is well above the minimum acceptable level. The implementation of ANOVA and LSD tests have revealed that there are no meaning differences among people with different job titles but people in different age groups maintained various level of stress.

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1. Introduction

During the past few decades, there has been increasing interests on detecting important factors creating stress among employees. There is no doubt that when we reduce stress among workers, they could contribute more on society and they feel that they have a better life-style. As a result, society will record fewer numbers of criminals and there is a better life conditions for everyone. Literally, there are various factors, which create stress among workers such as the lack of job security, stress created on behalf of management team, etc. Nevertheless, understanding the nature and root of stress in organizations helps us reduce its influence using appropriate methods (Watson et al., 2011; Çekmecelioğlu & Günsel, 2011). In fact, for many years, there were significant efforts on learning how it is possible to reduce stress among employees (Bassett et al., 1987; Law et al., 1995).

* Corresponding author. Tel.: +989130758065

E-mail addresses: iravani@iauksh.ac.ir (M. R. Iravani)

Vearing and Mak (2007) performed another study on the joint influence of the big five personality factors and an extended model of work stress based on study on effort–reward imbalance (ERI), on employees' depressive symptoms. They explained an association between neuroticism (N) and OVC. Kim et al. (2009) investigated the moderating roles of organization level and gender in the relationship between job satisfaction and role stress for hotel employees. The study includes measures of job satisfaction, role stress in terms of both conflict and ambiguity and demographic data was implemented to collect information from hotel employees in Republic of Korea. The results indicated that the impact of role stress on job satisfaction is substantially stronger for female employees and supervisory employees than male and non-supervisory workers.

Saastamoinen et al. (2009) examined the own and independent relationships of job strain, workplace bullying, organizational justice and work–home interface with pain. Among women, all psychosocial factors were considered for both acute and chronic pain when adjusted for confounders only. Among men, when adjusted for confounders only, all psychosocial factors were associated with acute and chronic pain, except for family-to-work conflicts among those with acute pain.

Chiang et al. (2010) studied the moderating impacts of job control and work-life balance practices on employee stress in the hotel and catering industry. The results of this survey described that high job demands coupled with low job control and the availability of work-life balance practices leads in a higher level of stress.

Tabatabaei et al. (2011) studied the general health, stress associated to the work and job satisfaction of the Hormozgan Cement Factory employees. The study was semi-experimental with the pre-test and post-test without control group and to improve mental health of employees, psychological trainings and motivational models were executed. The results demonstrated that general health and job satisfaction of employees were higher than average ($\alpha = 0.01$) but their job stress was lower than average ($\alpha = 0.01$). After intervention, results disclosed improvement of job stress and such trainings and models recommended for improvement of employees stress.

Coelho et al. (2011) performed a survey on the mediating impacts of role stress and intrinsic motivation using contextual factors and the creativity of frontline employees. They reported that the creativity of frontline service employees is associated positively with role conflict and negatively with role ambiguity. They performed confirmatory factor analysis of posttraumatic stress symptoms in Brazilian primary care patients using an examination of seven alternative models. Their objective was to study whether the clusters of PTSD symptoms identified in North American and European studies could be replicated in a Brazilian sample composed of 805 primary care patients living in hillside slums. They reported that their results seemed to uphold the cross-cultural validity of the 4-factor, first-order model.

Boyas et al. (2012) explained that age, organizational factors are linked with job stress, burnout among child protection workers, and they investigated on how age influences these adverse employee outcomes. They recommended that the paths to job stress, burnout and intent to leave varied by age group. They also concluded that firms needed to establish intervention attempts on younger workers by creating various structures of support, which could help them better deal with the pressures and demands of child protection work.

The present study investigates to find out the important factors influencing job stress in one of Iranian hydro facilities. The structure of this study first explains characteristics of all people who participated in our survey.

2. The proposed study

The study investigates different factors influencing people to have more stress in a hydropower unit located in city of Esfahan, Iran. Since there were only 81 people working for customer service section of this company and the proposed study tries to focus only on this part of the firm we have decided to distribute questionnaires among all of them. The questionnaire consists of two parts, in the first part, we gather all private information such as age, gender, education, job experience, etc. through seven important questions. In the second part of the survey, there are 52 questions, which include all the important factors influencing employees' stress.

2.1. Personal characteristics of surveyed people

As we explained, there are 81 people participated in our survey. In terms of their gender, there were 73 male and 8 female so approximately 90% of the surveyed people are from man. In terms of their educational background, 10 people had only 9 years of educational background, 48 people finished high school and 23 people had colleague education. While 15 people were single, 66 people were married. In terms of employment type, 21 people were permanent employee, 11 people maintained a five-year contract, 44 people had one-year contract and only 5 employee were on temporary contract.

In terms of job experience, 20 people aged between 20-29, 36 people aged between 30-39, 15 people were between 40 to 49 and finally, 10 employees were over 50 years of age. In terms of job experience, 45 people has from one to ten years of job experience, 15 people had between 11 to 20 years of job experiences and 21 people has between 21 to 30 years of job experience. Finally, 23 people were regular employee, 14 were workers, 30 people were working in customer service and 14 people were hired as accountants.

2.2. Methodology

In this survey, we use ANOVA test to measure different factors influencing stress. There are 66 questions associated with the proposed study of this survey and our focus in this paper is to see the effect of job title and people's age on stress.

3. The results

In this section, we present details of our ANOVA test between different groups of people who worked for this hydro generation unit in terms of different groups of age, job experience, etc. We first present Levin test and in case the ANOVA condition becomes suitable, we present details of ANOVA test.

3.1 Stress among different groups of job

The first ANOVA test is associated among four groups holding various job titles including regular employee, workers, customer section and accountants. Table 1 shows details of our Levin test.

Table 1
Details of Levin test among people with different groups of job title

	Sub groups	Levin	Degree of freedom		P-value
			between groups	Inside group	
1	Stress from management and other employees	0.801	3	77	0.498
2	Difficulty in Job conditions	0.901	3	77	0.446
3	Unsuitable working conditions	0.465	3	77	0.589
4	Fear of job stability	0.747	3	77	0.528
5	Total	0.280	3	77	0.840

As we can observe from the results of Table 1, all Levin values are meaningful, which means all pre-assumptions for ANOVA test holds. Table 2 shows details of ANOVA test along with various statistical observations. As we can observe from the results of Table 2, there is no meaningful difference between stress conditions created by different factors including stress from management and other employees, different job conditions, unsuitable working conditions and fear of job stability either inside or between groups.

Table 2
ANOVA test among people with different groups of job title

	Source of change	Sum of squares	degree of freedom	Mean of squares	F	P-value
Stress from management and other employees	Between groups	3.590	3	1.197	1.745	0.167
	Inside groups	44.576	77	0.686	-	-
	Total	48.167	81	-	-	-
Difficulty in Job conditions	Between groups	3.422	3	1.141	1.7482	0.228
	Inside groups	50.03	77	0.770	-	-
	Total	53.452	81	-	-	-
Unsuitable working conditions	Between groups	6.950	3	2.317	2.051	0.115
	Inside groups	73.420	77	1.130	-	-
	Total	80.370	81	-	-	-
Fear of job stability	Between groups	2.725	3	0.908	1.141	0.339
	Inside groups	51.744	77	0.796	-	-
	Total	54.468	81	-	-	-
Total	Between groups	3.909	3	1.303	2.566	0.062
	Inside groups	33.012	77	0.508	-	-
	Total	36.921	81	-	-	-

3.2 Stress among different groups of age

The first ANOVA test is associated among four groups various ages including 20-29, 30-39, 40-49 and more than 50 years old. Table 3 shows details of our Levin test.

Table 3
Details of Levin test among people in different age categories

Sub groups	Levin	Degree of freedom		P-value
		between groups	Inside group	
1 Stress from management and other employees	0.554	3	77	0.647
2 Difficulty in Job conditions	0.344	3	77	0.794
3 Unsuitable working conditions	1.448	3	77	0.236
4 Fear of job stability	2.577	3	77	0.060
5 Total	0.278	3	77	0.841

As we can observe from the results of Table 3, all Levin values are meaningful, which means all pre-assumptions for ANOVA test holds. Table 4 shows details of ANOVA test along with various statistical observations.

As we can observe from the results of Table 4, there is a meaningful difference by stress conditions created by management and other employees ($F=2.321$, $P<0.05$) and fear of job stability ($F=4.515$, $P=0.006<0.05$) between and inside groups, but there is no meaningful different for difficulty in job

conditions or unsuitable working conditions. Overall, it seems that age represents a meaningful factor between and inside groups for creating stress.

Table 4
ANOVA test among people with different age groups

	Source of change	Sum of squares	degree of freedom	Mean of squares	F	P-value
Stress from management and other employees	Between groups	4.035	3	1.345	2.321	0.042
	Inside groups	42.314	73	0.580	-	-
	Total	46.349	81	-	-	-
Difficulty in Job conditions	Between groups	1.642	3	0.547	0.776	0.511
	Inside groups	51.498	73	0.705	-	-
	Total	53.140	76	-	-	-
Unsuitable working conditions	Between groups	1.798	3	0.599	0.514	0.674
	Inside groups	85.066	73	1.165	-	-
	Total	86.864	76	-	-	-
Fear of job stability	Between groups	9.172	3	3.057	4.515	0.006
	Inside groups	49.430	73	0.677	-	-
	Total	58.602	76	-	-	-
Total	Between groups	2.428	3	0.809	2.780	0.049
	Inside groups	33.191	73	0.455	-	-
	Total	35.619	76	-	-	-

We have performed LSD test in order to see the effects of stress from management and other employees in different age groups and Table 5 shows our results.

Table 5
The results of LSD test for the effects of stress created by management and other employees on different age groups

First group	Second group	Mean differences	Standard deviation	P=value
20-29	30-39	-0.460	0.216	0.037
20-29	40-49	-0.604	0.262	0.024

As we can observe from the results of Table 5, the first group aged 20-29 with the mean of 2.856 had lower stress from people aged 30-39 with the mean of 3.316 and people aged 40-49 with the mean of 3.460. We have also performed LSD test between different groups of ages with people who are at least 50 years old and Table 6 shows details of our survey.

Table 6
The results of LSD test for the effects of stress created by management and other employees on different age groups

First group	Second group	Mean differences	Standard deviation	P=value
20-29	50 or older	1.042	0.346	0.004
30-39	50 or older	1.175	0.322	0.000
40-49	50 or older	0.904	0.360	0.014

As we can observe from the results of Table 7, different groups of people aged 20-29, 30-39 and 40-49 maintained higher stress from the people who are older than age 50. Another LSD test result indicates that people aged 30-39 had more stress than any other groups.

4. Conclusion

In this paper, we have presented an empirical study to measure the effects of stress among people with different job titles and ages in a hydropower unit located in city of Esfahan, Iran. The implementation of ANOVA and LSD tests has revealed that there are no meaning differences among people with different job titles but people in different age groups maintained various level of stress. The result of this paper is consistent with other related research accomplished earlier by other researchers.

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