The effectiveness of biofeedback and relaxation training in reducing occupational stress was examined in a study of 50 individuals employed in various occupations in Iran. The study sample consisted of 15 workers (5 females, 10 males); 15 managers (5 females, 10 males); 9 guardians (3 females, 6 males); 5 dentists (2 females, 3 males); and 6 teachers (3 females, 3 males). All subjects were trained to control their occupational stress through relaxation and biofeedback techniques. Each of the 10 training sessions lasted 30 minutes. After the training sessions had been completed, the subjects were asked to continue training in their own work environment. All subjects were evaluated by the following methods before and after the training: clinical interviews; Minnesota Satisfaction Questionnaire, short form; and C-TEMP and GSR (Galvanic Skin Response) biofeedback. A chi-square analysis of the interview, questionnaire, and biofeedback findings failed to establish any relationship between sex of subject and effectiveness of treatment. However, effectiveness of training was significantly related to occupation. Specifically, the biofeedback and relaxation training was more effective in reducing the occupational stress experienced by dentists, teachers, and managers than it was in reducing the occupational stress experienced by guardians and workers. (Contains 27 references.) (MN)
The comparative study of the occupational stress among jobs and Bio-feedback training effects in Iran

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ABSTRACT

Introduction and objective
Due to the important of reducing occupational stress, specially after war in Iran, this study has examined the effectiveness of Bio-feedback (TEMP, GSR) training in the treatment of fifteen patients (N=50, age range = 20 through 34) with occupational stress.

Material and Method
Fifty patients of a clinical office through three months were diagnosed as suffering from major cause of occupational stress. A few of occupational stress are as follows: 1- daily physical and mental demands, 2- heart rate, 3- professional isolation, 4- difficulty decision making and 5- perceived lack of social status. At first of treatment programs, all of the patients were diagnose by: A- clinical interview (self direct questioner) B- job satisfaction inventory (Minnesota satisfaction questionnaire, short form) and finally C- TEMP and GSR Bio-feedback. Number of Ss at the begin of the study were as follows: 1- fifteen workers, (5 females and 10 males), 2- 15 managers (5 female, 10 males), 3- 9 guardians (3 female, 6 male), 4- five dentists (2 females, 3 males) and 5- six teachers (3 females, 3 males). The subjects were traine equally to control theirs occupational stress by relaxation and Bio-feedback training through ten 30 minutes' sessions. After training the subjects were asked to continue training in theirs work environment. Then, After three months of training, the subject were evaluate by Bio-feedback (GSR and TEMP), Job satisfaction inventory (Minnesota university inventory) and clinical interview.

RESULTS
Data were analyzed by chi-square's statistics with the following results; 1- There are no relationship between sex and treatment. 2- There are significant relationship between job and treatment

CONCLUSION
This study comprise as well as few studies in stress control and Bio-feedback training literature's, show that training of this method reduces the stress of jobs and it provides increasing of job satisfactions.

Introduction
The economic change is increasing by economic activities in developing countries. In these countries, the economic development is one of the most important
characteristic. At this reason, acquire and retained of organic & mental health and environment of workers is the main cause of economic development. According to A meta analyze in literature of this article, the aim of this study is too discussed. **Bio-feed back** training effect to decreasing of occupational stress in iranian workers. Thous, Attending to literature, the propose of this article “is study of occupational stress and Bio feedback training affect between iranian jobs” that, would be discuses continuously by 6 rationales.

**1-Developing Countries Workers and Their function** A- manathan-chathapurram-s

This research reflects an inverse relationship between increased economic activity and the health and safety of workers in ASIA. According to this research low of decision making, poor use of job skills and lack of social support, are treats of occupational stress in worker (1994) B- Hoyle, Eric. Mc Mahon, Agner (1986). Discussed separately, few aspects of mental --organic distinctions in developing countries' workers. In base of this research, the occupational stress is associate by organic and mental dysfunction's. For example, decreasing the job satisfaction, poor of handling difficult situation's ability, daily physical and mental demands difficult decision making.


1. Poor coping ability,
2. Work load,
3. Increasing strain, and 4- Perception of social support. Were more important Factors that Related to occupational stress of worker's environment those Authors are discused it separately. 

Personality and self-esteem of workers that were engage in few studies, 1- Rayburn, Carole A. And Others (1986). 2- Cummins, Robert C (1990), discused separately personality as an Another related variables to occipital stress.

The Fourth category of occupational stress studies, were relate to comparative studies.

**4- The important of comparative studies in occupational stress and its treatment**
race and nation as an original factors that related to occupational stress of workers. A- Smith, Earl. Witt, Stephanie L (1993), from analysis of data from a national survey of about 1000 college faculty reported African-American faculty reported higher levels of occupational stress than white counterpart. B- Gaziel, H H (1993) Discused, Among 373 Jewish and Arab elementary teachers, Jewish teacher reported higher occupational stress about community and parental expectations whereas Arab teachers were stressed by working conditions and professional image. The two groups also differed in handling difficult situations' strategies for managing job stress. Psychological intervention in occupational stress treatment, is the fourth factor in this literature.


6- **Multi intervention of psychotherapy to decreasing occupational stress** According to the few of researches, multi interventions of psychotherapy models make more sufficient in decreasing of OS. A- Wickramasekera, - Ian and et all (1996) hipnose, cognitive and behavior therapy are sufficient method to control of occupational stress and B- Arnette, J-Kenneth (1996) discussed, counseling, psychotherapy and drug therapy are significant method to decreasing of occupational stress.

**METHODS**

**Subjects**

The definition of persons with occupational stress (O.S) is applied to workers were suffering from organic and mental stress in environment of work status. These definition was drafted and endorsed by the DSM-IV (1996) characteristic for stress disorders and few of research, discussed the main characteristic of occupational stress (OS) disorders include as follows: 1- high frequency of daily physical and mental demands like, biting heart, headache, low of job satisfaction, professional isolation, difficult decision making, and lack of social status (Lichfield-n-Burce, 1989). 2- less able to cope effectively, (Hamilton, Linda H. Kella, John J, 1992) 3- low of job satisfaction, A-(Powers, Catherine A, 1996) and B-(Borg, Mark G. Riding, Richard J, 1993), 4- job change, (Blix, Arlene Gray, and other, 1994).

In a clinical office the 50 patients were participate to psychotherapical intervention voluntary. After clinical interview, Organic- mental needs Self direct Questioner and MINNESOTA job satisfaction questionnaire, short form A-(Stickel, Sue A, 1991). B-(Taylor, Elizabeth A and other 1990), the patients were voluntarily participated to relaxation and Biofeedback training models, through 10, thirty minute sessions.

The subjects were as follows:

- Fifteen workers, (5 females and 10 males), 15 managers (5 females, 10 males)
- 9 guardians (3 female, 6 male)
- Five dentist (2 females, 3 males) and 6 teachers (3 females and 10 males)
females, 3 males). At first all the subjects were trained equally to control their occupational stress by relaxation and Bio-feedback training through ten, 30 minutes' sessions of training in self control of O-S.

**TABLE NUMBER 1-FREQUENCY OF PATIENTS BY SEX AND JOB CLASS.**

<table>
<thead>
<tr>
<th>CLASS</th>
<th>JOB</th>
<th>FEMALE</th>
<th>MALE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>DENTISTS</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>GUARDIANS</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>C</td>
<td>MANAGER</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>D</td>
<td>TEACHERS</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>E</td>
<td>WORKER</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
</tbody>
</table>

**THE FREQUENCY DISTRIBUTION OF PARTICIPANTS AT THE BEGIN OF TREATMENT**

![Graph showing frequency distribution of participants by sex and job class.]

Figure 1 THE FREQUENCY DISTRIBUTION OF PARTICIPANTS AT THE BEGINNING STAGE OF TREATMENT

**MATERIALS**
The research materials include 1- the inventory of **MINNESOTA JOB SATISFACTION INVENTORY (MJSI)** 2- the clinical interview 3- questionnaire of psychological and organic needs (self-directed) and 4- Bio-feedback instrument (Galvanic Skin response or GSR) and temperature of skin response (T SR).

**METHOD**

At first, all the 50 patients were asked to participate to complete these programs: 1- complete the (MJSI) 2- OS self-directed questionnaire, and 3- the biofeedback training control, through ten, thirty minutes' sessions. Finally, subjects were asked to continue the OS control program (occupational stress control) in their work environment, through three months of follow-up study. Approximately three months later of flow up study, subjects were asked to estimate their OS and occupational stress for second time, by complete the 1- questionnaires 2- Biofeedback scales testing, and finally 3- MJSI.

**RESULTS**

The result's bases on 80% (N= 40) of subjects that participate to all the programs, engage there are not significant relationship between treatment and sex, but there are significant relationship between jobs and treatment. Finally, these results suggest psychotherapy intervention in treatment of, Dentist, managers and teachers OS is more sufficient versus other jobs.

**TABLE 2 THE FREQUENCY OF PATIENTS BY SEX AND JOB CLASS, IN ALL OF THE STAGES OF TREATMENTS PROGRAM.**

<table>
<thead>
<tr>
<th>CLASS</th>
<th>JOB</th>
<th>FEMALE</th>
<th>MALE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>DENTISTS</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>GUARDIANS</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>C</td>
<td>MANAGER</td>
<td>4</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>D</td>
<td>TEACHERS</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>E</td>
<td>WORKER</td>
<td>4</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>total</td>
<td></td>
<td>15</td>
<td>25</td>
<td>40</td>
</tr>
</tbody>
</table>

**GRAPH NO 2: THE FREQUENCY OF PARTICIPANTS BY SEX AT THE THREE MONTH STAGE OF TREATMENT**
The frequency distribution of participants at the three months stage of treatment

Figure 2 THE FREQUENCY DISTRIBUTION OF PARTICIPANTS AT THE THREE MONTH STAGE OF RESEARCH

This table and graph show number of Ss that are success to control their OS by psychotherapeutic model.

Table 3 FREQUENCY OF PATIENTS BY SEX AND JOB CLASS AT THE END STAGE OF TREATMENT.
### The Frequency Distribution of Participants at the Final Stage of Treatment

<table>
<thead>
<tr>
<th>CLASS</th>
<th>JOB</th>
<th>FEMALE</th>
<th>MALE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>DENTISTS</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>GUARDIANS</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>MANAGER</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>D</td>
<td>TEACHERS</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>E</td>
<td>WORKER</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13</td>
<td>15</td>
<td>28</td>
</tr>
</tbody>
</table>

Figure 3: The Frequency Distribution of Participants at the Final Stage of Treatment

Chi-Square Tests according to job and treatment variables clear significant relationship between job and treatment variables (Chi-Square = 9.20, D.F= 4, significance level = .05).

Finally, results from Chi-Square method suggest, there are not significant relationship between variable of sex and treatment variable (Chi-Square = 4.00, D.F =4, significance level = .406).
TABLE 4 SHOW CHI SQUARE RESULTS ATTEND TO JOB, SEX AND TREATMENT VARIABLES

1- Sex And Treatment Variables Comparison Chi Square 4.00 D. F = 4
   significance = .406

2- Job And treatment Variables Comparison Chi Square=9.20 D.F= 4
   Significance= .05*

* significance level= 95%

DISCUSSION

Final review of this article is engaged in the discussion the data of this research. According to these data, the discussion, attempt to find rational elements of research conclusion. In this way, Authors discuss three elements that is relate to these data. 1- cause and effect of conclusion. 2- Limitation(s) of research. And finally 3- suggestion of research. 1- Cause and Effects of conclusions:

In this way, data clear A: There are Significant relationship between jobs and treatment variables (Table Number 3 and its Graph and Table number 4) and B: There are Not significant relationship between variable of sex and treatment (Table Number 3 and its Graph and Table number 4 ).According to these data, job's variable as independent variable is suffering from OS and in the other hand treatment method is an independent variable to job variable. Table number 1 and Graph number 1, discus frequency of patient that are suffering from OS, in this table frequency of patients, report Dentists, Guardians, Manager, Teachers, Workers jobs associate by indisputable stress and over loading of work. For example in this study dentist, teacher and management jobs report more significant effect from psychotherapy method intervention. In the other way, all the subjects attend to organic-mental need Questioner reports, Work load, increasing strain and social support were the main factor of there Occupational stress (O S). Work load (69%) social
support (55%) and increasing strain (80%).

Table number 2 and Graph number 2, report Frequency of patients that are participates to the treatment's program. In comparison of Table N -1 results show, decreasing of subject too 80%, was affect from 1- prolongs of treatments program 2- work loading in their environment and 3- some personal limitations (time, price, interest and etc.). The table number 3 and its Graph (3), reports final frequency of patients that were participated to treatments program, according to collecting of data from the Questioners, clinical interview and Bio-Feed Back Scales, 61% (28/40) of the patients were suggest to acquire these traits: 1- control there Occupational stress 2- Increased Job satisfaction 3- low of Organic-Mental needs (Table NO 3 and Graph NO 3 show the frequencies of patients that they are treated by psychological intervention).

2- Limitation(s) of research: Have a One group of clinical population in this study is one of the main limitation of research another of these limitations is the control group of research that was renouncement.

3- Suggestion of research: It is suggest to develop this model to another job and population. and second, search to find another elements and reinforces related to OS in our social statistic, for example, search to find work loading and social support study related to jobs between success groups (teachers, dentists and managers) and other groups (worker, Guardians).

REFERENCES


8. Clariana, Roy B (1992), Media research with Galvanic Skin Response Bio sensor: some kids worker a sweet vol. 1 michro fiche ERIC accession NO Ed 381141


15. Litchfield, N Bruce (1989), stress related problems of dentists special issue: Bio feedback and diagnostic technique journal of international of psychosomatic vol. 36 (1-9) 41-44


20. Ramanathan, Chathapuram S (1994). Worker health and wellness in developing nation's issue confronting eccopatinals social work journal employee assistance quarterly, vol. 10 (1) 79-90
22. Rayburn, Carole and leadership roles, JOURNAL clinical psychology v 92 n 3 p 540-546
I. DOCUMENT IDENTIFICATION:

Title: The comparative study of the occupational stress among jobs and Biofeedback training effects in IRAN

Author(s): Hamid Kamar Zarin

Corporate Source: 7th International Symposium on Neurobehavioral methods and effects in occupational and environmental health, June 18, 1999, Stockholm, Sweden

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