

The Relationship of General Health and Job Stress in Industrial Workers

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Abstract

Background: Job stress is one of the most hazardous factors in workplace that endangers the workers' public health physically and psychologically. This study was conducted to investigate the general health status and occupational stress of workers in an electrical tablet production industry in Iran.

Methods: This cross-sectional study was carried out amongst 110 workers employed in electrical industry. The data were gathered by using demographic features questionnaire, general health questionnaire (GHQ), and job stress questionnaire (OSIPOW). The questionnaires were completed by interview to minimize the error in the data collection stage. Data were analyzed using SPSS (ver.20). A $P < 0.05$ was considered statistically significant.

Results: 63.6% of the participants in this study were in inappropriate general health status. There was a significant difference between the total score of general health and education level ($P = 0.04$). Also, there was a significant difference ($P < 0.05$) in working time in administrative and non-administrative parts. A significant relationship was observed between inefficiency and dichotomy of job stress with the total level of general health ($P < 0.05$).

Conclusion: Education and job stress are effective factors on the workers working in this industry.

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Introduction

From World Health Organization's point of view, health is a collection of basic physical, psychological, and social welfare and health and all these are of equal concern.¹ Human societies cannot survive without protection of health and hygiene. Diseases and disabilities disturb human relations and, as a result, deprive the patient from security and solidarity.² Studies have shown that human's mental and physical health has been affected by mental stress and there are different levels of mental stresses with different severities in all human's life.³

Some of these signs of mental health are self-reliance, independency, self-directedness, ability to deal with others and supervisors, ability to do a job, ability to take responsibility, love for others,

and ability to tolerate frustration.⁴ Mental health is a condition in which every individual is able to know his/her abilities and overcome natural stresses in life and job, do effective activities, and take part in group works in the society.¹

Mental disabilities, especially depression, are one dimension of general health which is very common in working and general population. Promotion of mental and physical health of workers in workplaces and different industries and their stressful factors, and decrease or eradication of inappropriate effects of these factors is one of the main and fundamental actions in order to optimize jobs and increase the workers' productivity. The main purpose of this study was to investigate different aspects of occupational stress and its impact on the general health of those working

in industries, which can influence organizational decisions and greatly improve the individuals' general health and reduce their job stress.^{5,6}

Stress is increasingly important in the occupational health with the development of globalization, promotion of competitions, more mobility between countries, and changes in employment; it is known as one of the most important factors of economic losses all around the world.⁷ NIOSH described job stress as harmful physical and emotional responses when the job requirements are not compatible with the capabilities, resources, or needs of the worker.⁸

Job is one of the main factors in the present society.⁹ Stress occurs in all people who work in organizations and industries. Also, evidence indicates that job has a key role in spread of stress among the employees, and job changes such as wages and salary, job promotions, etc. put people under pressure in a way that makes them turmoil, anxious, and restless.¹⁰

Given that stress costs too much for both organizations and production units, in the past decades many studies were done about the relationship between job stress, and its results in the form of spiritual and physical tiredness, irritability, anxiety, petulance, lack of confidence, lack of job satisfaction, decrease in the efficiency, and so on.¹¹⁻¹³ Therefore, due to the importance and relationship of general health and job stress of industry workers, this study aimed to investigate the general health status and job stress and their relationship in an industry group in Kerman city in Iran.

Methods

This study was performed in one of Kerman's industries in 2018 as census. At first, senior managers' consent was obtained and then the study goals were explained orally for the personnel and their consent was obtained as well. Then, according to the list that was made from workers, 118 men and women worked there and all of them received demographic features questionnaire, general health questionnaire (GHQ), and job stress (name of questionnaire); finally, 110 questionnaires were returned. (Because we used census methods, it is mentioned that a few workers did not fill the questionnaire because of off days)

GHQ, which was made of 28 questions, was filled out by the studied personnel. This questionnaire is a psychological tool designed by Goldburg and Hieler¹⁴ and is a well-known screening tool in psychiatry for studying non-psychiatric mental disorders in general population. It measures different dimensions of health and differentiates healthy people from those who believe they are healthy but have mental disorders. Twenty eight items of the questionnaire include four dimensions of psychological disorders, anxiety,

social disorders, and depression. It is scored from 0 to 3 based on Likert scale. In each field, the number varies from 0 to 21 and in the whole questionnaire the minimum score is 0 and maximum 84. In this questionnaire, higher scores show the worst health situation (140). OSIPOW questionnaire used had three separate parts in order to analyze job stress situation. The first part of this questionnaire was not used in this study. This part of questionnaire includes working time of job, inefficiency of the job, dichotomy, range of job, responsibility, and physical environment. Each one of the above-mentioned parts includes 10 separate questions.¹¹ OSIPOW questionnaire was so popular in a study done in Iran, and its reliability and validity with Cronbach's alpha coefficient was confirmed as 89%.¹⁶ This questionnaire was designed in five-point Likert scale. The reliability of this tool was measured by Cronbach's alpha coefficient that was 86%.¹⁷ Other studies in Iran measured Cronbach's alpha coefficient for four subscales as 86, 85, 82, and 72%, respectively.¹⁸ In a study done in Iran, the questionnaire's cut-off point was 23 and that for each field was 6.¹⁹

Data were analyzed through SPSS (ver.20) using independent t-tests, unilateral variance analysis, Spearman correlation coefficient, Mann-Whitney, and Kruskal-Wallis tests.

Results

In this study, 110 workers with a mean age and standard deviation of 27.74±4.56 and a work experience of 2.99±2.02 participated. The mean and standard deviation of other demographic variables studied in this research are shown in Table 1.

The scores of mean and standard deviation in all dimensions in both questionnaires of general health and job stress are shown in Table 2. According to the cut-off point for general health situation, 70 people (63.6%) were in bad situation and 40 (36.4%) were healthy.

Table 3 shows the relationship between general health and demographic variables. As it is seen, education has a reverse significant relationship with general health between demographic variables.

Table 4 shows the results related to independent t-test which expresses the relationship between different categories of job stress among the employees in administrative and non-administrative parts. These results show that there is a significant relationship between working time in administrative and non-administrative sections.

Table 5 shows the correlation coefficient between general health and job stress. Spearman's correlation coefficient test results in Table 5 indicate a significant relationship between physical health and

Table 1: Demographic features of the participants in this study

Variable		Frequency	Percent
Sex	Male	94	85.53
	Female	16	14.55
Smoking	Yes	13	11.80
	No	97	88.21
Education	Diploma	55	50.00
	License	11	10.00
	Higher education	44	40.00
Marriage	Single	37	33.61
	Married	73	66.45

Table 2: Descriptive information in different dimensions of job stress and general health questionnaires

Variable		Mean	SD	Min	Max
Job Stress	Work load	29.29	5.50	16.00	49.00
	Inefficiency of the job	31.00	6.85	16.00	45.00
	Dichotomy	32.73	6.00	16.00	43.00
	Range of job	29.16	5.66	18.00	45.00
	Responsibility	30.03	7.80	12.00	50.00
General Health	Physical environment	22.75	8.17	10.00	50.00
	Psychological disorders	6.06	2.78	2.00	14.00
	Anxiety	6.10	3.50	1.00	17.00
	Social disorders	13.92	4.62	2.00	24.00
	Depression	3.30	3.74	00.00	18.00

Table 3: Linear regression analysis between variables and general health score

Variable	B	S.E	P value
Age	-0.211	0.19	0.27
Work experience	0.000	0.40	1.00
Sex	1.042	2.17	0.63
Marriage	2.249	1.70	0.19
Education	-1.886	0.82	0.02***
Smoking	-2.219	2.47	0.37

Table 4: The relationship of different sections of job stress for administrative and non-administrative employees

Variable	Work unit (Administrative=48, Non-Administrative=62)	Mean	SD	P value
Work load	Administrative	30.54	5.76	0.03***
	Non-Administrative	32.28	5.14	
Inefficiency of the job	Administrative	30.91	7.07	0.91
	Non-Administrative	31.06	6.70	
Dichotomy	Administrative	32.50	6.25	0.71
	Non-Administrative	32.91	5.80	
Range of job	Administrative	28.95	5.27	0.74
	Non-Administrative	32.29	5.98	
Responsibility	Administrative	29.45	7.50	0.49
	Non-Administrative	30.48	8.06	
Physical environment	Administrative	20.04	5.97	0.40
	Non-Administrative	21.19	8.05	

Table 5: The relationship between different dimensions of job stress with general health

Job Stress	Work load		Inefficiency of the job		Dichotomy		Range of job		Responsibility		Physical environment	
	r	P value	r	P value	r	P value	r	P value	r	P value	r	P value
Psychological disorders	-0.10	0.28	-0.13	0.15	-0.19	0.03***	-0.03	0.72	-0.10	0.29	0.01	0.85
Anxiety	-0.17	0.06	-0.22	0.01***	-0.25	0.007***	0.04	0.68	-0.13	0.16	0.01	0.85
Social disorders	0.008	0.93	0.03	0.74	0.10	0.25	0.09	0.32	-0.04	0.62	-0.08	0.36
Depression	-0.14	0.13	-0.19	0.04***	-0.33	0.001***	-0.20	0.03***	0.03	0.68	0.13	0.16
Total Score	-0.17	0.06	-0.21	0.02***	-0.27	0.003***	-0.06	0.47	-0.10	0.28	0.02	0.85

role ambiguity on job stress ($P < 0.05$). Also, anxiety had a significant relationship with role inefficiency ($P < 0.001$) and role dichotomy ($P < 0.001$). Also, depression had a meaningful relationship with role inefficiency ($P < 0.05$), role dichotomy ($P < 0.001$), and range of role. And finally, the total score of general health had a meaningful relationship with role dichotomy ($P < 0.001$). It is necessary to mention that the above-mentioned relationships were reverse.

Discussion

Based on the obtained results and according to the cut-off point 23 for the general health status, 63.6% of the participants had inappropriate general health situation. In the study of Barzideh et al., 64.7% of the subjects were suspected to disorders.²⁰ The final score of general health in the present research in comparison with the study of Choobineh et al.¹⁶ was higher and it was lower in comparison with Barzideh et al.'s study.²⁰ In this research, the highest level of problems in different fields of general health of the studied people, with 92.7%, occurred in the field of social disorders.

In the study of Tabatabayee et al., which was done in an industry in Tehran, there was no significant relationship between general health and education,¹⁷ but in this study there was a meaningful relationship between general health and education; the results of these two studies are different from each other. Different studies have shown that average rating of general health decreases with increasing education.¹⁶²¹ In this study, even though 40% of the staff had bachelor's degree or higher, the score of general health was higher and perhaps this is related to the specific requirements of industry. In the present study, there was no significant relationship between age and general health.¹⁶

In Tabatabayee et al.'s study, there was no meaningful relationship between age and general health, similar to the present study. Moreover, in the present study, there was no meaningful association between work experience and gender variables with general health. In Tabatabayee et al.'s study, work experience and general health were not significantly related, which is the same as this study.¹⁷ As the results show, the highest score belongs to role inefficiency; on the other hand, role inefficiency has the most negative effect on job stress. In this study there was no significant relationship between work experience and education with job stress that corresponds to results obtained by Bahrami et al.²²

Also, in the study done by Angela et al., there were no significant relationship between work experience and job stress, which corresponds with the results of this study.²³ Results of Souri et al. showed that there was a meaningful relationship between age and job

stress in SAIPA factory; also, meaningful significant relationship was found between age and range of job inefficiency.²⁴ Results show that hours of working time is a dimension of job stress in the group of non-administrative employees in comparison with their colleagues in the administrative section, and this can cause dissatisfactions between workers in non-administrative sections. Also, according to the obtained results, the relationship between different dimensions of job stress with general health was studied in this research and it was clear that there was a reverse and meaningful relationship between the level of general health with role inefficiency and role dichotomy; in fact, role dichotomy and inefficiency were two factors effective on general health.

Limitation

Since this study was a cross-sectional one and data collection was done by self-report, the results should be interpreted cautiously. Also, this study was done amongst electrical industry in Kerman. Therefore, the results might not be generalizable to other workplace.

Conclusion

Due to the low percentage of people with accepted public health, it is recommended that general health and the inefficiency and dichotomy of the role of job stress dimensions should be considered and the worker's general health should be improved by making some changes. Improving general health results in increasing output and job satisfaction.

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References

- Herrman H, Saxena S, Moodie R. Promoting mental health: concepts, emerging evidence, practice: a report of the World Health Organization, Department of Mental Health and Substance Abuse in collaboration with the Victorian Health Promotion Foundation and the University of Melbourne: World Health Organization.2005; 58-150.
- Shamloo S. Mental Health. Tehran. Roshd press,1999.
- Anaraki HR MG, Rohhi G, Asayesh H, Nasiri H, Rakhshani H(2013). General health status of neurologic patients'caregivers and therelated factors Journal of research development in nursing& Midwifery FALL 2012;9(2):49-55.
- Campbell R.J. Campbell's psychiatric dictionary:

- Oxford University Press, 2004.
- 5 Farvaresh E, Monazam M, Abbassinia M, Asghari M, Sadeghi A, Mohammadian F. Investigation the relationship between sleepiness and general health of shift workers in the automobile industry. *JOURNAL OF NORTH KHORASAN UNIVERSITY OF MEDICAL SCIENCES*;2012;4(2(12)):221-7.
 - 6 Gholami, Milad. Emkani, Mojtaba. Dehghan, Azizallah. Daneshmandi, Hadi. Hadizadeh, Hadi. Survey of general health status and the factors affecting in it among industry staffs in Kerma. *J Neyshabur Univ Med Sci*. 2014; 1(1): 32-35.
 - 7 Li J, Yang W, Liu P, Xu Z, Cho S-I. Psychometric evaluation of the Chinese (mainland) version of Job Content Questionnaire: a study in university hospitals. *INDUSTRIAL HEALTH-KAWASAKI* 2004;42(2):260-7.
 - 8 Baker DB, Karasek RA. Stress. In: Levy BS, Wegman DH, Editors. *Occupational Health: Recognizing and Preventing Work-Related Disease and Injury*. Philadelphia: Lippincott Williams & Wilkins; 2004; 419-36.
 - 9 Khatoni M, Mlahasani M, Khoeniha S. Job stress and its related factors in accountant employees of Qazvin University of Medical Sciences. *Iran Occupational Health*; 2000; 8(2):18-30.
 - 10 Kabirzadeh A, Mohsenisaravi B, Asghari Z, Bagherianfarahabadi E, Bagerzadehladari R. Rate of general health, job stress and factors in medical records workers. *Health Information Management*;2008; 4(2):215- 22.
 - 11 Abdi, H., and L. Shahbazi. Correlation between occupation stress in nurses at intensive care unit with job burnout;2001; 58-63.
 - 12 Navidian A, Gh M, Moosavi S. Evaluation of job burnout and it's relation with general health of emergency nurses of Zahedan hospitals. *Journal of Kermanshah University of Medical Sciences*2005; 3:17-26.
 - 13 Raeisi P, Tavakoli G. Impact of occupational stress on mental health and job performance in hospital managers and matrons. *Hakim*, 2003.
 - 14 Goldberg DP, Hillier VF. A scaled version of the General Health Questionnaire. *Psychological medicine*1979;9(01):139-45.
 - 15 Mardani HM, Sharaki VA. Relationship between mental health and quality of life in cancer patients. *Journal of Shahid Sadoughi University of Medical Sciences And Health Services*2010;18(2):111-7.
 - 16 Tabatabaei S, Zeyari R, Hajian M. Study of Relationship between General Health and Shift Work in Staff of Tehran Sofalin Varamin Factory. *QJCar & Organ Counsel*2011;3(8):56-63.
 - 17 Omidi A, Tabatabai A, Sazvar S. Prevalence of mental disorders in urban areas of the city of Natanz, Isfahan. *Andishe-va-raftar*2004;1(32):32-8.
 - 18 Jahani Hashemi H, Noroozi K. Mental health in students in Qazvin University of Medical Sciences. *Payesh*, 2004.
 - 19 Choobineh A, Neghab M, Hasanzade J, Rostami R. Comparative Assessment of Dentists' Psychological Health Status in Shiraz with Their Physicians Counterparts Using General Health Questionnaire (GHQ-28). *Journal of Dental Medicine*2012;25(4):290-6.
 - 20 Barzideh M, Choobineh A, Tabatabaei S. Job stress dimensions and their relationship to general health status in nurses. *Occupational Medicine Quarterly Journal*2013;4(3):17-27.
 - 21 de la Revilla AL, de los Ríos AA, Luna dCJ. Use of the Goldberg General Health Questionnaire (GHQ-28) to detect psychosocial problems in the family physician's office. *Atencion primaria/Sociedad Espanola de Medicina de Familia y Comunitaria*2004;33(8):417-22; discussion 23-5.
 - 22 Bahrami A, Akbari HAH, Mousavi SGA, Hannani M, Ramezani Y. Job stress among the nursing staff of Kashan hospitals. *Feyz Journals of Kashan University of Medical Sciences*2011;15(4):366-73.
 - 23 Angela Decarla J. A Survey of the Occupational Stress, Psychological Strain, and Coping Resources of Licensed Professional Counselors in Virginia: A Replication Study: Dissertation. USA. Virginia Polytechnic Institute and State University, 2004.
 - 24 Soori H, Rahimi M, Mohseni H. Occupational stress and work-related unintentional injuries among Iranian car manufacturing workers. *East Mediterr Health J*2008;14(3):697-703.