

Effects of work-related stress on workers' health

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ABSTRACT

Keywords:

Occupational
Stress
Workers
Health

Article history:

Received 19.10.2012
Received in revised form
19.12.2013
Accepted 23.12.2013

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Introduction. Many workers consider that their work affects on health. Stress is increasingly accepted as a phenomenon in the workplace, which negatively affects for many people. Identification of the conditions of stress in the workplace that affect the health of workers, there is an actual.

Materials and methods. Sociological survey on working conditions in the workplace employees of different age categories and professional in Bulgaria.

Result and discussion. The secondary analysis of the Bulgarian data set of the Fifth EWCS 2010 shows that work-related stress, discrimination, violence, bullying and harassment have a negative impact on Bulgarian workers' health similarly to the EU. It can be concluded that the investigated work-related stress factors, such as shortage of time to get a job done, lack of consultation with workers, conflicts between work tasks and personal values, frequent necessity to hide one's feelings, mistakes at work that can cause a physical injury or a financial loss, verbal abuse, threats and humiliating behaviour, also affect workers' health negatively. Therefore, creating legal conditions for a healthy and safe working environment has to be a constant concern of every government and employer. Special attention should be paid to the new and emerging psychosocial hazards and their associated risks. It is of prime importance that workers should be kept very well-informed about all health and safety risks at work. More detailed research concerning the work-related stress factors needs to be conducted in order to suggest adequate measures to be implemented by employers.

Introduction

Stress is a physical and emotional reaction to adverse factors of the environment. Permanent job stress leads to uncertainty, a change or a loss of objectivity, changing values and social expectations, conflicts at the workplace and many other concerns. These situations are considered leading to stress and stress-induced diseases [9, 12, 13].

Stress is being increasingly recognized as a workplace phenomenon negatively affecting a growing number of people across the world. Work-related stress is one of the

biggest health and safety challenges in Europe. It is the second most frequently reported work-related health problem affecting 22 % of EU27 workers (in 2005), and the number of people suffering from stress-related conditions caused or aggravated by work is likely to increase. Stress is a factor on 50 % to 60 % of all working days. In 2005, the highest stress level was reported in Greece (55 %), and the lowest levels were observed in the UK (12 %), Bulgaria (18 %) and Germany (16 %). Quantitative job demands, low job control, harassment, violence and unwanted sexual attention are some of the main sources of work-related stress. The lowest levels of harassment have been reported in Italy and Bulgaria (2 %), and the highest in Finland (17 %). The Fourth European Working Conditions Survey found that one in 20 workers (5 %) had been personally subjected to violence. With regard to age, the highest stress level was observed among middle-aged workers. The prevalence of stress among men and women was reported as similar. It was established that stress was especially prevalent in education and health sectors, and in agriculture, hunting, forestry and fishing. With regard to the employment status, the well-being scores for self-employed workers were lower than those for employed workers [7, 8].

Hoel et al. reported that in a survey conducted by the Families and Work Institute in the USA, 26 % of the workers stated they were often or very often burned out or stressed by their work. Similarly, a study by Yale University reported that 29 % of employees perceived themselves to be quite a bit or extremely stressed at work [6].

The results of the Labour Force Survey 2007 demonstrated that 27 % of EU workers, i.e. 56 million people, were exposed to factors that could adversely affect mental well-being. Exposure to time pressure and overload at work was most often selected as the main factor. Stress, depression or anxiety were reported by 14 %. These occurred more frequently among employed women (17 %) than men (13 %). The proportion of workers that identified stress, depression or anxiety as their main work-related health problem was the highest in the age group of 25 ÷ 44 years [11, 15].

According to the European Survey of Enterprises on New and Emerging Risks (ESENER) carried out in 2009, accidents were reported as the main concern for European managers (80 % showed a major concern or some concern), followed by work-related stress (79 %) and musculoskeletal disorders (78 %). Violence or threat of violence as well as bullying and harassment were reported by almost 40 % of the responders as a major concern or some concern. Regarding the factors contributing to psychosocial risks, managers' principal concerns were "time pressure" (52 %) and "having to deal with difficult customers" (50 %) [5].

According to the analysis of EU-OSHA, about 14 % of the Europeans with a work-related health problem experienced stress, depression or anxiety as the main health problem. Therefore, psychosocial hazards and their associated risks are a key challenge for policymakers in Europe [14].

According to the European Opinion Poll on Occupational Safety and Health carried out in 2013, four in 10 workers (42 %) think that older workers tend to suffer more from work-related stress than other workers. When asked to choose from a list of six possible causes of work-related stress, 7 in 10 EU workers (72 %) and 6 in 10 Bulgarian workers (57 %) select job reorganisation or job insecurity. Hours worked and workload are selected by two-thirds (66 %) of EU workers and by 43 % of Bulgarian workers. Half of the workers in Europe (51 %) believe that cases of work-related stress are common at their workplace, and another 40 % say that such cases exist although they are rare. The situation in Bulgaria is similar [4].

Several overview models have been offered as summaries of the stress process [1, 2, 10]. Cooper’s model turns out to be the most useful one because it focuses on the nature and details of work-related stress.

Several taxonomies of stressors have been introduced. Stressors can be divided into two groups: “content of work” and “context to work”. The first group refers to the following stressors: work-environment and work equipment; task design, workload and work schedule. The second group consists of stressors such as organisational culture and function; role in organisations, career development, decision latitude and control, home/work interface and interpersonal relationships at work, including violence, harassment and bullying [6, 9].

It has been recognized that exposure to any form of violence at work has negative implications for individuals, organisations and society as a whole. This represents a huge cost in terms of both human distress and impaired economic performance [6, 8].

The aim of this research was to identify the factors of work-related stress that have a strong impact on Bulgarian workers’ health.

Table 1
Interviewees’ profiles

	Men (53 %)	Women (47 %)	Total (1014)
Age			
under 30	9 %	7 %	16 %
30 – 49	29 %	26 %	55 %
over 50	15 %	14 %	29 %
Length of service in the same company			
under 5 years	24 %	20 %	44 %
5 – 10 years	11 %	10 %	21 %
10 – 20 years	11 %	10 %	21 %
over 20 years	7 %	7 %	14 %
Level of education			
primary	0.5 %	0.4 %	1 %
lower secondary	6.3 %	4.3 %	11 %
upper secondary	36.0 %	27.6 %	63 %
semi-higher	1.0 %	2.2 %	3 %
higher	9.5 %	12.3 %	22 %

Materials and methods

The initial data originated from the Fifth European Working Conditions Survey (EWCS) carried out in 2010 by the European Foundation for the Improvement of Living and Working Conditions [3]. This survey has been conducted every five years since 1991. The questionnaire covers a broad range of working conditions, work characteristics and workers’ sense of satisfaction and perception of different aspects of their jobs.

In the 5th EWCS, 1014 participants from Bulgaria were interviewed. The interviewees’ profiles are presented in table 1. The most important survey question for our investigation was Q67, “Does your work affect your health, or not?”.

A stratified sample was used and a post-stratification weighting was carried out. Throughout this paper, percentages are weighted after the W4 variable in the data set.

Disclaimer: The European Foundation for the Improvement of Living and Working Conditions and the UK Data Archive bear no responsibility for our further analysis and interpretation.

Results and discussion

Four of the 1014 Bulgarian participants in the survey refused to answer the main question (Q67), “Does your work affect your health, or not?”, and

58 participants had no opinion. The rest 952 interviewees answered as follows: 5 % — “Yes, mainly positively”, 34 % — “Yes, mainly negatively”, 61 % — “No”. Answers by gender are presented in fig. 1.

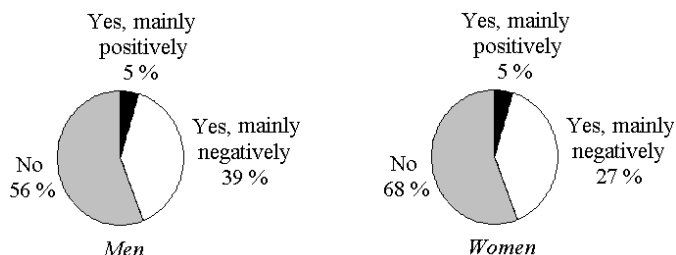


Figure 1. Answers given by the Bulgarian participants to the question, “Does your work affect your health, or not?”

The p-value returned by the χ^2 -test is 0.0006, which means that the difference between the two distributions is unlikely to have occurred by chance. A strong correlation exists between the gender of an interviewee and his or her answer to Q67. Men’s health is negatively affected by work more frequently than women’s.

There is a very strong correlation ($p = 0.008$) between the interviewees’ age and their answers to Q67. Young people’s health is the least frequently affected by work. The positive influence of work over health is common for interviewees aged 30 – 49 years. In the age group of 50+ years, the negative influence of work increases. This is in accordance with results obtained from other studies [4, 7, 15].

A strong correlation ($p = 0.003$) exists between the level of education and Q67. However, this correlation is controversial. While higher levels of education correspond to positive influence of work over health, negative influence cannot be excluded either. Different kinds of education are best suited to different kinds of work with different risks (i.e. many other factors interfere and make it difficult to deduce a simple rule).

The length of service is another significant factor ($p = 0.01$). Its impact on health increases after 10 or more years.

Generally, health is negatively affected by manual work occupations more often than by clerical occupations ($p = 0.00002$).

The activity of the organisation where an interviewee works (industry or services) is not very strongly correlated ($p = 0.13$) with Q67. Nevertheless, industrial workers’ health is negatively affected by their work a little more often.

The results show that there is a strong correlation between the factor “Enough time to get the job done” and the work impact on workers’ health ($p = 0.02$). Shortage of time to perform tasks increases first the negative and then the positive impact. Perhaps greater demands are a source of stress for some workers, but a source of tone for others.

Involving workers in improving the work organisation or work processes in their department or organisation influences their health positively ($p = 0.04$), probably due to the beneficial psychological effect. However, overburdening with such demanding tasks reduces the positive effect.

Work affects health positively when workers are consulted always or most of the time before targets for their work have been set. Work affects health negatively when workers are consulted rarely or never ($p = 0.02$). The feeling of work well done has a positive

impact on workers' health ($p = 0.02$). It is interesting to note that the rare feeling of a job well done is related to the lack of influence of work on health whereas the inconstant feeling of a job well done (not very rare and not very frequent) affects health negatively. Perhaps uncertainty (successes replaced by failures) affects workers' health worse than monotony.

The study shows that frequent conflicts between work tasks and workers' personal values have a negative effect on their health; however, if rare, such conflicts can have a positive effect on health ($p = 0.0007$). Absence of conflicts of this kind does not affect health. Generally, workers who are emotionally involved in their work more frequently have their health affected by their work ($p = 0.00002$). This influence can be either positive or negative.

Table 2 presents data about the impact of work-related stress on workers' health. Our analysis shows that stress at work has a strong impact on health ($p = 1.7 \times 10^{-18}$). Frequent stress had a negative impact on the health of 53.4 % of the interviewees. This is in accordance with the results obtained from other studies [5, 6, 7, 11, 15].

Table 2.

Effects of work-related stress on workers' health

Work-related stress	"Does your work affect your health, or not?"			
	Yes, mainly positively, %	Yes, mainly negatively, %	No, %	Total number
Often or always	10.8	53.4	35.8	162
Sometimes	5.0	42.3	52.6	244
Rarely or never	2.6	24.3	73.1	528
Total	4.7	34.1	61.1	934

There is a significant correlation ($p = 0.00004$) between workers' health and the requirement to hide their feelings. About 41.0 % of the interviewees who had been frequently subjected to such a requirement reported a negative effect on their health.

If mistakes at work can cause a physical injury to other people ($p = 7.8 \times 10^{-13}$) or a financial loss to the company ($p = 0.0005$), then work affects health frequently. Negative influence of work on health was reported by 52.0 %, resp. 38.2 %, of the interviewees whose job involved such factors at their highest intensity.

On the other hand, the following factors have little or no influence on workers' health ($p > 0.05$): clear requirements, the feeling of doing useful work, the ability to apply their own ideas to their work or influence important decisions, help and support from colleagues and managers, having a say in the choice of working partners. In fact, these factors have some positive influence on workers' health but this influence is very weak.

Generally, work affects health most when working hours do not fit in with family or social commitments outside work ($p = 0.0000001$) and arranging to take an hour or two off during working hours to take care of personal or family matters is difficult ($p = 0.00001$). If workers can take a break when they wish, then work affects health positively. However, if the regime is too flexible or too strict, the negative effect of work on health increases ($p = 0.052$). Obviously, the moderate flexibility of the working time reduces stress and affects health positively.

Workers whose household is able to make ends meet easily most often report lack of influence of work on their health ($p = 0.03$). A positive impact of work on health is most frequent among those workers who have some difficulty in providing for their household;

most probably, this is due to the positive effect on health that a moderate working regime usually has. A negative influence of work on health is most frequent among those workers whose household was able to make ends meet with great difficulty; obviously, this situation is a source of great stress.

Being the person who contributes the most to the household income is another source of stress; this factor is also correlated with the negative influence of work on health although this correlation is not as strong as the previous one (now $p = 0.08$).

Sport is well-known for its ability to neutralize stress. It is impossible to go into details here (this question may itself be the subject of another investigation) but it is worth pointing out that regular sport minimizes the negative influence of work on health ($p = 0.01$): only 27 % of the workers involved in sporting, cultural or leisure activity outside their home feel some negative influence of work on their health (compared to the average level of 34 %); almost 10 % of those who are involved in sporting every day or every second day find that work affects their health positively (which is twice as many as the average level of 5 %).

Other factors related to stress are discrimination, violence, bullying and harassment. Figure 2 presents the results from the survey concerning workers in Bulgaria and EU27 subjected to these factors [3].

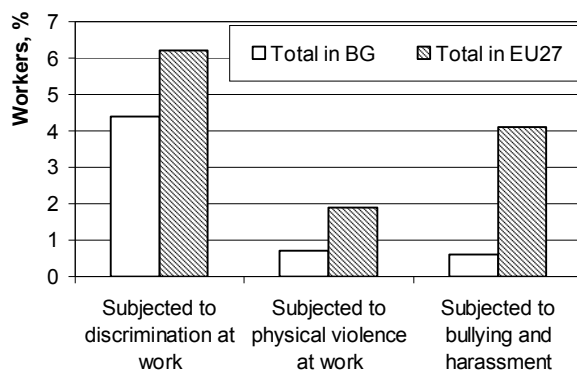


Figure 2. Total percentages of workers subjected to discrimination, violence, bullying and harassment in Bulgaria and EU27

The percentage of workers subjected to these work-related stress factors in Bulgaria is lower than in the EU (fig. 2). This is consistent with other studies [4, 7]. Concerning Bulgarian workers subjected to discrimination, the dispersion for men and women is 5.9 % and 2.7 % respectively. Concerning physical violence, this dispersion is 0.6 % and 0.7 % respectively. For bullying and harassment it is 0.7 % and 0.5 % respectively. It is interesting to mention that 4.8 % of Bulgarian workers subjected to discrimination at work are between 30 and 49 years old, 1.7 % of those subjected to physical violence are under 30 years old and 1.2 % of workers subjected to bullying and harassment are above 50 years old. Table 3 presents results about the impact of the type of discrimination at work on discriminated workers' health.

Age discrimination, discrimination linked to race, ethnic background or colour, and discrimination on the basis of sex: these are the only kinds of discrimination that have a significant correlation with the influence of work on health (i.e. $p < 0.05$). However, for most kinds of discrimination, the results of the χ^2 -test are very uncertain because of the

small numbers involved. Therefore, only the first two kinds in table 3 are worth a detailed analysis.

Table 3
Effects of discrimination type on discriminated workers' health

Type of discrimination	“Does your work affect your health, or not?”			
	Yes, mainly positively, %	Yes, mainly negatively, %	No, %	Total number
Age discrimination ($p = 0.000003$)	25.4	39.2	35.4	21
Discrimination linked to race, ethnic background or colour ($p = 0.04$)	3.0	63.0	34.1	19
Discrimination linked to nationality ($p = 0.15$)	0.0	82.7	17.3	5
Discrimination on the basis of sex ($p = 0.002$)	32.9	22.4	44.7	6
Discrimination linked to religion ($p = 0.48$)	0.0	66.8	33.2	5
Discrimination linked to disability ($p = 0.68$)	0.0	56.8	43.2	3
Discrimination linked to sexual orientation ($p = 0.19$)	26.3	53.7	20.0	3

Age discrimination correlates with the negative influence of work on health (39.2 % is significantly higher than the average 34 %) because old workers are often denied long-term positions suitable for them and they are compelled to get engaged in jobs detrimental to their health. Surprisingly enough, age discrimination is also correlated with the positive influence of work on health (25.4 % is much higher than the average 5 %); this is most probably due to the percentage of young workers who usually have no difficulty in finding a job that has a positive effect on their health but are often discriminated with respect to their wages.

Discrimination linked to race, ethnic background or colour corresponds with the negative influence of work on health (63.0 %). This fact hardly needs an explanation because this kind of discrimination usually takes the form of narrowing the set of jobs available to workers, thus compelling them to get engaged in the hardest jobs which are often detrimental to their health.

Almost all kinds of discrimination tend to correlate with the negative influence of work over health. Although we lack enough data to get to certain conclusions, the tendency can be easily seen from the results presented in table 3.

There is a strong correlation between the influence of work on workers' health and depression or anxiety ($p = 4.3 \times 10^{-9}$). Depression is combined with the negative impact of work on health. The same holds for overall fatigue ($p = 3.6 \times 10^{-16}$) and insomnia or general sleep difficulties ($p = 2.4 \times 10^{-8}$). All these are connected with stress. Tiring or painful positions and handling angry clients or patients are frequent sources of work-related stress.

About 10 % of Bulgarian workers have been subjected to verbal abuse at work; 53.9 % of them think that their work has a negative influence on their health. This percentage is significantly greater than the average 34 % ($p = 0.000008$). Unwanted sexual attention increases the frequency of negative influence and reduces the positive impact of work on

workers' health ($p = 0.04$). Threats and humiliating behaviour at work also affect workers' health negatively ($p = 0.00005$); a negative impact is experienced by 64.9 % of workers who are subjected to this factor.

Physical violence, bullying / harassment and sexual harassment are correlated with the negative influence of work on health. These correlations are weak ($p > 0.05$). However, no certain conclusions can be drawn here (even about the strength of the correlation) because of the insufficient data: only few interviewees reported that they had been subjected to such treatment.

Conclusions

The secondary analysis of the Bulgarian data set of the Fifth EWCS 2010 shows that work-related stress, discrimination, violence, bullying and harassment have a negative impact on Bulgarian workers' health similarly to the EU. It can be concluded that the investigated work-related stress factors, such as shortage of time to get a job done, lack of consultation with workers, conflicts between work tasks and personal values, frequent necessity to hide one's feelings, mistakes at work that can cause a physical injury or a financial loss, verbal abuse, threats and humiliating behaviour, also affect workers' health negatively. Therefore, creating legal conditions for a healthy and safe working environment has to be a constant concern of every government and employer. Special attention should be paid to the new and emerging psychosocial hazards and their associated risks. It is of prime importance that workers should be kept very well-informed about all health and safety risks at work. More detailed research concerning the work-related stress factors needs to be conducted in order to suggest adequate measures to be implemented by employers.

Acknowledgements. The authors thank the European Foundation for the Improvement of Living and Working Conditions and the UK Data Archive for providing the initial data.

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