

# Individual Differences on Job Stress and Related Ill Health

Miodraga Stefanovska Petkovska<sup>1</sup>, Vesna Velik Stefanovska<sup>2\*</sup>, Marjan Bojadziev<sup>1</sup>

<sup>1</sup>*School of Business Administration and Organizational Sciences, University American College, Treta Makedonska Brigada bb, 1000, Skopje, Republic of Macedonia;* <sup>2</sup>*Institute of Epidemiology and Biostatistics with Medical Informatics, Medical Faculty, Ss Cyril and Methodius University of Skopje, Vodnjanska 31, Skopje, Republic of Macedonia*

## Abstract

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**\*Correspondence:** Prof. Vesna VELIK STEFANOVSKA, MD, MSc, PhD. Institute of Epidemiology and Biostatistics with Medical Informatics, Medical Faculty, Ss Cyril and Methodius University of Skopje, Vodnjanska 31, Skopje, Republic of Macedonia. Tel.: (+) 389 70 254 621. Fax.: (+) 389 2 3086 412. E-mail: vesnamia@t-home.mk

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**Background:** Work-related stress is becoming one of the key themes for attention because of its serious threats on workers' wellbeing, job dissatisfaction and absenteeism.

**Aim:** The aim of this study was to investigate the employees' individual differences in the perception of main workplace stressors, perceived job related stress and experienced health consequences.

**Methods:** In a cross-sectional study a sample of 106 employees was surveyed within a private enterprise in Republic of Macedonia.

**Results:** Analysis showed significant differences in experienced stress at work due to age, marital status, number of children, time spend in the current work position and working hours per day. Stressors such as: lack of personal knowledge and skills (60.4%), big pressure for last minute job completion (60.4%) and unstable work position (47.2%) were pointed out the most potential sources for job stress. The majority of employees who always experience health problems as a result of job stress were female (61.9%), on non-managerial position (85.7%), and 5 to 10 years in the current work position (42.9%).

**Conclusion:** Employees are exposed to many potential work related stressors which differently affect their job satisfaction and result in ill health. A better understanding of the individual characteristics and potential stressors should subsequently help managers' better deal with this problem. This underlines the need for further research and design of stress reduction interventions.

## Introduction

The business world is undergoing considerable and continuous change in the past two decades. Companies within and beyond the European free market is permanently facing increased competition. The need to improve productivity and quality, and at the same time to create a client-oriented and highly motivated workforce, require both flexibility and adaptability. As a result of these new processes and fast changes, many workers feel threatened. This results in stress becoming an increasingly common phenomenon which harms health and efficiency, both individually and socially [1-3].

Much effort has been made to date on defining work related stress as a first step for its timely recognition, control and prevention at the workplace [4]. Summarizing wider overview, a general definition on work related stress underlines that the most

stressful type of work is when the excessive pressures or other types of demands that the working environment places on workers, overpower their personal, educational and environmental capacities and skills to cope with them [5, 6]. All categories of workers and all professional areas can be affected by work related stress especially when the pressure becomes 'excessive', or goes on for too long [7]. The evaluations of work related stress recognized the employees' self reported stress as valid as statistical data on accidents or absenteeism [8]. The research reports on occupational (job, work or workplace) stress in the last decades have made available a wealth of information on the main causes, manifestations and consequences of stress, both on workers and work organizations [9]. The literature indicates that European Union (EU) member states experience common work related stress causes and consequences which are likely to affect one in three workers and cause ill health resulting in millions of

sick days off each year, early retirement from work and lost earnings [10 – 13]. Additionally, research has explored the relationship between the individual demographic or other differences of the employees and the experience of work related stress [14-16].

There are a number of substantive factors that can be identified as potential causes of work related stress, and they vary in degree and importance depending on the particular job [8]. Based on considerable scientific evidence, researchers agree on risk factors of the work environment, physical and psychosocial, which can be potential sources for work related stress and/or harm [9]. Physical stressors are related to the physical demands of the work place or work with physical hazards. Psychosocial stressors, organized related to either work content or work context, are defined as interaction among social and environmental context of the design, organisation and management of work and the employees' competence and needs [5, 7, 9, 12].

Researchers suggest that approximately an equal percent of workers reported experience of stress symptoms as a result of exposure to physical or psychosocial risk factors (stressors) [5]. Recent data recognized psychosocial stressors as emerging risks in Europe and indicate the influence of globalization and other external factors, like vulnerability of workers or the feeling of job insecurity, on their modification [17-19]. Because of its serious threats on the workers' wellbeing, work-related stress has been identified by the European Union as one of the key themes for attention. In June 2001, the 'work related stress theme' became a part of the EU strategy for long-term investment in high-quality jobs and living standards [20]. Recent data on work related stress is also focused on developing countries where about 80% of the global workforce resides [21, 22]. It suggests that these countries have to be aware of the potential impact the rapid industrialization and globalization has on the rising number of workers exposed to work related stressors which can affect their health [5]. Lack of research data on psychosocial risk factors, work related stress, and work related ill health in developing countries increase the importance of addressing this problem [21]. The aim of this study was to investigate the employees' individual differences in perception of main workplace stressors, perceived job related stress and experienced health consequences. The research has the intention to help pinpoint the problem, sources and consequences of job related stress and to discuss the intervention required for prevention.

## Material and Methods

In a cross-sectional study, a sample of 106 employees was surveyed in the last quarter of 2012 within a typical private company in Republic of Macedonia. The company is one of the first private

companies, operating as a country wide chain of mini markets. In the period of the survey implementation the company had 120 employees. It has been chosen because its organizational model reflects the models of other companies in the same industry. The impetus for such a study came from the literature which explored individual differences in perception of occupational stress using a similar sample size and a single representative company [23, 24]. Questionnaires were given out to all employees, and 106 of them were considered for final processing; the remaining questionnaires were either not returned or returned incomplete, lacking majority of required data. The response rate for participation in the study was 88.3% which is in line with other relevant research in the field [23, 25-27].

### Questionnaire

The study questionnaire was created based on relevant surveys and newly designed questions tailored to the country specifics [28-30]. It consisted of 49 items organized in four sections: a) the first section contained seven variables used to investigate the employees' individual differences in self-reported job related stress and experienced health consequences. They were chosen from earlier research and cover four socio-demographic (gender, age, marital status and number of children) and three organizational (time spend at the current work position, professional hierarchical level and overtime work) determinants [28, 31, 32]; b) the second section had three items related to the frequency of experienced occupational stress, its negative influence on the quality of work and on job satisfaction. Job satisfaction has been defined as the positive feeling or attitude about various aspects or facets of the job [30]; c) the third section examines the employees' perception of nineteen potential workplace stressors. Both physical and psychosocial stressors were listed and two possible statements were given: Yes or No. Physical demand category covered four stressors associated with the job setting as: frequent disruptions, noise disruption, inappropriate lighting and insufficient airiness. Psychosocial demand category covered fifteen potential stressors organized into two groups related to either work content (pressure for last minute job completion, inability to use vacation leave and lack of control/creativity over the work) or work context (often changing of work position, unpaid overtime work, lack of personal knowledge and skills, dissatisfaction with salary, mobbing, bullying, disrespect from the supervisors, no acknowledgement from the supervisor on job efforts, unclear instruction from supervisors, ethnic/religious/age discrimination and unstable work position) [9, 21]; d) the fourth section, organized as multiple-choice, examined the employees' experience of 16 defined health symptoms related to job stress as: fatigue, depression and anxiety, feeling ill, headaches, pain in back and neck, insomnia, muscle pains, digestive problems,

high blood pressure, lack of energy, inability to relax, tension, increased consumption of alcohol/medications, negative influence over private life, shorter memory span and difficulty concentrating. Four additional questions in this section examine job related sick leave and open discussion about that. The average time needed to complete the questionnaire was approximately 15 minutes.

### Ethical consideration

Prior to the data collection, approval from the company authorities to conduct the study was obtained following the evaluation of their relevant internal body that all measures were utilized to protect the subject's rights. Employees were contacted and invited to participate in the study on voluntary basis. The information about the nature of the research was available in an introductory letter attached to each questionnaire. Before involvement, the participants were asked for informed consent. No identifying marks were printed on the questionnaires. Completed questionnaires were packed in closed envelopes, left in a box and collected by nominated persons from the faculty at the end of each working day. The anonymity and confidentiality of all information was guaranteed.

### Statistical analysis

Data entry and statistical analysis was performed using Statistics version 7 and Epi Info version 3.4.3. Basic descriptive statistics were presented to analyze data. Categorical variables were expressed as numbers and percentage. Some ordinary categorical variables were cross tabulated with multiple response variables/dichotomies. The Chi-square test was used for testing differences in perception of workplace stressors, perceived job related stress and experienced health consequences. Statistical values were considered significant at  $p$ -values  $\leq 0.01$  and  $\leq 0.05$ .

## Results

The sample of the study included 48 (45.3%) women and 58 (54.7%) men, all of them full time employees except one who worked part time. The information regarding individual profile of the study participants is provided in Table 1.

Related to the experienced stress at work, 72 (67.8%) of the respondents indicated permanent stress, most of them aged 30-39 (66.7%), married (66.7%), with no children (36.1%), working regular hours (50.9%) and not holding managerial positions (69.4%). Seventy eight (73.6%) of the respondents declare that occupational stress always has negative influence on the *quality of their work*. The majority of them were male (53.8%) who work regular daily hours (89.7%). Sixty (56.6%) of the employees believe that the occupational stress always has negative influence on their *job satisfaction*. Most of these respondents were 30-39 (50%) years old, 5 to 10 years in the current work position (40%) and worked regular daily hours (93.3%). Differences between employees individual characteristics and experience of occupational stress is presented in Table 1.

### Perception of job related stressors

The paper examines the employees' perception of nineteen potential workplace stressors. Table 2 presents the differences between employees' individual characteristics and perception of the ten highest ranked job stressors. Five psychosocial stressors such as: lack of personal knowledge and skills 64 (60.4%), big pressure for last minute job completion 64 (60.4%), unstable work position 50 (47.2%), dissatisfaction with salary 42 (39.6%) and unpaid overtime work 38 (35.9%) were pointed as the dominant potential sources for job related stress. Most of the respondents concerned with *lack of personal knowledge and skills* and *last minute job completion* are concerned, worked regular hours per day (75%) and are up to five years at the current work position (59.4%).

**Table 1: Individual profile and differences between employees' individual characteristics and experience of occupational stress.**

Individual profile of participants No=106			How often do you feel stress at work?			Does occupational stress have negative influence on the quality of your work?			Does occupational stress have negative influence on your job satisfaction?		
			A*	S*	N*	A*	S*	N*	A*	S*	N*
			72 67.8%	16 15.1%	18 17.1%	78 73.6%	28 26.4%	0 0%	60 56.6%	34 32.1%	12 11.3%
Gender	females	48 (45.3%)				p=0.0031			/		
	males	58 (54.7%)									
Age	< 30 years	20 (18.9%)									
	30-39 years	62 (58.5%)	p=0.0234						p=0.0215		
	40 ≤ years	24 (22.7%)									
Marital status	married	68 (64.2%)	p=0.0004			/			/		
	single	38 (35.8%)									
No. of children	none	38 (35.9%)									
	one	28 (26.4%)	p= 0.0110			/			/		
	two	40 (37.7%)									
Time at current work position	up to 5 years	52 (49.0%)									
	5 to 10 years	36 (34.0%)	/			/			p=0.0391		
	> 10 years	18 (17.0%)									
Profess. level	non-manager. level	78 (73.6%)	p=0.0330			/			/		
	managerial level	28 (26.4%)									
Working hours per day	regular hours	88 (83.0%)	p=0.0059			p= 0.0021			p= 0.0001		
	overtime	18 (17.0%)									

A\* - Always; S\* - Sometimes; N\* - Never.

**Table 2: Differences between employees' individual characteristics and perception of potential job stressors.**

Employees' perception of potential job related stressors		Differences between employees' individual characteristics and perception of stressors						
Top ten potential job stressors (by rank)	No=106 (%)	Gender	Age	Marital status	No. of children	Time at current position	Profess. level	Working hours per day
1. Lack of knowledge and skills	64 (60.4)	/	/	/	/	p=0.0235	/	p=0.0066
2. Last minute job completion	64 (60.4)	/	/	/	/	p=0.0235	/	p=0.0066
3. Unstable work position	50 (47.2)	p=0.0040	/	/	p=0.0196	/	/	/
4. Dissatisfaction with salary	42 (39.6)	p=0.0452	/	p=0.0362	p=0.0084	/	p=0.0019	/
5. Unpaid overtime work	38 (35.9)	/	/	/	p=0.0204	/	/	p=0.0001
6. Unclear instruction	34 (32.1)	/	p=0.0066	p=0.0072	p=0.0088	/	p=0.0178	/
7. No acknowledge from supervisor on job efforts	28 (26.4)	/	p=0.0063	/	/	/	/	/
8. Disrespect from supervisor	24 (22.6)	/	/	/	/	/	/	/
9. Insufficient airiness	24 (22.6)	/	/	/	/	p=0.0275	/	p=0.0109*
10. Inappropriate lighting	20 (18.9)	/	/	p=0.0004	/	p=0.0096	/	p=0.0213*

\* 2-tailed Fisher exact test.

Mainly female (60%) who are without children (48%) perceived *unstable work position* as a cause of stress. Most of the respondents concerned with *dissatisfaction with salary* were male (66.7%), married (76.2%), with two children (42.9%) and on non-managerial position (57.1%). The majority of the respondents who perceived *unpaid overtime work* as a source of stress have no children (52.6%) and work regular daily hours (63.2%).

Potential workplace stressors were also indicated as: unclear instruction from supervisors 34 (32.1%), no acknowledgement from the supervisor on job efforts 28 (26.4%) and disrespect from the supervisors 24 (22.6%). The majority of these respondents who perceived *unclear instruction from supervisors* as a cause of stress were aged 30-39 (47.1%), married (82.4%), with two children (58.8%) and not holding managerial position (58.8%). Perception of *no acknowledgement from the supervisor on job efforts* as a source of stress was recognized mainly by respondents aged 30-39 (50%).

Furthermore, three of the psychosocial stressors, such as change of work position, inability to use vacation leave, and bullying were recognized as workplace stressors by 14 (13.2%) of the participants. Age discrimination as well as lack of control/creativity over the work was perceived as sources for job related stress only by 12 (11.3%) and 8 (7.6%) of the employees respectively. *Mobbing* as a cause of stress was recognized by 4 (3.8%) of the respondents. None of the employees found ethnic/religious discrimination as a source for job related stress.

From the four listed physical stressors (Table 2), the most selected according to employees' perceptions were the *insufficient airiness* 24 (22.6%) and *inappropriate lighting* 20 (18.9%). More than 50%

of the respondents who worked regular daily hours and were between 5 to 10 years at current position found these stressors as a cause of stress. *Frequent disruptions* and *noise* as potential physical sources for job stress were recognized only by 16 (15.1%) of respondents.

#### Workplace stress and related ill health

Sixty (75.5%) of the employees experienced health problems due to job-related stress either always or sometimes. Table 3 presents differences between employees' individual characteristics and experience of stress related ill-health. The majority of employees who always experience health problems as a result of job stress were female (61.9%), on non-managerial position (85.7%), who were 5 to 10 years in the current work position (42.9%). In the last year, only 23 (21.7%) of the employees have taken sick leave as a result of job related ill health, and for 17 (73.9%) it took up to 3 days. Furthermore, 60 (56.6%) of the employees do not feel they can speak openly about their stress related sick leave. Employees who practiced open conversation the most, were aged 30 to 39 years (50%), worked regular daily hours (87.5%) and had two children (50%).

Table 4 presents the experienced health consequences of job stress by rank of frequency. The most frequent was fatigue 85 (80.2%) and the least frequent was increased consumption of alcohol/medications 10 (9.4%).

Significant differences in experienced health consequences between employees who perceived job related stress and the ones who were never under stress are presented in Table 4.

**Table 3: Differences between employees' individual characteristics and experience of stress related ill health.**

Category	No	%	Gender	Age	No. of children	Time at current work position	Profess. level	Working hours per day
Have you felt health problems due to job related stress?	always	42	39.6	p=0.0067	/	/	p=0.0366	p=0.0151
	some-times	38	35.9					
	never	26	24.5					
Do you feel you can speak openly that you have been on sick leave because of stress related ill health?	yes	16	15.1	/	p=0.0227	p=0.0179	/	p=0.0184
	no	60	56.6					
	don't know	30	28.3					
Have you been on sick leave because of stress related ill health in the last year?	yes	23	21.7	/	/	/	/	/
	no	83	78.3					

**Table 4: Differences in experienced health consequences of job related stress.**

Health consequences of job related stress (by rank)	No	%	Perceived job stress
1. Fatigue	85	80.2	p=0.008*
2. Tension	61	57.6	p=0.001
3. Headaches	58	54.7	p=0.001
5. Pain in back and neck	56	52.8	p=0.001
5. Insomnia	52	49.1	p=0.012
6. Difficulty concentrating	49	46.2	p=0.005
7. Depression and anxiety	47	44.3	p=0.001
8. Negative influence over private life	40	37.7	p=0.01
9. Lack of energy	32	30.2	/
10. Inability to relax	30	28.3	/
11. Muscle pains	28	26.4	p=0.005*
12. Feeling ill	21	19.8	p=0.037*
13. Shorter memory span	20	18.9	p=0.021*
14. High blood pressure	19	17.9	/
15. Digestive problems	18	17.0	p=0.037*
16. Increased consumption of alcohol / medications	10	9.4	/

\* 2-tailed Fisher exact test.

## Discussion

A significant link between employees' individual characteristics and experienced job related stress has been found by many authors [23, 31]. Similar to the findings from this research, a significant connection between perception of stress and age group, marital status and number of children was found by other authors as well [23]. Concerning the employees' age, similar results from a survey among bank employees aged of 35-50 years showed that they experienced more stress than others [33]. Other surveys also found that employees in the age group of 31 - 40 suffered the most from occupational stress, mainly because in this age the career development is of major concern (34). In many countries, as is the case of Republic of Macedonia, the problem with the large unemployment makes people enter the job market at an later age which results in the years of 30-40 being the most important for keeping and developing professional career [21]. Marital status as well as having children is found to be significantly related to the frequency of perceived job stress and related ill health probably because of the fact that married people are under the economic pressure and exposed to work/home conflict, more than their counterparts who are singles or without children. Other research studies also found that people who have children perceive significantly higher levels of stress comparing to their colleagues without children and that the occupational stress level not only increases with the number of children, but is significantly higher with every additional child [23, 24, 34]. Economic recession, dismissal from work and the fact that middle aged workers faced the biggest difficulties in finding a new job, can partially explain why the respondents in this survey, who served five to ten years in the current work position, experienced more stress than other employees. Although not prevalent in the literature, other authors have also not found a significant difference in perceived occupational stress due to gender [23, 28].

Based on the results from this survey, significant relationships between jobs related stress and quality of work as well as job satisfaction were found. These correspond with findings of other researchers that studied the relationship between job related stress and job satisfaction among employees from different professions and found a strong relationship between workplace stress and ill health [35-38] which in turn can induce lowering of work productivity, lower job morale [39], higher absenteeism and lower job satisfaction (40). All of this often resulted with higher operational costs, lower job efficiency, and worse service quality [40]. According to the results from a survey implemented in the USA, for 69% of the employees work is a significant source of stress, 41% felt tense or stressed out during the workday, and 51% declared being less productive at the workplace as a result of stress [41]. Findings in this paper indicate that the majority of employees who declare that the job related stress always had negative effect on the quality of their work and their job satisfaction also reported overtime work. This correlates with the findings that twenty percent of USA employees reporting high overwork levels say they make a lot of mistakes at work versus none of those who experience low overwork levels [42]. This emphasises the adoption of strategies to reduce perceived job related stress, and thus increase job satisfaction which will be reflected in work quality.

Surveys conducted among workers in EU 15 on sources of job related stress pointed several most dominant stressors, such as: working very quickly in 56%, tight deadlines in 60%, having monotonous tasks in 40%, and having no influence on the task order in 30% [10]. Majority of employees in this survey had similar perception of the above mentioned stressors, but they also pointed out several other sources of stress, such as unstable work position (47.2%), dissatisfaction with salary (39.6%) and unpaid overtime work (35.9%). This can be explained with the serious economic problems faced by the firms and their intention for reducing the expenses by ignoring the payment of overtime work and lowering the number of employees.

Everyday experiences reveal that the workplace stress is becoming a major contributor for a range of health problems on an individual level and unwanted consequences and costs on an organizational level [43]. Employees' individual differences affect their perceptions of potential sources of stress, and have an impact on the transformation of experienced stress into various health consequences [44]. Based on research of different authors, socio-demographic variables such as gender, age, marital status and hierarchical level, are proven to relate to someone's job stressor/health relationships which correlate to our results [45-47]. Although the workplace stress phenomenon has been popularized in the country, stigma is still not only

attached to practicing open conversation about this problem, but also about stress related sick leave. Taking only between one to three days for sick leave can be explained with the fear from lower salary or risk of being dismissed from work. On the other hand median number of days for sick leave as a result of workplace anxiety, stress, and related disorders among U.S. workers was 25 days [48]. In a study of multi-site employee population, healthcare expenditures for employees with high levels of stress were 46% higher than those for employees who did not have high levels of stress [49].

The limitations of this study are recognized by the authors. First and foremost, although the sample for the study represented 88.3% of all employees from the selected company, the findings of this study may not be generalized to other companies from the same sector. However, this study gave some useful insight into the employees' individual differences in perception of main workplace stressors, perceived job related stress and experienced health consequences. This study, therefore, provides useful baseline information for consultation and comparative purposes. Second, the study may be prone to information bias by the respondents since some of them could not give acceptable and true responses because of fear for their job position. However, these effects were minimized by structuring the questions as well as assuring the respondents of confidentiality prior to the conduct of the survey.

In conclusion, the employees in a private enterprise in Republic of Macedonia were exposed to many potential work related stressors which had differential impact on their job satisfaction and health condition. Namely, the research found that employees belonging to different subgroups perceived different stressors as a cause of stress, experienced different health consequences and that there is a link between individual characteristics and job stress. The current lack of awareness and research in the area of work-related stress and its main drivers and consequences, hampers action for further research and design of stress reduction interventions that increase job satisfaction, decrease sick leave and turnover. The organizations should also empower employees in practicing open conversation about stress related ill health and sharing problem solving, to increase the job satisfaction and the quality of work. A better understanding of the individual characteristics and potential stressors should subsequently help managers' better deal with this problem.

Further research on bigger sample sizes and in other industrial sectors to determine individual differences on job stress and ill health are suggested.

*The survey questioner can be obtained upon request at vesnamia@t-home.mk*

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