

# Job Stress and Related Factors Among Iranian Male Staff Using a Path Analysis Model

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## Abstract

**Background:** In recent years, job stress has been cited as a risk factor for some diseases.

**Objectives:** Given the importance of this subject, we established a new model for classifying job stress among Iranian male staff using path analysis.

**Materials and Methods:** This cross-sectional study was done on male staff in Tehran, Iran, 2013. The participants in the study were selected using a proportional stratum sampling method. The tools used included nine questionnaires (1- HSE questionnaire; 2- GHQ questionnaire; 3- Beck depression inventory; 4- Framingham personality type; 5- Azad-Fesharaki's physical activity questionnaire; 6- Adult attachment style questionnaire; 7- Azad socioeconomic questionnaire; 8- Job satisfaction survey; and 9- demographic questionnaire).

**Results:** A total of 575 individuals (all male) were recruited for the study. Their mean ( $\pm$ SD) age was 33.49 ( $\pm$ 8.9) and their mean job experience was 12.79 ( $\pm$ 8.98) years. The pathway of job stress among Iranian male staff showed an adequate model fit (RMSEA=0.021, GFI=0.99, AGFI=0.97, P=0.136). In addition, the total effect of variables like personality type ( $\beta$ =0.283), job satisfaction ( $\beta$ =0.287), and age ( $\beta$ =0.108) showed a positive relationship with job stress, while variables like general health ( $\beta$ =-0.151) and depression ( $\beta$ =-0.242) showed the reverse effect on job stress.

**Conclusions:** According to the results of this study, we can conclude that our suggested model is suited to explaining the pathways of stress among Iranian male staff.

**Keywords:** Job Stress, Path Analysis, General Health, Physical Activity, Personality Type, Job Satisfaction, Depression

## 1. Background

Job stress has become a leading topic of discussion in the twenty-first century, and it has been proven to affect people's family, work, and quality of life (1). In essence, work-related stress is people's response to work demands and pressure that do not match their knowledge and abilities and which challenge their ability to cope at work. Such job-related stress can vary from mild to severe depending on one's physiological, psychological, and social make-up (2).

The health and safety executive (HSE) estimates that the total number of working days lost due to stress, depression, or anxiety was 11.3 million in 2013/14, involving an average of 23 days per case of stress, depression, or anxiety (3). Sufficient evidence in this case showed that severe stress has a significant relationship with physical health, mental health, quantity and quality of performance, reduced productivity, job dissatisfaction, turnover, lateness, and absenteeism (4). In addition, previous research has shown that job stress is associated with many diseases, and problems like cardiovascular disease (5), musculoskeletal conditions

(6, 7), and blood pressure-related issues (8, 9) intensify the harmful effects of shift work on health outcomes (10-12). But what is the definition of job stress?

"Job stress can be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker. Job stress can lead to poor health and even injury" (2, 13).

Previous studies indicate that a number of factors affect job stress, including depression (14-16), personality type (17, 18), physical activity (19, 20), socioeconomic status (17, 21, 22), job satisfaction (23, 24), and demographic variables like age, education, and marital status (1, 17, 24-26). Given the importance of job stress, especially in staff personnel, there is an urgent need to study all related factors simultaneously.

## 2. Objectives

Given the importance of job stress, for the first time in Iran, we studied job stress and related factors among Iranian male staff using a path analysis model.

## 3. Materials and Methods

This cross-sectional study was done in 2013 on male staff, and the samples were selected using proportional stratum sampling in Tehran, Iran. The inclusion criteria were official employment with at least two years of experience and no physical or mental illness. As part of this study, the participants responded to nine questionnaires (1- HSE questionnaire; 2- GHQ questionnaire; 3- Beck depression inventory; 4- Framingham personality type; 5- Azad-Fesharaki's physical activity questionnaire; 6- adult attachment style questionnaire; 7- Azad socioeconomic questionnaire; 8- Job satisfaction survey; and 9- demographic questionnaire).

Approval to conduct the study was obtained from the ethics committee at Baqiyatallah University of Medical Sciences. The participants were briefed about the aim of the study. They were assured of their privacy and also informed that they could withdraw from the study without any problem.

### 3.1. Sample Size and Software

Data were analyzed using IBM's SPSS Software Version 21 and AMOS version 18. Descriptive and analytic statistics were employed, and Pearson or Spearman correlation was used to analyze the data, as well as path analysis. In this study, the normality of the quantitative variables was reviewed through the K-S, skewness, and kurtosis tests. A P value less than 0.05 was considered to be statistically significant.

In the study, the path analysis was evaluated by fit indices taken from chi-square statistics ( $P > 0.05$ ), relative chi-square ( $RCS < 2$ ), the goodness of fit index ( $GFI > 0.9$ ), the adjusted goodness of fit index ( $AGFI > 0.9$ ), and the root mean square error of approximation ( $RMSEA < 0.05$ ) (27). The sample size, at 500 cases for path analysis, was considered sufficient (28). Also, because the researcher wanted to ensure an optimal sample size, this sample was multiplied by 1.5; thus, 600 questionnaires were distributed and 575 questionnaires were collected.

### 3.2. Tools

#### 3.2.1. HSE Questionnaire

The HSE's management standards indicator tool is a 35-item questionnaire. This questionnaire relates to seven

primary stressors that are identified in the management standards for work-related stress. The items are based on the best available evidence linking work design to health outcomes, and the questions are classified into the following seven stress component domains: demands, control, managerial support, peer support, relationships, role, and change. The questions in the demands and relationships scales are scored on a five-point Likert scale (5- always, 4- often, 3- sometimes, 2- rarely, and 1- never). The questions in the other domains are scored from 1 to 5, with a score of 1 representing the most unfavorable working conditions across all domains and a score of 5 representing the most favorable (29). The Persian version of this questionnaire was validated by Azad Marzabadi and Gholami Fesharaki (30) using content, translation, and construct validity (exploratory and confirmatory factor analysis). The Cronbach's alpha for this questionnaire was reported to be between 0.65 and 0.78.

#### 3.2.2. GHQ Questionnaire

The general health questionnaire (GHQ) is widely used for measuring mental health status, and especially for the detection of emotional disorders such as distress. The 28-item version of the GHQ is the only version that provides sub-scale measures of more specific domains of psychopathology (31). This questionnaire includes four sub-scales, namely, severe depression, anxiety and insomnia, somatization, and social dysfunction. Each sub-scale is made up of seven items, and the content of each item on these sub-scales was selected to maximize the differentiation of anxiety from depression. The reliability coefficients of the questionnaire range from 0.78 to 0.95 in various studies (32). In Iran, Palahang et al. (33) and Yaghobi (34) reported the reliability coefficients as being 0.91 and 0.88 for anxiety and depression, respectively.

#### 3.2.3. Beck Depression Inventory

The Beck depression inventory (BDI) is a 21-item interview that measures the characteristic attitudes and symptoms of depression; it was devised by Aaron Beck. Beck developed a triad of negative cognitions about the world, the future, and the self, which play a major role in depression. The BDI has a maximum score of 63; a score of 0 to 15 indicates healthy; 16 to 30 indicates a minimal level of depression; 31 to 46, mild depression; and 47 to 63, severe depression (35). These questionnaires were provided to subjects before any procedure was applied. According to a study in Iran by Kaviani et al. (36) a Cronbach's  $\alpha$  of 0.92 was found, as well as acceptable test-retest reliability ( $r = 0.72$ ).

### 3.2.4. Personality Type

In this study for measuring personality type, the Framingham personality type questionnaire was used. This questionnaire contains 10 multiple choice questions with one of five possible answers (no, low, high, very high) and questions 6 to 10 with binary “yes” or “no” responses. Higher scores on this scale indicate that the type A personality is more marked. The validity and reliability of the questionnaire has been shown in several studies, including high content validity and a Cronbach’s alpha index of above 0.70 (37). Gholami also validated this questionnaire among the Iranian population (38).

### 3.2.5. Physical Activity

In this study, Azad-Fesharaki’s physical activity questionnaire (AFPAQ) was used. This questionnaire comprises 13 Likert questions (5- always, 4- often, 3- sometimes, 2- rarely, 1- never) and three sub-items (physical activity at work, physical activity in leisure time, and exhaustion). The validity of this questionnaire was confirmed using content and construct validity (exploratory and confirmatory factor analysis). Also, its reliability was confirmed using test-retest reliability ( $r = 0.70$ ,  $P < 0.001$ ) (39).

### 3.2.6. Adult Attachment Style Questionnaire

Hazan and Shaver evaluated three attachment patterns (secure, avoidant, anxious/ambivalent) in adults using 15 Likert questions asking individuals to classify themselves based on the descriptions presented in three separate statements (40). The test-retest reliability of this questionnaire has been proven in previous studies (41).

It has also been validated in the Iranian population (Cronbach’s  $\alpha = 0.70$ , test-retest reliability,  $r = 0.78$   $P < 0.001$ ) (42). In this study, we just used the secure sub-item.

### 3.2.7. Socioeconomic Questionnaire

This questionnaire was designed and confirmed by Azad Marzabadi and Gholami Fesharaki a group of military workers (17). In the questionnaire, questions such as marital status, number of children, housing status, having or not having a private car, history, and employment status were included.

### 3.2.8. Job Satisfaction Survey

In this study for measuring job satisfaction, we used the job satisfaction survey (JSS). The JSS questionnaire responses are measured using a six-item scale (disagree very much, disagree moderately, disagree slightly, agree slightly, agree moderately, agree very much). In this questionnaire, the level of total satisfaction can be measured using the sum of nine sub-domains (pay, promotion, supervision, fringe benefits, contingent rewards, operating,

procedures, colleagues, and nature of work). Previous studies reported a reliability coefficient of 0.6 to 0.91 (43). Gholami Fesharaki et al. validated the Persian version of the JSS and decreased the nine sub-domains to seven sub-domains (income and rewards, promotion, supervision, operating procedures, colleagues, nature of work, and communication). They also reported an overall Cronbach’s alpha value of 0.86 for the questionnaire (44).

### 3.2.9. Demographic Questionnaire

This form includes variables such as age, work experience, marital status, education, and breakfast consumption status.

## 4. Results

In general, a total sample of 575 individuals (all male) were recruited for the study with a mean of ( $\pm$  SD) 33.49 ( $\pm 8.9$ ) and 12.79 ( $\pm 8.98$ ) for age and years of work experience, respectively. The participants were divided into four educational groups: lower diploma (11.1%,  $N = 64$ ), diploma (31%,  $N = 178$ ), associated degree (28.9%,  $N = 166$ ), and license or upper (29%,  $N = 167$ ). In Table 1, a Pearson correlation between the variables used in the study is reported.

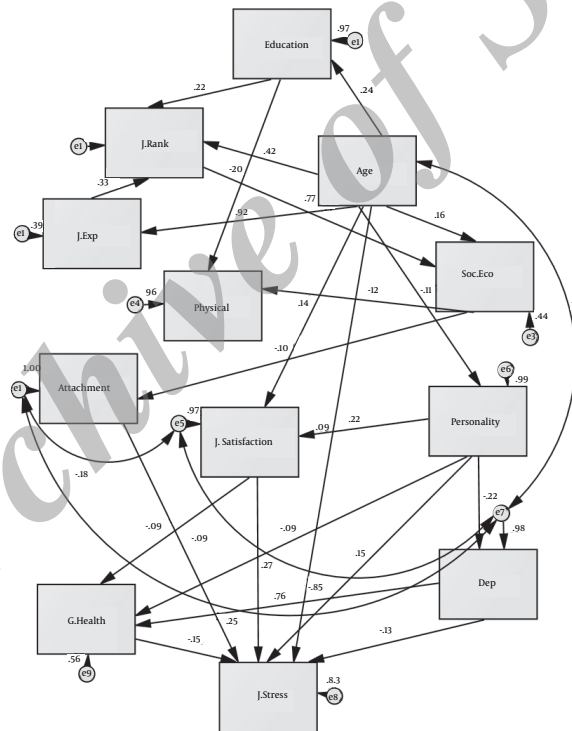
Path analysis was also conducted to assess the pathway structure of the hypothesized model (Figure 1), and the results are shown in Table 2. This was done by taking the hypothesized model and comparing it to the covariance matrix based on empirical data. In this case, the path analysis indicated excellent goodness of fit results for the data. In Table 3, the beta and standard beta for the fitted model (Figure 1) were also shown. As can be seen, all betas have a significant relationship with the dependent variable. The direct and indirect effects of the study variables on job stress are also shown in Table 4.

## 5. Discussion

Occupational stress is associated with many problems in the workplace (45). Additionally, it has been reported to be related to occupational diseases such as high blood pressure, an unfavorable cardiovascular profile, and a number of other health outcomes (1). This means that occupational stress is now one of the most urgent problems in public health, and the issue is increasingly coming into focus in recent years. In keeping with the importance of dealing with occupational stress, this study evaluates the pathways of job stress among Iranian male staff. However, the study has a few limitations. First, employee BP was unavailable prior to recruitment. Second, the findings may have been influenced by the effects of respondent fatigue.

**Table 1.** Pearson Correlation Between Variables in the Model

|                            | F1                  | F2                  | F3                  | F4                  | F5                  | F6                  | F7                  | F8                  | F9                  | F10                | F11    | F12 |
|----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|--------|-----|
| Age (F1)                   | 1                   |                     |                     |                     |                     |                     |                     |                     |                     |                    |        |     |
| Job Experience (F2)        | 0.920 <sup>a</sup>  | 1                   |                     |                     |                     |                     |                     |                     |                     |                    |        |     |
| Job Rank (F3)              | 0.779 <sup>a</sup>  | 0.772 <sup>a</sup>  | 1                   |                     |                     |                     |                     |                     |                     |                    |        |     |
| Education (F4)             | 0.242 <sup>a</sup>  | 0.245 <sup>a</sup>  | 0.400 <sup>a</sup>  | 1                   |                     |                     |                     |                     |                     |                    |        |     |
| Job Stress (F5)            | 0.162 <sup>a</sup>  | 0.154 <sup>a</sup>  | 0.119 <sup>a</sup>  | 0.092 <sup>b</sup>  | 1                   |                     |                     |                     |                     |                    |        |     |
| Attachment Style (F6)      | -0.053              | -0.018              | -0.072              | -0.069              | -0.209 <sup>a</sup> | 1                   |                     |                     |                     |                    |        |     |
| General Health (F7)        | -0.162 <sup>a</sup> | -0.138 <sup>a</sup> | -0.167 <sup>a</sup> | -0.133 <sup>a</sup> | -0.442 <sup>a</sup> | 0.194 <sup>a</sup>  | 1                   |                     |                     |                    |        |     |
| Personality (F8)           | -0.109 <sup>a</sup> | -0.083 <sup>b</sup> | -0.036              | 0.031               | 0.264 <sup>a</sup>  | -0.005              | -0.254 <sup>a</sup> | 1                   |                     |                    |        |     |
| Depression (F9)            | -0.211 <sup>a</sup> | -0.182 <sup>a</sup> | -0.205 <sup>a</sup> | -0.139 <sup>a</sup> | -0.435 <sup>a</sup> | 0.258 <sup>a</sup>  | 0.817 <sup>a</sup>  | -0.195 <sup>a</sup> | 1                   |                    |        |     |
| Socioeconomic Status (F10) | 0.759 <sup>a</sup>  | 0.752 <sup>a</sup>  | 0.893 <sup>a</sup>  | 0.368 <sup>a</sup>  | 0.151 <sup>a</sup>  | -0.109 <sup>a</sup> | -0.173 <sup>a</sup> | -0.075              | -0.206 <sup>a</sup> | 1                  |        |     |
| Physical Activity (F11)    | 0.133 <sup>a</sup>  | 0.165 <sup>a</sup>  | 0.182 <sup>a</sup>  | 0.244 <sup>a</sup>  | 0.063               | 0.013               | -0.046              | 0.029               | -0.019              | 0.196 <sup>a</sup> | 1      |     |
| Job Satisfaction (F12)     | 0.114 <sup>a</sup>  | 0.094 <sup>b</sup>  | 0.099 <sup>b</sup>  | 0.068               | 0.447 <sup>a</sup>  | -0.181 <sup>a</sup> | -0.422 <sup>a</sup> | 0.206 <sup>a</sup>  | -0.408 <sup>a</sup> | 0.128 <sup>a</sup> | -0.012 | 1   |

<sup>a</sup>  $P < 0.001$ .<sup>b</sup>  $P < 0.05$ .**Figure 1.** Pathway of Job Stress Among Iranian Male Staff

J.Exp, job experience; J.Rank, job rank; Soc.Exp, socioeconomic status; G. health, general health; physical, physical activity; attachment, attachment style; personality, personality type; Dep, depression; J.Stress, job stress.

The study's major strengths are the large sample size, random sampling, and the many standard tools used. In addition, the accuracy and reproducibility of the results were ensured through the utilization of a complicated and powerful statistical modeling approach for data analysis.

Overall, the results of this study highlighted an excellent goodness of fit index according to the path analysis model (28).

In general, the results show that job satisfaction, personality type, depression, general health, and age, in that

**Table 2.** Model Fit for Pathway of Job Stress Among Iranian Male Staff

| Index          | $\chi^2$ | Df | $\chi^2/df$ | P Value | RMSEA  | GFI    | AGFI   |
|----------------|----------|----|-------------|---------|--------|--------|--------|
| Good Criterion | -        | -  | < 2         | > 0.05  | < 0.05 | > 0.90 | 0.90   |
| Effect         | 48.78    | 39 | 1.25        | 0.136   | 0.021  | 0.99   | 0.97   |
| Decision       |          |    | Accept      | Accept  | Accept | Accept | Accept |

**Table 3.** Beta and Standard Beta for Fitted Model (Figure 1)

| Dependent            | Independent          | Beta   | Standard Beta | S.E.  | C.R.   | P Value |
|----------------------|----------------------|--------|---------------|-------|--------|---------|
| Education            | Age                  | 0.027  | 0.219         | 0.005 | 5.977  | < 0.001 |
| Job Experience       | Age                  | 0.925  | 0.439         | 0.016 | 56.287 | < 0.001 |
| Job Rank             | Education            | 0.666  | 0.982         | 0.076 | 8.775  | < 0.001 |
| Personality          | Age                  | -0.019 | 0.141         | 0.007 | -2.628 | 0.009   |
| Job Rank             | Age                  | 0.146  | -0.086        | 0.021 | 6.885  | < 0.001 |
| Job Rank             | Job Experience       | 0.113  | 0.763         | 0.021 | 5.398  | < 0.001 |
| Socioeconomic Status | Age                  | 0.080  | -0.093        | 0.015 | 5.481  | < 0.001 |
| Socioeconomic Status | Job Rank             | 1.114  | -0.096        | 0.042 | 26.225 | < 0.001 |
| Job Satisfaction     | Personality          | 0.130  | 0.199         | 0.024 | 5.477  | < 0.001 |
| Depression           | Personality          | -1.333 | 0.273         | 0.236 | -5.640 | < 0.001 |
| Job Satisfaction     | Age                  | 0.015  | -0.127        | 0.004 | 3.503  | < 0.001 |
| General Health       | Personality          | -0.626 | 0.964         | 0.176 | -3.563 | < 0.001 |
| General Health       | Depression           | 0.908  | 0.825         | 0.031 | 29.456 | < 0.001 |
| General Health       | Job Satisfaction     | -1.140 | 0.219         | 0.318 | -3.582 | < 0.001 |
| Attachment           | Socioeconomic Status | -0.013 | -0.218        | 0.006 | -2.349 | 0.019   |
| Physical             | Education            | 1.027  | 0.439         | 0.220 | 4.663  | < 0.001 |
| Job Stress           | Job Satisfaction     | 0.139  | 0.969         | .020  | 7.041  | < 0.001 |
| Job Stress           | Personality          | 0.046  | 0.982         | 0.011 | 4.231  | < 0.001 |
| Job Stress           | Attachment           | -0.070 | 0.141         | 0.027 | -2.566 | 0.010   |
| Physical             | Socioeconomic Status | 0.141  | -0.086        | 0.049 | 2.856  | 0.004   |
| Job Stress           | Depression           | -0.006 | 0.763         | 0.003 | -2.069 | 0.039   |
| Job Stress           | General Health       | -0.006 | -0.093        | 0.003 | -2.472 | 0.013   |
| Job Stress           | Age                  | 0.005  | -0.096        | 0.002 | 2.568  | 0.010   |

order, have the greatest effect on job stress.

In this study, age, Type A personality, and job satisfaction showed a direct and indirect effect on job stress. The direct effect of personality type (17, 18), age (1, 17, 46), and job satisfaction (23, 24) have been shown in previous studies. Here, it is evident that increasing job satisfaction and age mitigate stress.

In the study, we can only see the indirect effects of most demographic variables like job experience, education, job rank, and socioeconomic status on job stress. Thus, we can say that the results of contradictory studies about the ef-

fect of demographic variables like socioeconomic status (17, 21, 22), job rank, job experience, and education (47, 48) contribute to this indirect effect.

This study also shows that a low level of general health, a high level of depression, and a weak attachment style can increase job stress. This correlation has also been shown in previous studies (14-16).

In this study, in contrast with previous studies (19, 20), no direct or indirect effects were shown in the relationship between physical activity and job stress.



**Table 4.** Direct and Indirect Effect of Variables on Job Stress

| Variables            | Direct | Indirect | Total Effect |
|----------------------|--------|----------|--------------|
| Age                  | 0.092  | 0.016    | 0.108        |
| Job Experience       | 0      | 0.002    | 0.002        |
| Education            | 0      | 0.001    | 0.001        |
| Personality Type     | 0.154  | 0.129    | 0.283        |
| Job Rank             | 0      | 0.007    | 0.007        |
| Depression           | -0.127 | -0.116   | -0.242       |
| Job Satisfaction     | 0.273  | 0.014    | 0.287        |
| Socioeconomic Status | 0      | 0.009    | 0.009        |
| Attachment Style     | -0.092 | 0        | -0.092       |
| General Health       | -0.151 | 0        | -0.151       |

### 5.1. Conclusions

According to the above results, we can conclude that our suggested model is appropriate for explaining the pathway of stress among Iranian male staff.

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