ASSESSMENT OF PSYCHOSOCIAL RISKS AT WORK

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Abstract:In community is trend to be useful, be successful, to manage different situations, to pass all difficulties and adjust with requirements and demands of certain tasks. Work capacity of every man is not unlimited and overrun of this capacity could have negative consequences to health and performance. In different cases and conditions of work life can appear different events which have influence to psychic balance and generate stress.
The article describes the method of assessment of psychosocial risk matrix using the newly created risk by identifying areas of stress, ie. stressors and their consequences are evaluated in three impacts :
- Impact on the safety (human error / injury),
- Health hazards,
- Decrease of availability.

Key words: *risks, hazard, stress, safety, health*

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1. Introduction

The world of work is fundamentally changing, bringing new challenges to the health and safety of employees. These changes lead to new psychosocial risks. Such risks, which relate to the concept of allocation, organization and management of work, as well as their economic and social context, result in increased stress levels, which can lead to serious deterioration of mental and physical health, increased injury and reduced effectiveness.

2. Emerging psychosocial risks

Research and studies show that emerging psychosocial OSH risks are often the result of technical or organizational changes. Important factors are also socio-economic, demographic and political changes, including the current phenomenon - globalization.

Research and studies show that most emerging psychosocial risks can be divided into areas:
1. new forms of employment contracts and job insecurity,
2. aging workforce,
3. work intensification,
4. high emotional demands at work,
5. imbalance in work and personal life.

Work stress risk assessment includes the same basic principles and processes that apply to other workplace hazards. Involvement of employees and their representatives into this process is a key factor of success. Employees should know what causes stress, which groups are suffering and what can be done for remedy (OHSA - European Agency, 2007).

3. Psychosocial risk assessment algorithm

The following section describes the method for assessing psychosocial risk using the newly created risk matrix with identified areas of stress, i.e. stressors and their consequences, which are evaluated in three impact areas:
- Impact on security (human error/injury),
- Health hazards ,
- Reduction of work effectiveness.

Work effectiveness of the employee (P_h) in the process of stress elements action consists of three weight factors:

$$P_h = V_k \text{ x } K_v \text{ x } E_x \tag{1}$$

where:
V_k - employee performance,
K_v - quality of work performed,
E_x - time use.

In the Fig. 1, an algorithm is designed to assess psychosocial risks causing stress to employees at work and in Fig. 2 (Šolc, 2009) is a division of stressors into two main categories - physical and psychosocial.
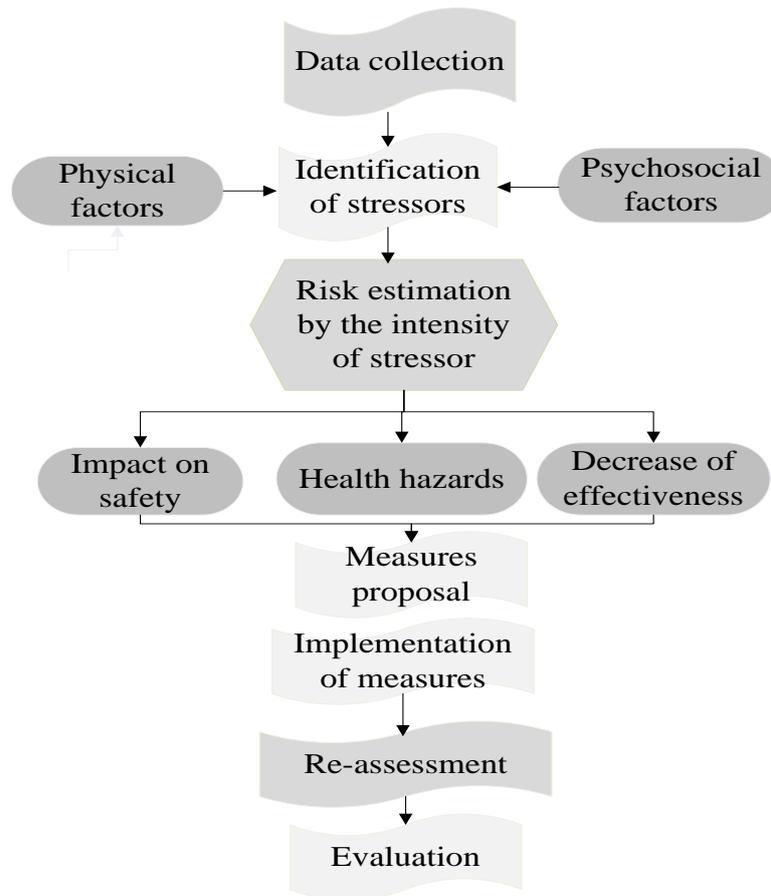
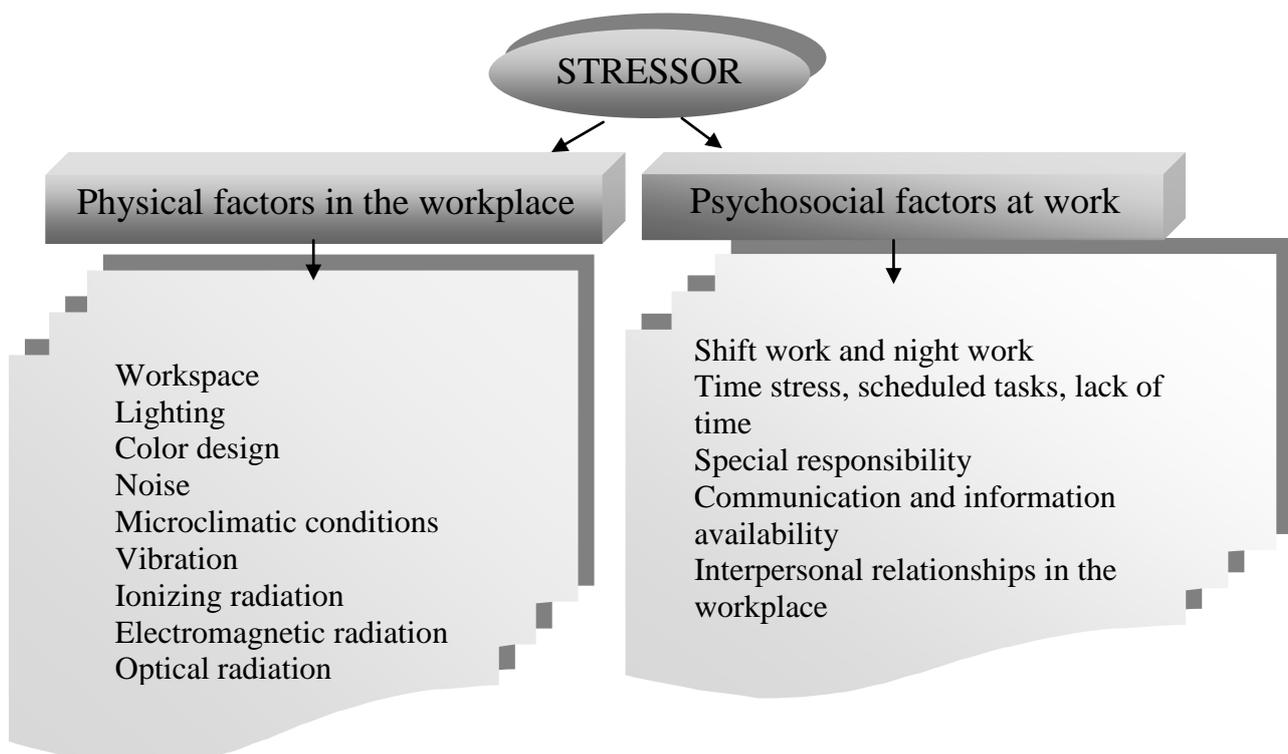Fig. 1. Proposed algorithm for the assessment of psychosocial risk

Fig. 2. Distribution of stressors affecting the psychological burden

3.1 Preparation - data collection

Objective information can be obtained from the technological procedures and manuals, the measurement of harmful or dangerous and nuisance factors at work, records of work accidents and occupational diseases.

Subjective information to identify the source of stress are data from observation of the work environment, observation of work in the workplace, interviews with staff and observation of external factors that may affect the workplace.

3.2 Identification of dangers and hazards in the workplace

Evaluating selected system, it is necessary to identify only those properties which may give rise to negative phenomena in the form of threats to health, increased injury and reduced effectiveness (Kuľhavý, 2005).

To identify risks and hazards in the workplace, the checklist in Tab. 1 can be used.

No.	HAZARD: Stress at work	Yes	Some-times	No
I.	**Work Environment**	Physical factors		
1.	Is ergonomic equipment of working environment unsatisfactory?	☐	☐	☐
2.	Does spatial layout of the workplace not meet the needs of employees and performed work?	☐	☐	☐
3.	Are there physical hazards (noise, excessive heat, poor lighting, humidity) in the workplace?	☐	☐	☐
4.	Are there burdensome substances?	☐	☐	☐
5.	Are working implements used by employees at work not sufficient?	☐	☐	☐
II.	**Job demands**	Psychosocial factors		
6.	Is work physically demanding?	☐	☐	☐
7.	Is there an imbalance between physical and mental demands of work and employees capability?	☐	☐	☐
8.	Is there mental work load?	☐	☐	☐
9.	Is there emotional burden?	☐	☐	☐
10.	Is work monotonous?	☐	☐	☐
11.	Do short cyclic activities occur in the workplace?	☐	☐	☐
12.	Are personal performance standards too high?	☐	☐	☐
13.	Are employees socially isolated in the course of their work?	☐	☐	☐
III.	**Organization of work**	Psychosocial factors		
14.	Is alternation of activity and rest phases insufficient?	☐	☐	☐
15.	Is there lack of work equipment?	☐	☐	☐
16.	Is information on new tasks provided to employees well in	☐	☐	☐

	advance before changes apply?	☐	☐	☐
17.	Is there lack of information about performed work and working procedures?	☐	☐	☐
18.	Is there too much information, so employees can't even remember it all?	☐	☐	☐
19.	Do employees often not know what are their roles and responsibilities?	☐	☐	☐
20.	Can employees influence the methods by which they perform their work tasks?	☐	☐	☐
21.	Do employees usually work in a fast pace?	☐	☐	☐
22.	Are there contradictory requirements on employees?	☐	☐	☐
23.	Is the work specification obscure and incomprehensible?	☐	☐	☐
24.	Is the work unpredictable and defiant to plan?	☐	☐	☐
25.	Are employees in their work often disturbed and bothered?	☐	☐	☐
26.	Do employees have the opportunity to plan their work, make decisions and take responsibility?	☐	☐	☐
27.	Is the shift schedule prepared in advance?	☐	☐	☐
28.	Must employees often work at night?	☐	☐	☐
29.	Must employees usually work overtime?	☐	☐	☐
30.	Are working hours fixed?	☐	☐	☐
31.	Do employees experience overload from volume of work?	☐	☐	☐
32.	Do employees usually work under high time pressure?	☐	☐	☐
33.	Is the workload usually very high?	☐	☐	☐
34.	Does rush work occur often in the workplace?	☐	☐	☐
35.	Can employees influence their job description?	☐	☐	☐
36.	Are employees trained for their new work roles?	☐	☐	☐
IV.	**Orientation and safety**	Psychosocial factors		
37.	Is there fear of losing the job?	☐	☐	☐
38.	Is there feedback on work performance of employees?	☐	☐	☐
39.	Is there lack of information on safety in the workplace?	☐	☐	☐
40.	Are employees poorly motivated?	☐	☐	☐
41.	Is there an opportunity for further development and learning?	☐	☐	☐
42.	Is employees allocation unclear?	☐	☐	☐
43.	Is information on the work tasks unclear?	☐	☐	☐
44.	Do employees meet the qualification requirements for the work carried out?	☐	☐	☐
V.	**Creative space**	Psychosocial factors		
45.	Is wokplace lacking guard and control mechanisms?	☐	☐	☐
46.	Is there an opportunity for the employees to participate on the management?	☐	☐	☐

47.	Is there a possibility of creating new activities?	☐	☐	☐
48.	Is pace of work imposed on the employees?	☐	☐	☐
VI.	**Social climate**	Psychosocial factors		
49.	Are there signs of discrimination in the workplace?	☐	☐	☐
50.	Is there a bad climate in the company towards superiors?	☐	☐	☐
51.	Remain conflicting issues and problems between staff and management unresolved?	☐	☐	☐
52.	Are there interpersonal conflicts or conflicts between groups of employees?	☐	☐	☐
53.	Have employees the opportunity to address problems and conflicts?	☐	☐	☐
54.	Is there a support from colleagues or superiors?	☐	☐	☐
55.	Is there a strong competition among employees?	☐	☐	☐
56.	Is cooperation among different groups of employees weak (e.g. among individual organizational units)?	☐	☐	☐
57.	Is the social climate in the workplace poor?	☐	☐	☐
58.	Do employees experience insufficient appreciation for their work?	☐	☐	☐
59.	Is there bullying and harassment?	☐	☐	☐
60.	Are employees exposed to the risk of violence from the public (verbal abuse, threats, physical attacks)?	☐	☐	☐

Tab. 1. Specific checklist for the risk of occupational stress (Sabolová, 2009)

This checklist can identify most of the hazards causing mental workload. Hazards are essentially stressors arising in work process. Answering individual questions, employees can choose one of the three options. To assess the effects of individual stressors on employee it is necessary to know whether the intensity of stressor occurrence is frequent or if it occurs only occasionally.

3.3 Estimation of risks arising from hazards

After identification of hazards the risk is assessed by determination of risk parameters for each individual hazard. The risk is derived by combination of the following parameters:
- severity of damage and its consequences,
- the probability of such damage, which is a function:
    a) frequency and duration of exposure to hazard,
    b) the likelihood of adverse events occurrence,
    c) the technical capabilities and human capabilities to prevent or avoid risk.

The category 'probability of occurrence' of adverse mental workload reflects the intensity of stressors that cause mental workload.

The category 'consequences' of the intensity of stressor reflects the severity of possible health damage, number of human error/injury and decrease of employees effectivity, Tab. 2.

The resulting risk matrix for mental workload assessment is in the Tab. 2.

	Probability	Consequence			
		A	B	C	Consequence
I.	Rarely, unlikely	Short-term increase of tension in the organism without health damage	Explosive-ness, aggression, possible disease	Depression, severe mental health conditions, possible long-term health damage	**Health hazard**
II.	Occurs regularly, probable	Sporadic occurrence of errors (almost accident)	Increased number of errors (sick leave over 3 days)	High error rates (sick leave more than 42 days or death)	**Human error/injury**
III.	Permanent occurrence during activity, very likely	Short-term decrease of effectivity	Prolonged decrease of effectivity	Permanent work disability	**Decreased effectivity**

Risk matrix for mental workload assessment			Values of R:
A	B	C	
I **S**	**S**	**M**	**S** - small
II **S**	**M**	**H**	**M** - medium
III **M**	**H**	**H**	**H** - high

Tab. 2. Matrix for risk assessment of mental workload

3.4 The proposal of measures to eliminate the stressors, documenting
To eliminate or reduce the risk arising from hazards it is appropriate to follow these steps:
- If the risk is assessed as high and unacceptable, risk reduction measures must be implemented immediately,
- If the risk is medium and considered to be acceptable, it is recommended to plan measures to reduce the level of risk,
- If the risk is small and assessed as acceptable, it is necessary to make sure that it will remain on the same low level, therefore it must be communicated.

Assessment of psychosocial risks at work can be entered into the form (Tab. 3).

Assessment of mental workload											
Work position:			Assessed by:								
			Date:								
No.	Hazard-stresor	Health hazard			Human error/injury			Decreased effectivity			Measures	
		P	C	R	P	C	R	P	C	R	

Tab. 3. Form for the assessment of psychosocial risks at work

4. Case study - Practical application of the work stress assessment using the proposed algorithm for the assessment of psychosocial risksfor employee working with people over the counter

Assessment of the work stress has been performed for one counter employee. In Tab. 4. there are some of the stressors identified by employee as hazard.

No.	HAZARD: Stress at work	Yes	Some-times	No
III.	Organization of work			
32.	Do employees usually work under high time pressure?	●	o	o
33.	Is the workload usually very high?	o	●	o
34.	Does rush work occur often in the workplace?	●	o	o

Tab. 4. Checklist with identified stressors

Based on the risk matrix (Tab. 2.) risk assessment was carried out (Tab. 5.) and proposed measures for its elimination.

No.	Identified hazard-stressor	Calculation of risk									Measures
		Health hazards			Human error/injury			Decreased effectivity			
		P	C	R	P	C	R	P	C	R	
1.	Rush work	II	A	S	II	B	M	I	A	S	Clear determination of tasks and responsibilities.
2.	High workload	I	A	S	II	B	M	I	A	S	Hiring new employees and accommodation of work schedule to reduce overload.

| 3. | Work under time pressure | II | B | M | II | B | M | I | B | S | Adapt the scope and content of work tasks to individual employees. Correct timing of work, work schedule, maintain work breaks and relaxation, keep oneself in good mental condition by sports, walks in nature. |

Tab. 5. Risk assessment of identified stressors for counter employee

What can I do to reduce the risks of Psychosocial Factors?

As with physical risk factors, psychosocial issues are best addressed with full consultation and involvement of the workforce.
Consider the following control measures that can be often be applied to improve the working environment within your workplace:
- reducing the monotony of tasks where appropriate,
- ensuring there are reasonable work load (neither too much or too little) deadlines and demands,
- ensuring good communication and reporting of problems,
- encouraging teamwork,
- monitoring and control shift work or overtime working,
- reducing or monitoring payment systems which work on piece rate,
- providing appropriate training (Management of Health and Safety at Work,2000).

The goal if research was application of developed risk matrix for assessing the psychosocial risk in operation and then a proposal measures to minimize them.

5. Conclusion

In all stages of product life cycle and in all processes of the organization, human appears as a basic factor determining the safety, quality and performance. Reliability of the human factor is seen as an integral part of risk assessment. Human reliability assessment is highly complex and unpredictable process that requires perfect knowledge of the system, i.e. facilities, equipment, risk identification, professions and above all, the abilities of individuals (employees). Reliability of human work can be generally characterized as the probability attributed to something or someone, or the probability, that he/she successfully completes the work or the task in given phase of the system operation, within a specified time interval, under specified requirements on the final result.

Human reliability is defined as:

$$P_c = P_o \ x \ P_f \ x \ P_{ps} \tag{2}$$

Where:

P_o - the probability of professional (knowledge) level,

P_f - the probability of physical dispositions,

P_{ps} - the probability mental quality properties.

Psychosocial risk assessment must include the full range of human error, from sketching up the formal errors, tension, fatigue even to stress, because human errors are often caused by work stress.

Psychosocial risk is emerging risks, which need attention. The risk is difficult to determine in general (there are no limits of its impact). The future of this research is proposal of methodology of psychosocial risk assessment, consulting experts, such as. psychologists, sociologists and so on.

6. Acknowledgements

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