Mapping and assessing psychosocial risk factors for individual- and organizational-level occupational stress intervention

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Author biography

Mare Teichmann holds PhD in Psychology from the Behterev Psychoneurological Institute Leningrad, now Saint Petersburg. She is founder and Chair of Psychology at Institute of Industrial Psychology at Tallinn University of Technology where she is now Professor Emeritus. She is a member of several professional boards and councils, including Chair of the WHO Estonian Quality of Life Centre, the EAWOP and Estonian Work and Organizational Psychology Association and the Estonian representative of European Network of Work and Organizational Psychology (ENOP). She is a pioneer in e-learning solutions in Estonia. Parallel to academic work she has been applying science-based knowledge and psychological methods to practice; as CEO of PE Konsult Ltd.

Abstract

Various international organizations have raised awareness regarding psychosocial risks and work-related stress. From January 1, 2019, an amendment to the Estonian Occupational Health and Safety Act came into force, obliging the employer to take measures to improve the psychosocial environment of the company in order to prevent health damage caused by psychosocial hazards. In current paper the focus is on: a) developing a mapping tool for psychosocial risk factors at work (Organizational Psychosocial Factors Indicator, OPSTI); b) delivering automatic feedback for the OPSTI test taker; c) evaluating workplace psychosocial risks at work by developing an organizational level psychosocial risk assessment system compliant with the requirements of European Agency for Safety and Health at Work (EU-OSHA); and d) developing different occupational stress interventions.

Keywords: work-related stress, psychosocial risk factors, OPSTI test

Introduction

Occupational stress is a growing problem that results in substantial cost to individual employees and work organizations in Estonia. The 6th European Working Conditions Survey (Eurofound, 2016) shows that in 2015, 27% of workers in Europe said they experience work-related stress for all or most of their working time. In Estonia, there

was an increase the general levels of work-related stress; for example, from 26% in 2001 to 32% in 2005. In recent years, the work-related stress level has decreased slightly; but remains fairly stable (around 15-18% between 2010 and 2015). Such levels of strain are likely to impact the economy. Surveys conducted in the UK show the economic impact of work-related stress, in particular due to illness, absenteeism, loss of profit, and errors in work performance, makes an estimated 2.5 - 10% of GDP (Dollard, Winefield, A. & Winefield, H., 2003).

From January 1, 2019, an amendment to the Estonian Occupational Health and Safety Act (hereafter the Act) came into force, obliging the employer to take measures to improve the psychosocial environment of the company in order to prevent health damage caused by psychosocial hazards. This requires mapping and evaluating the psychosocial risk factors present in the company that may affect the individual employee's mental or physical health, including work-related stress.

The Act defines psychosocial hazards as follows:

a) *"Psychosocial hazards are work involving a risk of an accident or violence, unequal treatment, bullying and harassment at work, work not corresponding to the abilities of an employee, working alone for an extended period of time and monotonous work and other factors related to management, organisation of work and working environment that may affect the mental or physical health of an employee, including causing work stress."*

Moreover, the Act imposes several obligations on the employer:

b) *"In order to prevent damage to health arising from a psychosocial hazard, the employer shall take measures, including to adapt the organization of work and workplace to suit the employee, optimise the employee's workload, enable breaks to be included in the working time for the employee during the working day or shift and improve the enterprise's psychosocial working environment".*

These developments highlight that one of the major contributions of the change in the law could be better management of psychosocial risks, as well as clearly focused occupational stress interventions in work organizations.

Broadly, occupational stress interventions could be divided into two groups, namely, individual-level and organizational-level interventions. However, both

forms of intervention require the process to begin with mapping and assessment of psychosocial risk factors at employee level and organizational level, respectively.

Developing a mapping process

The commitment to start mapping and assessing psychosocial risk factors for individual- and organizational-level stress intervention was new for Estonian organizations. Therefore, we designed a measurement tool called the Organization Psychosocial Factors Indicator (the OPSTI test). This test follows two classical occupational stress approaches. Firstly, the stressor-strain approach to occupational stress (Cooper & Williams, 1996; Cox, 1978; Hurrell, Nelson & Simmons,1998; Spector et al., 2002; Teichmann & Ilvest, 2007), and secondly, the Job Demand Control Model (Karasek et al., 1998; Karasek &Theorell, 1990). On the other hand, the OPSTI test is directly following changes made in the Occupational Health and Safety Act (2019).

The OPSTI test is evidence-based and both the validity and reliability have been verified. In studies investigating the OPSTI (Nunnally, 1978; Nunnally & Bernstein, 1994; Steiner, 2003) found both indices and factors maintained adequate internal consistency (at the 0.70 alpha coefficient).

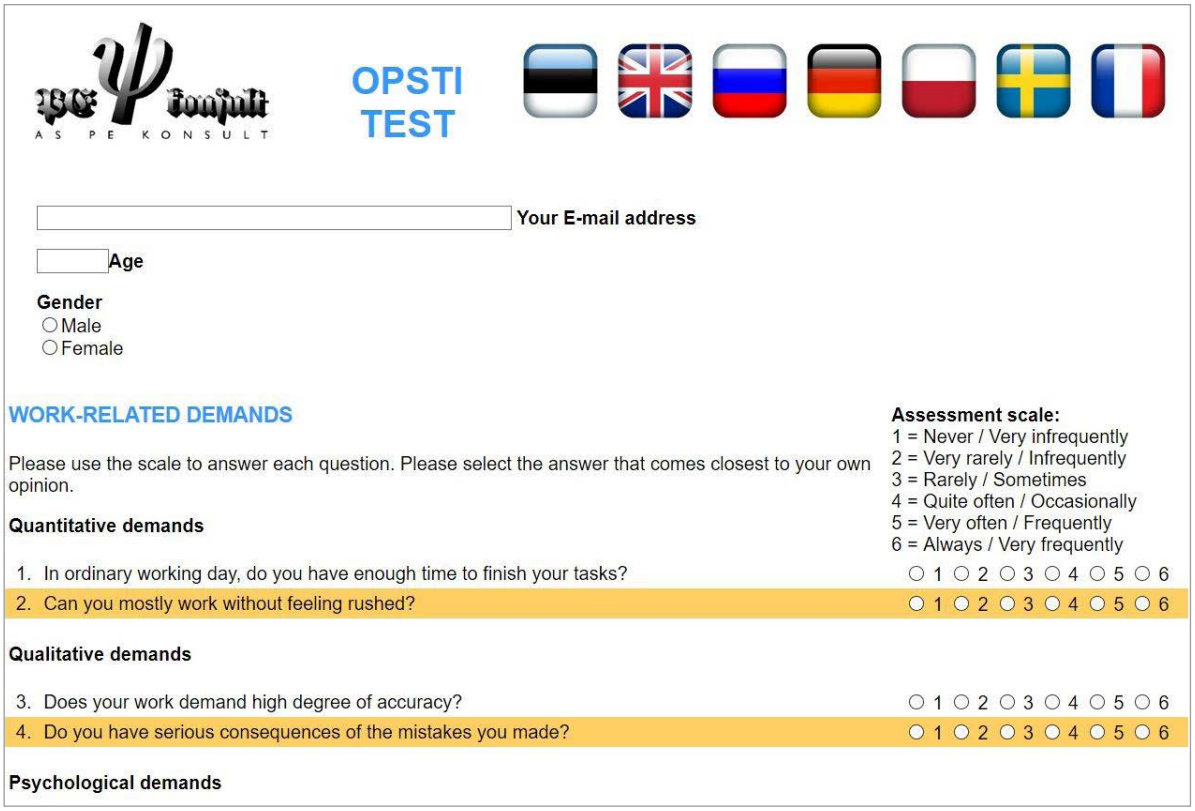
An OPSTI test is specifically tailored to map and assess the psychosocial hazards listed in the Act at the level of the individual employee. Mapping and evaluating psychosocial factors at the organizational level is carried out by statistical data processing and by analysing the results of the survey conducted in the company.

The test consists of 60 items with six responses ranging from: ‚*Never / Very infrequently*' to ‚*Always / Very frequently*'. The test can be used electronically and is available in seven languages (including Estonian, Russian and English). Figure 1 gives an example of part of the test.

The procedure to use the OPSTI test involves: a) each employee completes a survey measuring psychosocial hazards at work and the level of their own work stress; b) each employee automatically receives electronic feedback on the psychosocial hazards of their own working environment; c) employees can compare their survey results with the average results in Estonia; and d) the factors can be aggregated to map the psychosocial risk factors of the company assessing the level of work stress of the

workforce, and, to find ways to prevent the effects of psychosocial risk factors and to cope better with work stress.

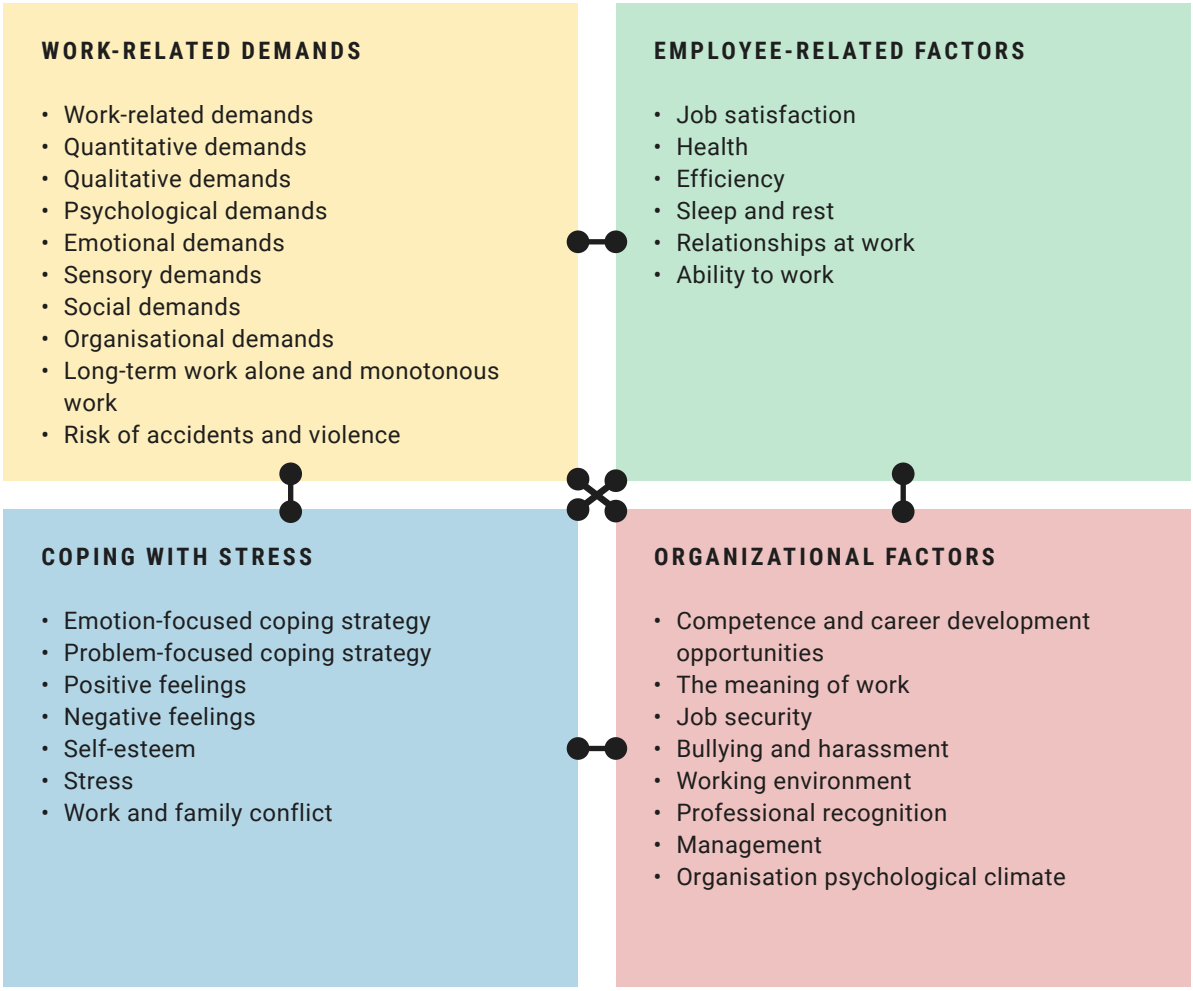
Figure 1
A screenshot of the online OPSTI test



The OPSTI test also contains four lay-scales that evaluate the trustworthiness of the test results. For example, including paired items like: *"Are you an optimist?"* and *"Are you a pessimist?"*. If the test taker answers both questions *"Yes"* or *"No"*, then the reliability of the test performance decreases by 25%.

The 60 test items incorporate four indexes and 30 factors (see Figure 2).

Figure 2
Four indexes and 30 factors were incorporated into OPSTI test



Testing the mapping process

The four Indexes are related moderately to well between each other showing internal consistency (see Table 1). Overall, OPSTI test scales maintained adequate internal consistency with reliabilities assessed with the widely accepted 0.70 coefficient alpha standard suggested by Nunnally (1979) was 0.86 in average of OPSTI test and alpha coefficients ranged from 0.79 to 0.84 by indexes. Our pilot study was obtained from a sample of 665 employees from different public and private sector organizations (45% males, average age was 42.4 years).

Table 1
Internal consistency of OPSTI test

	N	INDEX	FACTORS	ITEMS	COEFFICIENT ALPHA
1.	665	Work-related demands	9	18	0.79
2.	663	Employee-related demands	6	12	0.83
3.	665	Coping with stress	7	14	0.80
4.	661	Organizational demands	8	16	0.84

An OPSTI test inter-correlation within indexes ranged from 0.29 to 0.53 and were significantly different at $p<0.05$; indicating the tests ability to differentiate between indexes (see Table 2). For, example, the lowest, but still significant correlation, was between Work-related demands and Coping with stress.

Table 2
Inter-correlations within OPSTI test Indexes

	WORK-RELATED DEMANDS	EMPLOYEE-RELATED DEMANDS	COPING WITH STRESS	ORGANIZATIO-NAL DEMANDS
Work-related demands	1.00			
Employee-related demands	0.40	1.00		
Coping with stress	0.29	0.53	1.00	
Organizational demands	0.39	0.52	0.44	1.00

Test feedback

Individual OPSTI test feedback is sent automatically to each employee's e-mail address after a few minutes of completing the test. The individual psychosocial factors of an employee can be compared with the average results in Estonia (see Table 3).

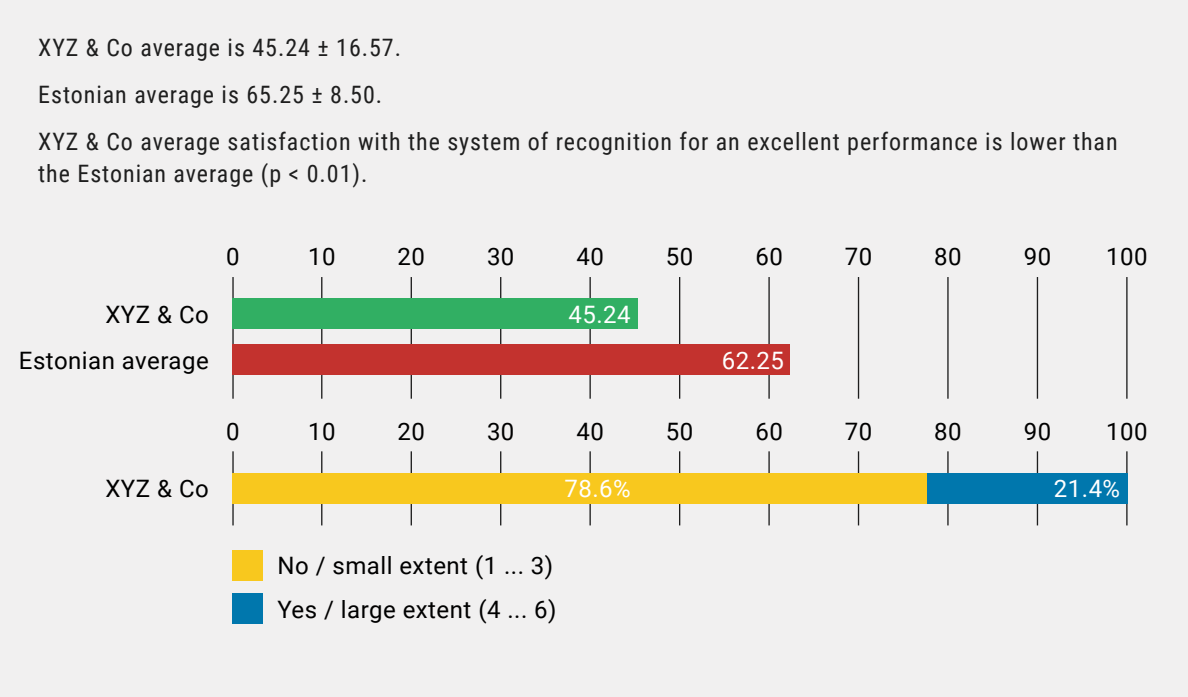
Table 3
Example OPSTI test results for Work Related Demands

	YOUR SCORE	AVERAGE SCORE IN ESTONIA	±
Quantitative demands	80	62.58	7,00
Qualitative demands	90	33.03	7.00
Psychological demands	80	35.69	6.60
Emotional demands	70	58.10	8.10
Sensory demands	80	45.65	7.90
Social demands	70	33.53	6.60
Organizational demands	70	46.97	8.00
Long-term work alone or monotonous work	70	81.83	7.50
Risk of accidents and violence	70	73.53	9.10

Note: Higher scores indicate higher Work Related Demands. ± indicates range of error, plus or minus.

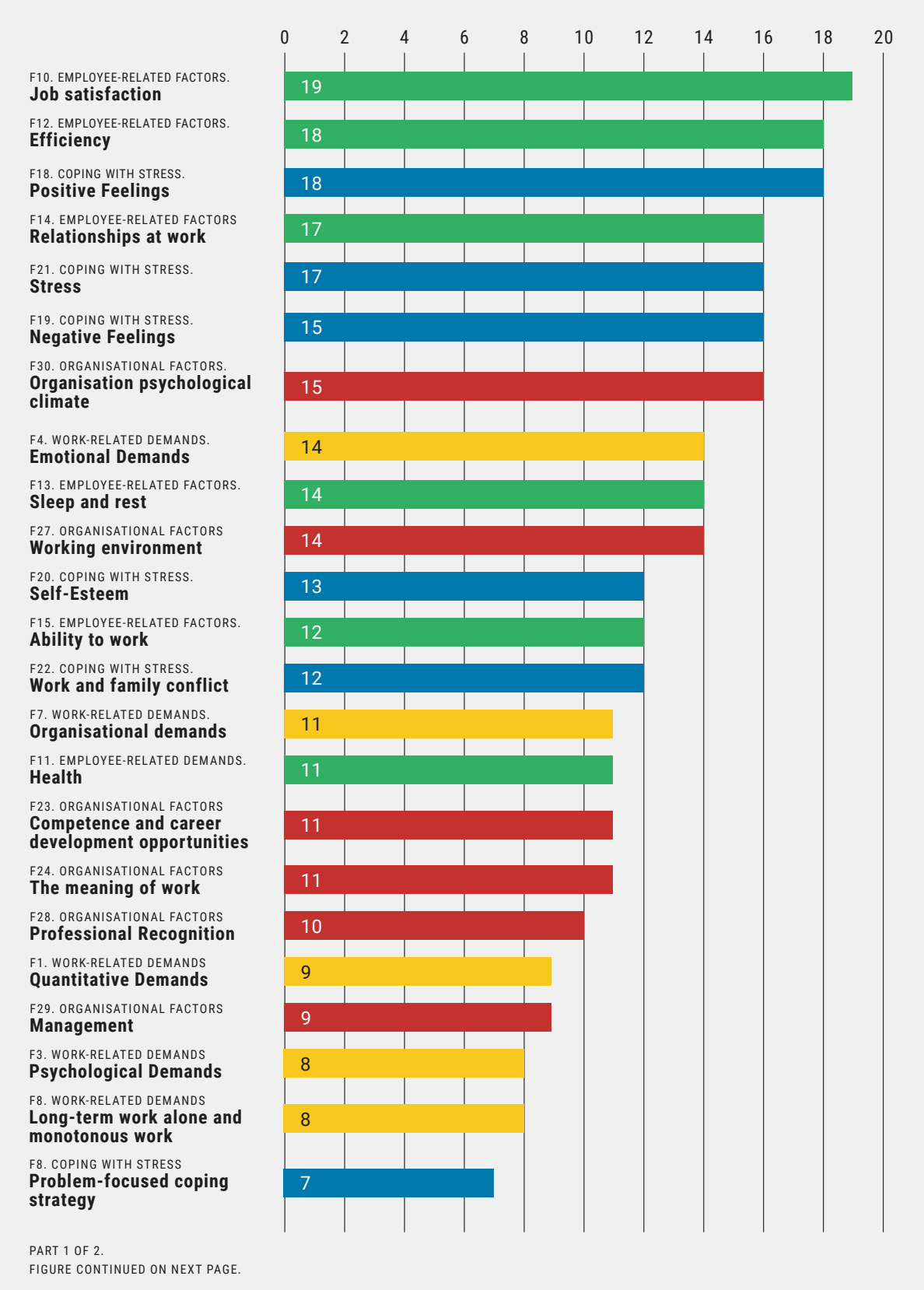
The work organization is provided with a comprehensive report of psychosocial risk factors within the organization at an aggregate level. The report presents the results of the study and statistical analyses including comparison with the average test indices and factors in Estonia. Figure 4 shows an example of organizational level feedback. For an example, company XYZ and Co (company name has been changed) significant ($p<0.05$) correlations were found between Satisfaction with the system of recognition of excellent performance and with some OPSTI test items like: Enough time for finishing the tasks ($r = 0.55$); Satisfaction with content of work ($r = 0.56$); Positive emotions ($r = 0.70$); Meaning of work ($r = 0.62$); Leadership ($r = 0.65$); and Coping with stress ($r = 0.69$).

Figure 3
An example of organizational level feedback



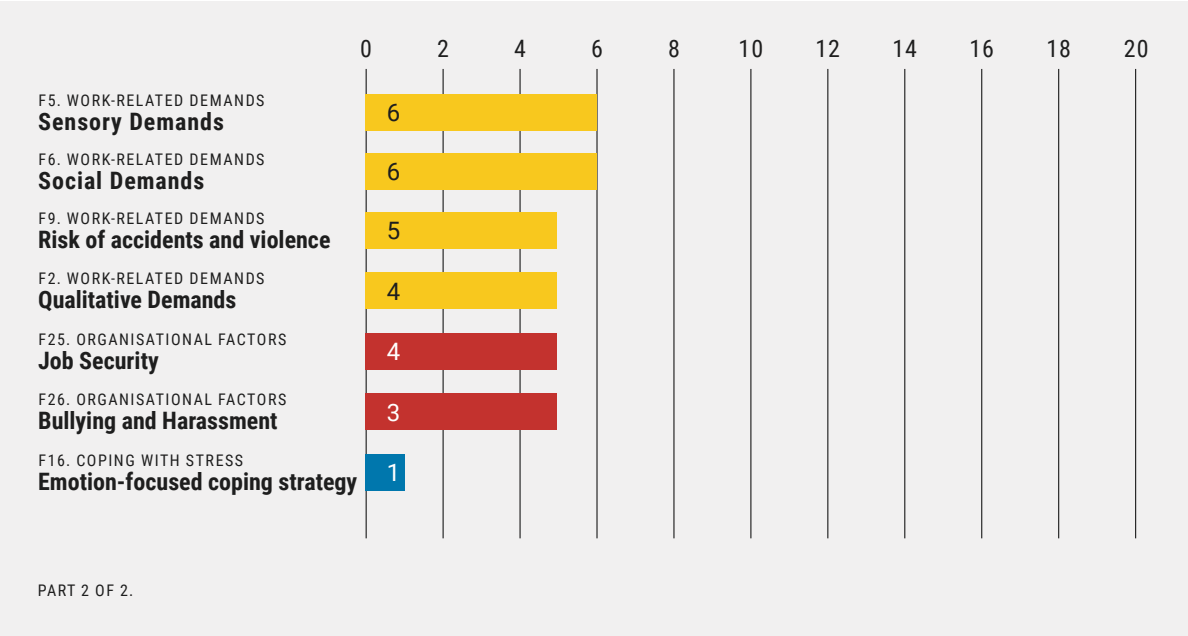
And finally, having a sufficiently large database, we detect how many of the 30 OPSTI test factors have statistically significant correlative links with each other. Of these, for example, Relationships at work were correlated with 25 factors, the Meaning of work correlated with 24 factors (see Figure 3). Such analysis draws attention to the most influential psychosocial risk factors, and it provides an opportunity for the better management of psychosocial risks within work organizations.

Figure 4 - Part 1
Statistically significant links with between OPSTI factors



PART 1 OF 2.
FIGURE CONTINUED ON NEXT PAGE.

Figure 4 - Part 2
Statistically significant links with between OPSTI factors



Concluding remarks

Firstly, as individual studies give somewhat different results on how many employees actually experience occupational stress, we decided to control the facts, and ask employees directly how often they have tension and stress at work. In Estonia, a massive survey (n=8,794, 36,2% males, 523 organizations) was conducted about the wage fairness (Seeder, 2019). We were able to incorporate two additional questions into that survey about occupational stress and stress at home applying exactly the same questions and answer scales used in the OPSTI test. Findings show that 14% employees answered that they experienced occupational stress 'Very often / Frequently' and 'Always / Very frequently' and 32% answered, 'Quite often / Occasionally'.

Our studies of psychosocial risk factors conducted in 2019 using the OPSTI test (n=1,203, 51% males, 13 organizations, among them five organizations from the public sector) our findings were less optimistic. Namely, 19.4% answered that they have occupational stress 'Very often / Frequently' and 'Always / Very frequently' and 30.8% answered, 'Quite often / Occasionally'. This difference may be due to the fact that the whole OPSTI test was focused on occupational stress, whereas the payroll study

focused on additional things. However, we can conclude that occupational stress level in Estonia is not extremely high (between 14% and 19%).

In conclusion, some facts emerging from this recent study are:

- One third employees manifest sleep problems (31.7%), the relationship between sleep disorders and occupational stress is clear ($r=0.34$; $p<0.05$);
- Almost half of the employees (57%) complain about poor working relationships, and half of employees are unable to balance their work and family life (47.2%), Over one third of employees (38%) have worries about losing their job. One third of employees does not know how to use different ways of dealing with work-related stress (33%);
- Occupational stress is associated with various stress symptoms: problems with health ($r=-0.36$; $p<0.05$), decreased efficiency and fatigue ($r=-0.42$; $p<0.05$), problems with sleep and rest ($r=-0.34$; $p<0.05$), experience tendency to eat, drink, or smoke more than usual ($r=0.40$; $p<0.05$), periods of feeling fatigued or exhausted at work ($r=0.40$; $p<0.05$), periods of feeling that you don't want to or don't have enough energy to get up in the morning ($r=0.35$; $p<0.05$);
- Occupational stress is associated with different work-related demands: quantitative demands ($r=0.45$; $p<0.05$), psychological demands ($r=0.42$; $p<0.05$), emotional demands ($r=0.35$; $p<0.05$), social demands ($r=0.24$; $p<0.05$), organizational demands ($r=0.31$; $p<0.05$), risk of accidents and violence ($r=0.2$; $p<0.05$), and concerns about their work ability ($r=0.40$; $p<0.05$);
- Occupational stress has negative correlation with employee-related factors: job satisfaction ($r=-0.21$; $p<0.05$), relationships at work ($r=-0.24$; $p<0.05$), workplace bulling ($r=-0.28$; $p<0.05$), satisfaction with workplace psychological micro-climate ($r=-0.24$; $p<0.05$), and satisfaction with leadership ($r=-0.23$; $p<0.05$);
- Work-related stress is significantly related with both positive and negative emotions (respectively, $r=0.27$ and $r=-0.23$; $p<0.05$);
- Multitasking is related with occupational stress (0.42; $p<0.05$); with 58% of employees agreeing that their job requires multitasking 'Frequently' or 'Very frequently'.

Sumarising, the findings listed above, I suggest that it is not enough to map psychosocial risk factors at an organizational level. For interventions to reduce occupational stress individual level actions (e.g., stress management training, coping strategies) need to be initiated to guarantee employee's competence and readiness to cope with stress. This includes raising an employee's awareness about psychosocial risk factors in their own workplace. At an organizational level I recommend strategic policies for stress reduction, including dealing one by one with the most significant psychosocial risk factors within the organization. This is significant work and occupational stress interventions are a special challenge for psychologists, HR specialists and safety and health professionals.

Note: more detailed information about the Organization Psychosocial Factors Indicator can be downloaded from *https://www.pekonsult.ee/testid/OPSTIen.pdf*).

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