TALLINN UNIVERSITY OF TECHNOLOGY
Faculty of Social Science
Department of Industrial Psychology

Ave-Gail Kaskla

PSYCHOSOCIAL RISKS IN MICRO AND SMALL ENTERPRISES & DEVELOPING THE RISK INDICATOR MATRIX USING RESULTS FROM COPSOQ II

Master's thesis

Supervisor: Karin Reinhold

Tallinn 2018

Running head: PSYCHSOCIAL RISKS IN MICRO AND SMALL ENTERPRISES

I declare that I have compiled the paper independently
and all works, important standpoints and data by other authors
have been properly referenced and the same paper
has not been previously been presented for grading.
The document length is ……. words from the introduction to the end of summary.

Ave-Gail Kaskla ……

Student code: 162905HVWM
Student e-mail address: avkask@ttu.ee

Supervisor: Karin Reinhold:
The paper conforms to requirements in force

……

Chairman of the Defence Committee:
Permitted to the defence
……

TABLE OF CONTENTS

ABSTRACT

The current study examines which are the main psychosocial risks in micro and small enterprises (MSEs) in Estonia measured with COPSOQ II method and how to manage those risks. As a result of this study practical indication tool is developed to help MSEs to detect psychosocial risks occurrence in their enterprises as a part of overall risk assessment plan.

The results of COPSOQ II show that main psychosocial risks for MSEs participated in current research, are fast pace of work, emotional engagement and unhealthy balance between work and private life. Conflicts and offensive behaviours rarely occur but if occur the risks are most often related with customers (violence), colleagues (unwanted sexual attention) and managers/superiors (bullying). From violence, unwanted sexual attention and bullying, the last one is most often reported.

Developed indication tool give enterprises an idea are they in high risk group or not. The tool is designed as a checklist and includes in total 10 statements about most high psychosocial risks according to the current study and theory. For evaluation, every statement has numerical value according to level of psychosocial risk, in risk matrix also the total score will be considered. In that way detecting psychosocial risks are more likely. It will indicate initial level of psychosocial risks in the company.

Keywords: psychosocial risk management, work-related stress, workplace violence, harassment and bullying, emotional demands, health and safety, psychosocial risks, COPSOQ II, psychosocial risk indicator, risk matrix

INTRODUCTION

Estonia is a country with a population about 1.3 million people of whom about 699,000 are employees. There are total about 121,00 enterprises. 119,000 of all enterprises are micro, less than 10 employees (113,000) or small enterprises, with 10-49 employees (6,000) (Stat.ee, 2018).

This study is about to develop psychosocial risk indicator presented as four level risk matrix to assess psychosocial risks at micro and small enterprises (MSEs) in Estonia. The focus is to assess and manage psychosocial risks with low cost but in effective manner. The target audience of the study are MSEs because of several reasons (many of them mentioned also in European Agency for Safety and Health at Work webpage, osha.europa.eu):

- About 98% of all enterprises in Estonia are MSEs
- MSEs often lacking the resources to implement occupational safety and health initiatives and interventions and for paying to advisors outside of the company
- Less available time and energy to deal with “non-core” tasks
- It is hard for MSEs to recover from any occupational safety and health (OSH) accident
- The impact of OSH incident for MSEs is greater than larger enterprises
- If key workers are missing due to health issues, they are not quickly or easily replaced and it may cause extra costs or reduce income for the enterprise
- Any interruptions in everyday work may cause losing customers
- Due to the high costs of dealing with the serious incident the enterprise may be leaded to closure of a business
- Even the employees short-time sickness leave may influence MSEs everyday work quite significantly.

Second European Survey of Enterprises on New and Emerging Risks (ESENER-2) report analysing the results of the study about occupational risks in European enterprises and a European occupational safety and health practices. The sample of this study contain business owners and high level managers (employers), there may be differences in perception and opinion about risks management among employees (Leka, Jain, Iavicoli, Vartia, & Ertel, 2011). The report emphasizes

that although traditional safety risks are well-managed throughout Europe, the management of psychosocial risks is not at the same level of quality. Today current trend is to increase the focus on psychosocial risks as part of good health and safety at work.

ESENER-2 report shows that high level commitment from managers and employees part and the available financial and human resources make it much easier for companies to practice good health and safety at work. Larger companies, as well as manufacturing and industrial companies show increased occupational health and safety management, but even in these organizations, the focus is still largely on traditional safety risks rather than on health and psychosocial factors. In smaller companies in other hand the health and safety management is quite poor.

According to ESENER-2 research, Estonia is one of the three countries where usage of psychologists services, in-house or external, are the lowest, only 4%, while in our neighbour country Finland it is 60%. Same time around 40% of Estonian companies participating ESENER-2 research report that they don't have sufficient information on how to include psychosocial risks in risk assessments and 10% don't provide an answer to that question at all. Although, Estonian enterprises report in ESENER-2 low percentage of occurrence of most psychosocial risks there is possibility that it is so because of the low awareness about this topic. For example less than 20% of enterprises in Estonia report of having a procedure in place to deal with bullying or harassment, while in UK the same percentage is 94, and less than 10% Estonian enterprises state that they have action plan to prevent work-related stress vs UK 57%. Low awareness about benefits of managing psychosocial risks is supported by the fact that overall in Europe the lowest ranking reason to deal with health and safety matters is to maintaining or increasing productivity. Today main reason is organisation's reputation, highest in Estonia, 93% of cases. This indicates that it is important to raise awareness of psychosocial risks and provide enterprises an easy using tool for initial mapping of these risks. Additionally, it may prove to be a good tool for Estonian Labour Inspectorate inspectors to evaluate risk management in local MSEs.

Psychosocial risk management and development of different guidance tools for enterprises and labour inspectors in Scandinavia has been addressed for more than a decade and there are both, success stories and failures. We can and should learn from both practices to avoid common mistakes and follow successful leads.

The Danish Working Environment Authority (WEA) launched a new strategy in 2007 to strengthen and qualify work-related stress prevention. Part of the strategy involves more control over the

psychosocial work environment and the development and implementation of a new inspection tool, namely the "guidance tool" to assess psychosocial working environment problems in all Danish enterprises (Rasmussen, Hansen, & Nielsen, 2010). The strategy provided to asses six risk factors in psychosocial working environment (PWE): work related violence, traumatic experiences, emotional demands (work with customers / clients / citizens), quantitative demands (heavy workload/fast pace of work), bullying and sexual harassment, working at night and in shifts (Rasmussen et al, 2010). Based on the National Research Centre for the Working Environment in Denmark (NRCWE) and data from 2003 COPSOQ research the guidance tool focuses on three elements: control, demands and social support as mainly linked with the employees working situations and it can be described via demand-control model where high demands and low control will lead to risk of psychosocial risks (stress). High demands, and high control will motivate to learn new behavioural patterns (Karasek, Theorell, 1990). For employers point of view it is important to find balance between demands and the control employee can have over his or her job tasks to keep the productivity in healthy level. The guidance tool is one resource to help to find this balance. Overall, the guidance tool is in service of enterprise and not at the employee level and it is designed as questions for employees or managers. The Labour Inspectorate inspectors use this tool to communicate with the companies and inspect current PWE. According to Rasmussen et al, (2010) in Denmark below steps are in use to inspect company's PWE:

1. WEA inspection and risk detection
2. Improvement notice
3. Action plan set up by enterprise
4. Action plan evaluation by WEA
5. Acceptance of action plan or rejection.

If action plan is accepted, company needs to follow it and WEA will follow up after a deadline. If action plan is not accepted by WEA, company needs to improve action plan, usually with the help of authorized PWE consultant and require acceptance again.

In 2001–2003, the Swedish Work Environment Authority (SWEA) also ran a project, ARNE program, to develop better methods to inspect psychosocial risk factors at work. The objective was twofold: developing methods to enable most inspectors to effectively inspect such health risks, and to set a standard for method development within SWEA (Bruhn, & Frick, 2010). So far mostly three psychosocial risks were mentioned: work in isolation, victimization at work and violence and threats. However, several inspectors even took all risks just as one general psychosocial risk. The ARNE program was divided by two sub-projects KASP and KOPS. "KASP is a general method to inspect psychosocial risks by applying the ‘‘cycle of control" in the Systematic Work

Environment Management" and "KOPS is presented as a method and an educative tool for inspectors to work with and motivate employers of small firms (with 5–20 employees) to more actively develop their work environment" (Bruhn, & Frick, 2010). The project failed due to reasons that KASP was overregulated and was too much in detail and the KOPS in other hand was too general and did not provide proper guidance. Employer organizations criticized the program as impossible to comply with because it interfere too much their management of the enterprises daily work.

It is always challenging to measure effects and there are several limitations, PWE is more difficult to handle because today's methods and procedures are different from other working environment problems. It is important to find easy to understand and use risk matrix, similar as is in use to assess other non-psychosocial risks, as a practical working tool to assess psychosocial risks. Danish example shows that about 60% of enterprises which receive an improvement notice have asked for and received WEA's process guidance, and many of these enterprises describe the WEA guidance as helpful in assessing psychosocial risks and implementing the action plan (Rasmussen et al, 2010).

The aim of this research is to develop an indication checklist, based on conducted COPSOQ II, ESENER-2 and theoretical materials as a practical tool to indicate the possible occurrence of psychosocial risks and presenting these results as a risk matrix.

Research questions:
1. What is the current state of psychosocial risk assessment and management at a national and enterprise level in Estonia?
2. What are the main psychosocial risks in Estonia according to conducted medium size COPSOQ II research among the micro and small enterprises?
3. How to develop easy-to-understand risk indicator matrix for Estonian MSEs to indicate future need for psychosocial risk management?

Research method: Medium length second version of the Copenhagen Psychosocial Questionnaire (COPSOQ II).

Current study is divided into two main chapters, theoretical and empirical, followed by conclusions, references, and appendixes. Theoretical background is divided into 5 sub-chapters:

definitions, description of current regulations of psychosocial risk management in EU and Estonia, introduction of different psychosocial risk assessment questionnaires and in more detail explanation of used COPSOQ method and theoretical information about overall risk matrix development. Empirical part, with two sub-chapters, explains COPSOQ II results carried out by an author in Estonian micro and small sized companies and describes the developed practical indicative risk matrix.

1. THEORETICAL BACKGROUND

The trends in Europe and elsewhere in the world indicate major change in work and organizational safety and health because the nature of work is changed due to technological advances that allow people to work in different times and places, for example from home, also overall globalisation and migration (Leka, Jain, Widerszal-Bazyl, Żołnierczyk-Zreda, & Zwetsloot, 2011). Nowadays, workload has been increased or intensified for many professions thanks to technological changes in last 20 years and psychosocial risks have recognized as worldwide issues, influencing all nations, callings, and employees (Leka, Jain, Lerouge, 2017). This assumption is based on the hypothesis that the time, energy, and attention person can use are finite so multiple and often conflicting demands of employees' roles and tasks will start to rise psychological conflicts and influence employees health. Psychosocial risks are work related conditions and there is scientific proof that they are one of the main causes of health problems like mental health conditions, musculoskeletal conditions and cardiovascular diseases and absenteeism. This is why, it is important to control, prevent and follow up the psychosocial risks the same way we do with other work related hazards and ergonomics (Utzet, Moncada, Molinero, Llorens, Moreno & Navarro, 2014).

Proper risk assessment is main key to create a healthy workplace and avoid work-related diseases. However, risk assessments can be quite complicated, especially for micro and small businesses who lack the tools or skills to assess safety and health risks effectively.

When focusing on psychosocial risks, according to ESENER 2, the use of a psychologist services are reported by only 16% of enterprises among the all researched companies. It is important to keep in mind that ESENER 2 was conducted among entrepreneurs and the results may be different if to conduct same research among employees or other stakeholders (Leka et al, 2011). Although the psychosocial risks are the most frequently reported risk factors, the use of these specialist in-house or contracted externally are the lowest compared with other OSH specialists like occupational health doctors, generalists on occupational safety and health and the experts on accident prevention. It is important to mention that there are wide differences by country, for

example in Finland and Sweden this percentage is around 60% of establishments reported but in Estonia, Hungary and Cyprus only as less as 4% using a psychologist help. The research also reveal that this percentage is even less when we look only MSEs.

1.1. Definition of psychosocial risks

Most well-known definition of psychosocial risks is formulated by ILO that defines psychosocial risks as "interactions among job content, work organisation and management, and other environmental and organisational conditions, on the one hand, and employees' competencies and needs on the other that prove to have a hazardous influence over employees' health through their perceptions and experience" (ILO, 1986).

Work-related psychosocial risks mostly arise in situations where job requirements and employees coping strategies are failing (Leka, Jain, Iavicoli, & Di Tecco, 2015). It may be caused by different reasons such as fast working pace, poor information flow, over or under qualification of the employee and so on. Important is that employer will recognize and manage possible risk to protect employees physical and mental health. Main reason for lack of general provisions of psychosocial risks is a lack of management engagement and guidance (Bruhn & Frick, 2011). In line with detecting risk factors like qualitative and emotional demands and work-related violence also preventive factors (control, training, quality management) should be taken into consideration (Rasmussen et al, 2010). Changes on the world of work have affected safety and health at a workplace (EU-OSHA, 2007).

"Emerging psychosocial hazards identified by selected experts in the field" (Stolk, Staetsky, Hassan & Kim, 2012) are mainly associated with new work structures and insecurity in occupational work, work intensification, the maturing workforce, high requests at work at emotional level, insufficient balance between work and personal life.

Table 1. Emerging psychosocial hazards

Areas of psychosocial hazards	**Most important emerging psychosocial hazards**
New forms of employment contracts and job insecurity	Precarious contracts in the context of an unstable labour market
	Increased workers' vulnerability in the context of globalization
	New forms of employment contracts
	Feeling of job insecurity
	Lean production and outsourcing
The ageing workforce	Risk for the ageing workforce
Work intensification	Long working hours
	Work intensification
High emotional demands at work	High emotional demands at work
Poor work–life balance	Poor work–life balance

Source: EU-OSHA (2007)

According to the International Labour Office and the World Health Organization, voluntary occupational safety and health standards that are directly associated with psychosocial risk management define the content of psychosocial hazards as:

‘‘Post-traumatic stress disorder (. . .) and (. . .) other mental or behavioural disorders (. . .) where a direct link is established (. . .) between the exposure to risk factors arising from work activities and the mental and behavioural disorder(s) contracted by the worker;

The psychosocial work environment includes organizational culture as well as attitudes, values, beliefs and daily practices in the enterprise that affect the mental and physical well-being of employees;

Examples of psychosocial hazards include but are not limited to: poor work organization (. . .), organizational culture (. . .), command and control management style (. . .), lack of support for work-life balance, fear of job loss related to mergers, acquisitions, reorganisations or the labour market/ economy;

Psychosocial hazards typically are identified and assessed using surveys or interviews, as compared to inspections for physical work hazards. A hierarchy of controls would then be applied to address hazards identified,

including: Eliminate or modify at the source (. . .) Lessen impact on workers (. . .), Protect workers by raising awareness and providing training to workers (. . .).” (Leka et al, 2011).

In PAS (publicly available specification) 1010 document Leka (2011) is pointing out that next to identification of general psychosocial hazards often also work-related stress and violence/harassment are mentioned in different guidance documents such as:

- EN ISO 10075-1: 1991
- EN ISO 10075-2: 1996
- Guidance: EC, 1999
- Guidance: EU-OSHA, 2002
- Guidance: WHO, 2003, 2007, 2008
- Framework Agreement on Work-related Stress, European social partners 2004
- European Pact for Mental Health and Well-being, 2008
- European Parliament resolution, 2009
- Guidance: ILO, 2006
- Framework Agreement on Harassment and Violence at Work, European social partners, 2007

Main critics about a current situation in psychosocial risk management and legislation is that there is lack of specificity and clarity in terminology (Leka, Jain, Iavicoli, & Di Tecco, 2015) and this, in turn, leads to a difficult situation in the assessment and management of psychosocial risks. Although more than 25 years the job strain has been one of the most studied model there is still lack of clear definition (Kristensen, Bjorner, Christensen & Borg, 2004).

1.2. Current psychosocial risks management regulations in EU

It has been widely acknowledged that endeavour to promote employees' health have not been as success as anticipated by governments and experts. The main reason for this has been the gap between policies and practices (Leka et al., 2011). Psychosocial risks are closely related to work-related stress which appear when working tasks and demands to employee are not in accordance with an employee's skills, knowledge, and capability and person cannot cope with that pressure (Leka et al., 2011). Several international organizations (e.g. WHO, ILO, EU-OSHA) have published reports on ways to deal with psychosocial risks. Decreasing the cap in social disparities in wellbeing has been set up as a need activity by the World Health Organization (WHO) and most European Union governments. This requires preventive procedures to be founded on an exhaustive comprehension of the conditions deciding perilous exposures at working environments (Moncada, Pejtersen, Navarro, Llorens, Burr, Hasle & Bjorner, 2009). Different levels and approaches are

provided how to assess and control risks in working environment. Psychosocial risk management approaches are different from other risk managements and prevention methods. Since, the introduction of the 1989 EC Council Framework directive 89/391/EEC significant developments have been achieved and following documents are added: the European Commission's Guidance on Work-Related Stress, and the European Commission's Green Paper on Promoting a European Framework for Corporate Social Responsibility. The European Council also invited the social partners to negotiate about voluntary agreements to improve and modernise the working environment. The Framework Directive 89/391/EEC lays down employers' general obligation to ensure employees' health and safety at a workplace in every aspect, including mental well-being and health. However, many experts highlight the fact that psychosocial risk related keywords are not mentioned explicitly in EU legislation. With recent years some countries have finally started to go further than the framework directive set and have begun to specify the need for employers to act against factors considered to be psychosocial risks.

In the framework of this research, author of this study contacted the head of the occupational health division of the Labour Inspectorate to find out, whether and which practices of other countries are being used and what are the current actions in place to measure and manage psychosocial risks.
In 2016 Labour Inspectorate of Estonia conducted "Five question" questionnaire to learn from the practice of other countries how to develop relevant guidelines for labour inspectors to conduct surveillance about psychosocial risks. The author of the current thesis analysed the data received during the interview with Silja Soon, head of the occupational health division of the Labour Inspectorate.

Nineteen answers were collected (Portugal, Finland, Netherlands, Sweden, Austria, Belgium, Denmark, France, Greece, Italy, Latvia, Lithuania, Slovenia, UK, Ireland, Bulgaria, Hungary, Romania, Slovakia), 18 in English language and one in Romanian.

The questionnaire included five following questions and are presented below, with the summary of the results.
1. *Does the national legislation of member state requires the employer to evaluate psychosocial risks in the working environment that may occur?* All respondents answered "yes", some were more precise and confirmed that psychosocial risks are explicitly named (Austria, Belgium, Denmark, Bulgaria, Hungary) in legislation. In Slovenia the legislation is even more precise and states that the employer must adopt measures to prevent, eliminate and manage cases of violence,

mobbing, harassment and other forms of psychosocial risks at the workplace which can pose a threat to workers' health.

2. *If yes, how the employers' obligation is stated in legislation to assess occupational psychosocial hazards?* Different wordings are used but main message from all countries is that employers are obliged to ensure occupational safety and health regarding all aspects at work and to prevent occupational risks including psychosocial risks. Yet, the assessment is described as any other occupational risk and does not provide much guidance. Many countries state that psychosocial risk assessment is added recently to general risk assessment plan. Many answers also reveal that to carry out risk assessment employers should seek the help of experts (occupational psychologists). One of the exception is Belgium who explicitly states that the employer is obligated to conduct a risk assessment for psychosocial risks in general. The employer is also obligated to make a specific psychosocial risk assessment when confronted with a specific psychosocial problem on the work floor (eg a conflict between employees or workload). In Irish health and safety legislation, an employer has to manage inappropriate behaviour e.g. bullying.

3. *Do you have any assisting methodology for assessment of psychosocial risks for employers?* The answers are divided in two, those who don't have any assisting methodology and those where several methodologies are available. Even, when assisting methodology is available it is not mandatory to use and employers can choose other methodologies they like the best. Some countries (Portugal) use well-know tools like COPSOQ. Some countries have developed their own tools, for example Finland, where the Ministry of Social Affairs and Health has published together with the Centre for Occupational Health a risk assessment tool (Riski-Arvi), which contains also assessment of psychosocial risks. Again, the Belgian legislation is more direct and requires employers to appoint a prevention advisor dealing with psychosocial aspects. The psychosocial prevention advisor has to follow a specific training about psychosocial well-being. The psychosocial prevention advisor will assist the employer in carrying out a psychosocial risk analysis or will do it for him if asked.

4. *If psychosocial risks are detected what are obligatory actions for the employer?* Most countries answer the same way - as with all measures in the workplace measures for psychosocial risks must follow the general principles of prevention. The employer is obligated to put together a plan of action taken into account the results of the psychosocial risk analysis.

5. *Are these obligations stated in national legislation?* Slovakia, Hungary, and Greece are the countries where there are not specific obligations stated in national legislation related to employer's duties on preventing and evaluating the psychosocial risks. Other countries answer for the question were 'yes'.

According to given answers all countries are obligated by a member states legislation to evaluate psychosocial risks in the working environment but some countries have more specifically named what are the psychosocial hazards and this probably will help enterprises more easily to detect such risks. The other countries just mention that all, including psychosocial risks, need to be assessed and managed. For MSEs this is a quite uncomfortable situation because they may lack expertise to detect the psychosocial hazards in the first place and only some countries have assisting methodology how to evaluate psychosocial risks. Even, if the methodology is provided it is often complicated and not possible to use without training or external help. If hazards are detected and measured usual preventive actions should be taken in similar with non-psychosocial hazards, reported all countries. With some exclusions (Slovakia, Hungary, and Greece) all countries have obligation to manage psychosocial risks and it is mentioned also national legislation.

1.3. Current psychosocial risks management regulations in Estonia

The main document regulating occupational health and safety matters in Estonia is the Occupational Health and Safety Act (entry into force 26.07.1999). The act provides for the occupational health and safety requirements set for work performed by employees and officials, the rights and obligations of an employer and an employee in creating and ensuring a working environment which is safe for health, the organisation of occupational health and safety in enterprises and at state level, the procedure for challenge proceedings, and the liability for violation of the occupational health and safety requirements (Riigiteataja.ee, 1999). § 3. (2) States that "physical, chemical, biological, physiological and psychological factors present in the working environment shall not endanger the life or health of an employee or that of another person in the working environment". § 9. (2) explains what should be considered as psychosocial hazards and according to current act, those are "monotonous work or work not corresponding to the abilities of an employee, poor work organization, working alone for an extended period of time, and other similar factors that may gradually cause changes in the mental state of an employee".

According to Silja Soon, head of the occupational health division of the Labour Inspectorate, today main topics that are investigated by inspectors of Labour Inspectorate of Estonia are violence and/or bullying at work. Reference about the issue usually comes from company where the incident happened, when victim himself/herself will report about it or his or her colleagues. If this kind of

input reach the Labour Inspectorate the inspector have guideline document how to proceed investigation and what future actions to take. Only when employer and employee have been interacted with each other in a constructive manner, but no solution has been found, Labour Inspectorate inspector may intervene in the complaint with a visit to a company and review the procedures for dealing with issues of bullying and harassment. In the absence of procedures and rules, the labour inspector requests the establishment and fixing of such a procedure in a risk analysis, and an action plan. If the employee has indicated his or her problems and if the employer has, for its part, made the necessary, and possible to stabilize the situation, but the psychosocial working environment for the employee has not improved and it may still cause a health risk, the employee and the employer have the opportunity to terminate the contract.

As a part of current research, author sent out three e-mails to leading occpational healt doctors with the question about whether and how they are evaluating the psychosocial risks and whether there are codes of conduct if occupational health doctor identifies that the mental health of a worker may be at risk. Dr Tiiu Kihva, senior physician of the North Estonia Medical Centre, neurologist and occupational health doctor, answered and explained, that occupational health doctor does not have any special assessment guides in Estonia, the criteria for evaluating psychosocial risks are not officially available. But in practice, they use a mini-mental tests used by neurologists and psychiatrists. Otherwise, they will evaluate psychosocial risks as well as general practitioners. There are few questionnaires available:

- The fatigue scale – available at http://ettas.ee/wp-content/uploads/2017/11/FAS_use1.docx
- The need for a recovery questionnaire – available at http://ettas.ee/wp-content/uploads/2017/11/NFR_use -1.docx

There are also general performance questionnaires that assess both mental and physical health, and can be used as informative. If necessary, occupational health doctor will direct the client (patient) to counseling and treatment of a psychiatrist. In risk analysis unfortunately psychosocial risks are often not listed and at doctor’s reception mental health issues may not stand out because clients may want to hide the mental health problems because the fear of losing the job. However, if the problem is more serious, it usually will still appear in the health check and will be managed.

1.4. Copenhagen Psychosocial Questionnaire

Questionnaires are well-known instruments to assess risk factors in PWE. Most of the questionnaires have similar structure but the emphasis is different, either concentrating on presence or absence of job demands, job control, social support, work control, social help or other psychosocial hazards in the workplace (Deeney & Sullivan, 2009). "The demand-control model (DCM), the effort-reward-imbalance model (ERI) and the job demands-resources model (JD-R) are all theoretical models that have become essential for researching psychosocial aspects of work" (Ulhassan, Schwarz, Thor, Sandahl & Westerlund, 2014).

- Job Content Questionnaire (JCQ)

The Job Content Questionnaire was produced by Karasek and was initially obtained from demand-control model. The model spotlights on two particular hazards; work demand and control scope. Amid the 1980s the model was additionally extended to incorporate social support and is now known as demand-control-support model (Santos, Araújo, Carvalho and Karasek, 2017).

- Effort Reward Imbalance questionnaire (ERI)

ERI questionnaire proposes that employments are portrayed as stressful in view of an apparent inequality between high exertion and low rewards, especially in people with low capacity of adoption skills. As per the model, an employee with high requirement for control will react in a rigid method to work circumstances of high exertion and low reward (Stanhope, 2017).

- General Nordic Questionnaire

General Nordic Questionnaire is launched by Nordic Council of Ministers, the aim of this tool was to provide scientific approach to assessing social and psychological factors in working environment. The idea was to develop questionnaire that can be used for research but also for intervention purposes in workplaces (Wännström, Peterson, Åsberg, Nygren & Gustavsson, 2009).

Author of current study chose the second version of the Copenhagen Psychosocial Questionnaire (COPSOQ II) because unlike from other counterparts it is not laying on one specific theory but taking also into consideration several widely cited aspects (Stauder, Nistor, Zakor, Szabó, Nistor, Ádám & Thege, 2017; Zábrodská, Mudrák, Šolcová, Květon, Blatný & Machovcová, 2017). Theories COPSOQ is based:

"1. The job characteristics model;

2. the Michigan organizational stress model;

3. the demand-control-(support) model;

4. the sociotechnical approach;
5. the action-theoretical approach;
6. the effort-reward-imbalance model; and
7. the vitamin model"
(Nuebling, Seidler, Garthus-Niegel, Latza, Wagner, Hegewald & Letzel, 2013).

During recent years, COPSOQ is often used tool in Denmark and in other countries. One reason for that is the COPSOQ is not measure only specifically defined potential hazards for health but also all other aspects of PWE (Rugulies, Aust & Pejtersen, 2009) as COPSOQ is validated in several countries it makes it is easy to compare and analyze results (Freimann & Merisalu, 2015). In 1997 the first version of the Copenhagen Psychosocial Questionnaire (COPSOQ I) was developed in Denmark in three different length (Pejtersen, Kristensen, Borg, & Bjorner, 2009). The short version to measure psychosocial risks in a workplace, medium for PWE experts to use and long version for research purpose (Moncada, Utzet, Molinero, Llorens, Moreno, Galtés & Navarro, 2013). COPSOQ II is next level development from COPSOQ I and unlike first version it is covering also rewards, trust and justice aspects, same time the scales of degrees of freedom and social relations where deleted (Kiss, Meester, Kruse, Chavée & Braeckman, 2012). In 2004 and 2005 the COPSOQ II passed the validation process among sample of 3517 Danish currently employed people randomly selected for the study, "As part of this, the reliability of the questionnaire was investigated using different psychometric approaches including tests for internal consistency, construct validity, predictive validity and test – retest reproducibility. The results support the validity of questionnaire. COPSOQ II has become a cornerstone of the mandatory workplace risk assessments that are carried out by Danish companies every third year" (Andreassen & Eriksen, 2012). COPSOQ is a generic questionnaire that cover all main psychosocial aspects in workplace and its dimensions are related to different analytical levels. The extensive use of different length versions shows that COPSOQ is a well-proven tool for collecting reliable information about psychosocial risk factors in working environment either practical everyday use as well as for research (Pejtersen et al, 2009).

1.5. Risk indicator matrix

A risk matrix is an organized way to deal with the hazard evaluation process. Risk matrices permit the recognizable proof of the potential effect and the likelihood of the risk occurrence and help to

make decision. The target of this methodology is to detect presence of hazard(s). In Estonia most used in occupational safety risk assessment plans are different models of BS 8800:1996 standard risk matrix with five risk categories (very low, low, medium, high and very high risk), where the relationship between probability and consequences characterizing the risk level (Reinhold, 2009). Aim of the current thesis is to create risk matrix look-a-like tool to indicate possible occurrence of psychosocial risks. For that I used literature to study several approaches and parameters of risk matrices to allow develop a similar tool, although, in my case the visual will remain as a matrix but the essence is different and results are based on scoring and not consequence – likelihood basis. Main risk analysis and assessment methodologies are divided as qualitative techniques, quantitative techniques and hybrid techniques. Qualitative techniques include checklists, what-if analysis, safety audits etc. Quantitative techniques include different techniques and measures that allow evaluating hazards and are usually represented on the form of matrix or as a formula with numeric values. One of the quantitative techniques is also below described DMRA (Decision Matrix Risk Assessment) technique. Hybrid techniques mainly including human error related risks, case studies and decision making trees techniques (Marhavilas, Koulouriotis & Gemeni, 2011).

Studies reveal that only few enterprises have complete psychosocial risk management system in place and even in those companies, they are not fully using the benefits of well managed psychosocial risks because the systems are not integrated with other systems company is using. To get full benefits of psychosocial risk management is must be integrative to everyday management and control systems. For that indicator tool must be easy to communicate, user friendly, simply integrative to current systems, provide results that allow to decide and plan future actions, summarising and quantitative (Vestly Bergh et al, 2014).

There are several risk assessment methods and risk matrix is one of them. In Occupational Health and Safety field, besides British Standard (BS) also the Decision Matrix Risk Assessment (DMRA) is widely used (Gul & Guneri, 2016). This is two-parameter (consequences and probability) based scoring framework. Consequences are evaluated by the individual damage, the estimation of property or hardware harmed and the loss of working time. The likelihood is identified with the recurrence, length and degree of presentation, preparing and mindfulness, and the risk attributes.

Table 1. The risk-assessment decision matrix.

	Likelihood (P)				
Severity (S)	Rare (1)	Unlikely (2)	Possible (3)	Likely (4)	Almost certain (5)
Insignificant (1)	1	2	3	4	5
Minor (2)	2	4	6	8	10
Moderate (3)	3	6	9	12	15
Major (4)	4	8	12	16	20
Catastrophic (5)	5	10	15	20	25

Intolerable (unacceptable) risks (25)	Work should not be started until the identified risks reach to an acceptable level. If there is an ongoing activity, it should be immediately stopped. Unless it is possible to reduce the risks despite the precautions, activities should be avoided.
Significant risks (15, 16, 20)	Work should not be started until the identified risks should be stopped immediately. If there is an ongoing activity, it should be stopped. If the risk is concerned with the continuation of the work, emergency precautions must be taken.
Intermediate risks (8, 9, 10, 12)	Actions should be initiated to reduce the identified risks. It may take time for risk reduction preventions.
Acceptable risks (2, 3, 4, 5, 6)	There is no need to plan control processes in order to to eliminate the identified risks. However, the existing controls should be maintained and these controls should be monitored.
Insignificant risks (1)	There is no need to plan control processes in order to to eliminate the identified risks and to keep records of the activities to be carried out.

Source: Gul & Guneri (2016).

DMRA methodology allows to make a decision and take an action according to severity and probability ratings after the hazards have been identified (Marhavilas & Koulouriotis, 2008). Similar but with one more parameter approach is known as “Fine Kinney risk assessment method. The Fine Kinney method is a quantitative risk assessment method derived from MIL-STD-882 standards and developed by Kinney and Wiruth in 1976. In this method, three parameters (likelihood, exposure and possible consequences) are considered for each detected hazard” (Kokangül, Polat & Dağsuyu, 2017).

2. EMPIRICAL PART

Psychosocial risks are more and more in focus these days and many countries in EU are adding relevant and more specific descriptions into local laws to provide Labour Inspectorate and local entrepreneurs standards and guiding to manage psychosocial risks in working environment (Iavicoli, Natali, Deitinger, Rondinone, Ertel, Jain & Leka, 2011). My main motivator to carry out this study and to develop practical working tool for MSEs is mainly also driven by the idea to support MSEs with easy to use tool to help assess work-related psychosocial risks. "There is a need at both the national and international level for tools and guidelines that would enable organizations, OSH practitioners, and inspectors to assess a variety of work-related health risks and hence to plan interventions and monitor the risk management process" (Stauder et al, 2017). Psychosocial risks and work–related stress influence enterprises everyday performance because it may cause workers' absence from work, low working discipline and decreased performance. Ignoring the assessment and management of psychosocial risks may cause personal level issues for employees and beside of decreased performance, worker's mental and physical health may be damaged as well as personal relations because stress and fatigue influence how we act in different situations.

This study is based on current legislations, standards and different studies about the topic of psychosocial risk assessment and management in working environment. There are more than several regulatory standards that are indirectly related to psychosocial risks and regulate overall safety and health management in working environment. Those state that employers must ensure workers health and safety in every aspect that is related to work but often don't include terms like work-related stress or even general term psychosocial risk. During the last 15-20 years more and more stakeholders in EU have been involved in social dialogue over psychosocial risks, especially about harassment and violence at work but also about topics like work-related stress. During that time voluntary OSH standards are developed that are directly related to psychosocial risk management. Those standards include ILO (International Labour Organization) and WHO (World Health Organization) guidance and ISO regulations. As far as authors are concerned, there is no settled strategy in view of the COPSOQ II or on some other multiscale survey giving a general indicator that would permit distinguishing representatives at high hazard or sort a working environment as representing a low, direct, or high psychosocial risk for negative business related wellbeing results (Stauder et al, 2017).

2.1. Method

To support and compare collected data with other countries and studies, I carried out COPSOQ II questionnaire among micro and small enterprises in Estonia (n = 105).
Analyses were prepared using program IBM SPSS Statistics 22.0 and R 2.15.2
Methods: frequency tables, descriptive statistics and correlations.

2.1.1 Participants and procedure

Demographic data of the sample are presented in table below (Table 2). Table 2 shows that among 105 respondents, 59 or (56.2%) were females. Men were represented by 46 (43.8%) individuals. The distribution of respondents according to their age groups shows that 40 respondents (38.1%), are in age group 40 - 49, followed by 35 respondents (33.3%), who are between 30 and 39 years of age, and 14 respondents (13.3%) are in age group 50 – 59. There were 13 respondents (12.4%), who are younger than 30 years of age; and 3 respondents (2.9%) who are aged over 60 years of age. The number of respondents from management level is 49 (46.7%). Looking at the spread of positions among specialist (the were 53.3% respectively), almost half of them (44.6%, 25 respondents) were officials, 12 respondents (214%) were middle-level specialist, 10 persons (17.9%) works in service and sales. It is evident from Table 2 that majority of respondents (71.4%, 75) are employed in small enterprises (10-49 employees).

Table 2. Demographic data of the sample

Demographic variables	Category	Frequency	Proportion
Sex	Male	46	44%
	Female	59	56%
Total		105	100%
Age (y)	< 30	13	12%
	30-39	35	33%
	40-49	40	38%
	50-59	14	13%
	>= 60	3	3%
Total		105	100%

Demographic variables	Category	Frequency	Proportion
Number of employees	< 10	28	27%
	10 - 49	75	71%
	>= 50	2	2%
Total		105	100%
Working level	Officials	25	24%
	Managers	49	47%
	Unskilled labor	3	3%
	Skilled workers and craftsmen	2	2%
	Machine operators and engineers	2	2%
	Service and sales staff	10	10%
	Technicians and middle-level professionals	12	11%
	Top specialists	2	2%
Total		105	100%

Source: Kaskla (2018, 1), author's calculations

The data is collected at period of 03.01.2018 – 04.02.2018 via an online questionnaire. Estonian language COPSOQ II (92 questions + 4 demographic questions + 2 additional questions) was used. A translated questionnaire is downloaded from Estonian Health Board homepage and based on that online survey is created. The questionnaire was sent to micro and small enterprises but to check, that number of employees are in accordance of definition of MSEs the question "How many people working in your company?" ("Mitu inimest töötab teie ettevõttes?") was added. Two respondents reported that they work for company with 50 or more employees. Those two answers were excluded from future analysis. The second additional question "Please leave your e-mail for feedback" ("E-mail kuhu soovite saada tagasisidet") was added at the end of the questionnaire, this field was optional to fill.

The items of questionnaire were grouped into scales. Most of the scales are within 3-4 questions per scale. Such grouping is optimal and gives sufficient reliability and precision (Pejtersen et al., 2009).

Most of the questions in COPSOQ II have five response options. These are:

1. Always, Often, Sometimes, Seldom, Never/hardly ever.
2. To a very large extent, To a large extent, Somewhat, To a small extent, To a very small extent.

2.1.2 Scoring of the scales

All the scales of COPSOQ are scored 0-100 points. The five response options are scored 100, 75, 50, 25, 0. The total score on a scale for a respondent is the average of the scores on the individual items (Pejtersen et al., 2009). High scores correspond to high values on the respective dimensions. Thus, a high score on a burnout means a high burnout level, and a low score on influence means a low level of influence at work. In most cases high levels are "good" or "healthy". The exceptions are quantitative demands, work pace, emotional demands, role conflicts, work-family conflict, burnout, stress, and sleeping problems.

A few of the questions are scored with "reversed scoring". Reverse scoring means that the numerical scoring scale runs in the opposite direction. So, in our case "Never" attracts a score of 100, "Seldom" is 75, "Sometimes" still equals 50, "Often" becomes 25 and "Always" is 0.

In reverse scoring question no 15: How often do you consider looking for work elsewhere? (Kui sageli mõtlete uue töökoha otsimise peale?) was scored.

All items were divided in dimensions shown below with main keywords (Pejtersen et al., 2009), full list with respective questions is presented in Appendix 1.

- Quantitative demands: work piles up, not enough time, need to complete task, leaving behind.
- Emotional demands: emotional disturbing, other people personal problems, emotional demanding, emotional involvement.
- Influence at work: influence your work, say in choosing colleagues, influence work task, amount of work.
- Tempo, work pace: work fast, high pace.
- Social community at work: atmosphere, co-operation, community.
- Commitment to the workplace: looking work elsewhere, recommend a friend, enjoy telling others, work important.

- Social support from colleagues: support colleagues, colleagues listen to problems, colleagues talk about performance.
- Possibility for development: take initiative, use skills, learning new things, develop skills.
- Meaning of work: work meaningful, work important, motivated and involved.
- Predictability: informed about changes, informed to work well.
- Role clarity: clear objectives, responsibility, expectations.
- Role conflicts: mixed acceptance, contradictory demands, do things wrongly, unnecessary tasks.
- Job satisfaction: work prospects, work conditions, work abilities, job in general.
- Trust – vertical trust (trust regarding management): management trust employees, employees trust information, management withhold information, employees express views.
- Justice and respect: conflicts resolved fairly, employees appreciated, suggestions treated seriously, work distributed fairly.
- Trust – horizontal trust (mutual trust between employees): colleagues withhold information, withhold information from management, trust colleagues.
- Social support from supervisors: supervisor listens to problems, supervisor support, supervisor talk about performance.
- Quality of leadership: development opportunities, prioritise job satisfaction, work planning, solving conflicts.
- Work family conflict: feel need to be both places, energy conflict, time conflict, family think you work too much.
- Sleeping troubles: sleep badly, hard to go to sleep, woken up too early, woken up several times.
- Burnout: worn out, physically exhausted, emotionally exhausted, tired.
- Stress: problems relaxing, irritable, tense, stressed.
- Self-rated health: general health.
- Sexual harassment: undesired sexual attention
- Threats of violence: threats of violence during the last 12 months
- Physical violence: physical violence during the last 12 months
- Bullying: bullying during the last 12 months

Table 3 present the mean score, standard deviation and Cronbach' s alphas for psychosocial factors and mental health problems (MHP) at work. Cronbach α is an estimator of internal consistency. Cronbach alpha provides an assessment of questionnaire consistency and values may vary from one which means the best reliability and reliability to zero which means that reliability is missing.

Psychosocial factors and Mental Health Problems

Table 3. Number of items means, standard deviation and Cronbach's alphas for work-related psychosocial factors and mental health problems in 105 respondents

Psychosocial factors and MHPs (scale)	Number of items	Mean*	SD	Cronbach's alpha
Demands at work				
Quantitative demands	4	188.81	56.435	0.292
Tempo, Work pace	3	170.39	58.237	0.804
Emotional demands	4	204	66.735	0.561
Work organization and job contents				
Influence at work	4	253.46	91.991	0.802
Possibility for development (skills discretion)	4	303.10	65.568	0.754
Meaning of work	3	223.33	53.063	0.770
Commitment to the workplace	4	264.13	83.642	0.787
Interpersonal relationships and leadership				
Predictability	2	139.18	44.444	0.706
Rewards	3	210.71	62.488	0.853
Role clarity	3	242.16	50.245	0.773
Role conflicts	4	157.5	66.245	0.662
Quality of leadership	4	230.14	94.369	0.889
Social support from colleagues	3	184.02	65.668	0.779
Social support from supervisor	3	206.25	73.619	0.846
Social community at work	3	239.84	45.535	0.792
Values at the workplace				
Trust - vertical trust	4	238.16	55.298	0.171
Trust - horizontal trust	3	119.40	41.702	0.007
Justice and respect	4	266.76	85.494	0.869
Adequate work organization				
Satisfaction with work - job satisfaction	4	268.09	63.687	0.760
Work family conflict	4	198.63	110.478	0.872

Psychosocial factors and MHPs (scale)	Number of items	Mean*	SD	Cronbach's alpha
Mental health problems				
Stress	4	149.52	72.656	0.793
Burnout	4	185.34	66.337	0.887
Sleep Disorders	4	168.37	69.382	0.845

Source: Kaskla (2018, 2), author's calculations

Initial table (Table 3.) included all questions from the questionnaire, grouped according to the questions specific.

Detailed analyses of all items included in scales helped to improve the consistence of the questionnaire and due to that, some items initially included into scales were removed. Table 4 is the final table. As a result of the data processing of the questionnaire can be seen high and statistically significant reliability coefficient of the following factors.

Table 4. Mean scores, standard deviations and Cronbach's alphas for psychosocial factors and Mental Health Problems (MHP) in 105 respondents

Psychosocial factors and MHPs (scale)	Number of items	Mean	SD	Cronbach's alpha
Demands at work				
Quantitative demands	3	119.52	66.775	0.822
Tempo, Work pace	3	170.39	58.237	0.804
Emotional demands	3	128.22	65.923	0.724
Work organization and job contents				
Influence at work	4	253.46	91.991	0.802
Possibility for development (skills discretion)	4	303.10	65.568	0.754
Meaning of work	3	223.33	53.063	0.770
Commitment to the workplace	4	264.13	83.642	0.787
Interpersonal relationships and leadership				
Predictability	2	139.18	44.444	0.706
Rewards	3	210.71	62.488	0.853
Role clarity	3	242.16	50.245	0.773
Role conflicts	3	112.63	56.84	0.747
Quality of leadership	4	230.14	94.369	0.889
Social support from colleagues	3	184.02	65.668	0.779

Psychosocial factors and MHPs (scale)	Number of items	Mean	SD	Cronbach's alpha
Social support from supervisor	3	206.25	73.619	0.846
Social community at work	3	239.84	45.535	0.792
Values at the workplace				
Trust - vertical trust	3	218.37	61.295	0.820
Trust - horizontal trust	3	48.53	45.891	0.781
Justice and respect	4	266.76	85.494	0.869
Adequate work organization				
Satisfaction with work - job satisfaction	4	268.09	63.687	0.760
Work family conflict	4	198,63	110.478	0.872
Mental health problems				
Stress	4	149,52	72.656	0.793
Burnout	4	185,34	66.337	0.887
Sleep Disorders	4	168,37	69.382	0.845
Self-rated health	1	48,57	22.205	-

Source: Kaskla (2018, 3), author's calculations

The psychosocial factors with the highest mean scores were: Possibility for development (skills discretion); Commitment to the workplace; Influence at work; role clarity; Justice and respect; and Satisfaction with work - job satisfaction. Low mean scores were recorded for the Trust - horizontal trust; Role conflicts; Quantitative demands. The mean scores for six MHP's ranged from 149.52 to 185.34; the lowest score was for stress and the highest for a burnout. Self-rated health has average response of 48,57 and standard deviation SD: 22.205 The results are similar to the results of MHP scale in prevalence proportions for the single items.

The majority of the scales showed satisfactory Cronbach's alphas, which ranged from 0.889 to 0.706 for scales of psychosocial work characteristics and MHPs. There were no scales with Cronbach's alpha coefficients less than 0.700.

2.1.3 Overview of items, which were modified during the detailed analysis.

Quantitative demands

Cronbach's alpha for the initial set of questions included into the factor (questions 1, 9, 11, 12) was 0.292. We are looking for a score of over .7 for high internal consistency. In this case, α = .292, which shows the questionnaire is not reliable as we would expect. Items statistics for each item of question shows that question 12 (Do you have enough time for your work tasks? (Kas Teil on piisavalt aega oma tööülesannete täitmiseks?)) is not tapping well into the same content.

So it would be good to exclude this question item from the set. Items correlation statistics confirms the need to exclude question 12. If all the items are measuring the same concept, we would expect them all to correlate well together. Any items that have consistently low correlations across the board may need to be removed from the questionnaire to make it more reliable.

Again, it looks like Question 12 may be problematic, as all the correlations are negative and relatively weak.

Table 5. Inter-Item Correlation Matrix of quantitative demands

	1	9	11	12
1	1.000	0.575	0.601	-0.473
9	0.575	1.000	0.646	-0.445
11	0.601	0.646	1.000	-0.626
12	**-0.473**	**-0.445**	**-0.626**	**1.000**

Source: Kaskla (2018, 4), author's calculations

Tempo, Work pace

Cronbach's alpha for the initial set of questions included into the factor 0.804. Items have fairly similar scores. Each item correlates with the overall questionnaire score. After deleting any of items from the set, Cronbach's alpha score will not go up. None of question items included into set will be deleted.

Table 6. Inter-Item Correlation Matrix of tempo and work pace

	4	19	42
4	1.000	0.532	0.600
19	0.532	1.000	0.616
42	0.600	0.616	1.000

Source: Kaskla (2018, 5), author's calculations

Emotional demands

Cronbach's alpha for the initial set of questions included into the factor (question 2, 6, 20, 31) was 0.561. Items statistics for each item of question shows that it is not clear for question 31 (Do you get emotionally involved in your work? (Kas Teie töö haarab Teid emotsionaalselt?)) whether it is tapping well into the content or not. Items correlation statistics shows that question 31 does not correlate well together with all other items. Question 31 may be problematic, as it has relatively weak correlations with other questions.

Table 7. Inter-Item Correlation Matrix of emotional demands

	2	6	20	31
2	1	0.34	0.612	-0.256
6	0.34	1	0.419	0.003
20	0.612	0.419	1	0.121
31	**-0.256**	**0.003**	**0.121**	1

Source: Kaskla (2018, 6), author's calculations

Role Conflict

Initial scale included 4 items: question 25, 35, 38, 41. Cronbach's alpha is 0.662. Detailed analysis of all items included into the scale showed, that question 35 (Do you do things at work, which are accepted by some people but not by others? (Kas teete töö juures midagi sellist, mida mõned aktsepteerivad, aga teised mitte?)) does not suit well to the rest of items from this scale: correlations with other item of the scale do not exist (all are lower than 0.3).

After excluding question 35 from the scale, the Cronbach's alpha score of the scale went up: new score is 0.747.

Table 8. Inter-Item Correlation Matrix of role conflict

	25	35	38	41
25	1	0.186	0.484	0.509
35	0.186	1	0.16	0.043
38	0.484	0.16	1	0.597
41	0.509	0.043	0.597	1

Source: Kaskla (2018, 7), author's calculations

Trust – vertical trust

The scale is not good. Cronbach's alpha is only 0.171. Detailed analysis of all items included into the scale showed, that question 52 (Does the management withhold important information from the employees? (Kas juhtkond varjab töötajate eest töötajatele olulist informatsiooni?)) does not suit well to the rest of items from this scale: the average response is lower than for other items, correlations with other item of the scale is very weak.

After excluding question 52 from the scale, the Cronbach's alpha score of the scale went up: new score is 0.820.

Trust – horizontal trust

The scale is not good. Cronbach's alpha is only 0.007. Detailed analysis of all items included into the scale showed, that question 56 (Do the employees in general trust each other? (Kas töötajad üldiselt usaldavad üksteist?)) does not suit well to the rest of items from this scale. After excluding question 56 from the scale, the Cronbach's alpha score of the scale went up: new score is 0.781.

Offensive behaviour

The analysed questionnaire also includes questions on sexual harassment, threats of violence, physical violence, and bullying.

Sexual harassment:

Question 85. Have you been exposed to undesired sexual attention at your workplace during the last 12 months? (Kas Te olete oma töökohal viimase 12 kuu jooksul saanud soovimatu seksuaalse tähelepanu osaliseks?)

Threats of violence:

Question 87. Have you been exposed to threats of violence at your workplace during the last 12 months? (Kas Teid on töökohal viimase 12 kuu jooksul ähvardatud vägivallaga?)

Physical violence:

Question 89. Have you been exposed to physical violence at your workplace during the last 12 months? (Kas Teie vastu on töökohal viimase 12 kuu jooksul kasutatud füüsilist vägivalda?)

Bullying:

Question 91. Have you been exposed to bullying at your workplace during the last 12 months? (Kas Teid on töökohal viimase 12 kuu jooksul kiusatud? Kiusamine tähendab seda, kui inimest

koheldakse korduvalt ebameeldival või alandaval viisil ja inimesel on selle vastu ennast raske kaitsta.)

The 12 months' prevalence of these forms of offensive behaviors among respondents are as follows:

Sexual harassment	4.8%
Threats of violence	3.8%
Physical violence	1.0%
Bullying	13.3%

Table 9. General statistics of the factors

	Quantitative demands	Emotional demands	Influence at work	Work pace	Social community at work	Commitment to the workplace	Social Support from colleagues	Possibilities for development	Meaning of work	Predictability
Average	47.2	51	63.36	56.8	79.95	66.03	61.34	75.77	74.44	69.59
Std. Error	1.38	1.67	2.37	1.91	1.55	2.18	2.22	1.6	1.73	2.18
Median	43.75	53.13	62.5	58.33	83.33	68.75	58.33	75	75	75
Std. Deviation	14.11	16.68	23	19.41	15.18	20.91	21.89	16.39	17.69	22.22
Range	75	68.75	100	100	75	93.75	100	75	100	100
Variance	199.05	278.35	528.9	376.83	230.38	437.25	479.15	268.7	312.86	493.82
Sample	105	100	94	103	96	92	97	105	105	104

	Role clarity	Role conflicts	Rewards	Satisfaction with work	Vertical trust	Justice and respect	Horizontal trust	Social support from supervisors	Quality of leadership	Work family conflict
Average	80.72	39.38	70.24	67.02	59.54	66.69	39.8	68.75	57.53	49.66
Std. Error	1.66	1.75	2.18	1.61	1.59	2.28	1.7	2.68	2.76	2.8
Median	83.33	37.5	75	66.7	56.25	68.75	41.67	75	56.25	50
Std. Deviation	16.75	16.56	20.83	15.92	13.82	21.37	13.9	24.54	23.59	27.62
Range	66.67	68.75	91.67	75.03	75	100	83.33	83.33	100	100
Variance	280.5	274.27	433.86	253.5	191.12	456.83	193.23	602.2	556.6	762.84
Sample	102	90	91	98	76	88	67	84	73	97

Source: Kaskla (2018, 8), author's calculations

Separately are reviewed specific results for each psychosocial factor for men and women. There is no significant difference between women and men results. The most significant differences in responses of two groups, were next factors: Influence at work (men's mean response rate (69.36) is higher, than women's (58.73)); commitment to the workplace (men's response rate (59.84) was

lower than women's (70.79)); role conflict (men – 42.19 vs women – 37.13); justice and respect (men – 70.89 vs women 63.5); vertical trust (men – 61.69 vs women -57.47). These differences could be interpreted in next way: commitment to the work place – women are more committed to their workplace than men; also for women meaning of work is more significant than for men. Men scored role conflicts higher than women. May assume they are more sensitive in this topic, same behaviour is also for factor justice and respect.

1.2.4 Cross-sectional correlations

The cross-sectional correlations between psychosocial factors (20) are analysed. Results are presented in Appendix 2. There is significant strong positive correlations (Pearson's r coefficient >= 0.7) between factors: Commitment to the workplace and rewards (r=.759); rewards and predictability (r=.773); Satisfaction with work and Commitment to the workplace (r= .725); Vertical trust and rewards (r= .710); justice and respect and rewards (r= .805); justice and respect and Vertical trust (r= .781); Social support from supervisors and rewards (r= .709); Quality of leadership and rewards (r= .771); Quality of leadership and justice and respect (r= .776); and Quality of leadership and Social support from supervisors (r= .807).

Positive correlation means, then increase of one factor will affect the increase of correlated factor. E.g., respondents who answered that social support from supervisors is good enough on their workplaces are more satisfied with the quality of the leadership, than employees, who do not feel enough support from supervisors.

Besides, correlations between factors, cross-sectional correlations between psychosocial factors (20) and three MHPs (3) were analysed. Most of 20 psychosocial factors statistically significant correlated with burnout, sleep disorders and stress. Psychosocial risk factor as work family conflict, showed strong positive correlation with MHPs burnout (r= .698) and stress (r= .638), while factors such as commitment to the workplace, social community at work and justice and respect, showed negative correlations with all MHPs.

Below are described all correlations between MHPs and psychosocial factors (20).

Sleeping disorder

Sleep disorder has several statistically significant correlations with psychosocial factors; but all these correlations are not strong enough to be taken into consideration. Most strong positive correlation is with emotional demands (r= .344) and role conflicts (r= .348). Among negative significant correlations could pay attention to correlation with quality of leadership (r= -.343). This correlation could be described as: employees, who feel dissatisfied with quality of leadership, are more suffering from sleeping disorder.

Burnout

Mental health problem “Burnout” has negative correlations Social community at work (r= -.377), predictability (r= -.364), vertical trust (r= -.384), justice and respect (r= -.448). There are positive correlations with psychosocial factors Emotional demands (r= .439), role conflicts (r= .532), and work family conflict (r= .698).

Stress

Emotional demands factor is correlated positively with stress (r= .431). Also positive significant correlation is between stress and role conflicts (r= .550); work family conflict (r= .638). Social commitment at work correlated negatively with stress (r= -.414). Commitment to the workplace has also negative correlation with stress (r= -.390). Meaning of work correlated negatively with stress (r= -.386).

2.2. Psychosocial risk indicator matrix

The idea is to develop organizational level guidance tool for MSEs to assess initial psychosocial risks. Basically, the guidance tool will give enterprises initial indication is there probability that psychosocial risks occur. “Psychosocial risk management needs specific tools. Leka, Jain, Widerszal-Bazyl, Zołnierczyk-Zreda, and Zwetsloot (2011) highlight the need for a psychosocial risk management standard. In a recent study, Bergh, Hinna, Leka, and Jain (2014) develop a psychosocial risk indicator. Such an indicator could represent a powerful tool in psychosocial risk management” (Guadix, Carrillo-Castrillo, Onieva & Lucena, 2015). One method for coordinating psychosocial hazard management is to connect it to the association's system by applying current ideas or methods, for example, health, safety and environment indicators (Vestly Bergh, Hinna, Leka & Jain, 2014). The guidance tool is designed as a checklist and includes in total 10 statements about most high psychosocial risks according to the current study, ESENER -2 results and theory. According to ESENER-2, the awareness about psychosocial risks and readiness to manage psychosocial risks among Estonian enterprises is rather low and developed indication tool is essential to encourage companies to take action and, to improve workers PWE. Inspectors often handle psychosocial risks as marginal issue and enterprises tend to pay more attention to physical and hygiene hazards then psychosocial risks (Guadix, Carrillo-Castrillo, Onieva & Lucena, 2015).

For evaluation, every presented statement has single maximum score, in risk matrix also the total score will be considered. In that way detecting psychosocial risks are more likely. It will indicate

initial level of psychosocial risks in the company. To allow presentation of results as a matrix the checklist statements are scaled on Likert's five-level scale: strongly agree, agree, don't know, disagree, strongly disagree and every level is equal with points from 0 to 4 to indicate the level of possible psychosocial risk. Different from a regular checklist where are only yes and no options, my checklist have five agreement levels, to provide matrix structure information and numerical output to make indication tool as similar as possible to non-psychosocial hazard assessment matrix to make it easier to understand and use. This is because "... many inspectors still find PWE more complex to handle than other working environment issues; this is due to the subject matter as such and because methods and inspection procedures differ from methods and procedures related to other working environment problems" (Rasmussen, Hansen & Nielsen, 2011). Same confusion is recognized among enterprises reveal ESENER-2 results.

The developed checklist is one of the possibilities gathering together statements from main scales of COPSOQ, supported by theory and ESENER-2 results, relying to the proof of this study that statements in one scale have strong positive correlation to other statements in same scale. Scales and statements are selected the way to make it possible to answer on enterprise level. Personal level analysis could be the next step after general indication that psychosocial risks may occur.

The statements:

1. Only a qualified work force working for the company (the employee's level of education and work experience are in accordance with the requirements of the work). This question is supported by theory of job content and overall job satisfaction that states, work-related psychosocial risks mostly arise in situations where job requirements and employees coping strategies are failing (Leka, Jain, Iavicoli, & Di Tecco, 2015), meaning, the job is not in accordance with the employee's abilities.
2. An in-house training program and / or career opportunities are available for employees. This question will reveal the essence of overall quality of leadership in the company. How much support line manager is providing to employees allowing training programs and supporting internal career opportunities.
3. The work require complying with the deadlines.* Question from scale quantitative demands, referring to the possibility that work piles up and there is not enough time to finish tasks.
4. Night work and / or shift work is used in the company.* This question is raised due to common knowledge that working in night or in shifts is one of the high risk factors in PWE, this is also

highlighted in Labour Inspectorate guiding materials as high potential risk factor for chronic sleeping troubles.

5. Joint events are organized (summer games, Christmas parties). According to current research respond rate for horizontal trust was with the lowest score (39.80, SD=13.90). Joint events are one way to build teamwork, improve working atmosphere and increase sense of belonging, all needed for healthy social community at work.

6. Employees can make decisions themselves within the scope of their work. Influence at work is important part of work organization and job contents. It will indicate how much employee can organize their own work tasks but also will indicate the overall level of employees' participation in companies' internal matters as hiring and job crafting.

7. Employees constantly working alone.* Working alone can be stressful for most people because of the lack of social support from colleagues. It is important to receive feedback from colleagues and have people around you to ask help or discuss work related matters.

8. The nature of the work require continuous contact with persons outside the company (suppliers, customers, partners). * Main reason for this statement is to detect possible risk of physical violence from contacts outside of the company. According to current study competitors and customers are mainly reported in accordance with physical violence.

9. There is a "transparent" salary calculation system in company (employees are aware how their salary, bonuses and penalties are calculated). Salary calculation system is main part of rewards, indicating employees whether management recognizes the work done in fairly manner. Current study indicates significant strong positive correlations between commitment to the workplace and rewards, rewards and predictability, vertical trust and rewards, justice and respect and rewards, justice and respect and vertical trust, social support from supervisors and rewards and quality of leadership and rewards.

10. The employee has a clear overview of their job responsibilities and their performance evaluation system. Role clarity is important to evaluate employees' ability to set goals and independently manage everyday tasks. Positive correlation between role clarity and predictability according to current study refers to employee's capability to predict future plans and actions.

* Four statements (3, 4, 7, 8) are reversed, meaning, strongly agree presents the highest number of points and indicates higher potential to psychosocial risk.

The scores equal to different scale options variates between 0 to 4 where 4 is the higest risk and 0 is the lowest. Scores have indicative purpose only to make easier to understand the risk level.

The whole scale is between 0 to 40 points. The scores are divided as below.

Statements: strongly agree = 0 points, agree = 1 points, disagree = 2 points, strongly disagree = 3 points, don't know = 4 points

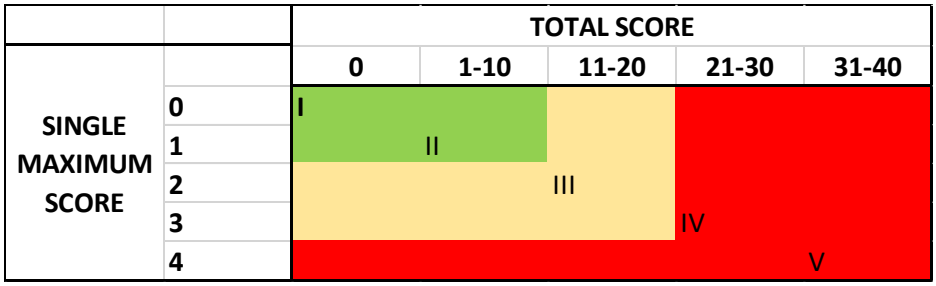
Reversed statements: don't know = 4 points, strongly agree = 3 points, agree = 2 points, disagree = 1 points, strongly disagree = 0 points

"Don't know" equals with score of 4 (the highest risk) because this indicates that intervention is anyway recommended getting fair score and assess and manage psychosocial risks in correct manner.

Sample of checklist with scores is added as Appendix 3.

Developed risk matrix is two-dimensional: total score and single maximum score that are possible to "read" as regular probability-consequences risk matrix, probability is replaced by single maximum score and consequences are replaced by total score. This way the possibility that psychosocial risks occurrence is detected in both ways, when total score is high but also when only one question hits maximum points.

Drawing 1. Developed risk matrix



Source: Kaskla (2018, 9), author's creation

The colors used in drawings are for visualisation purpose only, indicating (like trafic lights) that green is good and safe, but red suggest need for action under high attention, yellow is reflecting the statement that the situation don't need specific action at this stage but should be under attention to keep the current safety level. Color code of green, yellow and red is also used by Vestly Bergh et al (2014) when introducing the indicator called Psychosocial Risk Indicator (PRI).

Below table (Table 10.) explains generally the four-step risk assessment framework according to indicated risk level with suggestion of external experts help. Level I and II will not require specific action but employer is obligated to maintain this level and check PWE regularly. Levels III to V require intervention according to identified hazards. It depends of inhouse know how when enterprise will need external experts help but in level V it should be unavoidable because this result

refers to situation where even detecting the hazards is incomplete and at least one statement has maximum single score.

Table 10. Four-step risk assessment framework

Risk level	Step 1	Step 2	Step 3	Step 4
I	No need for action	-	-	-
II	There is no need to plan an action but periodical safety audit is aqquired to maintain the current level	Periodical safety audit	-	-
III	Psychosocial hazards detected, necessary measures to maintain or reduce the current level	Identification of hazard sources	Risk analysi	Action plan
IV	Psychosocial hazards detected, need for future action. Work environment specialist or external expert should be	Identification of hazard sources	Risk analysi	Action plan
V	Psychosocial hazards detected, need for future action. External expert should be involved.	Identification of hazard sources	Risk analysi	Action plan

Source: Kaskla (2018, 10), author's creation

Next drawing (drawing 2) visualizes the situation where single maximum score (4) is not checked but total scoring refers to high risk of psychosocial hazards. As we can see there is no night work or shift work used in the company (statement 4, strongly disagree will be scored as 0), statements 1 and 7 reveal that not all employees have corresponding education or practical experience to qualify for the job and time to time employees must work long hours alone (total score 2 x 1=2). Statement 9 indicates that most of the employees are not fully aware how their salary, bonuses and penalties are calculated (total score 2). Statements 2, 5, 6, 10 are all checked as strongly disagree and reversed statements 3 and 8 as strongly agree, that indicate score of 3 for each statement (total score 6 x 3=18). To sum up, you need to combine all the individual scores together:

$$0 + (2 \times 1) + 2 + (6 \times 3) = 22 \text{ points (total score).}$$

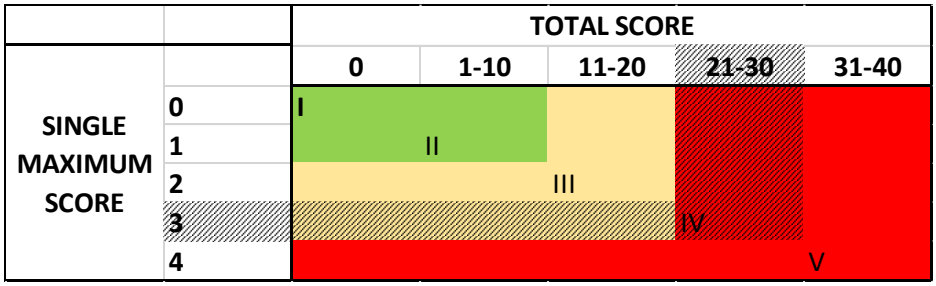
Drawing 2. Visual explanation of scoring

		STATEMENTS											
		1	2	3	4	5	6	7	8	9	10	Corresponding answers in total	Total score
SCORE	0				X							1	0
	1	X						X				2	2
	2									X		1	2
	3		X	X		X	X		X		X	6	18
	4											0	0
											Control:	**10**	**22**

Source: Kaskla (2018, 11), author's creation

Below drawing explain how to select correct risk level, diagonal strip ( ) indicates resulted scores, the level where total score and single maximum score meet is corresponding risk level. In this case the risk level is IV and requires future action and internal work environment specialst's or external expert's help to identify the hazards, analyze the risks and work out action plan.

Drawing 3. How to select correct risk level with total score of 22 and single maximum score of 3



Source: Kaskla (2018, 12), author's creation

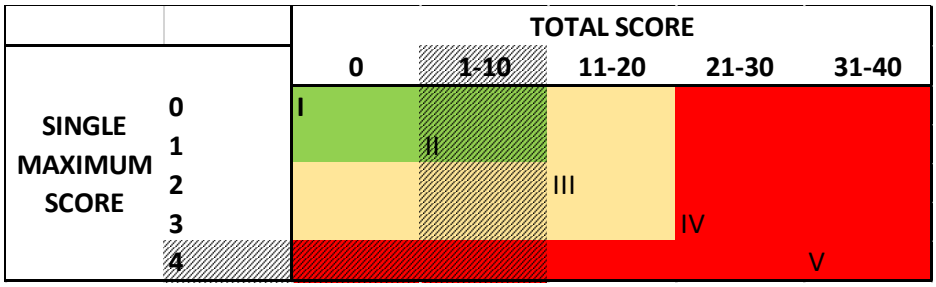
Drawings 4 and 5 explain the conditions where most of the psychosocial hazards are not likely to occur but employer or work environment specialist who is filling the checklist, don't know do the employees have a clear overview of their job responsibilities and their performance evaluation system or not.

Drawing 4. Visual explanation of scoring

		STATEMENTS											
		1	2	3	4	5	6	7	8	9	10	Corresponding answers in total	Total score
SCORE	0			X	X	X	X		X			5	0
	1	X						X				2	2
	2		X							X		2	4
	3											0	0
	4										X	1	4
											Control:	**10**	**10**

Source: Kaskla (2018, 13), author's creation

Drawing 5. How to select correct risk level with total score of 10 and single maximum score of 4



Source: Kaskla (2018, 14), author's creation

In this case risk level is V and external expert's help is suggested because the V risk level indicates that at least one statement is checked with an option as "don't know" and this leads to the conclusion that there is no internal knowledge how to assess some psychosocial risk situations stated in a checklist.

CONCLUSION

Micro and small businesses are the backbone of the economy and are considered to be the main driver of growth, innovation, employment and social integration. It is important to ensure compliance with occupational safety and health requirements regardless of the size of the company, identify the main psychosocial hazards and develop practical solutions for improving occupational safety and health in Estonian micro and small enterprises. Risk evaluation is an essential tool for the safety policy of organization. It incorporates recognizing and assessing every conceivable hazards, decreasing them and reporting the outcomes.

The aim of this research is to develop an indication checklist, based on conducted COPSOQ II, ESENER-2 and theoretical materials as a practical tool to indicate the possible occurrence of psychosocial risks and presenting these results as a risk matrix. A developed tool is easy to use and the results are easy to read thanks to the fact that the tool looks similar to the risk matrices used for evaluating risks in general working environment for many years. The developed indicator tool only gives a coarse assessment of psychosocial risks and this is why, the enterprise should weigh detected risk factors to decide further priorities and to emphasis issues needs to be managed like in process where non-psychosocial risks are assessed.

According to the author, the research carried out has succeeded in fulfilling the purpose of the work and finding answers to research questions.

1. The current state of psychosocial risk assessment and management, at a national and enterprise level in Estonia compared to other Europeans countries, is in the stage where psychosocial risk assessment procedure is still confusing for enterprises as well as for Labour inspectorate inspectors and is not widely managed. Despite the fact that psychosocial risks management have been talked more and more over in recent years, there is a huge difference between experts and the general population’s understanding of psychosocial risks and management of psychosocial risks. In spite of the European Union's directive 89/391/EEC, which encourages to measure all (including psychosocial) risks,

many countries recognize only few individual risk factors, such as work-related stress, bullying and violence and are prioritizing to manage only those reports ESENER-2.

2. Main psychosocial risk dimensions in Estonia according to conducted medium size COPSOQ II research among the micro and small enterprises are work pace, emotional demand and family - work balance. Violence and unwanted behaviours occur less, yet if, then the violence is mostly related with customers, unwanted sexual attention with colleagues and bulling mainly arises in vertical relationships (managers/superiors). From all three, bullying is most often reported.

3. The checklist is created according to conducted COPSOQ II results, ESENER findings and theoretical basis. To present the checklist results in common form in occupational healt and safety field the risk indicator matrix is developed.

The next step could be the pilot study with small yet respective sample of Estonian MSEs because one of the limitations to start to use developed risk indicator matrix is the necessity to validate the statements and developed matrix, using representative sample of Estonian enterprises. This could be future research possibility to continue with this paper. According to the feedback, checklist and risk indicator matrix should be improved and then tested among targeted end users (employers, work environment specialists and Labour Inspectorate inspectors).

As a further practical output of this Master's thesis, after the validation of developed checklist and risk indicator matrix, is to create an online tool and / or mobile app based on this data which allows an employer, work environment specialist, employee or inspector of the Labour Inspectorate to complete a checklist and the indication tool automatically generates the corresponding risk level and provides guidance for further steps according to the result taking into account the company specific information as business field, company size and type of the company.

Detecting psychosocial risks will not protect from psychosocial risks to rise but it will help to find suitable strategies to manage those risks and after identifying and analysing to assess the risks and work out controlled system to eliminated or reduce the psychosocial hazards to the acceptable level.

LIST OF REFERENCES

Anderson, N., Ones, D. S., Sinangil, H. K., & Viswesvaran, C. (2001). Handbook of Industrial, Work and Organizational Psychology (Vol. 1). SAGE Publications. DOI: 10.4135/978-1-84860-832-0

Anderson, N., Ones, D. S., Sinangil, H. K., & Viswesvaran, C. (2001). Handbook of Industrial, Work and Organizational Psychology (Vol. 2). SAGE Publications. DOI: 10.4135/978-1-84860-832-0

Andreassen, C. N., & Eriksen, J. G. (2012). The psychosocial work environment among physicians employed at Danish oncology departments in 2009. A nationwide cross-sectional study. Acta Oncologica,52(1), 138-146. doi:10.3109/0284186x.2012.702926

Bruhn, A., & Frick, K. (2011). Why it was so difficult to develop new methods to inspect work organization and psychosocial risks in Sweden. Safety Science,49(4), 575-581. doi: 10.1016/j.ssci.2010.07.011

Deeney, C., & O'Sullivan, L. (2009). Work related psychosocial risks and musculoskeletal disorders: Potential risk factors, causation and evaluation methods. Work, 34(2), 239-248. doi:10.3233/WOR-2009-0821

Drenth, P. J., Thierry, H., & Wolff, C. J. (1998). Handbook of work and organizational psychology. Psychology Press.

EU-OSHA (2007), European Agency for Safety and Health at Work, Expert forecast on emerging psychosocial risks related to occupational health and safety, Office for Official Publications of the European Communities, Luxembourg (available at: http://osha.europa.eu/en/publications/reports/7807118).

Freimann, T., & Merisalu, E. (2015). Work-related psychosocial risk factors and mental health problems amongst nurses at a university hospital in Estonia: A cross-sectional study. Scandinavian Journal of Public Health,43(5), 447-452. doi:10.1177/1403494815579477

Guadix, J., Carrillo-Castrillo, J., Onieva, L., & Lucena, D. (2015). Strategies for psychosocial risk management in manufacturing. Journal of Business Research,68(7), 1475-1480. doi: 10.1016/j.jbusres.2015.01.037

Gul, M., & Guneri, A. F. (2016). A fuzzy multi criteria risk assessment based on decision matrix technique: A case study for aluminum industry. Journal of Loss Prevention in the Process Industries, 40, 89-100. doi:10.1016/j.jlp.2015.11.023

Iavicoli, S., Natali, E., Deitinger, P., Rondinone, B. M., Ertel, M., Jain, A., & Leka, S. (2011). Occupational health and safety policy and psychosocial risks in Europe: The role of stakeholders' perceptions. Health Policy,101(1), 87-94. doi: 10.1016/j.healthpol.2010.08.005

Karasek, R., Theorell, T. (1990). Healthy Work-stress, Productivity, and the Reconstruction of Working Life. Basic Books, New York.

Kokangül, A., Polat, U., & Dağsuyu, C. (2017). A new approximation for risk assessment using the AHP and Fine Kinney methodologies. Safety Science, 91, 24-32. doi:10.1016/j.ssci.2016.07.015

Kiss, P., Meester, M. D., Kruse, A., Chavée, B., & Braeckman, L. (2012). Comparison between the first and second versions of the Copenhagen Psychosocial Questionnaire: Psychosocial risk factors for a high need for recovery after work. International Archives of Occupational and Environmental Health,86(1), 17-24. doi:10.1007/s00420-012-0741-0

Kristensen, T. S., Bjorner, J. B., Christensen, K. B., & Borg, V. (2004). The distinction between work pace and working hours in the measurement of quantitative demands at work. Work & Stress,18(4), 305-322. doi:10.1080/02678370412331314005

Leka, S., Jain, A., Iavicoli, S., & Di Tecco, C. (2015). An Evaluation of the Policy Context on Psychosocial Risks and Mental Health in the Workplace in the European Union: Achievements, Challenges, and the Future. Biomed Research International, 20151-18. doi:10.1155/2015/213089

Leka, S., Jain, A., Iavicoli, S., Vartia, M., & Ertel, M. (2011). The role of policy for the management of psychosocial risks at the workplace in the European Union. Safety Science,49(4), 558-564. doi: 10.1016/j.ssci.2010.02.002

Leka S., Jain A., Lerouge L. (2017) Work-Related Psychosocial Risks: Key Definitions and an Overview of the Policy Context in Europe. In: Lerouge L. (eds) Psychosocial Risks in Labour and Social Security Law. Aligning Perspectives on Health, Safety and Well-Being. Springer, Cham, 1-12. Doi: 10.1007/978-3-319-63065-6

Leka, S., Jain, A., Widerszal-Bazyl, M., Żołnierczyk-Zreda, D., & Zwetsloot, G. (2011). Developing a standard for psychosocial risk management: PAS 1010. Safety Science,49(7), 1047-1057. doi: 10.1016/j.ssci.2011.02.003

Magwentshu, S. (n.d.). The implementation of a new inspection tool in the psychosocial working environment: The experience of the Danish Working Environment Authority. PsycEXTRA Dataset. doi:10.1037/e572992012-126

Marhavilas, P. K., & Koulouriotis, D. (2008). A risk-estimation methodological framework using quantitative assessment techniques and real accidents' data: Application in an aluminum extrusion industry. Journal of Loss Prevention in the Process Industries, 21(6), 596-603. doi:10.1016/j.jlp.2008.04.009

Marhavilas, P., Koulouriotis, D., & Gemeni, V. (2011). Risk analysis and assessment methodologies in the work sites: On a review, classification and comparative study of the scientific literature of the period 2000–2009. Journal of Loss Prevention in the Process Industries, 24(5), 477-523. doi:10.1016/j.jlp.2011.03.004

Moncada, S., Pejtersen, J. H., Navarro, A., Llorens, C., Burr, H., Hasle, P., & Bjorner, J. B. (2009). Psychosocial work environment and its association with socioeconomic status. A comparison of Spain and Denmark. Scandinavian Journal of Public Health,38(3_suppl), 137-148. doi:10.1177/1403494809353825

Moncada, S., Utzet, M., Molinero, E., Llorens, C., Moreno, N., Galtés, A., & Navarro, A. (2013). The copenhagen psychosocial questionnaire II (COPSOQ II) in Spain-A tool for psychosocial risk assessment at the workplace. American Journal of Industrial Medicine,57(1), 97-107. doi:10.1002/ajim.22238

Nuebling, M., Seidler, A., Garthus-Niegel, S., Latza, U., Wagner, M., Hegewald, J., & Letzel, S. (2013). The Gutenberg Health Study: Measuring psychosocial factors at work and predicting health and work-related outcomes with the ERI and the COPSOQ questionnaire. BMC Public Health,13(1). doi:10.1186/1471-2458-13-538

Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B. (2009). The second version of the Copenhagen Psychosocial Questionnaire. Scandinavian Journal of Public Health,38(3_suppl), 8-24. doi:10.1177/1403494809349858

Rasmussen, M. B., Hansen, T., & Nielsen, K. T. (2011). New tools and strategies for the inspection of the psychosocial working environment: The experience of the Danish Working Environment Authority. Safety Science, 49(4), 565-574. doi: 10.1016/j.ssci.2010.06.002

Reinhold, K. (2009). Workplace Assessment: Determination of Hazards Profile Using Flexible Risk Assessment Method. Dissertation. Tallinn.

Rugulies, R., Aust, B., & Pejtersen, J. H. (2009). Do psychosocial work environment factors measured with scales from the Copenhagen Psychosocial Questionnaire predict register-based sickness absence of 3 weeks or more in Denmark? Scandinavian Journal of Public Health,38(3_suppl), 42-50. doi:10.1177/1403494809346873

Santos, K. B., Araújo, T. d., Carvalho, F. M., & Karasek, R. (2017). The job content questionnaire in various occupational contexts: applying a latent class model. BMJ Open, 7(5), e013596. doi:10.1136/bmjopen-2016-013596

Stanhope, J. (2017). Effort–Reward Imbalance Questionnaire. Occupational Medicine, 67(4), 314–315. doi: 10.1093/occmed/kqx023

Stat.ee. (2018). *Avaleht - Eesti Statistika*. [online] Available at: http://www.stat.ee/ [Accessed 17 Mar. 2018].

Stauder, A., Nistor, K., Zakor, T., Szabó, A., Nistor, A., Ádám, S., & Thege, B. K. (2017). Quantifying Multiple Work-Related Psychosocial Risk Factors: Proposal for a Composite Indicator Based on the COPSOQ II. International Journal of Behavioral Medicine,24(6), 915-926. doi:10.1007/s12529-017-9651-6

van Stolk, C., Staetsky, L., Hassan, E., & Kim, C.W. (2012). Management of psychosocial risks at work: An analysis of the findings of the European Survey of Enterprises on New and Emerging Risks (ESENER) European Risk Observatory Report. Luxembourg: Publications Office of the European Union. doi:10.2802/92077

Ulhassan, W., Schwarz, U. V., Thor, J., Sandahl, C., & Westerlund, H. (2014). Interactions between lean and psychosocial work environment in a hospital setting--a multiple method study. PsycEXTRA Dataset. doi:10.1037/e577572014-465

Utzet, M., Moncada, S., Molinero, E., Llorens, C., Moreno, N., & Navarro, A. (2014). The changing patterns of psychosocial exposures at work in the South of Europe: Spain as a labor market laboratory. American Journal of Industrial Medicine,57(9), 1032-1042. doi:10.1002/ajim.22334

Vestly Bergh, L. I., Hinna, S., Leka, S., & Jain, A. (2014). Developing a performance indicator for psychosocial risk in the oil and gas industry. Safety Science, 6298-106. doi: 10.1016/j.ssci.2013.08.005

Zábrodská, K., Mudrák, J., Šolcová, I., Květon, P., Blatný, M., & Machovcová, K. (2017). Burnout among university faculty: The central role of work–family conflict. Educational Psychology,1-20. doi:10.1080/01443410.2017.1340590

Wännström, I., Peterson, U., Åsberg, M., Nygren, Å., & Gustavsson, J. P. (2009). Psychometric properties of scales in the General Nordic Questionnaire for Psychological and Social Factors at Work (QPSNordic): Confirmatory factor analysis and prediction of certified long-term sickness

absence. Scandinavian Journal of Psychology, 50(3), 231-244. doi:10.1111/j.1467-9450.2008.00697.

APPENDICES

Appendix 1. Dimensions used in current COPSOQ II questionnaire

Next scaled were used in this questionnaire:

Quantitative demands:

1. Is your work unevenly distributed so it piles up? (Kas Teie töökoormus on ebaühtlaselt jaotatud, nii et tööd kuhjuvad?)

9. Do you get behind with your work? (Kas Te jääte maha oma tööülesannete täitmisel?)

12. Do you have enough time for your work tasks? (Kas Teil on piisavalt aega oma tööülesannete täitmiseks?)

11. How often do you not have time to complete all your work tasks? (Kui sageli jääb Teil aega puudu kõigi oma tööülesannete lõpetamiseks?)

Emotional demands:

2. Does your work put you in emotionally disturbing situations? (Kas Teie töö seab Teid emotsionaalselt häirivatesse olukordadesse?)

6. Do you have to relate to other people's personal problems as part of your work? (Kas Te peate osana oma tööst tegelema teiste inimeste isiklike probleemidega?)

20. Is your work emotionally demanding? (Kas Teie töö on emotsionaalselt raske?)

31. Do you get emotionally involved in your work? (Kas Teie töö haarab Teid emotsionaalselt?)

Influence at work:

3. Do you have a large degree of influence concerning your work? (Kas Teil on suur mõjuvõim oma tööga seonduva üle?)

7. Do you have a say in choosing who you work with? (Kas Teil on sõnaõigus selle üle, kellega koos töötada?)

8. Do you have any influence on what you do at work? (Kas Teil on mingit võimalust mõjutada seda, millega Te tööl tegelete?)

14. Can you influence the amount of work assigned to you? (Kas Te saate mõjutada Teile määratava töö mahtu?)

Tempo, work pace:

4. Do you have to work very fast? (Kas Te peate töötama väga kiiresti?)

19. Is it necessary to keep working at a high pace? (Kas Teil on vaja hoida kiiret töötempot?)

42. Do you work at a high pace throughout the day? (Kas Te töötate kogu päeva kiires tempos?)

Social community at work:

5. Is there a good atmosphere between you and your colleagues? (Kas Teie ja Teie kolleegide vaheline õhkkond on hea?)

10. Is there good co-operation between the colleagues at work? (Kas Teie töökohal on kolleegide vahel hea koostöö?)

13. Do you feel part of a community at your place of work? (Kas Te tunnete ennast töökollektiivi osana?)

Commitment to the workplace:

15. How often do you consider looking for work elsewhere? (Kui sageli mõtlete uue töökoha otsimise peale?) (reverse scoring)

28. Would you recommend a good friend to apply for a position at your workplace? (Kas Te soovitaksite heal sõbral Teie töökohas tööle kandideerida?)

33. Do you enjoy telling others about your place of work? (Kas Teile meeldib oma töökohast teistele rääkida?)

44. Do you feel that your place of work is of great importance to you? (Kas Te tunnete, et koht, kus Te töötate, on Teile väga tähtis?)

Social support from colleagues:

16. How often do you get help and support from your colleagues? (Kui sageli saate abi ja toetust oma kolleegidelt?)

17. How often are your colleagues willing to listen to your problems at work? (Kui sageli on kolleegid valmis Teie tööalaseid probleeme ära kuulama?)

18. How often do your colleagues talk with you about how well you carry out your work? (Kui sageli räägivad kolleegid Teiega sellest, kui hästi Te saate oma tööga hakkama?)

Possibility for development (skill description):

21. Does your work require you to take the initiative? (Kas töö eeldab Teilt omaalgatuslikkust?)

32. Can you use your skills or expertise in your work? (Kas saate tööl oma oskusi ja erialaseid teadmisi kasutada?)

39. Do you have the possibility of learning new things through your work? (Kas Teil on võimalus läbi oma töö õppida uusi asju?)

43. Does your work give you the opportunity to develop your skills? (Kas Teie töö annab Teile võimaluse täiendada oma oskusi?)

Meaning of work:

22. Is your work meaningful? (Kas Teie töö on mõttekas?)

27. Do you feel that the work you do is important? (Kas tunnete, et töö, mida teete, on tähtis?)

40. Do you feel motivated and involved in your work? (Kas Te tunnete, et olete tööl motiveeritud ja hingega asja juures?)

Predictability:

23. At your place of work, are you informed well in advance concerning for example important decisions, changes, or plans for the future? (Kas olete oma töökohal aegsasti informeeritud nt olulistest otsustest, muudatustest või tulevikuplaanidest?)

34. Do you receive all the information you need in order to do your work well? (Kas Te saate kogu informatsiooni, mida vajate selleks, et oma tööd hästi teha?)

Role clarity:

24. Does your work have clear objectives? (Kas Teie tööl on selged eesmärgid?)

29. Do you know exactly which areas are your responsibility? (Kas teate täpselt, mis kuulub Teie vastutusalasse?)

37. Do you know exactly what is expected of you at work? (Kas Te teate täpselt, mida Teilt tööl oodatakse?)

Role conflicts:

25. Are contradictory demands placed on you at work? (Kas Teile esitatakse tööl vastuolulisi nõudmisi?)

35. Do you do things at work, which are accepted by some people but not by others? (Kas teete töö juures midagi sellist, mida mõned aktsepteerivad, aga teised mitte?)

38. Do you sometimes have to do things, which ought to have been done in a different way? (Kas Te peate mõnikord tegema asju, mida tuleks teha teisiti?)

41. Do you sometimes have to do things, which seem to be unnecessary? (Kas peate mõnikord tegema asju, mis tunduvad Teile ebavajalikud?)

Satisfaction with work – job satisfaction:

45. How pleased are you with your work prospects? (kui rahul Te olete oma tööalaste väljavaadetega?)

46. How pleased are you with the physical working conditions? (kui rahul Te olete töökeskkonnaga (nt tööruumid ja töövahendid)?)

47. How pleased are you with the way your abilities are used? (kui rahul Te olete sellega, kuidas Teie võimeid rakendatakse?)

48. How pleased are you withyour job as a whole, everything taken into consideration? (kui rahul Te olete oma tööga üldiselt, kõike sellega seonduvat arvesse võttes?)

Trust – vertical trust:

49. Does the management trust the employees to do their work well? (Kas juhtkond usaldab töötajaid, usub, et nad teevad oma tööd hästi?)
50. Can you trust the information that comes from the management? (Kas Te saate usaldada juhtkonnalt tulevat informatsiooni?)
52. Does the management withhold important information from the employees? (Kas juhtkond varjab töötajate eest töötajatele olulist informatsiooni?)
58. Are the employees able to express their views and feelings? (Kas töötajatel on võimalik väljendada oma arvamusi ja emotsioone?)

Justice and respect:

51. Are conflicts resolved in a fair way? (Kas konfliktid lahendatakse õiglaselt?)
53. Are employees appreciated when they have done a good job? (Kas töötajaid tunnustatakse, kui nad on teinud head tööd?)
57. Are all suggestions from employees treated seriously by the management? (Kas juhtkond võtab kõiki töötajate ettepanekuid tõsiselt?)
59. Is the work distributed fairly? (Kas töö on jaotatud õiglaselt?)

Trust – horizontal trust:

54. Do the employees withhold information from each other? (Kas töötajad varjavad üksteise eest neile olulist informatsiooni?)
55. Do the employees withhold information from the management? (Kas töötajad varjavad infot juhtkonna eest?)
56. Do the employees in general trust each other? (Kas töötajad üldiselt usaldavad üksteist?)

Social support from supervisors:

60. How often is your nearest superior willing to listen to your problems at work? (Kui sageli on Teie otsene ülemus valmis ära kuulama Teie tööga seotud probleeme?)
61. How often do you get help and support from your nearest superior? (Kui sageli saate abi ja toetust oma otseselt ülemuselt?)
62. How often does your nearest superior talk with you about how well you carry out your work? (Kui sageli räägib Teie otsene ülemus Teiega sellest, kuidas Te tööl hakkama saate?)

Quality of leadership:

63. To what extent would you say that your immediate superior makes sure that the individual member of staff has good development opportunities? (Mil määral Teie arvates Teie otsene ülemus kindlustab igale töötajale head arenguvõimalused?)

64. To what extent would you say that your immediate superior gives high priority to job satisfaction? (Mil määral Teie arvates Teie otsene ülemus peab oluliseks, et töötajad oleksid oma tööga Rahul?)

65. To what extent would you say that your immediate superior is good at work planning? (Mil määral Teie arvates Teie otsene ülemus oskab hästi tööd planeerida?)

66. To what extent would you say that your immediate superior is good at solving conflicts? (Mil määral Teie arvates Teie otsene ülemus oskab hästi konflikte lahendada?)

Work family conflict:

67. Do you often feel a conflict between your work and your private life, making you want to be in both places at the same time? (Kas Te tunnete sageli vastuolu töö- ja eraelu vahel, millega kaasneb soov olla ühel ajal mõlemas kohas?)

68. Do you feel that your work drains so much of your energy that it has a negative effect on your private life? (Kas Te tunnete, et töö imeb Teid energiast nii tühjaks, et see mõjub alvasti Teie eraelule?)

69. Do you feel that your work takes so much of your time that it has a negative effect on your private life? (Kas Te tunnete, et töö võtab ära nii palju Teie aega, et see mõjub halvasti Teie eraelule?)

70. Do your friends or family tell you that you work too much? (Kas Teie sõbrad või pere ütlevad Teile, et Te töötate liiga palju?)

Sleeping troubles:

72. How often have you slept badly and restlessly? (Kui sageli olete maganud halvasti ja rahutult?)

74. How often have you found it hard to go to sleep? (Kui sageli on Teil magama jäämisega raskusi?)

77. How often have you woken up too early and not been able to get back to sleep? (Kui sageli olete ärganud liiga vara, suutmata uuesti magama jääda?)

79. How often have you woken up several times and found it difficult to get back to sleep? (Kui sageli olete ärganud öö jooksul mitmeid kordi ja leidnud, et on raske uuesti magama jääda?)

Burnout:

73. How often have you felt worn out? (Kui sageli olete tundnud, et olete kurnatud, täiesti läbi?)

75. How often have you been physically exhausted? (Kui sageli olete tundnud ennast füüsiliselt kurnatuna?)

76. How often have you been emotionally exhausted? (Kui sageli olete tundnud ennast emotsionaalselt kurnatuna?)

78. How often have you felt tired? (Kui sageli olete tundnud ennast väsinuna?)

Stress:

80. How often have you had problems relaxing? (Kui sageli on Teil olnud probleeme lõõgastumisega?)

81. How often have you been irritable? (Kui sageli olete olnud kergesti ärrituv?)

82. How often have you been tense? (Kui tihti olete olnud pinges?)

83. How often have you been stressed? (Kui tihti olete olnud stressis?)

Self-rated health:

84. In general, would you say your health is: (Kas Te ütleksite, et üldiselt on Teie tervis on)

Sexual harassment:

85. Have you been exposed to undesired sexual attention at your workplace during the last 12 months? (Kas Te olete oma töökohal viimase 12 kuu jooksul saanud soovimatu seksuaalse tähelepanu osaliseks?)

Threats of violence:

87. Have you been exposed to threats of violence at your workplace during the last 12 months?(Kas Teid on töökohal viimase 12 kuu jooksul ähvardatud vägivallaga?)

Physical violence:

89. Have you been exposed to physical violence at your workplace during the last 12 months? (Kas Teie vastu on töökohal viimase 12 kuu jooksul kasutatud füüsilist vägivalda?)

Bullying:

91. Have you been exposed to bullying at your workplace during the last 12 months? (Kas Teid on töökohal viimase 12 kuu jooksul kiusatud? Kiusamine tähendab seda, kui inimest koheldakse korduvalt ebameeldival või alandaval viisil ja inimesel on selle vastu ennast raske kaitsta.)

Appendix 2. Cross-sectional correlations

	Quantitative demands	Emotional demands	Influence at work	Work pace	Social community at work	Commitment to the work place	Social Support from colleagues	Possibilities for development	Meaning of work	Predictability	Role clarity	Role conflicts	Rewards	Satisfaction with work	Vertical trust	Justice and respect	Horizontal trust	Social support from supervisors	Quality of leadership	Work family conflict	Sleeping troubles	Burnout	Stress
Quantitative demands	1																						
Emotional demands	,169	1																					
Influence at work	,066	-,235*	1																				
Work pace	,195*	,392**	-,127	1																			
Social community at work	-,265**	-,244*	,394**	-,123	1																		
Commitment to the work place	-,124	-,318**	,438**	-,036	,525**	1																	
Social Support from colleagues	-,279**	-,249*	,254*	-,086	,559**	,589**	1																
Possibilities for development	-,043	-,015	,521**	,056	,446**	,524**	,352**	1															
Meaning of work	-,159	-,247*	,450**	,054	,567**	**,675****	,439**	,653**	1														
Predictability	-,162	-,285**	,571**	-,079	**,672****	,616**	,521**	,500**	,620**	1													
Role clarity	-,293**	-,222*	,425**	,051	,547**	,578**	,435**	,413**	,607**	**,662****	1												
Role conflicts	,296**	,475**	-,401**	,270*	-,548**	-,417**	-,422**	-,236*	-,421**	-,585**	-,496**	1											
Rewards	-,111	-,278**	,535**	,028	,672**	,759**	,646**	,530**	,613**	**,773****	**,682****	-,521**	1										
Satisfaction with work	-,200*	-,332**	,321**	-,064	,507**	,725**	,527**	,488**	,626**	,580**	,524**	-,362**	**,653****	1									
Vertical trust	-,033	-,121	,478**	,037	,425**	,531**	,499**	,439**	,481**	,608**	,592**	-,308**	,710**	,559**	1								
Justice and respect	-,080	-,383**	,561**	-,082	,608**	,627**	,554**	,449**	,515**	,661**	,617**	-,426**	**,805****	,646**	**,781****	1							
Horizontal trust	,124	,202	-,372**	,028	-,381**	-,333**	-,109	-,213	-,400**	-,404**	-,456**	,405**	-,366**	-,301*	-,056	-,170	1						
Social support	-,139	-,327**	,321**	-,208	,507**	,573**	,662**	,237*	,357**	,517**	,488**	-,368**	**,709****	,558**	,577**	**,692****	-,206	1					

from supervisors																						
Quality of leadership	-,139	-,441**	,357**	-,148	,560**	,654**	,669**	,330**	,532**	,658**	,671**	-,427**	**,771****	,693**	,699**	**,776****	-,186	**,807****	1			
Work family conflict	,506**	,552**	-,295**	,342**	-,368**	-,284**	-,186	-,105	-,265**	-,268**	-,231*	,455**	-,257*	-,291**	-,071	-,245*	,356**	-,249*	-,195	1		
Sleeping troubles	,206*	,344**	-,153	,168	-,214*	-,169	-,228*	-,241*	-,270**	-,372**	-,228*	,348**	-,175	-,188	-,098	-,220*	,265*	-,236*	-,343**	,304**	1	
Burnout	,253**	,439**	-,277**	,267**	-,377**	-,344**	-,165	-,123	-,293**	-,364**	-,321**	,532**	-,367**	-,317**	-,384**	-,448**	,185	-,315**	-,345**	**,698****	,461**	1
Stress	,269**	,431**	-,162	,159	-,414**	-,390**	-,262*	-,193	-,386**	-,347**	-,348**	,550**	-,372**	-,342**	-,235*	-,367**	,256*	-,215	-,270*	**,638****	,457**	**,802****	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 3. Organizational level checklist to indicate psychosocial risks occurrence.

STATEMENTS	Strongly agree	Agree	Disagree	Strongly disagree	Don't know	Score
1. Only a qualified work force working for the company (the employee's level of education and work experience are in accordance with the requirements of the work).	0	1	2	3	4	
2. An in-house training program and / or a career opportunities are available for employees.	0	1	2	3	4	
3. The work require to comply with the deadlines.	3	2	1	0	4	
4. Night work and / or shift work is used in the company.	3	2	1	0	4	
5. Joint events are organized (summer games, christmas parties).	0	1	2	3	4	
6. Employees can make decisions themselves within the scope of their work.	0	1	2	3	4	
7. Employees constantly working alone.	3	2	1	0	4	
8. The nature of the work require continuous contact with persons outside the company (suppliers, customers, partners).	3	2	1	0	4	
9. There is a "transparent" salary calculation system in company (employees are aware how their salary, bonuses and penalties are calculated).	0	1	2	3	4	
10. The employee have a clear overview of their job responsibilities and their performance evaluation system.	0	1	2	3	4	