

A PRELIMINARY STUDY ON A NEW RISK ASSESSMENT TOOL RELATED TO OCCUPATIONAL STRESS

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Abstract

Research indicates that besides work and psychosocial risk factors, some other risks (e.g. some socioeconomic, personality and health risks) could contribute to the adverse outcomes of occupational stress. We aimed to develop a comprehensive instrument that would include a broad spectrum of risks related to absenteeism, presenteeism, turnover, burnout and work-family conflict and to test its face validity in the pilot sample. A pilot version of the risk assessment tool was designed with a Delphi method based on literature review and consensus of qualified experts in the field of occupational stress. The preliminary instrument currently assesses 130 risk factors concerning work-related characteristics, types of employment, along with individual factors, such as family issues, psychophysical health status, personality, lifestyle, as well as broader socio-demographic background. The instrument was applied to 60 Slovenian hospital employees consisted of nurse staff, administration staff and maintenance workers. The instrument has adequate face-validity as some categories of work-related risks differed significantly between professional groups. "Autonomy and control" was identified as psychosocial risk that was specific to maintenance workers and administration staff, respectively. Additionally, "role and responsibility in the organization" represented a substantial risk factor among nurse and administration hospital staff. "Content of work" and "Career development" emerged as common risk factors to all professional groups. Our study indicates that employed instrument in its preliminary form proved as having adequate psychometric properties to identify specific psychosocial and socio-demographic risks of adverse stress related outcomes among different occupational groups.

Keywords: *occupational stress, assessment tool, risk factors, preliminary study, face validity*

PRELIMINARNA ŠTUDIJA RAZVOJA NOVEGA ORODJA, NAMENJENEGA OCENI TVEGANJ, POVEZANIH S POKLICNIM STRESOM

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Povzetek

Raziskave kažejo, da lahko k doživljanju poklicnega stresa in njegovih izidov poleg dejavnikov dela in psihosocialnih značilnosti zaposlenega, prispevajo tudi nekateri drugi dejavniki (npr. socioekonomske značilnosti zaposlenega, osebnostni dejavniki, zdravstvena tveganja). Cilj študije je bil razviti instrument, ki vključuje kar najširši nabor dejavnikov tveganj, povezanih z razvojem absentizma, prezentizma, fluktuacije, izgorelosti in težav pri usklajevanju dela in družine, ter na pilotnem vzorcu preveriti njegovo razvidno veljavnost. Pilotno verzijo orodja za oceno tveganj smo razvili s pomočjo Delphi metode, ki je temeljila na sistematičnem pregledu literature in soglasju strokovnjakov s področja poklicnega stresa o dejavniki tveganja. Preliminarna verzija instrumenta je vključevala 130 dejavnikov tveganja, ki izvirajo tako iz značilnosti dela ter vrste zaposlitve, kot tudi iz individualnih značilnosti zaposlenega, njegovih družinskih razmer, psihofizičnega zdravja, osebnosti, življenjskega sloga, ter širšega

sociodemografskega konteksta. Instrument smo preizkusili na vzorcu 60 zaposlenih v slovenski bolnišnici, ki je obsegal tri različne poklicne skupine: medicinsko osebje, administrativno osebje in vzdrževalce. Rezultati so pokazali ustrezno razvidno veljavnost instrumenta, saj so se različni poklicni profili med seboj pomembno razlikovali glede izraženosti nekaterih kategorij dejavnikov tveganja, povezanih z delom. Dejavniki tveganj na področjih nadzora dela in urnika dela, so se izkazali kot največje psihosocialno tveganje pri skupini vzdrževalcev in medicinskega osebja. Hkrati pa je tako pri medicinskem kakor administrativnem osebju pomembno tveganje predstavljalo področje 'vloge in odgovornosti v organizaciji'. Tveganja na področju 'vsebine dela' so se izkazala kot pomembna obremenitev pri vseh poklicnih skupinah.

Ključne besede: *poklicni stres, orodje za oceno tveganj, dejavniki tveganja, preliminarne študije.*

1 Introduction

Recently published European researches (e.g. Esener, Eurofond, OSHA) show that work related stress presents one of the biggest health and safety challenges on the level of employees, organisations and national economies.

Work-related stress is experienced when the demands of the work environment exceed the employees' ability to cope with (or control) them (Milczarek, Schneider and Rial Gonzalez, 2009). There has been a growing recognition that the experience of stress at work has undesirable consequences for the physical and psychological health of employees (EUROFOND, 2007; WHO, 2005). Moreover, research indicates, that long-term experience of work related stress presents one of the greatest risks for sick leave (absenteeism; Johns, 2003), reduced workplace productivity (presenteeism; Johns, 20120), turnover (Bergerman, Corabian and Harstall, 2009), burnout (Maslach, Schaufeli and Leiter, 2001) and negative consequences associated with work-to-family conflict (Amstad, Meier, Fasel, Elfering and Semmer, 2011).

Researches (e.g. Kopp, Stauder, Purebl, Janszky and Skrabski, 2007; Leka, Griffiths and Cox, 2003) reveal that there are a number of factors that contribute to the experience of work-related stress, arising either from *job characteristics* (e.g. work content, workplace, overload, work schedule, control over work, employee's qualification, participation in decision making, pay), *work environments and organisation* (possibilities for career development, role of employee in the organisation, interpersonal relations, organisational climate), or from *non-work-related factors*, such as socio-demographic characteristics of an employee, economic circumstances, family relations, health status, lifestyle, quality of life, technological development, market changes (Pološki Vokić and Bogdanić, 2007).

Different social and economic circumstances contribute to changes in working conditions, which affect the subjective experience of work-related stress experienced by employees; the transition from socialism to capitalism, for example, results in higher stress because of decreased job security, increased workplace competition and job demands and decreased wages in many sectors (Stauder, Konkoly, Kovács, Balog, Williams and Williams, 2010). Moreover, work stress has been shown to have different effects on the health of employees in different countries (Salavecz et al., 2010).

Compared to other EU countries, Slovenia possesses some unique socio-demographic, economic, and socio-cultural characteristics. Research indicates that Slovenian employees report higher levels of absenteeism (Parent-Thirion, Fernández Macías, Hurley and Vermeylen, 2005), lower job satisfaction (Parent-Thirion, Vermeylen, van Houten, Lyly-Yrjänäinen, Biletta and Cabrita, 2010) and more physical complaints such as back pain, muscle pain, headache (Parent-Thirion et al., 2005) compared to the EU average. Additionally, Slovenian labour market shows low flexibility (Eurostat, 2011a, 2011b) and many Slovenian employees have unhealthy lifestyle, such as unhealthy diet, insufficient physical activity and smoking (Hlastan-Ribič, Djomba, Zalatel-Kragelj, Maučec-Zakotnik and Fras, 2010). Slovenia is also one of the European countries with the highest suicide rates (Parent-Thirion et al., 2005), alcohol use and alcohol related mortality and health problems (WHO, 2011).

2 Aims

There are several questionnaires for stress assessment currently available to evaluate multiple work stressors at individual, group and/or organizational levels (Tabanelli et al., 2008), but none of these has been adapted for use in Slovenian socio-cultural environment. Therefore, the aim of our study was to develop a comprehensive instrument that would include a comprehensive set of work-related and non-work-related risk factors associated with job stress and its adverse negative outcomes, such as absenteeism, presenteeism, turnover, burnout and work-family conflict. Our study also aimed to test face validity of the assessment instrument in the pilot sample.

3 Methods

Development of the instrument underwent three main phases.

3.1 Establishing a Preliminary List of Risks, Related to Absenteeism, Presenteeism, Turnover, Burnout and Work-family Conflict

This phase included:

- a) A review of relevant international research literature on workplace stress;
- b) A literature review of Slovenian publications addressing workplace stress that was performed on Co-operative Online Bibliographic System and Services (Cobiss) from 2004 to 2010 with the following keywords: burnout, stress management, stress risk factors, job satisfaction, mobbing, staff turnover, absenteeism, presenteeism;
- c) An analysis of sociodemographic, health, economical statistical indicators by Slovenian statistical regions from 2004 to 2010;
- d) The focus group that included 7 qualified experts in the workplace stress and experts in stress-related fields that proposed risks which in their opinion were related to workplace stress. They were also asked to rate on a five-point Likert scale (1 = very unimportant to 5 = very important) the influence that each of the 186 risk factors obtained in previous phases had on absenteeism, presenteeism, turnover, burnout and work-family conflict. For each risk, mean values of the ratings (M) which indicated the weight the experts had allocated to the risk, and standard deviations (SD), which showed the degree of consensus amongst the experts, were calculated. Based on the results of the first survey round, the second questionnaire was designed which included only more important risk factors ($M > 2$) was developed.

3.2 Establishing a Final Priority List of Risks

Expanded group of 23 experts and researchers in the workplace stress and stress-related fields participated in the second and third round to reassess the most prominent risks from the first round. An online survey was conducted and a five-point Likert scale (1 = very unimportant to 5 = very important) was employed. A prioritised list of risks related to absenteeism, presenteeism, turnover, burnout and work-family conflict was established, based on high M, low SD and high discriminativity of the risks.

3.2 Development of a Pilot Version of the Risk Assessment Tool and its Validation in the Pilot Sample

A pilot version of the risk assessment tool included 130 risks that were later transformed into self-rating items. The obtained risk assessment tool asks respondents to evaluate how much they agree with each of the statement on a five-point Likert scale (1 = strongly disagree/very unlikely for me to 5 = strongly agree/very likely for me) in the last year. Example items are: 'I get little support from my organisation for dealing with difficult situations.' 'There is a lot of competition among co-workers in my work organisation.' 'My work is very demanding.' 'I have difficulties with effective time management.' 17 categories of risk factors were obtained with qualitative analysis; 10 categories cover work-related risks and 7 categories contain risks assessing broader psychosocial context (Table 1).

A final 130-item pilot version of the risk assessment tool was administered in a sample of 60 Slovenian hospital employees consisted of *nurse staff* – nurses/medical technicians, physiotherapists (N=32), *administration staff* – administrators, accountants, secretaries (N=15) and *maintenance workers* – cleaners, repair workers (N=7). Table 2 shows the basic characteristics of the sample.

4 Results

In the Table 1 is displayed a list of categories of stress related hazards with corresponding risk factors.

<i>Category</i>	<i>Description</i>
<i>CONTENT OF WORK</i>	Monotonous work, short work cycles, fragmented or meaningless work, underuse of skills, high uncertainty, continuously working with other people.
<i>WORKLOAD/WORKPACE</i>	Work overload or underload, lack of control over pacing, high levels of time pressure, constant deadlines.
<i>WORK SCHEDULE</i>	Shift working, rigid work schedules, unpredictable hours, long or unsociable hours.
<i>AUTONOMY AND CONTROL</i>	Low participation in decision making, lack of control over workload, work pace, working hours.
<i>WORK ENVIRONMENT</i>	Problems regarding reliability, availability, suitability and maintenance or repair of

<i>AND WORK EQUIPMENT</i>	both equipment and facilities; inadequate working conditions due to lack of proper working space, poor lighting, and noise.
<i>ORGANISATIONAL CULTURE AND FUNCTION</i>	Poor communication, low levels of support for problem-solving and personal development, lack of definition of organisational objectives.
<i>INTERPERSONAL RELATIONSHIP AT WORK</i>	Social or physical isolation, poor relationships with superiors, interpersonal conflict, lack of social support.
<i>ROLE AND RESPONSIBILITY IN THE ORGANISATION</i>	Role ambiguity and role conflict, responsibility for people.
<i>CAREER DEVELOPMENT</i>	Career stagnation and uncertainty, under or over promotion, poor pay, job insecurity, job uncertainty, low social value to work.
<i>HOME-WORK INTERFACE</i>	Conflicting demands of work and home, low support at home, dual career problems.
<i>FAMILY CIRCUMSTANCES</i>	Single parent family, multi-generational family, relationship problems with spouse and children, changes in family
<i>PSYCHO-PHYSICAL HEALTH STATUS</i>	Physical or psychological illness or proneness to illness.
<i>PERSONALITY TRAITS</i>	Conflict between work and personal values, need for self-affirmation, perfectionism, fear of making mistakes, disorganisation, overestimating one's abilities, indulgence, bad working habits.
<i>ATTITUDES TOWARDS WORK</i>	Work is important value, inability to adapt to new conditions, the need to prove oneself at work, unhealthy strategies for coping with work stress.
<i>ADDITIONAL NON-WORK RELATED STRAINS</i>	Precarious work, being engaged in other works besides job, additional education/training besides job, financial support of family members, caring for family member with a long term illness
<i>SELF- CARE</i>	Unhealthy life style, unused vacation or sick leave, lack of time for oneself, friends, leisure activities.
<i>SOCIO-DEMOGRAPHIC BACKGROUND</i>	Bad living conditions, very low income, few traffic connections between work and home, difficult access to kindergartens and health institutions.

Table 1: Categories of a pilot version of the risk assessment tool.

In the Table 2 are indicated some basic socio-demographic characteristics of the sample. The majority of the participants were females, from the age of 31 to 40 years. Participant from the group of *maintenance workers* had lower levels of education in comparison to other groups. Employees in all three groups had similar average job tenure.

	<i>Nurse staff (N=32)</i>	<i>Administration staff (N=15)</i>	<i>Maintenance workers (N=7)</i>
Gender	%		
Male	16	7	29
Female	84	93	71
Age	%		
18-30 years	16	13	
31-40 years	38	33	43
41-50 years	25	20	14
>50 years	22	33	43
(continued)	Nurse staff (N=32)	Administration staff (N=15)	Maintenance workers (N=7)
Education	%		
Primary education or less	3		29
Shorter vocational education			29
Vocational education	3	13	29

<i>Secondary education</i>	44	53	14
<i>Higher vocational education</i>	16		
<i>Graduate degree</i>	34	20	
<i>Master's degree</i>		13	
<i>Job tenure (M)</i>	<i>M±SD</i>		
<i>Job tenure at the current workplace</i>	13.0±10.1	12.1±10.8	13.4±12.0
<i>Job tenure within the current occupation</i>	16.4±10.6	17.7±11.3	15.0±12.3
<i>Total job tenure</i>	16.5±11.3	19.4±11.5	21.7±11.4

Table 2: Basic socio-demographic characteristics of a sample.

The following areas have been defined for the interpretation of a burden that different categories of stress-related hazards have on employees:

- Category represents low burden for the development of stress-related negative outcomes ($M < 2.5$);
- Category represents medium burden for the development of stress-related negative outcomes ($2.5 < M < 3.5$);
- Category represents high burden for the development of stress-related negative outcomes ($M > 3.5$).

The instrument identified some psychosocial risks that were specific for certain professional groups, which indicates its proper face-validity. “Work content” and “career development” represented substantial risks among all professional groups. “Role and responsibility in the organization” was recognised as a common risk factors to nurse and administration staff, whereas “Autonomy and control” to administration staff and maintenance workers.

Among the *nurse staff*, we identified high burdens of Role and responsibility in the organization, Content of work and Work schedule, indicating heightened risk for the development of stress-related adverse outcomes (Figure 1).

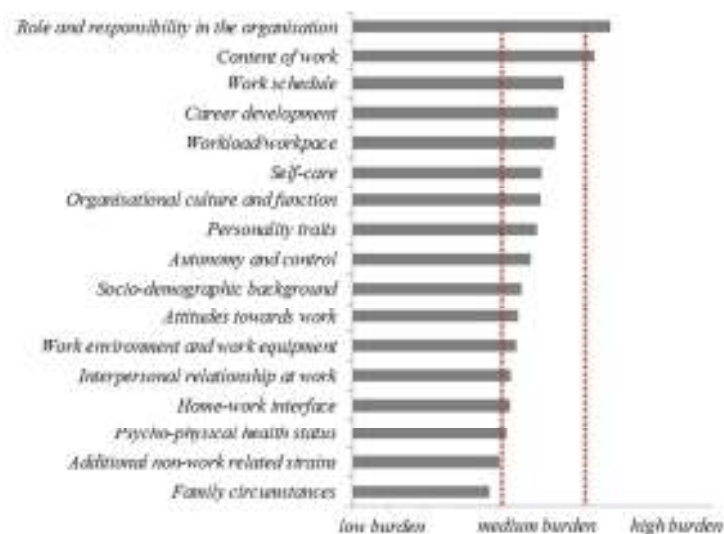


Figure 1: The profile of burdens in the group of nurse staff (N=32).

Role and responsibility in the organization, Content of work and Career development were the categories of stress-related hazards that were the most burdensome for the employees working in administration (Figure 2).

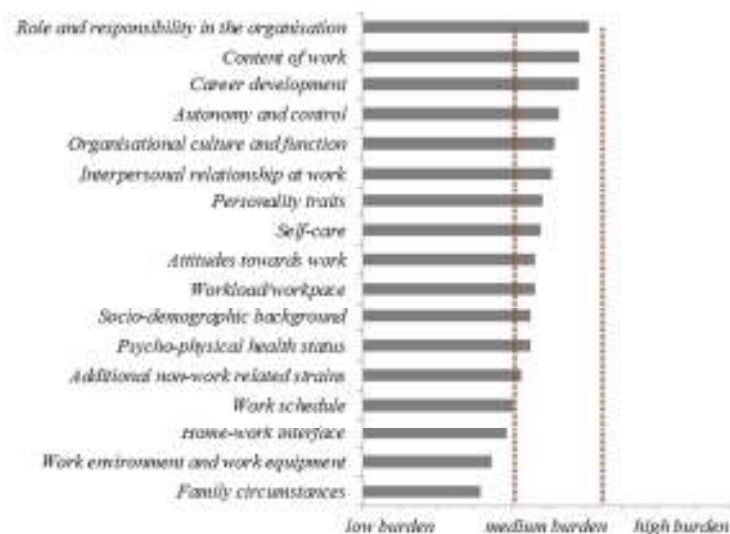


Figure 2: The profile of burdens in the group of administration staff (N=15).

Maintenance workers displayed considerable burden caused by Autonomy and control, Content of work, Career development and Work environment and work equipment (Figure 3).

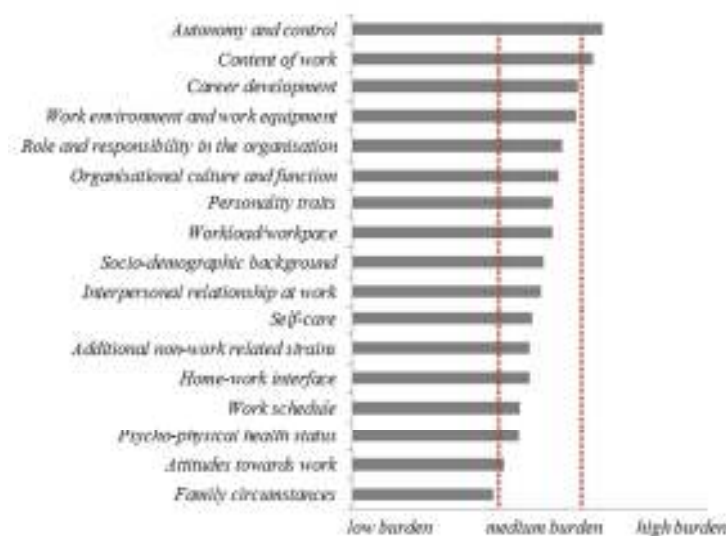


Figure 3: The profile of burdens in the group of maintenance workers (N=7).

5 Conclusions

The need to design a new assessment tool adapted to the use in Slovenian work organizations has been driven by the specific socio-economic and cultural characteristics of our country. This tool in its current version covers a wide array of psychosocial risks at work as well as risks arising from broader sociodemographic, non-work related environment.

The results of the pilot study indicate a sufficient discriminative power of this tool to differentiate various professional subgroups according to the type of psychosocial risks they are exposed to and regarding the magnitude of burden the identified risks represent for the employees in different occupations.

Therefore we can conclude that the employed instrument in its preliminary form has adequate psychometric properties to identify specific psychosocial and socio-demographic risks of adverse stress-related outcomes among different occupational groups. The developed assessment tool could be useful for providing data concerning changes and trends relating to work-related stress and could contribute to a better understanding of work-related stress issues and how to address them.

References

1. Amstad, F.T., Meier, L.L., Fasel, U., Elfering, A., Semmer, N.K. (2011), "A Meta-Analysis of Work–Family Conflict and Various Outcomes". *Journal of Occupational Health Psychology*, Vol. 16, No. 2.
2. Bergerman, L., Corabian, P., Harstall, C. (2009), *Effectiveness of organizational interventions for the prevention of workplace stress*. Institute of Health Economic, Canada.
3. Parent-Thirion, A., Fernández Macías, E., Hurley, J., Vermeulen, G. (2005), Fourth European Working Conditions Survey. European Foundation for the Improvement of Living and Working Conditions (EUROFOND), Dublin.
4. Parent-Thirion, A., Vermeulen, G., van Houten, G., Lyly-Yrjänäinen, M., Biletta, I., Cabrita, J. (2010), *Fifth European Working Conditions survey – 2010*. European Foundation for the Improvement of Living and Working Conditions (EUROFOND), Dublin.
5. European Agency for Safety and Health at Work (2010), *European Survey of Enterprises on New and Emerging Risks (ESENER) - Managing safety and health at work*. Office for Official Publications of the European Communities, Luxembourg.
6. Milczarek, M., Schneider, E., Rial Gonzalez, E. (2009), *OSH in figures: stress at work — facts and figures*. European Agency for Safety and Health at Work, Luxembourg.
7. European Foundation for the Improvement of Living and Working Conditions (2007), *Work-related stress*. European Foundation for the Improvement of Living and Working Conditions (EUROFOND), Dublin.
8. Eurostat (2011a), *Part-time employment as a percentage of the total number of employees for a given sex and age group*. European Commission, Luxembourg.
9. Eurostat (2011b), *Temporary employees as a percentage of the total number of employees for a given sex and age group*. European Commission, Luxembourg.
10. Hlastan-Ribič, C., Djomba, J. K., Zaletel-Kragelj, L., Maučec-Zakotnik, J. in Fras, Z. (ur.) (2010), *Tvegana vedenja, povezana z zdravjem in nekatera zdravstvena stanja pri odraslih prebivalcih Slovenije - Rezultati raziskave Dejavniki tveganja za nenalezljive bolezni pri odraslih prebivalcih Slovenije 2008*. Inštitut za varovanje zdravja, Ljubljana.
11. Johns, G. (2003), "How methodological diversity has improved our understanding of absenteeism from work". *Human resource management review*, Vol. 13, No. 2.
12. Johns, G. (2010), "Presenteeism in the workplace: A review and research agenda". *Journal of Organizational Behavior*, Vol. 31.
13. Kopp, M. S., Stauder, A., Purebl, G., Janszky, I., Skrabski, Á. (2007), "Work stress and mental health in a changing society". *European Journal of Public Health*, Vol. 18, No. 3.
14. Leka S., Griffiths, A., Cox, T. (2003), *Work organisation and stress. Systematic problem approaches for employers, managers and trade union representatives. Protecting workers' health series, No. 3*. World Health Organization, Geneva.
15. Maslach, C., Schaufeli, W.B., Leiter, M.P. (2001), "Job burnout". *Annual Review of Psychology*, Vol. 52.
16. Pološki Vokić, N., Bogdanić, A. (2007), *Individual differences and occupational stress perceived: a Croatian survey. E.F.Z.G Working Papers Series, 07-05*. University of Zagreb: Faculty of Economics and Business, Zagreb.
17. Salavecz, G., Chandola, T., Pikhart, H., Dragano, N., Siegrist, J., Jöckel, K.H., et al., (2010), "Work stress and health in Western European and post-communist countries: an East-West comparison study". *Journal of Epidemiology and Community Health*, Vol. 64, No. 1.
18. Stauder, A., Konkoly, T. B., Kovács, M., Balog, P., Williams, V., Williams, R. (2010), "Worldwide stress: different problems, similar solutions? Cultural adaptation and evaluation of a standardized stress management program in Hungary". *International Journal of Behavioral Medicine*, Vol. 17, No. 1.
19. Tabanelli, M.C., Depolo, M., Cooke, R.M., Sarchielli, G., Bonfiglioli, R., Mattioli, S., et al. (2008), "Available instruments for measurement of psychosocial factors in the work environment". *International Archives of Occupational and Environmental Health*, Vol. 82, No. 1.
20. WHO, Regional office for Europe (2005), *Mental health and working life*. WHO European Ministerial Conference on Mental Health, Helsinki.
21. WHO, Regional Office for Europe (2011), *European health for all database*. Available at: <http://data.euro.who.int/hfad/>

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