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

European Agency
for Safety and Health
at Work

ESENER

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List of abbreviations

ANACT	Agence Nationale pour l'Amélioration des Conditions de Travail (French National Agency for the Improvement of Working Conditions)
CEEP	European Centre of Enterprises with Public Participation and of Enterprises of General Economic Interest
GDP	gross domestic product
EC	European Commission
EMS	environmental management system
EU	European Union
EU-OSHA	European Agency for Safety and Health at Work
Eurofound	European Foundation for the Improvement of Living and Working Conditions
ESENER	European Survey of Enterprises on New and Emerging Risks
ETUC	European Trade Union Confederation
H & S	health and safety
HSE	Health and Safety Executive
ILO	International Labour Organisation
INRS	Institut National de Recherche et de Sécurité (French National Institute for Research and Safety)
ISRS	international safety rating system
JHSC	Joint Health and Safety Committee
MASE	Manuel d'Amélioration Sécurité des Entreprises (French Manual for Improvement of Safety in Enterprises)
MSDs	musculoskeletal disorders
NIOSH	National Institute for Occupational Safety and Health
OH	occupational health
OHS	occupational health and safety
OHSAS	Occupation Health and Safety Assessment Series
OSH	Occupational Safety and Health
OSH_psycho	Composite index or score of psychosocial management
OHSM	occupational health and safety management
OHSMS	occupational health and safety management system
QAMS	quality assurance management systems
SMEs	small- and medium-size enterprises
UEAPME	European Association of Craft, Small and Medium-sized Enterprises
UNICE	Union of Industrial and Employers' Confederations of Europe

Foreword

Both surveys and research studies carried out in Europe during recent decades indicate the increasing number of workers exposed to psychosocial risks at work and affected by work-related stress. Prevention of psychosocial hazards is thus one of the key challenges for OSH specialists and policymakers in Europe. Despite several policy initiatives launched at the EU and national levels since the end of the 1980s, it is argued that there is still some gap between policy and practice. A better understanding of the concept of psychosocial hazards and their associated risks is necessary to understand how to assess and reduce them effectively. There is a substantial body of scholarly literature that suggests the use of the risk management paradigm to effectively manage psychosocial risks — the current report aims to present an empirical verification of this assumption.

The report exploits the rich data that ESENER collected through its 36 000 telephone interviews with managers and worker representatives in establishments with 10 or more employees across 31 countries. Following up on the initial descriptive overview of results published in 2010, this report is based on a more focused in-depth investigation of the data and comprises one of four 'secondary analysis' studies that are being published together with a summary available in 26 languages.

The findings suggest that psychosocial risks tend to be managed using a coherent, systems-based approach, as for general OSH management, but there are certain preventive measures which are very rarely used in some countries. Thus, while the framework directive's systematic approach to the management of risks appears to be framing action on psychosocial risks effectively, attention needs to be paid to ensuring that establishments implement a broad range of preventive actions in all countries and sectors. Additionally, a systematic approach to dealing with psychosocial risk management is possible even among smaller establishments but, again, the extent to which this occurs varies significantly between countries. This all suggests that 'context' factors such as regulatory style, organisational culture and organisational capacity play an important role and offer a potential route for improving workplace management of psychosocial risks across Europe.

Christa Sedlatschek

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European Agency for Safety and Health at Work (EU-OSHA)

Executive summary

The European Agency for Safety and Health at Work (EU-OSHA) commissioned RAND Europe to conduct an empirical analysis of the data collected in the European Survey of Enterprises on New and Emerging Risks (ESENER) managed by EU-OSHA on the factors associated with the effective management of psychosocial risks in the workplace.

There were five main research goals guiding the work presented in this report:

- to identify sets of practices from ESENER data that are associated with effective management of psychosocial risks;

- to define a typology for establishments according to their characteristics (size, age, sector or industry);

- to draw on knowledge to explain the context features that have greatest influence on establishments' commitment to effective management of psychosocial risks;

- to understand the similarities or differences between the employers' and employee representatives' perspectives; and

- to discuss the policy implications arising from the empirical analysis.

We undertook a literature review and modelling of the data collected within ESENER. The aim of the literature review was to identify relationships between variables that could be tested in the modelling phase and to propose a conceptual framework to guide the analysis. The modelling took the form of factor analysis. The aim of the modelling was to understand associations between relevant aspects of the management of psychosocial risks. These aspects of psychosocial risks were identified by mapping the ESENER questions on our conceptual framework. Knowledge of the associations informs the development of an index of psychosocial risk management, against which we can test a range of independent variables such as size of establishments, country, demographic variables and industry sector. Our empirical findings were based on the analysis of these relationships. The modelling had some limitations inherent to large-scale survey analysis such as non-response and attributing causality. Other issues were the obvious limitations in coverage in the survey of all aspects of psychosocial risk management identified in the literature and the absence of outcome measures from ESENER. This in and by itself is not a criticism of ESENER, but more an overall realisation of some limitations associated with conducting a survey of this nature.

Our literature review outlined the emergence of psychosocial risks, the problem of not managing psychosocial risks properly, and initiatives taken to manage these risks. Main findings were those listed below.

- Significant changes in the world of work over the recent past decades have raised concerns about the deterioration of job quality in Europe, in particular, workers' health and safety. These changes have contributed to the emergence of many of the so-called 'psychosocial risks', aspects of the workplace and social contexts, which have the potential for causing psychological, social and physical harm. The main psychosocial hazards relate to both the content of and context to work. These psychosocial hazards can affect both physical and mental health through work stress.

- According to the EU labour force survey ad hoc module 2007 on health and safety at work, 27.9 % of the workers reported exposure affecting mental well-being, which corresponded to about 55.6 million workers. Related to psychosocial hazards, occupational health and safety issues, such as work stress, have increasingly affected workers across the European Union. According to the EU labour force survey ad hoc module 2007 on health and safety at work, approximately 14 % of the persons with a work-related health problem experienced stress, depression or anxiety as the main health problem.

- Psychosocial hazards and their associated risks have therefore become a key challenge for policymakers in Europe. Despite several policy initiatives launched at the EU and national level since the end of the 1980s, several experts in occupational health and safety claim that the impact of these initiatives have been disappointing so far due to the gap between policy and practice.

- For this reason, a better understanding of the concept of psychosocial hazards and their associated risks was necessary to understand how to assess and reduce them effectively. Based on the better understanding of psychosocial hazards and their associated effects, we review factors that have been proposed to manage psychosocial hazards. A substantial amount of scholarly literature proposes using the risk management paradigm to effectively manage psychosocial risks. Despite some difficulties in applying such a paradigm to psychosocial risks, the risk management paradigm appears more effective than simple workplace interventions and other tools, such as stress surveys.

A conceptual framework to guide the empirical analysis was identified in the literature review on the basis of the risk management paradigm. The conceptual framework involves a number of stages including: risk assessments; translating the information on risks into targeted actions; introducing and managing the risk reduction interventions; and evaluating the interventions and providing feedback for existing interventions as well as future action plans. This framework informed the empirical analysis. The main findings of the empirical analysis were those listed below.

- Applying factor analysis showed that eight factors or variables included in the composite score for psychosocial risk management on the basis of the conceptual framework were strongly correlated with each other. This enables the development of composite index and leads to the conclusion

that establishments on the whole appear to be taking systemic approaches to the management of psychosocial risks. The application of a risk management approach appears empirically justifiable.

- The size of establishment and country are the strongest determinants of the scope of management of psychosocial risks. Industry is significant but has a smaller effect. Smaller establishments report fewer psychosocial risk management measures compared to large establishments. Industries differ significantly in relation to the scope of management of psychosocial risks. Aspects of management of psychosocial risks are typically reported more in industries such as education, health and social work relative to manual occupations. The host of cultural, economic and regulatory realities captured in this study by a 'country' variable are strong determinants of management of psychosocial risks. A more detailed analysis reveals the country context to be the most significant factor in determining the presence of psychosocial risk measures.

- Demographic variables and the structure of an establishment are less significant in explaining changes in psychosocial risk management.

- Several of the psychosocial risk management measures have been reported with a low frequency across establishments: the use of a psychologist and the existence of procedures to deal with psychosocial risks having the lowest frequency across all establishments included in ESENER; and with knowing whom to address on the topic of psychosocial risk management and the existence of training the most frequent measures.

- The management of psychosocial risks in European establishments appears to lag behind the management of general OSH risks. Establishments with good management of general OSH risks also appear to manage psychosocial risks better.

From these empirical findings, we can derive a number of policy implications.

- A particularly important finding is that the evidence suggests that systemic risk management approaches appear to make

sense, not only from a conceptual point of view. This confirms some existing policy trends in Europe on the use of the risk management paradigm.

- Looking at the frequency of components of the index across establishments and countries exposes the stark differences between the frequency of measures; with some measures largely absent in some countries and great differences between size ranges for other measures.

- If the objective of policymakers is to formalise processes dealing with psychosocial risk management, evidence in Europe suggests it is possible even in smaller establishments. However, size does not matter consistently across the whole of Europe meaning that other factors such as regulatory style, organisational culture and organisational capacity play an important role. Other variables matter less, such as demographic factors. The analysis would suggest that targeting interventions based on the specific demographic characteristics of establishments may not be worthwhile.

- Across industries the practice of managing psychosocial risks appears to follow the perceptions of problems with psychosocial risks. Policymakers can build on this and at the same time need to manage the risk that industries that do not perceive high levels of psychosocial risks may have high levels of risks after all. As such, policymakers should give particular attention to industries with reported low levels of practice, understand the levels of psychosocial risks in this sector, and encourage the uptake of more systemic approaches to psychosocial risk management if appropriate.

- The analysis shows that the country context matters a lot, but it is difficult to capture the variable. Much of the variance not surprisingly remains unexplained in our model. Economic conditions and wider awareness and acceptance in society of psychosocial risks are probably important explanatory variables not readily captured here.

- A general observation is that countries can learn from each other. A more specific observation arising from the analysis is that there are areas of specific concern in Europe with specific establishments in a number of countries showing almost no sign of practice to manage psychosocial risks.

1. Introduction

1.1. Description of ESENER

In June 2009, EU-OSHA completed fieldwork on an establishment survey on health and safety at the workplace in the EU-27 and Croatia, Norway, Switzerland and Turkey. The European Survey of Enterprises on New and Emerging Risks (ESENER) aims to assist workplaces to deal more effectively with health and safety and to promote the health and well-being of employees by providing policymakers and wider stakeholders, such as employee representatives and employers, with cross-nationally comparable information relevant for the design and implementation of new policies.

ESENER consists of two surveys: one aimed at the most senior managers involved in the management of occupational health and safety; and one aimed at employee representatives dealing with occupational health and safety. The survey asked managers and workers' representatives about the way health and safety risks are managed at their workplace, with a particular focus on psychosocial risks; i.e. on phenomena such as work-related stress, violence and harassment. In asking questions directly to managers and employee representatives, ESENER aims to identify important success factors and to highlight the principal obstacles to effective prevention. As well as investigating what enterprises do in practice to manage health and safety, the survey examines what the main reasons are for taking action and what further support is needed.

ESENER consists of computer-assisted telephone interviews with 28 649 managers and 7 226 employees across 31 countries. It focused on private and public sector organisations with more than 10 employees. The statistical unit of analysis is the individual establishment, rather than overarching company structures such as holding companies. The organisations covered all sectors of economic activity except for agriculture, forestry and fishing.

EU-OSHA's aim in conducting the ESENER survey was to ([1]):

- inform OSH strategies at national and EU levels by creating a snapshot in time of where effective management seems to take place and where not;

- improve the effectiveness of policymaking by understanding the hurdles and barriers to effective management;

- provide better and more targeted support for enterprises by associating specific issues in occupational safety and health (OSH) management to specific characteristics of organisations such as size and sector;

- ensure more efficient communication through the better targeting of information provision.

([1]) Taken and adapted from EU-OSHA presentation delivered by Eusebio Rial González on 17 November 2010 in Bilbao.

1.2. The aim of this report

This report provides an analysis of the data collected in ESENER on the management of psychosocial risks. The data analysis is informed by a literature review on the problem of psychosocial risk management and effective ways of managing psychosocial risks. The latter produced a conceptual framework on how to manage psychosocial risks systematically and effectively. This framework was used to design the empirical analysis.

The analysis in this report had five goals:

- to identify a set of practices from ESENER data that are associated with effective management of psychosocial risks;

- to define a typology for establishments according to their characteristics (size, age, sector or industry);

- to draw on knowledge to explain the context features that have greatest influence on establishments' commitment to effective management of psychosocial risks;

- to understand the similarities or differences between the employers' and employee representatives' perspectives; and

- to discuss the policy implications arising from the analysis.

This report as such does not reflect on how the survey instrument was designed, the sampling, response rates, representativeness or the way the data was collected. These processes are described in a report by TNS Infratest Sozialforschung, Germany, available from EU-OSHA. TNS Infratest is the organisation that managed the design, sampling and implementation of the survey across 31 countries on behalf of EU-OSHA.

The report is a sister to the report produced by RAND Europe for management of occupational safety and health — analysis of the findings from the European Survey of Enterprises on New and Emerging Risks (ESENER). It used a similar research approach to derive findings. As such, this report shares the same structure and certain sections are similar, including the introduction, the sections on research approach, and the section outlining the limitations of ESENER.

This report has four substantive sections: Chapter 2 contains the literature review; Chapter 3 introduces the conceptual framework used to inform the empirical analysis; Chapter 4 presents the main findings from the empirical analysis; and Chapter 5 offers conclusions and discusses policy implications arising from the data. The research approach used for this report is outlined in Appendix A, available at: http://osha.europa.eu/en/resources/management-psychosocial-risks-esener/factors-associated-with-effective-management-of-psychosocial-risks-annexes/view the technical note on the empirical analysis. Appendix B describes how the literature review was conducted. The report uses occupational health and safety (OHS) and occupational safety and health (OSH) interchangeably throughout the report.

2. Understanding the importance of the management of psychosocial risks

This chapter provides an overview of the literature on the management of psychosocial risks at work. It first highlights the main drivers towards psychosocial risk management in the European Union, including changes in the world of work that have contributed to worsen the psychosocial work environment, and broad policy responses launched to remedy to its negative consequences on workers' health and safety. Because such policy initiatives have not led to the expected results at the national level, the chapter then explores in more detail the concept of psychosocial hazards, their associated risks, and their consequences on workers' health and safety. Based on this better understanding of the concept of psychosocial hazards, the chapter finally investigates how occupational health and safety risk management can be applied effectively to mitigate their associated risks.

2.1. The management of psychosocial risks over recent decades

Concerns about psychological hazards at work and their associated risks on occupational health and safety have gained the attention of policymakers and other OHS stakeholders in Europe over recent decades. These concerns reflect the increasing prevalence of stress, bullying or harassment, and violence among European workers in a changing world of work.

2.1.1. Changes to the world of work

Over the past three decades, growing public concern over the rise of unemployment in many European countries has overshadowed the debate on the 'quality' of jobs. Increasing the quantity of jobs was seen as the main priority. It appears that in some cases little thought was given to the potential impact of policies devised to increase job numbers on the ability of such jobs to safeguard employees' health, safety and well-being.

In addition, it could be said that the transition of modern economies towards a post-Fordist productivity model characterised by automation and the rapid rise of services were perceived by many as the end of 'tough jobs' (i.e. physical jobs that presented many health and safety hazards and risks) (Askenazy, 2004). Statistics on serious and fatal accidents at work at the level of the European Union tend to corroborate these perceptions. They have both followed a downward trend over the years in the European Union (Hassan et al., 2009).

Although downward trends in fatal and non-fatal accidents at work in many European countries reinforce these perceptions

that 'tough jobs' are declining [2], job quality has attracted the attention of policymakers, employers, workers and their representatives over recent years, particularly in the European Union (EC, 2008a; Hassan et al., 2009; Green, 2006). The renewal of the debate on job quality can be partially explained by the changing world of work.

Three major forces have led to significant changes in the world of work in industrialised countries over past decades: demographic shifts, increased economic globalisation, and rapid technological change (Karoly and Panis; 2004, EU-OSHA, 2007; EU-OSHA, 2002b). These forces have affected the world of work because they have notably contributed to an ageing workforce, the emergence of new forms of employment contracts, increased job insecurity, more work intensification, and more use of irregular and flexible working time. These changes in the world of work have caused general public concern about the apparent deterioration of 'job quality', especially in Europe, over recent decades (EC, 2008a, Green, 2006) [3].

Demographic shifts have affected the composition of the workforce. In particular, its composition has shifted toward a more balanced distribution by age, sex, and race/ethnicity. These changes in the composition of the workforce have raised growing concerns about their incidences on key dimensions of job quality, including: skills, lifelong learning, and career development; gender equality; work organisation and work–life balance; and diversity and non-discrimination. For instance, while their proportion in the labour force is on the rise, several studies have shown that older workers have fewer opportunities than younger ones for professional development and learning at work, including lower access to workplace training and fewer opportunities for task rotation (EC, 2007a; Leka et al., 2008b). In another respect, the increased participation of women in the European labour markets has led to growing difficulties to combine work and private life and to persistent unequal treatment between men and women at work (EC, 2008a). Finally, the rise of immigrants in Europe has raised issues about ethnical and racial discriminations at work, as shown by the publication of the EU anti-discrimination directives published in 2000.

Secondly, the increased economic globalisation has affected industries and segments of the workforce relatively insulated from trade-related competition in the past (EC, 2008a). This new

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[2]   We insist that these are perceptions. According to the EU labour force survey ad hoc module 2007 on health and safety, 40.7 % of the workers in the European Union reported exposure affecting physical health, which corresponds to approximately 81.2 million persons. According to the same survey, 3.2 % of the workers aged 15 to 64 had an accident at work in the past 12 months in the EU-27. This corresponds to approximately 6.9 million persons in the European Union, see EC (2010).

[3]   According to the European Commission, the main elements of job quality can be grouped under two broad dimensions: job characteristics (e.g. job satisfaction, remuneration, non-pay rewards, working time, skills and training and prospects for career advancement, job content, match between jobs characteristics and worker characteristics) and the work and wider labour market context (e.g. gender equality, health and safety, flexibility and security, access to jobs, work–life balance, social dialogue and worker involvement, diversity and non-discrimination).

area of globalisation has contributed to a perceived decline in job quality among workers because it has exacerbated concerns about job insecurity and put many workers under growing work pressures and demands. It is not only manufacturing jobs that have been outsourced in emerging countries, but also higher-skilled white-collar jobs in the services sector, such as information technology and business-processing services (EC, 2006).

Finally, rapid technological change and increased international competition have placed the spotlight on the skills and preparation of the workforce, particularly the ability to adapt rapidly to changing technologies and economic conditions. Shifts in the nature of business organisations and the growing importance of knowledge-based work have also favoured strong non-routine cognitive skills — including: abstract reasoning, problem-solving, communication and collaboration — putting low-skilled workers especially at risk (EC, 2008a). These forces have facilitated the move toward more decentralised forms of business organisation, including the transition away from vertically integrated firms toward more specialised firms that outsource non-core functions and more decentralised forms of organisation within firms to encourage innovation, learning and quality within firms (EC, 2007a). Such forces have led a shift away from more permanent, lifetime jobs toward less permanent, even non-standard, employment relationships (e.g. self-employment, temporary work) and work arrangements (e.g. distance work, irregular and flexible working time). They have also contributed to the intensification of work (EU-OSHA, 2007).

2.1.2. The emergence of psychosocial risks in the workplace

So far, the impact of these changes on the world of work has been examined through key dimensions of job quality such as lifelong learning and career development, gender equality, flexibility and security, inclusion and access to the labour market, work organisation and work–life balance, and diversity and non-discrimination.

Nonetheless, these changes have also affected another key dimension of job quality, namely health and safety at work (EU-OSHA, 2007). They have indeed contributed to the emergence of many of the so-called 'psychosocial hazards' (Chouanière, 2006; EU-OSHA, 2002b; EU-OSHA, 2009a; Leka et al., 2008b; Eurofound, 2007; EU-OSHA, 2007; NIOSH, 2002). These hazards are defined by Cox and Griffiths (1995) as 'those aspects of work design and the organisation and management of work, and their social and environment contexts, which have the potential for causing psychological, social and physical harm'.

The results of a Delphi exercise performed by the European Agency for Safety and Health at Work in 2003 and 2004 provide interesting insights on the most important emerging psychosocial hazards, according to a sample of experts in the field (EU-OSHA, 2007). Most of these hazards are related to new forms of employment contracts and job insecurity, the ageing workforce, work intensification, high emotional demands at work, and poor work–life balance (Table 1).

Although the exposure to physical hazards in the European Union remains high, the exposure to psychosocial hazards at work should not be underestimated. According to the EU labour force survey ad hoc module 2007 on health and safety at work, 27.9 % of the workers reported exposure affecting mental well-being, which corresponded to about 55.6 million workers. There are nevertheless substantial differences across sectors.

Exposure to time pressure or overload of work was most often selected as the main risk factor (23 %), followed by harassment or bullying (2.7 %), and violence or threat of violence (2.2 %) (EC, 2010).

Table 1: **Emerging psychosocial hazards identified by selected experts in the field**

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 globalisation
	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: based on EU-OSHA (2007).

Related to psychosocial hazards, OHS issues such as work stress have increasingly affected workers across the European Union over recent decades. According to the EU Labour Force Survey ad hoc module 2007 on health and safety at work, approximately 14 % of the persons with a work-related health problem experienced stress, depression or anxiety as the main health problem (EC, 2010). This implies that stress, depression or anxiety was the second most frequently reported main work-related health problem after musculoskeletal health problems (EC, 2010).

Box 1: **Psychosocial hazards across sectors**

Results from the EU labour force survey ad hoc module 2007 on health and safety at work show that the percentage of workers reporting exposure affecting mental health substantially varies across sectors.

The occurrence of exposure at work in the past 12 months affecting mental health ranged from around 11 % of the workers in the sector 'private households with employed persons' to more than 30 % of workers in the sectors such as 'transport, storage and communication', 'financial intermediation', 'public administration and defence, compulsory social security', and 'health and social work'. This is in the same sectors that the proportion of stress, depression, or anxiety was highest.

Source: EC, 2010.

The fourth European working conditions survey also showed that after backache, muscular pain and fatigue, stress was most often experienced (Parent-Thirion et al., 2007). The latest European working conditions survey of 2010 shows a large number of workers across Europe who find that work impacts on their general state of health. Particular countries such as Romania, Latvia and Estonia show large populations responding to the negative impact of work on health. In countries, a large minority report experiencing violence or harassment (see Figure 2: Number of respondents in the total population experiencing harassment in the workplace) in the workplace, one of the main risk factors for experiencing work stress.

Figure 1: **Responses in the total population on whether work affects health in the workplace**

Legend: Yes, mainly positively | Yes, mainly negatively | No
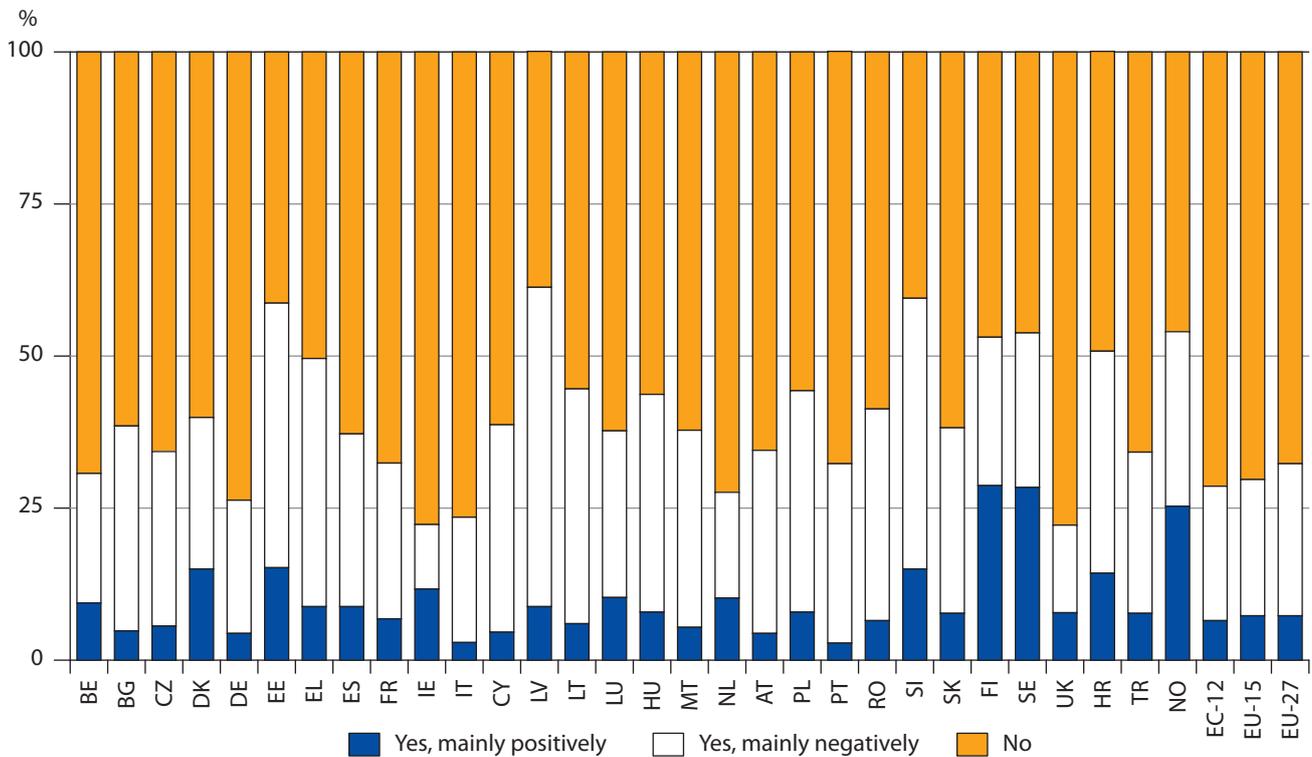
Source: Taken from EWCS, 2010.

Figure 2: **Number of respondents (%) in the total population experiencing harassment in the workplace**
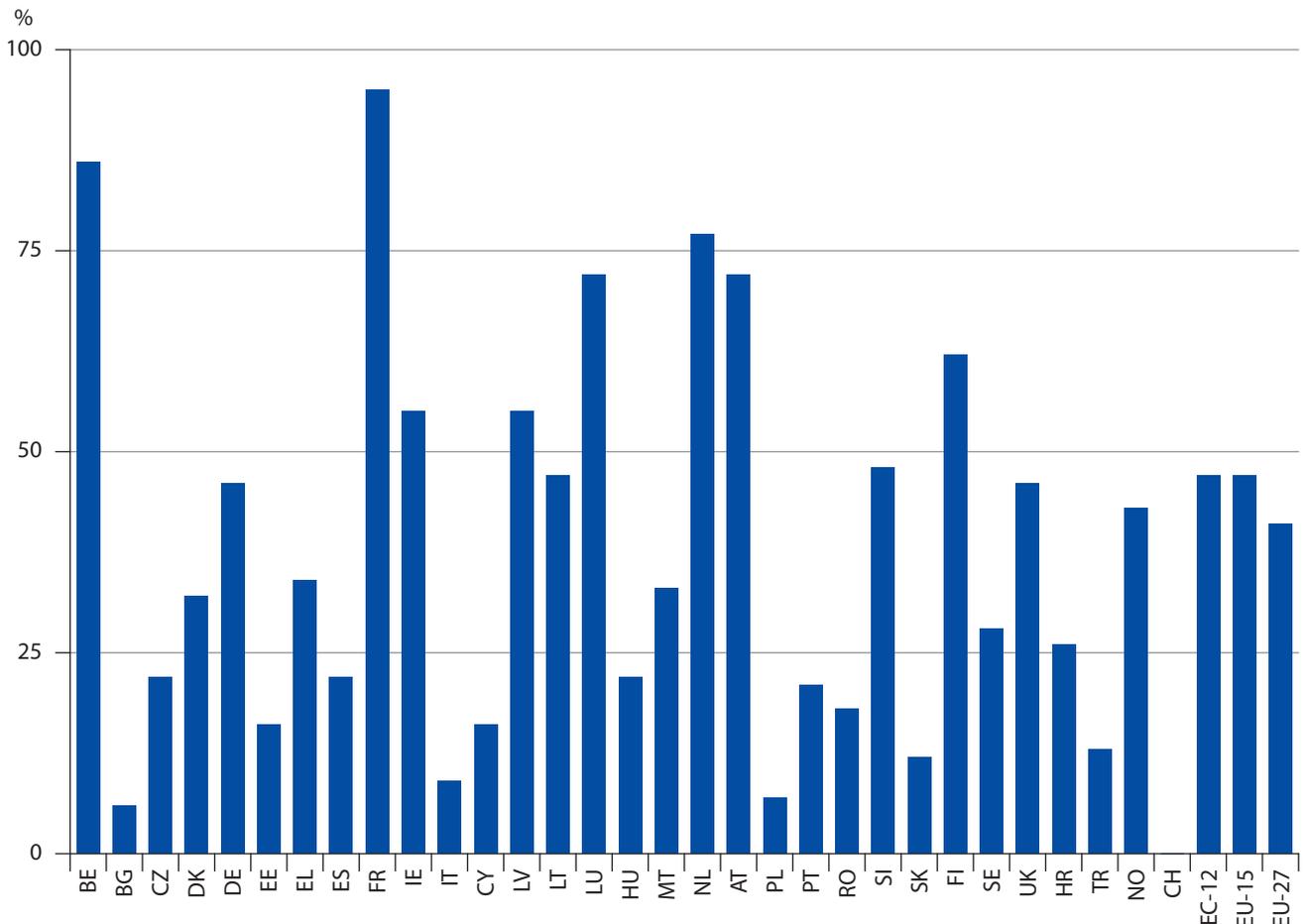
Source: Taken from EWCS, 2010.

In this context, it is not surprising that psychosocial hazards have become a major challenge for OHS policy in Europe over recent years. The importance of psychosocial hazards is also particularly apparent when considering the estimated costs of a poor psychosocial work environment.

2.2. Specific policy initiatives to better manage psychosocial risks

In response to the emergence of psychosocial risks in the workplace, policymakers and other OHS stakeholders at both the EU and national levels have launched policy initiatives in Europe aimed at improving the management of psychosocial risks.

2.2.1. Community strategy 2007–12 on health and safety at work

The need to improve health and safety at work, including the psychosocial work environment, has been a priority of the European Commission in order to achieve the main objectives of the EU social policy. The EU action in health and safety at work has its legal basis in Article 137 of the EU Treaty. The improvement of health and safety at work already started in 1952 under the European Coal and Steel Community. Since then, several legal measures covering many hazards have been adopted. Furthermore, Community action is not restricted to legislation. The

European Commission has expanded its activities, with European agencies such the European Agency for Safety and Health at Work and the European Foundation for the Improvement of Living and Working Conditions, in favour of information, guidance, research and promotion of OHS.

The Commission's communication 'Improving quality and productivity at work: Community strategy 2007–2012 on health and safety at work' sets out proposals for further action to improve health and safety at work in Europe, in particular the psychosocial work environment (EC, 2007b). The strategy for 2007–12 aims to achieve a sustained reduction of occupational injuries and illness in the European Union. To achieve this objective, the European Commission proposes a series of initiatives at both European and national levels in the following main areas (EC, 2007b):

- improving current legislation and its implementation through non-binding initiatives such as exchange of good practices, awareness-raising campaigns and better information and training;

- defining and implementing national strategies tailored to specific national contexts, targeting industries and enterprises that are the most affected by occupational injuries and illness and fixing national objectives for reducing the latter;

- mainstreaming of occupational health and safety in other policy areas such as education, public health and research, and identifying new synergies;

- identifying and assessing potential new risks.

While these initiatives are relevant to different types of OHS hazards, the Commission's communication unambiguously underlines psychosocial hazards as a major challenge for OHS in Europe and suggests policy initiatives targeted towards their prevention and management. In particular, the communication calls EU Member States to integrate into their national OHS strategies specific initiatives aimed at preventing mental health problems at work, in conjunction to its own initiatives. The communication also underlines the importance of negotiations between the social partners on abating psychological hazards at work and their associated risks.

2.2.2. Steps taken by social partners

In line with the Community strategy on health and safety at work, social partners have undertaken initiatives to tackle psychosocial hazards and their associated risks at work across the European Union. For instance, the EU-level central social partners signed a European framework agreement on work stress in 2004 and another one on harassment and violence at work in 2007.

The 'Framework agreement on work stress' (European Social Partners, 2004) aims to establish a framework within which employers and employee representatives can work together to prevent, identify and combat stress at work. The agreement states that employers have an obligation under the EU framework directive (89/391/EEC) (Box 2) to protect the occupational health and safety of their workers, and that such obligation extends to stress at work if this entails a risk to health and safety. Under this same directive, workers have a general duty to comply with measures put into place by employers to protect their health and safety at work. The agreement also proposes measures to combat work stress, including:

- management and communication measures such as clarifying the enterprise's objectives and the role of workers, ensuring adequate management support for individuals and teams, matching responsibility and control over work, improving work organisation and processes, working conditions and environment;

- training for managers and workers in order to raise awareness and understanding of stress, its causes and ways to manage it;

- provision of information to, and consultation with, workers and their representatives in accordance with EU and national legislation, collective agreements, and practices.

In the context of Article 139 of the EU Treaty, this voluntary agreement commits the members of UNICE/UEAPME, CEEP and ETUC to implement it in accordance with the procedures and practices specific to management and labour in the Member States.

Box 2: **Main principles of the 1989 EU framework directive (89/391/EEC)**

The key principles relating to the prevention and protection of the health and safety of workers are defined in the 1989 framework directive (89/391/EEC). It constitutes the basis for all subsequent individual directives.

The basic objective of the framework directive is to encourage improvements in occupational health and safety and it covers all sectors of activity, both public and private. It establishes the principle that the employer has a duty to ensure the safety and health of workers in every aspect related to their work, addressing all types of risk. A key aspect of the directive is the use of risk assessment in occupational health and safety (EC, 1996).

Under the terms of the directive, the employer is obliged to develop an overall health and safety policy, namely by:

- assessing the safety and health risks which cannot be avoided, updating these assessments in the light of changing circumstances and taking the appropriate preventive and protective measures;

- making a record of the risk assessment and of the list of accidents at work;

- informing workers and/or their representatives about potential risks and preventative measures taken;

- consulting workers and/or their representatives on all health and safety matters and ensuring their participation;

- providing job-specific health and safety training;

- designating workers to carry out activities related to the prevention of occupational risks;

- implementing measures on first aid, firefighting and the evacuation of workers.

The worker, on the other hand, also has several obligations to, inter alia, follow employers' health and safety instructions or to report potential dangers.

The framework directive also promotes the workers' right to make proposals relating to health and safety, to appeal to the competent authority and to halt work in the event of serious danger, as part of the participative approach laid down by the directive.

Source: http://ec.europa.eu/social/main.jsp?catId=710&langId=en

The 'Framework agreement on harassment and violence at work' (European Social Partners, 2007) aims to raise understanding of employers, workers and their representatives of workplace harassment and violence. It also intends to provide the latter with a practical framework to manage risks associated with harassment and violence at work. Under the terms of the agreement, the social partners are required to ensure that:

- enterprises have a clear statement outlining that harassment and violence at work will not be tolerated and explaining the procedure to be followed if problems arise;

- the management of harassment is the responsibility of the employer, in consultation with workers and their representatives;

- provisions are put in place to deal with external violence, where appropriate.

The members of BUSINESSEUROPE, UEAPME, CEEP, and ETUC are obliged to implement it in accordance with the procedures and practices specific to management and labour in the Member States.

These voluntary initiatives through stakeholder involvement and social dialogue complete the ones emerging from Community legislation such as the EU framework directive (89/391/EEC) on safety and health at work and other individual directives related to stress at work, including the display screen directive (87/391/EEC) and the organisation of working time directive (93/104/EC) (Leka et al., 2010; EU-OSHA, 2009b).

These voluntary initiatives also complete non-bidding EU initiatives on psychosocial risk management, such as awareness-raising campaigns and better information on mental health at work. Published in 2002 by the European Commission, the 'Guidance on work-related stress' (EC, 2002), providing employers with tools to prevent stress, is a good example of such action. Based on a series of case studies, the European Agency for Safety and Health at Work also identified good practices to manage psychosocial hazards at work (EU-OSHA, 2002a). Another non-bidding initiative is the 'European pact for mental health and well-being' (EC, 2008b), formulated in 2008. In this pact, the European Commission encourages policymakers, social partners, and other OHS stakeholders to take action on mental health in the workplace by improving notably work organisation and implementing mental health and well-being programmes.

2.2.3.   National initiatives

The previous EU-level policy initiatives are to be related to other initiatives launched at the level of EU Member States (EU-OSHA, 2009b, Leka et al., 2010, Widerszal-Bazyl et al., 2008, EU-OSHA, 2002a, Leka et al., 2008b, Eurogip, 2010).

Many of the recent initiatives have been launched in the context of the implementation of the European frameworks on work stress and on harassment and violence at work mentioned above. Such implementation has been achieved through various instruments (European Social Partners, 2008, European Social Partners, 2009). These include those listed below.

- *Social partner agreements*. In Sweden, for instance, social partners signed joint agreements in 2005 and 2006, covering both the public and private sectors. These agreements serve

as a guideline when initiatives are taken to manage work stress.

- *National, sectoral, and company-level collective agreements*. In France, the inter-professional social partners signed collective agreements, transposing the European framework agreement on work stress but also enriching it by adding provisions on issues such as the definition of stress, work organisations, reconciliation of family, private and working life and the responsibility of the employers.

- *National legislation*. Following the release of the framework on harassment and violence at work, the definition of harassment was altered by the Labour Code revision in Portugal in 2009.

- *Tripartite activities*. In Latvia, for example, some social partners signed an agreement of cooperation with the State Labour Inspection in 2007, in order to encourage assessment of psychosocial risks in enterprises, to elaborate plans of elimination of risk elements and to follow their implementation together with employers.

- *Complementary activities*. In Denmark, for instance, social partners developed a tool called the 'stress barometer' to measure the degree of work stress among workers.

Related to these initiatives are the standards and guidelines on psychosocial risk management promoted by several national health and safety agencies across EU Member States (Leka and Cox, 2010; Leka and Cox, 2008b; Leka et al., 2008b; EU-OSHA, 2002a; Eurogip, 2010), such as the HSE of Great Britain (MacKay et al., 2004; Cousins et al., 2004; HSE, 2007), the French INRS (François and Lieven, 2006; INRS, 2007) and ANACT (Mercieca and Pinatel, 2009).

2.2.4.   Evidence on the effectiveness of policy

Despite the growing number of policy initiatives targeted towards psychological risk management in Europe, several scholars have pointed out that these initiatives have not yet led to expected results, due to the gap between policy and practice (Leka et al., 2010; Levi, 2005). Leka et al. (2010) put forward at least two reasons for these relative disappointing results. Firstly, there has been a different appreciation of the situation regarding the importance of psychosocial risks across EU Member States, despite the initiatives taken at the EU level. Secondly, the division of responsibilities between the national stakeholders to tackle psychosocial risks (e.g. Ministries of Health, Ministries of Labour, independent agencies) greatly varies across EU Member States. As noted by Cox et al. (2004) ([4]), these differences in the national governance structures of mental health at work have led to differences in the understanding and priorities between occupational and public health across EU Member States. Besides, Leka et al. (2010) note that most of the implementation reports of the European framework on work stress have not included any

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([4])   Cited by Leka et al. (2010).

evaluation of the effects of the proposed principles on workers' health and safety.

2.3. The concept of psychosocial risks and consequences for workers' health and safety

The previous section discussed the increasing importance of psychosocial hazards and their associated risks in the European Union over recent decades and initiatives taken at both the EU and national levels to identify, prevent and manage them. It also stressed the relative disappointing impact of these policy initiatives so far, especially at the national level, due to the gap between policy and practice. Because such policy initiatives have not led to the expected results at the national level, this section explores in more detail the concept of psychosocial risks and their consequences for workers' health and safety. A better understanding of the concept of psychosocial hazards and their associated risks is indeed necessary before investigating how the principles of the risk management paradigm can be applied effectively to such risks (Leka and Cox, 2010).

Psychosocial work environment research and occupational health psychology has grown considerably over recent decades. There is now mounting evidence about the psychosocial hazards of work that can be experienced as stressful and can affect both physical and mental health. Based on the results of this literature, several studies have intended to estimate the costs associated with a poor psychosocial work environment at both the micro and macro levels.

2.3.1. Specific psychosocial risks and their relationship to work characteristics

The emerging psychosocial hazards underlined by the European Agency for Safety and Health at Work in the context of its Delphi exercise are roughly similar those underlined by the literature on occupational health psychology (Cooper and Marshall, 1976; EU-OSHA, 2000; Leka et al., 2003; Leka et al., 2008b; Cox, 1993; Leka and Cox, 2008a; Leka et al., 2004; Leka and Houdmont, 2010; French and Caplan, 1974; Cartwright and Cooper, 1997).

As mentioned earlier, such literature defines psychosocial hazards as 'those aspects of work design and the organisation and management of work, and their social and environmental contexts, which have the potential for causing psychosocial or physical harm' (Cox and Griffiths, 1995). Its findings converge on the work characteristics that are hazardous. For instance, Leka et al.(2008b) and Cox, Griffiths and Rial-González (EU-OSHA, 2000) identify a number of psychosocial hazards which can be experienced as stressful or have the potential for harm (Table 2). These psychosocial hazards relate to both the content of and context to work.

Table 2: **A taxonomy of psychosocial hazards**

Work characteristics	Examples of conditions defining hazards
Content of work	
Job content	Lack of variety, fragmented or meaningless work, under use of skills
Workload and work pace	Work overload or under load, machine pacing, high levels of time pressure, continually subject to deadlines
Work schedule	Shift working, night shifts, inflexible work schedules, unpredictable hours, long or unsociable hours
Environment and equipment	Inadequate equipment availability, suitability or maintenance, poor environmental conditions such as lack of space, poor lighting, excessive noise
Context of work	
Control	Low participation in decision-making, lack of control over overload, pacing, shift working, etc.
Organisational culture and function	Poor communication, lack of definition of, or agreement on, organisational objectives
Interpersonal relationships at work	Social or physical isolation, poor relationships with superiors, interpersonal conflict, lack of social support, bullying/harassment/violence
Role in the organisation	Role ambiguity, role conflict, and responsibility for people
Career development	Career stagnation and uncertainty, under promotion or over promotion, poor pay, job insecurity, low social value to work
Home–work interface	Conflicting demands of work and home, low support at home, dual career problems

Source: adapted from Cox (1993).

2.3.2. Psychosocial risks and physical and mental health

These 10 psychosocial hazards may have negative effects on both physical and mental health directly or indirectly through work stress (Box 3) ([5]). The bulk of the literature has focused on the indirect effects of psychosocial hazards on health through work stress (EU-OSHA 2000).

Box 3: **Defining work stress: theoretical perspectives**

The concept of 'work stress' has historically been defined in the scholarly literature through a variety of theoretical approaches (EU-OSHA, 2000; Cox, 1978; Cox and Griffiths, 2010). Contemporary theories examine the notion in the context of the shifting and complex interactions between the individual and their workplace environment. Here, stress is either seen to be indicated by the existence of problematic interactions between the individual and their environment; or, considered in terms of the associated and underlying cognitive and emotional processes. This is known as the 'psychological approach'.

This approach and its variants have become the mainstay of contemporary stress theory. Here stress is treated as the negative emotional experience which is associated with an individual's perception of being placed under excessive demands, or a level of demands with which they cannot cope. The variants of this approach can be divided into two main types: interactional and transactional. Both are, however, essentially consistent, with the transactional approach being more concerned on cognitive appraisal and coping.

Interactional theories of stress

Interactional theories of stress consider the causal mechanisms of stress to lie in the structural dimensions of an individual's interactions with their environment. Many varieties of such theories exist in the literature; however, two in particular stand out: the Demand–Control theory of Karasek (Karasek, 1979), and the Person–Environment Fit theory of French et al. (French et al., 1982). The Demand–Control theory postulates that stress is likely to occur when an individual with a low propensity/capacity for decision-making is employed in an occupation which is highly psychologically demanding. According to the Person–Environment Fit theory, stress is likely to arise when the demands of a job do not fit well with the individual's attitudes and abilities; or, conversely, when a worker's needs are not sufficiently met by their workplace environment.

Transactional theories of stress

In focusing on the architecture of stressful situations, interactional theories tend to treat the characteristics of the workplace as intrinsic; while stress is the expression of the individual's emotional reaction to that environment's intrinsic qualities. Such an approach can be seen to ascribe a passive role to the individual. Transactional theories examine the active efforts of the individual to cope with their experiences of stress, through such processes as cognitive appraisal. The concept of a 'transaction' emphasises that 'stress ... reflects the conjunction of a person with certain motives and beliefs with an environment whose characteristics pose harm, threats or challenges depending on these personal characteristics' (Lazarus, 1990). In the Siegrist transactional Effort–Reward Imbalance theory (Siegrist, 1996), stress is seen to occur where there is a mismatch between the individual's perceptions of the effort required for their work, and their perceptions of the appropriateness of the reward they receive.

The EU-OSHA has adopted the following definition of work stress, drawing on this wealth of contemporary stress theory: 'work-related stress is experienced when the demands of the work environment exceed the workers' ability to cope with (or control) them' (EU-OSHA, 2009b).

2.3.3. The specific impact of psychosocial risks on stress experienced by workers

In what follows, we first review findings of the literature on those psychosocial hazards of work which can be experienced as stressful by workers ([6]). More precisely, we examine the relationship between each psychosocial hazard and various individual and organisational symptoms of stress. We then examine the potential consequences of work stress on physical and mental health (EU-OSHA, 2000). As underlined by Rick et al. (2002), reviewing the scientific literature on psychosocial hazards and work stress is particularly challenging. These studies have measured psychosocial hazards in various ways using subjective (e.g. perceived work demands, self-reported working hours) and objective (e.g. actual work hours) measures. They have also used different measures of work stress, which are either subjective (e.g. job satisfaction, depersonalisation, emotional exhaustion) or objective (e.g. work injuries, sickness absence). These measures are the common individual and organisational symptoms of stress identified in the literature (Cooper and Marshall; 1976; EU-OSHA, 2000; Kalimo et al., 1987; Kalimo et al., 1997; Leka et al., 2008b) ([7]).

([5]) It is, however, worthwhile to notice that work stress may not only be caused by psychosocial hazards but also by physical ones (Levi, 1984).

([6]) Several studies provide more exhaustive reviews of these psychosocial hazards: Rick et al. (2002); EU-OSHA (2000) (available at http:osha.europa.eu/en/publications/reports/203); Cox, T. (1993); Cooper and Smith (eds) (1985); O'Driscoll and Brough (2010).

([7]) To ease the presentation, we artificially examine each psychosocial hazard separately from the others. It should, however, be noted that the combination of several psychosocial hazards can cause work stress. For instance, such combination is obvious in the Demand–Control theory of Karasek. Also, some objective measures of stress such as sickness absence can also be the consequences of health disorders.

Content of work

Job content

There are several characteristics of job content which can be experienced as stressful by workers or carry the potential for harm. These include: underuse of skills (i.e. role insufficiency), lack of task variety, and fragmented or meaningless work. Many studies examined the association between various aspects of job content and both subjective and objective measures of work stress.

Regarding role insufficiency, a meta-analysis carried out by Lee and Ashforth (1996) found good evidence that higher skill utilisation was related to lower emotional exhaustion and less depersonalisation. Exploring factors associated with occupational stress among female hospital nurses in China, Wu et al. (2010) discovered that role insufficiency was one the factors that had the highest association with occupational stress.

Other studies concentrated on task and job variety. In their meta-analysis, Lee and Ashforth (1996) showed that a monotonous work was positively correlated with depersonalisation. Another meta-analysis revealed positive relationships between skill variety and job satisfaction (Loher et al., 1985). In their individual studies, Melamed et al. (2001) and Judge et al. (2000) reported a positive relationship between job complexity and job satisfaction. Examining the relations of objective work conditions (work underload, repetitive or varied work) and subjective monotony to job satisfaction, psychological distress, and sickness absence among a sample of blue-collar workers, Melamed et al. (1995) also found an inverse association between subjective monotony of work and job satisfaction. They also observed that sickness absence was positively related to the work conditions and subjective monotony.

Other studies linked uncertainty at work to job satisfaction and sickness absence. The study carried out by Nelson and Cooper (1995) revealed that organisational uncertainty is negatively correlated with job satisfaction and positively correlated with sickness absence.

Eurofound (2010) in the European working conditions survey looks closely at how respondents find work. The number of respondents reporting doing monotonous jobs between 1995 and 2010 rose from 40 % to 45 %. The number of people reporting learning new things at work was unchanged between 2000 and 2010 at 68 %, while repetitive tasks were still a significant proportion of work across the EU. Overall, the intellectual challenge that work poses individuals was unchanged.

Workload and work pace

Workload factors such as quantitative and qualitative underload and overload ([8]) have been linked to subjective measures of stress such as job satisfaction, job strain, depersonalisation, and personal accomplishment (Rick et al., 2002), and to objective ones such as work injury and sickness absence. In their meta-analysis, Lee and Ashforth (1996) found significant statistical positive associations between high workload and work pressure and depersonalisation but not with personal accomplishment. In their systematic review on the risk factors for sick leave, (Allebeck and Mastekaasa (2004) observed no clear evidence that higher demand is positively associated with sickness absence. Other individual studies showed positive relationship between self-reported workload and self-reported work stress and job strain (Smith et al., 2000; Parker et al., 2001).

Work pace is also an important workload factor, which has been associated with work stress. High work pace can negatively influence stress (Houtman et al., 1994; Conti et al., 2006) and other work attitudes such as work pressure (Nabitz et al., 2009), especially when the speed of work is controlled by a machine (Salvendy and Smith, 1981; Smith, 1985). In their study on the causes of work injuries in wood processing, Holcroft and Punnett (2009) observed a positive association between machine-paced work or inability to take a break, and injury risk.

In the European working conditions survey, Eurofound (2010) points to the important relationship between work intensity and health and well-being of employees. The reported slight rise in work intensity is likely to impact negatively on health and well-being, especially where respondents report low job autonomy and little support from colleagues.

Work schedule

Work schedule, including long working hours and shift work, has been related to work attitudes such as job satisfaction and schedule satisfaction (EU-OSHA, 2000; Rick et al., 2002; Monk and Tepas, 1985; Waterhouse et al., 1992). Eurofound (2010) reports the decreasing amount of time worked by the average worker and increasing prevalence of part-time work over time.

A meta-analysis showed good evidence that flexitime and compressed work week are positively associated with job satisfaction and negatively associated with absenteeism (Baltes et al., 1999). Individual studies also found that long working hours and overtime are positively correlated with work stress (Fielden

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([8]) According to Shaw and Weekley (1985), 'quantitative work overload (QNO) refers to a condition in which individuals are required to do more than they are able because of some limitation on the time available for performance. Quantitative underload (QNU) exists when individuals are required to do considerably less than they are able, given the time available [...] Qualitative overload (QLO) exists when each separate task is beyond the individual's ability such that, regardless of the time available, the individual cannot do the tasks. Qualitative underload (QLU) is a condition in which each separate task is far below the individual's ability such as the tasks are complete with boring ease' (p. 1).

and Peckar, 1999; Parker and DeCotiis, 1983). An individual study carried out by Parker and DeCotiis found that the number of hours worked by week was correlated with time stress and anxiety (Parker and DeCotiis, 1983). Based on the results of their cross-sectional study on Japanese workers, Sato et al. (2009), nevertheless, suggested that overtime work appears to influence stress response only indirectly through other stress factors such as self-assessed amount of work, mental workload and sleeping time.

Several individual studies examined the issue of shift work and its relationship with work stress and other work attitudes. In a report prepared for the HSE of Great Britain, Parkes et al. (1997) found that shift patterns have negative effects on mood and emotional exhaustion. Muhammed (2004) showed that workers involved with weekend work reported significantly higher emotional exhaustion and job stress than workers not involved with weekend work. One issue which has also been extensively explored is shift work involving night work, including permanent night work, rotating shift work, night and irregular work hours. Coffey et al. (1988) and Piko (1999) showed that health workers involved in rotating shift work reported higher levels of job-related stress than other workers (Coffey et al., 1988).

Environment and equipment

Several experts have identified several characteristics of physical environment (e.g. inadequate equipment availability, suitability or maintenance, lack of space, poor lighting, excessive noise) as a psychosocial hazard which can be experienced as stressful or carry the potential for harm (EU-OSHA, 2000; Leka et al., 2008b; Leka and Cox, 2008a).

However, the results of several individual studies reported Rick et al. (2002) on work stress and other work attitudes such as job satisfaction and depersonalisation were statistically non-significant (Lee and Ashforth, 1996; Smith et al., 2000; Melamed et al., 2001).

Context to work

Control

Decision authority and control at work are important aspects of job design and work organisation. Decision authority and control are reflected in the extent to which workers can participate in decision-making affecting their work. These aspects of job design and work organisation are extensively related to subjective measures of stress such as job strain, job satisfaction, job motivation and turnover intention (Rick et al., 2002; EU-OSHA, 2000) and to a lesser extent to objective ones such as sickness absence and turnover.

The results of the meta-analysis carried out by Spector (1986) revealed positive associations between decision authority with workers' motivation, commitment and involvement. In their meta-analysis, Lee and Ashforth (1996) examined the relationships

between participation and autonomy on other work-related outcomes such as emotional exhaustion, depersonalisation and personal development. They found that a low participation was found to be associated with higher levels of both emotional exhaustion and depersonalisation. Some individual studies also pointed out the association between decision authority, work stress and other work-related outcomes. Parker et al. (2002) discovered that participative decision-making was negatively correlated with on-job strain. Bond and Bunce (2001) found that increasing people's job control improved stress-related outcomes. Jackson (1983) showed that perceived influence was positively related to job satisfaction. In their systematic review on the risk factors for sick leave, Allebeck and Mastekaasa (2004) found evidence of a negative association between control of the work situation and sickness absence.

With respect to autonomy, the meta-analysis carried out by Spector (1986) found that it was positively associated with motivation, commitment and involvement, and negatively associated with intention to quit, absenteeism and turnover. Loher et al. (1985) also discovered in their meta-analysis that autonomy is significantly associated with high levels of job satisfaction. Other individual studies corroborated these results. For instance, Pearson (1992) found that workers involved in non-autonomous jobs had lower levels of motivation and job satisfaction. In their study on Norwegian workers, Kalleberg et al. (2009) showed that autonomy, together with consultation in decisions, reduced work stress.

The 2010 working conditions survey shows that job autonomy on the whole has not changed much between 2000 and 2010 (Eurofound, 2010), meaning it remains as a stable risk factor over this period.

Organisational culture and function

There are several aspects of organisational culture which can be experienced as stressful by workers and have the potential for harm. These include notably poor communication, poor leadership and lack of definition of, or agreement on, organisational objectives (EU-OSHA, 2000; Leka et al., 2004; Cox, 1991).

A meta-analysis on nurses' job satisfaction revealed that higher levels of communication with supervisors and peers were significantly correlated with higher levels of job satisfaction (Blegen, 1993). In their individual study, Parker and DeCotiis (1983) examined the relationships between some of these conditions and job stress (i.e. time stress, anxiety). Communication openness was negatively associated with time stress. Concern for individuals was inversely correlated with time stress and anxiety. Conversely, the detachment of corporate management from workers was positively related to time stress and anxiety.

In their study on burnout among nurses, Stordeur et al. (2001) found that charismatic leadership (along with inspirational leadership and idealised influence) is associated with lower levels of burnout.

Examining the causes of stress at universities, Gillespie et al. (2001) observed that both academic and general staff groups reported a number of issues relating to the quality of management: a lack of consultation and staff input, a lack of management transparency, the level and management of organisational change, and poor general management skills.

Interpersonal relationships at work

Bad interpersonal relationships at work are recognised as a psychosocial hazard, which can be experienced as stressful and have the potential for harm. These include: social or physical isolation, poor relationships with superiors, interpersonal conflict, lack of support, and bullying, harassment, and violence at work (EU-OSHA, 2000; Hoel et al., 2001; Rick et al., 2002; Einarsen and Mikkelsen, 2003; Grazia Cassitto et al., 2003).

A number of studies related the lack of support to subjective measures of stress such as job satisfaction, depersonalisation and intention to leave (Rick et al., 2002) and to objective ones such as sickness absence. The lack of support can take various forms, including the lack of support from supervisors, the lack of support from co-workers, and the lack of recognition and feedback.

In their meta-analysis, (Loher et al. (1985) looked at the relationship between feedback and job satisfaction. They found that more feedback was associated with higher levels of job satisfaction. In another meta-analysis, Viswesvaran et al. (1999) found that social support reduced strains, mitigated perceived stressors and moderated the relationship between stressors and strain. In their systematic review on the risks factors for sick leave, Allebeck and Mastekaasa (2004) found insufficient evidence of an association between social support and sickness absence. In their study on civil service departments in London, Stansfeld et al. (1995) showed that high levels of subjective support at work were associated with greater job satisfaction. In another study, Sargent and Terry (2000) examined the extent to which social support buffered the negative effects of high job strain on adjustment and work performance. Using a sample of full-time clerical employees working in a university, they discovered that high levels of supervisor support mitigated against the negative effects of high strain jobs on levels of job satisfaction and reduced reported levels of depersonalisation.

A number of individual studies examined the relations between bullying, harassment and violence at work on the one hand and work stress and other work-related outcomes on the other hand. Exploring relationships between organisational and social work conditions and the occurrence of harassment and bullying at work in Norway, Einarsen et al. (1994), for instance, found that low satisfaction with leadership, work control, social climate and particularly the experience of role conflict, correlated most strongly with bullying. In another study, Vartia (2001) observed that both the victims of bullying and also the observers reported more stress than did respondents from the workplaces with no bullying.

Role in the organisation

Several aspects characterising the role of workers and employers in the organisation are hazardous. The literature has particularly underlined issues related to role ambiguity and role conflict (EU-OSHA, 2000). Role ambiguity arises when a worker has imperfect information about his or her role. Role conflict occurs when a worker is asked to play a role which conflicts with his or her values or when the diverse roles workers are required to play are irreconcilable with one another.

Three meta-analyses (Jackson and Schuler, 1985; Abramis, 1994; Fisher and Gitelson, 1983) examined the relationships between role ambiguity, role conflict and several work attitudes such as job satisfaction and job performance. Results revealed that role ambiguity and role conflict tend to be correlated with more tension and lower job satisfaction (Jackson and Schuler, 1985). These meta-analyses also found a weak and negative association between both role ambiguity, role conflict and job performance (Abramis, 1994; Jackson and Schuler, 1985). In an individual study, Piko (2006) investigated the relationships between burnout, role conflict and job satisfaction among a sample Hungarian healthcare staff. The study showed that role conflict was a factor contributing positively to emotional exhaustion and depersonalisation. In another individual study, Chang and Hancock (2003) investigated the relationship between role ambiguity and work stress among new nursing graduates in Australia. They observed negative correlation between role ambiguity and job satisfaction.

Beyond role ambiguity and role conflict, the scholarly literature has identified the responsibility for others (e.g. subordinates, clients, patients, prisoners) as another potential source of stress associated with role issues in the organisation (EU-OSHA, 2000; Pincherle, 1972; Cooper et al., 1982; French and Caplan, 1974; Cartwright and Cooper, 1997; Botha and Pienaar, 2006; Ramirez et al., 1996; Frankenhaeuser et al., 1989).

Career development

There are work characteristics related to the career development of workers, which are considered as hazardous. These include: job insecurity, lack of promotion prospects, under-promotion or over-promotion, work of 'low social value', piece rate payments schemes, low pay and unclear or unfair performance evaluation systems (Leka et al., 2003; EU-OSHA, 2000). Eurofound (2010) reports an increased sense of job insecurity across workers interviewed in the European working conditions survey (16 % of workers reported feeling insecure compared to 14 % in 2005). In a meta-analysis and review of job insecurity and its consequences, Sverke et al. (2002) found that job insecurity had detrimental consequences for workers' job attitudes (i.e. job satisfaction, job involvement), organisational attitudes (i.e. organisational commitment, trust) health, and, to some extent, their behavioural relationship with the organisation (job performance and responsiveness to organisational needs). In another meta-analysis, Ashford et al. (1989) observed a lower level of job satisfaction among those who felt insecure about

their jobs. In a recent individual study, Sora et al. (2009) discovered that a job insecurity climate influenced workers' satisfaction and organisational commitment.

However, other factors related to career development also play a role. Based on a survey data from 367 managers of a large restaurant chain, Parker and DeCotiis (1983) showed that three characteristics related to career development opportunities were related to time stress: the emphasis placed on individual development, the extent to which promotions are based on merit, and the quality of training received in preparation for greater responsibility. Two measures of career development were also inversely correlated with anxiety: training quality and perceived basis for promotions. Examining options for improving nurse retention in the National Health Service in England, Shields and Ward (2001) observed that promotion and training opportunities had a stronger impact than pay on job satisfaction.

Home–work interface

Home–work conflict, defined by Greenhaus and Beutell (1985) as 'a form of inter-role conflict in which the role pressures from work and family (home) domains are mutually incompatible in some respect', has effects on perceptions of stress at work and other work attitudes.

In their study on work–home conflict among nurses and engineers, Bacharach et al. (1991) found that work–home conflict was positively correlated with burnout and negatively correlated with job satisfaction. Regarding the antecedents of work–home conflict, their results showed that role overload and role conflict are strong predictors of work–home conflict among engineers, whereas among nurses only role conflict emerges as a significant predictor. In another study, Kinnunen et al. (2004) provided new insights about gender differences related to work-to-family conflict and its longitudinal relations with job satisfaction. Using a longitudinal survey conducted at two points in time on a sample of Finnish men and women, their results revealed that, among women, work-to-family conflict perceived at Time 1 significantly predicted job dissatisfaction. Nevertheless, among men, a low level of satisfaction or well-being at Time 1 (i.e. marital dissatisfaction, parental distress, psychological and physical symptoms) functioned as a precursor of work-to-family conflict perceived at Time 2.

2.3.4. Work-related stress and the emergence of physical and mental health disorders

While the experience of stress does not have systematically detrimental consequences for health, it can nevertheless lead to the emergence of physical and mental health disorders (EU-OSHA, 2000; Leka et al., 2008b; Kalimo et al., 1987).

Physical health

Musculoskeletal disorders

There is a growing scientific literature on the relationships between psychosocial hazards and musculoskeletal disorders (MSDs). In their systematic review on the topic, Bongers et al. (1993) found that that monotonous work, high perceived workload, and time pressure are positively correlated with musculoskeletal symptoms. Their review also reveals that low job control and lack of social support by co-workers are positively associated with MSDs. The authors suggested that these psychosocial hazards can impact indirectly on physical health through perceived stress. In addition, the authors observed that stress symptoms are often related to musculoskeletal disease, and some individual studies show that this relationship is causal.

Using a systematic approach, Linton (2000) reviewed the literature on psychological factors in neck and back pain. The author found robust evidence of a link between psychological variables and neck and back pain. Results from the selected studies reveal that psychological variables were associated with the onset of pain, and with acute, subacute, and chronic pain. Stress, distress or anxiety, as well as mood and emotions, were found to be significant factors. In another systematic review published the same year, Hoogendoorn et al. (2000) assessed whether psychosocial factors at work are risk factors for the occurrence of back pain. They found strong evidence that low social support at work and low job satisfaction are risk factors for back pain.

In a more recent systematic review, Bongers et al. (2002) examined the role of psychosocial factors in the development of upper limb problems, either indirectly through stress or directly. The authors found robust evidence that high-perceived job stress is associated with upper extremity problems [9]. They also observed some evidence for a relationship between high quantitative and qualitative job demands and upper extremity problems [10].

As underlined by Leka et al. (2008b), a growing literature has focused on the relations between physical and psychosocial hazards in the development of MSDs (EU-OSHA, 2004). For instance, Devereux et al. (2002) investigated potential interactions between physical and psychosocial risk factors in the workplace that may be associated with symptoms of MSDs of the neck and upper limb. Results of their study showed that workers largely exposed to both physical and psychosocial hazards were more likely to report symptoms of MSDs than workers largely exposed

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[9] According to the authors, 'high stress' includes the following concepts: perceived job stress/exhaustion; index for all aspects of job stress; mental stress; extent of feeling tired after work; job is very demanding; job is very tiring; job is very stressful; occupational stress index; multi-item index including stress due to reorganisation; mental stress due to task or new work, reorganisational stress, effect of redundancies, including lack of support.

[10] According to the authors, high quantitative job demands include the following concepts: time pressure, work pace, presence of deadline, extensive overtime, high workload, work overload, surges in workload, given too much to do. High qualitative job demands include the following concepts: job responsibilities, concentration, lack of clarity, high information processing demands.

to one or the other. Examining the effects of the physical work environment on long-term sickness absence among a sample of employees in Denmark, Lund et al. (2006) showed significant interactions between physical and psychosocial hazards among female employees.

Cardiovascular diseases

Many studies have suggested that work stress may be associated with cardiovascular diseases (Kasl, 1984; House, 1974; Schnall et al., 2000; Heslop et al., 2002; Kivimaki et al., 2002; Johnson and Hall, 1988; EU-OSHA, 2000; Johnson et al., 1996; Leka et al., 2008b). Among these studies, a large number empirically examined the relationship between work stress, according to the job strain model and the effort–reward imbalance model, and cardiovascular diseases (Kivimaki et al., 2002; Heslop et al., 2002).

In their study, Bosma et al. (1997) investigated the association between adverse psychosocial characteristics at work and risk of coronary heart disease among a sample of British male and female civil servants. They found that low job control in the work environment contributes to the development of coronary heart disease among British male and female civil servants. Their results also revealed that the risk of heart disease is positively correlated with both objective low job control and perceived low job control. Finally, their study suggested that increase in job control over time diminishes the risk of coronary heart disease. In another study, Kornitzer et al. (2006) investigated the association between the relationship of the job strain model with hard coronary events among a sample of middle-aged males in four European countries. Their findings showed that the job strain model was an independent predictor of acute coronary events, with the psychological demands scale emerging as the important component. In their study, Netterstrøm et al. (2006) tested the association between job strain and the incidence of ischaemic heart disease prospectively in the Danish working population. They observed that high psychological demands at work were a risk factor for ischaemic heart disease. In another study, Aboa-Eboule et al. (2007), based on a sample of men and women in Canada, found that job strain increases the risk of recurrent coronary heart disease events after a first myocardial infarction.

Bosma et al. (1998) examined the association between the effort–reward imbalance model and the risk of coronary heart disease among male and female British civil servants. They found that the imbalance between personal efforts (competitiveness, work-related over-commitment and hostility) and rewards (poor promotion prospects and a blocked career) was positively correlated with higher risk of new coronary heart disease. In a study published the same year, Peter et al. (1998) investigated the association between work stress, defined by the combination of high effort and low reward, and cardiovascular risk factors. Based on a sample of healthy employees in Sweden, their conclusions showed that the effort–reward imbalance was positively related to cardiovascular risk. In another study, Kivimaki et al. (2002) explored the relationship between the effort–reward imbalance model and the risk of death from cardiovascular disease, based

on a sample of Finnish employees in the metal industry. Their results revealed that effort–reward imbalance, alongside job strain, raised the risk of cardiovascular mortality.

Mental health

Psychological health

A number of empirical studies explored the association between work stress and common mental health disorders such as mood and anxiety disorders (Stansfeld and Candy, 2006).

Examining the presence of psychiatric symptoms and associated factors affecting psychiatric impairment among a sample of Japanese tax workers Iwata et al. (1988) showed that perceived work stress was positively correlated with the level of depressive symptoms. In their study on the relationship between work characteristics and psychiatric disorders among a sample of Bristol civil servants, Stansfeld et al. (1999) and Stansfeld et al. (1997) found that low social support at work and low decision authority, high job demands and effort–reward imbalance were associated with increased risk of psychiatric disorder. Using a sample of French men and females in firms, Niedhammer et al. (2006) found that job strain, low decision latitude, effort–reward imbalance, and low reward (especially job instability) were associated with depressive symptoms and/or psychiatric disorders among men.

Other studies focused on the prevalence of more serious psychiatric disorders. Wang (2005) investigated the association between the levels of work stress and major depressive episodes among a sample of Canadian workers. The results of the study revealed that work stress is an independent risk factor for the development of major depressive episodes. Melchior et al. (2007) examined the effect of work stress on diagnosed depression and anxiety among a sample of young workers in New Zealand. They found that workers exposed to high psychological job demands (i.e. excessive workload, extreme time pressures) had a higher risk of a major depressive disorder and generalised anxiety disorder compared to those with low job demands.

Behavioural health

Another stream of research on the relationship between work stress and mental health disorders focused on behavioural patterns followed by workers (Leka et al., 2008b).

It has been suggested that work stress is associated with increased alcohol use (Gupta and Jenkins, 1984; Trice and Roman, 1978), although the empirical evidence is relatively limited (Cooper et al., 1990; Harris and Fennell, 1988). Some empirical studies found no relationship between work stress and alcohol consumption or problems (Mensch and Kandel, 1988; Seeman et al., 1988) while others found small associations (Martin and Roman, 1996; Pearlin and Radabaugh, 1976).

Other studies have linked work stress to drug use (Plant et al., 1992; Bray et al., 1999; Jacobsen et al., 2001), eating disorders

(Nishitani and Sakakibara, 2005) and sleep disorders (Kalimo et al., 2000; Knudsen et al., 2007).

2.3.5. The costs of a poor psychosocial work environment

A poor psychosocial work environment is not only detrimental to workers' physical and mental health and safety, but also costly to individuals, employers and the society as a whole (Hoel et al., 2001).

In their study, Hoel et al. (2001) give examples of potential costs of stress and violence at work at the level of individuals, enterprises and the society. For individuals, the costs include loss of income and additional expenditure such as payments for medical consultation, medicine and hospital treatment. For employers, such costs comprise the costs of sickness absence and premature retirement, replacement costs in connection with labour turnover, grievance and litigation/compensation costs, damage to equipment and production resulting from accidents and mistakes, the costs of reduced performance/productivity, and the loss of public goodwill and reputation. For the society, these costs include the costs of medical consultation, publicly subsidised medicine, hospitalisation and other State-financed treatment or rehabilitation as well as the costs related to potential production losses in connection with sickness absenteeism and to premature retirement.

Over recent years, a growing number of studies undertaken at the macroeconomic level have intended to gauge the costs engendered by a poor psychosocial work environment in the European Union. The bulk of these studies have focused on the cost-implications of work stress for the society. Their results nevertheless greatly vary due to different methodological choices, hypotheses and definitions of work stress (Brun and Lamarche, 2006).

In 2002, the European Commission estimated the annual economic cost of work stress in the European Union before the enlargement at EUR 20 billion (EC, 2002). In another study, Levi and Lunde-Jensen (1996) evaluated that the costs associated to cardiovascular diseases caused by work stress amount to approximately 4 % of all the costs attributable to occupational accidents and ill health in some Nordic countries. In absolute terms, this represents EUR 177 million in Sweden and EUR 125 million in Denmark in 1992. More recently, Béjean and Sultan-Taïeb (2005) estimated the costs of work stress in France through its impacts on three illnesses — namely cardiovascular diseases, depression, and musculoskeletal diseases and back pain — for the year 2000. According to their estimation, work stress costs society between EUR 1 167 million and EUR 1 975 million in France, or between 14.4 and 24.2 % of the total spending of social security occupational illnesses and work injuries branch.

This section discussed those psychosocial hazards of work that can be experienced as stressful for workers and ultimately have the potential to affect not only their mental health but also their physical health. The section also shows that such psychosocial hazards have substantial costs for individuals, employers and the society as a whole.

2.4. The risk management paradigm and managing psychosocial risks

Given the potential detrimental effects of psychosocial hazards on workers' physical and mental health and their substantial costs at both the micro and macro level, the effective management of those hazards is therefore a priority for policymakers, employers and workers. Despite several policy initiatives taken in this direction, we argued that the results have been relatively disappointing so far, mainly because of a gap between policy and practice. In this section, we discuss the use of the risk management paradigm to manage psychosocial risks.

2.4.1. The use of the risk management paradigm

Over recent decades, the use of the risk management paradigm to manage OHS risks has been advocated by several scholars and OHS stakeholders. Its application for psychosocial hazards is, however, not without difficulties.

Several scholars in occupational health psychology have supported the use of the risk management paradigm in OHS (Leka et al., 2008b; Leka and Cox, 2010; Cox, 1993). As underlined by Leka and Cox (2010), risk management in OHS 'is a systematic, evidence-based, problem solving strategy [...] that starts with the identification of problems and an assessment of the risk that they pose, [and] then use that information to suggest ways of reducing that risk at the source'. Once the identification of problems and the assessment of the associated risks are finished, then the underlying actions are evaluated to ultimately improve the whole risk management process. In this regard, risk management comprises two major activities: risk assessment and risk reduction.

The use of the risk management paradigm to manage OHS risks has also been promoted by several OHS stakeholders in Europe such as health and safety agencies — including the HSE in Great Britain (HSE, 1998) and INRS in France (INRS, 2004) — and international organisations such as the European Council, the European Commission (EC, 1996), and the International Labour Organisation (ILO, 2001).

Various models of risk management have been proposed in the literature on occupational health and safety (Leka and Cox, 2010). These models differ according to the nature of the problem (e.g. physical hazards) they intend to address, the focus of the interventions used for risk reduction (e.g. individuals that are exposed to hazards), and the nature of these interventions. In spite of these differences, these models share common features. A generic model of risk management comprises the following steps (Leka and Cox, 2010; EU-OSHA, 2000):

- identification of hazards;

- assessment of the associated risk;

- design of reasonably practicable interventions;

- implementation of interventions;

- monitoring and evaluation of effectiveness of intervention;

- feedback and reassessment of risk;

- review of information and training needs of employees.

2.4.2. Questions around the applicability of the risk management paradigm for psychosocial risks

Despite the interest in the use of the risk management paradigm in OHS, some scholars have questioned its applicability to manage psychosocial risks (Cousins et al., 2004).

Rick and Briner (2000) stressed major differences between psychosocial and physical hazards. Physical hazards tend to be context specific (e.g. highly inflammable materials) while psychosocial hazards are not, because they can be found in any department and hierarchical level of organisations (e.g. low social support, work pace). Furthermore, it is often possible to precisely define the risk for one person to be harmed by physical hazards (e.g. flammable and explosion limits for certain materials), whereas such definition is much more difficult for psychosocial hazards (e.g. the level at which low social support can be harmful). Finally, while physical hazards always have the potential to cause harm, the potential effects of psychosocial hazards can be either negative or positive (e.g. promotion).

Rick and Briner (Ibid.) also underlined major differences between physical and psychosocial harm. Many physical hazards often directly lead to an identified accident, illness or symptom. However, such causality is often unclear for psychosocial hazards. We indeed saw in the previous section of the chapter that psychosocial hazards can lead to a variety of mental and physical health disorders. Reciprocally, it is often difficult to identify the precise causes of psychosocial harms due to the variety of psychosocial hazards and the interaction effects between them.

Cooper and Cartwright (1997) also acknowledged the differences between physical and psychosocial hazards and therefore the difficulties in applying the principles of the risk management paradigm to psychosocial hazards. However, they suggest that greater skills and training could enable adequate risk assessments for psychosocial hazards. It remains that the authors put forward the usefulness of traditional primary, secondary and tertiary workplace interventions to manage stress at work (Murphy, 1988).

2.4.3. The use of risk management approaches by stakeholders

Cox and his colleagues (Cox, 1993, EU-OSHA, 2000, Leka and Cox, 2010) acknowledge the difficulties of using the risk management paradigm for psychosocial hazards. They nevertheless claim that workplace health interventions, as such, are insufficient to effectively manage psychosocial risks at work. Workplace interventions are indeed often targeted towards individuals rather than organisations as a whole. They are also generally not customised to particular contexts of organisations. More importantly, workplace health interventions are not associated to any diagnosis of the problems, if such diagnosis exists. Cox and his colleagues also criticise the use of OHS surveys for psychosocial hazards, in particular stress surveys, which most often aim to identify hazards or outcomes without linking them.

Both OHS surveys and workplace health interventions to manage psychosocial risks have weaknesses that can be overcome by the use of the risk management paradigm (Cox, 1993, EU-OSHA, 2000, Leka and Cox, 2010). Risk management allows us to link psychosocial hazards to OHS outcomes by evaluating the risk (i.e. chance) that somebody will be harmed by a given hazard. By identifying psychosocial hazards and assessing associated risks to physical and mental health outcomes, risk management can also help design relevant workplace health interventions that are customised to particular contexts of organisations.

The use of the risk management paradigm for managing psychosocial risks has been recommended by several OHS stakeholders in Europe, including the HSE (HSE, 2007) in Great Britain as well as INRS (INRS, 2007) and ANACT (Mercieca and Pinatel, 2009) in France, and also identified as good practice by the European Agency for Safety and Health at Work (EU-OSHA, 2002a).

2.5. Summary

This chapter has reviewed the literature on the factors associated with effective management of psychosocial risks.

- Significant changes in the world of work over the recent decades have raised concerns about the deterioration of job quality in the Europe, in particular workers' health and safety.

- The changing world of work has contributed to the emergence of many of the so-called 'psychosocial hazards', defined by Cox and Griffiths (1995) as 'those aspects of work design and the organisation and management of work, and their social and environment contexts, which have the potential for causing psychological, social and physical harm'. According to the EU labour force survey ad hoc module 2007 on health and safety at work, 27.9 % of the workers reported exposure affecting mental well-being, which corresponded to about 55.6 million workers.

- Related to psychosocial hazards, occupational health and safety issues such as work stress have increasingly affected workers across the European Union. According to the EU labour force survey ad hoc module 2007 on health and safety at work, approximately 14 % of the persons with a work-related health problem experienced stress, depression or anxiety as the main health problem. This implies that stress, depression or anxiety was the second most frequently reported main work-related health problem after musculoskeletal health problems.

- Psychosocial hazards and their associated risks have therefore become a key challenge for policymakers in Europe. Despite several policy initiatives launched at the EU and national level since the end of the 1980s, several experts in occupational health and safety claim that the impact of these initiatives have been disappointing so far due to the gap between policy and practice.

- For this reason, a better understanding of the concept of psychosocial hazards and their associated risks was necessary to understand how to assess and reduce them effectively. The main psychosocial hazards relate to both the content of and context to work. These psychosocial hazards can affect both physical and mental health through work stress.

- Based on the better understanding of psychosocial hazards and their associated effects, the chapter reviewed factors that have been proposed to manage psychosocial hazards. There is a substantial amount of scholarly literature that suggests using the risk management paradigm to effectively manage psychosocial risks. Despite some difficulties in applying such paradigm to psychosocial risks, the risk management paradigm can be more effective than simple workplace interventions and other tools such as stress surveys because it proposes a systematic, evidence-based, problem solving strategy to abate psychosocial risks at work.

3. Towards a conceptual framework for managing psychosocial risks

As discussed in the previous chapter, the use of a risk management paradigm is increasingly considered by the academic community and practitioners as a way to improve the management of psychosocial risks. In this chapter, we consider what a risk management approach would look like and explore how it can inform the empirical analysis of the ESENER data. As a first step, we look at the components of a conceptual framework to manage psychosocial risks. As a second step, we identify the questions from the surveys that map on to this conceptual framework. Linking questions in ESENER to the conceptual framework will give us a clear indication of what aspects of ESENER can tell us about the effective management of psychosocial risks.

3.1. A conceptual framework for psychosocial risk management

Several models for tackling psychosocial risks have been suggested and implemented in Europe. Although these models show slight variations, they are based on the risk management paradigm (Leka and Cox, 2010; Leka et al., 2008a; Leka et al., 2008b). In what follows, we present a model of risk management for psychosocial risks proposed by Leka and Cox (2010) (Figure 3). This model comprises the following main steps:

- risk assessment;

- translation;

- intervention/risk reduction;

- evaluation.

These main steps are similar to those suggested by some health and safety agencies in Europe, including the HSE (HSE, 2007) in

Great Britain and INRS (INRS, 2007) and ANACT (Mercieca and Pinatel, 2009) in France. We nevertheless add two preliminary steps to the initial steps proposed by Leka and Cox (2010):

- initial analysis;

- creation of a steering group (task force).

Initial analysis

The initial analysis consists of the collection of data relevant to the management of the organisation (e.g. absenteeism, turnover, quality and quantity of production) as well as medical data collected by occupational health and safety services that could be informative about possible work-related psychosocial risk factors in the organisation. The initial analysis can lead to immediate workplace health interventions targeted towards workers that are suffering as well as the implementation of preliminary preventive actions.

The initial analysis should be undertaken by one or several person(s) nominated by a health and safety committee or social partners (including senior management and employee representatives). Such person(s) should have access to all the required health and safety data directly or indirectly in the organisation (INRS, 2007). Both the HSE in Great Britain and INRS in France suggest a variety of relevant indicators that can be collected. These include, but are not limited to: number of days of sick leave, turnover rate, incidence and seriousness of accidents, proportion of employees having atypical working hours (e.g. shift work, weekend work), proportion of employees affected by musculoskeletal and cardiovascular disorders.

Based on the results of the initial analysis, the person(s) responsible can develop a risk assessment and action plan at the level of the organisation. Strong senior management commitment is essential to show the importance of the process for the organisation, to secure adequate human and financial resources, and to widely communicate the results of process in the organisation (INRS, 2007; HSE, 2007; Leka and Cox, 2010).

Creation of a task force

Beyond the preliminary actions, the psychosocial work environment of the organisation may require the creation of an internal task force to better manage the process, to mobilise human resources in the organisation and to ensure that the objectives are reached (INRS, 2007; HSE, 2007; Leka and Cox, 2010). Such task force is often associations of different stakeholders in the organisation (e.g. managers, employee representatives, OHS services, human resources services).

Employees and their representatives must be consulted, informed, and trained so that they can take ownership of the process. This requires documentation, a training programme and internal communication procedures to be set up.

Figure 3: **A model for psychosocial risk management**
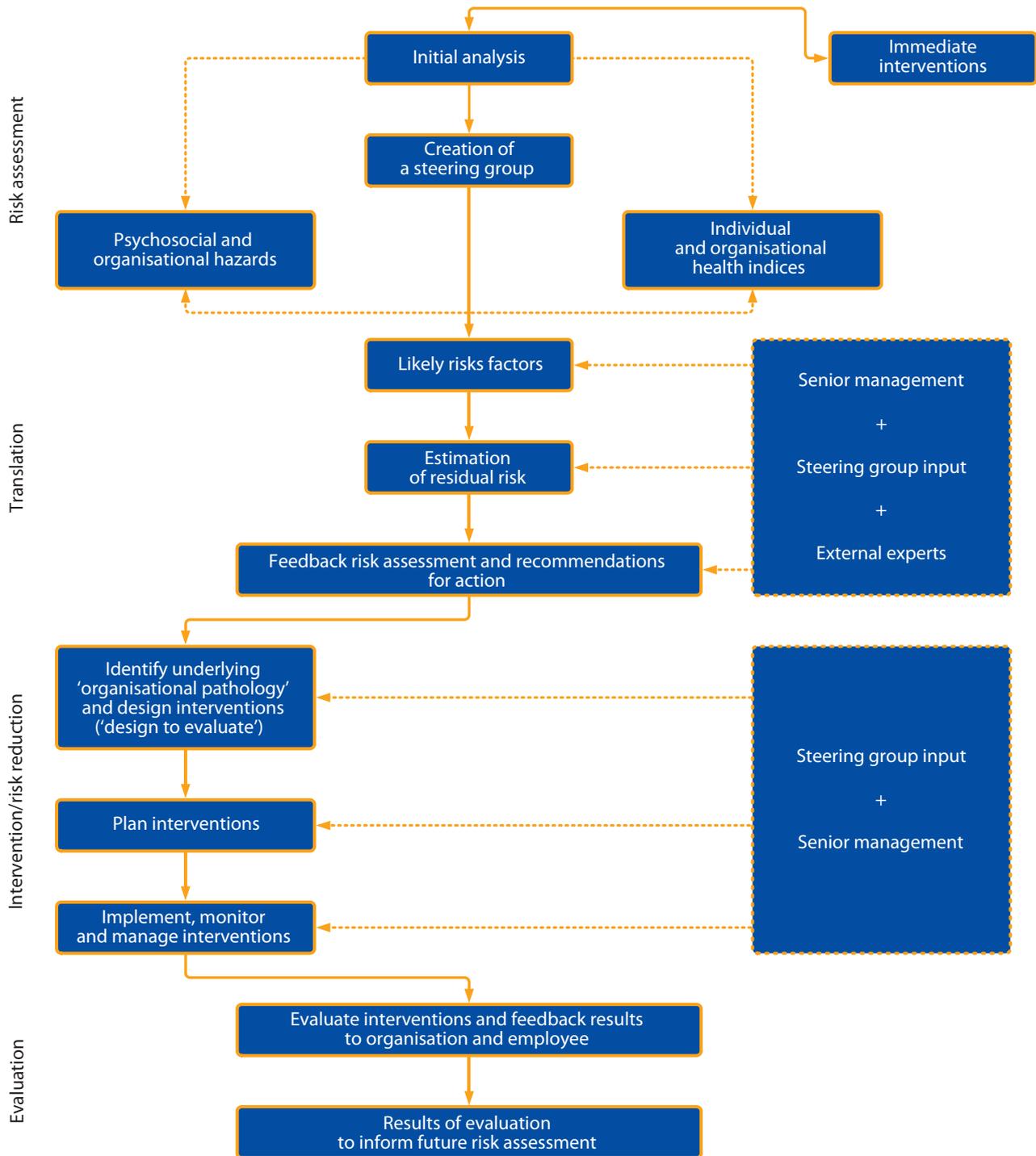
Source: Adapted from Rial-González (2000).

Risk assessment

One of the essential drivers of continual improvement in the psychosocial work environment is the assessment of psychosocial risk factors. How relevant the analysis of real working situations are, will largely determine how successful this process will be. As underlined by Leka and Cox (2010), risk assessment comprises six steps:

• hazard identification;

• assessment of harm;

• identification of likely risk factors;

• description of underlying mechanisms;

• audit of existing management systems and employee support;

• drawing conclusions about residual risk and priorities.

The INRS in France recommends the intervention of external experts to help conduct the risk assessment (INRS, 2007). External experts can use a variety of tools to conduct the risk assessment, including observation, surveys (e.g. stress surveys), health-related indicators (e.g. blood pressures, drug consumption), individual or collective interviews. The combined use of these tools will facilitate the identification of psychosocial hazards (and the interrelations between them), the assessment of harms, and the association between hazards and harms.

While the observation of the activity and the interviews can be useful tools to identify potential psychosocial factors, the use of surveys and health-related indicators can be used to identify potential harms. The steering group should intervene at this stage to help external experts by providing them with relevant information on the organisation (e.g. activity and structure of the organisation, health-related indicators) and identify the key informants for collective and individual interviews. In addition, the steering group should inform employees about the risk assessment undertaken in the organisation as well as its main results and conclusions.

Translation

Based on the results and conclusions of the risk assessment, the steering group should translate them into an action plan that is customised to the organisation (INRS, 2007; HSE, 2007; Leka and Cox, 2010). Adequate actions to reduce psychosocial risks should be identified and prioritised. In this regard, focus groups made up of employees can be created to identify actions to tackle the most pressing needs (i.e. particular psychosocial hazards or harms) (INRS, 2007; HSE, 2007).

Senior management should then approve the action plan sent by the steering group. The final action plan should precisely describe the actions to be undertaken, the objectives to achieve, the key

persons responsible, the costs to implement the plan, the time schedule, the evaluation criteria, and the communication strategy to inform employees (INRS, 2007).

Intervention/risk reduction

Leka and Cox (2010) suggest this step in addition to the translation phase of the risk assessment. Conversely the HSE (HSE, 2007) and INRS (INRS, 2007) tend to incorporate it in the translation phase. This step consists in the implementation of the action plan through the use of different types and levels ([11]) of workplace interventions to reduce psychosocial risks at the source.

Evaluation

The effectiveness of the action plan and the associated targeted interventions that are implemented must be evaluated, and if a new psychosocial risk factor or hazard is identified there must be a response. Audits must be systematically carried out and analysed in order to select corrective actions (INRS, 2007; HSE, 2007; Leka and Cox, 2010). A set of quantitative and qualitative indicators should be used: risk indicators, resource indicators and outcome indicators.

This section discussed the effective options for the management of psychosocial risks at the work. Despite some difficulties in applying the principles of the risk management paradigm to psychosocial risks, many scholars and OHS stakeholders such as health and safety agencies suggest that such principles are more effective than traditional workplace interventions and tools to abate psychosocial risks at work. Such a paradigm indeed proposes a systematic, evidence-based, problem-solving strategy to combat psychosocial risks at work.

3.2. The conceptual model and the empirical work on the ESENER data

The conceptual model on the management of psychosocial risks can inform the empirical analysis of ESENER data. We can map the stages of the conceptual framework on the questions asked in ESENER. There are two main stages to mapping the questions and understanding their significance: selecting the questions that are substantively associated with the stages of the conceptual framework; and understanding whether the subject of the questions is statistically associated with the effective management of psychosocial risks.

In this chapter, we discuss the first of these two stages. Chapter 4 will discuss in more detail the method used in the empirical analysis as well as the findings of the empirical analysis. In the first stage, we used the conceptual model to identify relevant questions and made a list of the questions in ESENER that should be included in the empirical analysis. These questions were taken from the management survey (MM) and included among others:

([11]) i.e. primary, secondary and tertiary level workplace health interventions. See, for instance, Cox, T. (1993), Cooper and Cartwright (1997) and Murphy (1988).

1. What health and safety services do you use? Do you use a psychologist? (MM 150_3)

2. Does your establishment have a procedure to deal with work-related stress? (MM 250)

3. Does your establishment have a procedure to deal with bullying and harassment? (MM 251)

4. Does your establishment have a procedure to deal with work-related violence? (MM 252)

5. In the last three years, has your establishment provided training to employees on dealing with psychosocial risks? (MM 253.6)

6. Do you inform employees about psychosocial risks and their effect on health and safety? (MM 259)

7. Have they been informed about whom to address in case of work-related psychosocial problems? (MM 260)

8. Have you used information or support from external sources on how to deal with psychosocial risks at work? (MM 302)

The questions focus particularly on common interventions and how common risk factors are dealt with in an organisation. As such, there is little on how interventions are evaluated and how information on risks is gathered, analysed and translated into action. Therefore, the questions are not entirely comprehensive and to an extent constrain the empirical analysis in what it can say about the effective management of psychosocial risks on the basis of the conceptual framework.

Certain factors that appear important in the conceptual model are excluded from the questions. Still the inclusion of common risk factors and interventions allows the research to start building up a picture of which of these are associated with effective management across organisations in the 31 countries included in ESENER.

The literature discussed in Chapter 2 and the conceptual framework discussed earlier are also not clear on the relative importance of individual aspects of the conceptual framework. As such, our analysis weights each relevant aspect or question that we included for analysis as equal.

3.3. Summary

This chapter has introduced a conceptual framework for the effective management of psychosocial risks. The framework can be used to select the questions from ESENER to be included in our empirical analysis. The main findings are listed below.

- More systematic approaches are being put forward for the management of psychosocial risks. These approaches often involve a number of stages including: risk assessments; translating the information on risks into targeted actions; introducing and managing the risk reduction interventions; and evaluating the interventions and providing feedback for existing interventions as well as future action plans.

- The conceptual framework informs the selection of questions from ESENER to be included in the empirical analysis by highlighting aspects of effective practice as perceived by the policy community.

4. Analysing the ESENER data on managing psychosocial risks

In this chapter, we present the findings of the factor analysis that we performed on the ESENER data. The empirical analysis consists of two main stages: understanding the relationships between the factors associated with the effective management of psychosocial risks to create an index of correlated aspects of effective management; and understanding the relationships between the characteristics of establishments with the index developed earlier. The findings show which establishments have a majority of the factors associated with effective management in place. Having this knowledge allows policymakers to target policy instruments and interventions more effectively. This chapter presents the main information and findings. A full overview of the modelling work is given in Appendix A, available at: http://osha.europa.eu/en/resources/management-psychosocial-risks-esener/factors-associated-with-effective-management-of-psychosocial-risks-annexes/view. ESENER consists of two surveys, a managers'

survey (MM) and a survey aimed at employee representatives (ER). Most of the empirical analysis used the MM survey, but we provide some cross-comparison with results from the ER survey in this chapter.

4.1. The empirical analysis using factor analysis

The previous chapter introduced the conceptual framework for the management of psychosocial risks. The empirical analysis builds on this framework and selected the eight questions in ESENER relating to various aspects of management of psychosocial risks. These questions related to a set of processes and procedures perceived by the community of policymakers as desirable features in the area of management of psychosocial risks.

In the initial phases of analysis, we considered a wide range of questions. Some were excluded before analysis. Inclusion in the index only makes sense for questions that were asked of all establishments (i.e. not filtered). If we were to include filtered questions, we would have faced a selection issue and could not have

extrapolated findings for the whole population of establishments. As such, MM163 and MM164 were excluded from the analysis.

Consequently, the first stage of our analysis was to establish which aspects of OSH management covered by ESENER tend to co-exist in establishments' 'lives' or, on the contrary, whether these aspects were, in fact, disconnected features of the management of psychosocial risks. Confirmation of the co-existence of these elements in the ESENER dataset has an immediate analytical value as it indicates the empirical, rather than normative, presence of a management system of psychosocial risks. It also allows efficient characterisation of establishments in terms of scope of management of psychosocial risks along a *single* dimension, instead of laborious characterisation along multiple dimensions.

We approached this task using factor analysis. Rephrasing Kim and Mueller (1978, p. 9) factor analysis is defined as a technique aiming at representation of a set of variables in terms of a smaller set of variables. Factor analysis is implemented precisely when the direct measurement of a phenomenon of interest (e.g. scope of OSH management) is not possible or is difficult due to definitional vagueness, imprecision or to the difficulty or diversity of constituting aspects. First, factor analysis examines correlations between various aspects of management of psychosocial risks. Second, on the basis of the observed correlations between variables relating to aspects of OSH management, it attempts to reduce the information contained in these variables to a smaller set of variables.

Using factor analysis, we managed to find which variables were strongly correlated and as such could form an index to represent a consistent set of measures for psychosocial risk management. Some factors that we may have suspected to form part of the index were excluded through the analysis (e.g. MM253 1–5 and MM152). We also experimented with a range of variables from the ER: ER156, ER159, ER303 and ER402. A further explanation on which questions were excluded and for what reasons is given on page 93 of the technical annex. However, as such, questions relating to changes to the way work is organised, confidential counselling, conflict resolution and whether employers inform employees about psychosocial risks (ER) were excluded from the single dimension or index.

4.1.1. A systemic approach to the management of psychosocial risks

Provision of training and using information on the effects of psychosocial risks, as well as a point of contact in case problems arise, are the most popular measures of management of psychosocial risks. These measures are implemented by 53 to 68 % of establishments. On the other hand, measures such as setting up procedures for dealing with psychosocial risks, use of external information on addressing these risks, and, especially, use of specialist help (a psychologist) are the least popular, with 16 to 37 % of establishments reporting implementing them.

In applying factor analysis we found that eight factors or variables considered were strongly correlated with each other and could

form an index capturing psychosocial risk management (for more detailed information see Table 4 in Appendix A, available at: http://osha.europa.eu/en/resources/management-psychosocial-risks-esener/factors-associated-with-effective-management-of-psychosocial-risks-annexes/view). Establishments reporting implementing one aspect of management tend to report other aspects as well. This finding led us to conclude that establishments on the whole appear to taking more systemic approaches to the management of psychosocial risks, and the concept of a system of management of psychosocial risks is empirically justifiable. Furthermore, factor analysis indicated that it was possible to construct a single variable expressing the scope of management of psychosocial risks. Thus we used the totality of information contained in specific questions on management of psychosocial risks in the ESENER questionnaire to generate a single indicator of scope of management of psychosocial risks and characterised establishments in continuum for this indicator. This indicator consisted of six variables as the questions on work-related stress (MM250), bullying and harassment (MM251) and violence (MM252) proved so closely correlated that they were collapsed into one single variable. The analysis did not look at the most popular subgroupings of variables. The remaining variables making up the index are listed below.

1. What health and safety services do you use? Do you use a psychologist? (MM 150_3)

2. Does your establishment have a procedure to deal with work-related stress, bullying and harassment, and work-related violence? (MM250; MM251; MM252 collapsed into one variable)

3. In the last three years, has your establishment provided training to employees on dealing with psychosocial risks? (MM253_6)

4. Do you inform employees about psychosocial risks and their effect on health and safety? (MM259)

5. Have they been informed about whom to address in case of work-related psychosocial problems? (MM260)

6. Have you used information or support from external sources on how to deal with psychosocial risks at work? (MM302)

4.1.2. A composite index of the management of psychosocial risks

On the basis of the insights provided by factor analysis we derived a composite score of the scope of management of psychosocial risks (hereafter the 'OSH_psycho composite score' or simply 'OSH_psycho score'/'OSH_psycho variable'). The resultant OSH_psycho composite score is a single indicator of the scope of the management of psychosocial risks with six as a maximal value, indicating that a given establishment reports all possible identified aspects of management of psychosocial risks, and zero as a minimal value, indicating that it reports none of the aspects. Figure 4 presents a description of OSH_psycho composite score.

Figure 4: **OSH_psycho composite score**
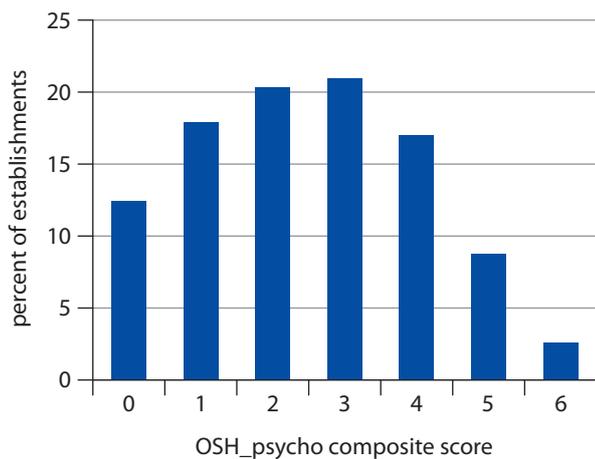
NB: weighted results. N = 3 079 307 (92 % of the original weighted sample).
Source: RAND Europe calculations.

About one third of all establishments across Europe report implementing at least four aspects of the management system for psychosocial risks, and only around 3 % of all establishments report implementing all six aspects (see Figure 4). Establishments not reporting implementing any aspects are a sizable minority (around 12 %).

4.2. The characteristics of establishment and their relationship to the composite index

Having constructed the composite score of the scope of management of psychosocial risks, we were in a position to launch an investigation of its significant determinants. To establish the significant determinants of management of psychosocial risks, we implemented conventional multivariate modelling. In line with previous research on the determinants of risks (literature review and bivariate analysis [for full details see Appendix A: http://osha.europa.eu/en/resources/management-psychosocial-risks-esener/factors-associated-with-effective-management-of-psychosocial-risks-annexes/view], the following variables were treated as predictors of OSH_psycho composite score (independent variables):

1. size of the establishment,

2. whether the establishment is a part of a larger entity (company, firm),

3. sector (public or private),

4. gender composition of the establishment's workforce,

5. age composition of the establishment's workforce,

6. proportion of foreigners in the establishment's workforce,

7. industry,

8. country.

We used linear regression to model the relationship between OSH_psycho score and the predictors. The basic purpose of multivariate models, regardless of a precise technique used to estimate them, is to answer the question of whether various factors or characteristics of establishments (called collectively independent variables) exert independent influence on the behaviour of the variable of interest (dependent variable, here OSH_psycho score), an influence 'unpolluted', by the presence of other factors. In our application, we sought to establish, for example, whether the size of the establishment had an effect on the management of psychosocial risks, with other things (sector, being part of a larger firm etc.) being held constant, i.e. whether it had an independent effect.

The results of our analyses are presented in the following sections.

4.2.1. Country context, size and industry and the management of psychosocial risks

The main finding of the multivariate analysis is that out of the eight independent variable categories examined size, industry and country context were the most significant variables explaining the scope of psychosocial risk management.

To arrive at this conclusion we ran four models (for full details see Appendix A: http://osha.europa.eu/en/resources/management-psychosocial-risks-esener/factors-associated-with-effective-management-of-psychosocial-risks-annexes/view). We took establishment size, establishment being part of a large company, sector and industry as 'basic' establishment characteristic predictors. These variables appear in our Model 1. Relationships between these variables and the management of OSH are reasonably well documented in the literature. In Model 2, we add establishments' employee demographics which are a less well explored domain in the literature. In Model 3, we add country as a way to control for differences in cultural and social background as well as in regulatory environment. Finally, in Model 4, we introduce (1) reported presence of psychosocial risks, (2) whether or not visits are paid to the establishment by a labour inspectorate and (3) perceived presence of different types of external (e.g. labour inspectorate) and internal (e.g. employees) pressures towards dealing with OSH risks. The introduction of (1) and (2) represents an attempt to control, to some extent, for 'objective' circumstances (i.e. the presence or absence of real risks) and management perception of the problem of psychosocial risks. Model 3 is conceived as capable of capturing some of the regulatory characteristics.

The findings of Model 4 are given in Table 3. The table shows the proportion of variance explained by a sequence of models from which single predictors were removed in turn, with all other predictors retained. It helps identification of the most influential predictors. The most influential background variables are therefore country, size of the establishment and industry. Exclusion of these variables from the model reduces 10 %, 4 % and 2 %, respectively, from the amount of explained variance.

We look at the findings for the specific categories below in turn.

Table 3: **Quantification of the impact of single predictors (Model 4, all establishments)**

Variable	R^2 with variable excluded	Full model (Model 4)	Loss of R^2 relative to full model
Country	0.202	0.305	0.103
Size of establishment	0.269	0.305	0.036
Reasons for dealing with health and safety	0.283	0.305	0.023
Industry	0.287	0.305	0.018
Visits by labour inspectorate	0.301	0.305	0.005
Whether part of a larger establishment	0.301	0.305	0.004
Whether psychosocial risks are a major concern	0.304	0.305	0.002
Percentage of female	0.304	0.305	0.001
Percentage of foreigners	0.304	0.305	0.001
Public or private	0.305	0.305	0.001
Percentage of aged 50 +	0.305	0.305	0.000

NB: N = 26,354.

Source: RAND Europe calculations

4.2.2. The size of the establishment and psychosocial risk management

A large size of establishment is associated with better management of psychosocial risks. This relationship is illustrated by Figure 5, which presents the OSH_psycho score predicted on the basis of the multivariate model. The OSH_psycho score presented here expresses an average number of aspects of management of psychosocial risks reported implemented by establishments in each size category, with all other predictors of OSH management held constant, at their mean values.

The number of aspects of management of psychosocial risks increases gradually with increase in size of establishment. The smallest establishments report having around two aspects of management of psychosocial risks, whereas the largest establishments report having three to four aspects. The described relationship is statistically significant and is in line with what can be expected on the basis of the literature on the determinants of OSH management.

Figure 5: **Establishment size and psychosocial management composite score**
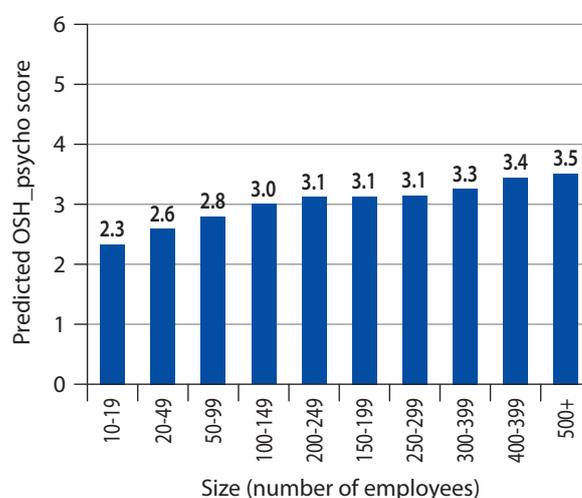
NB: weighted results, N = 26 354 (92 % of the original unweighted sample).

Source: RAND Europe calculations.

4.2.3. Industries and reporting of aspects of psychosocial risk management

The scope of management of psychosocial risks is associated with industry to which an establishment belongs. This relationship is described by Figure 6. Again, we present the OSH_psycho score predicted on the basis of the multivariate model. The OSH_psycho score presented here expresses an average number of aspects of management of psychosocial risks reported by establishments in each industry, with all other predictors of OSH management held at their means.

The number of aspects of management of psychosocial risks is lowest in manufacturing and construction (two to three aspects) and highest in education, health and social work (three to four aspects). Remarkably, there is not a single industry that, as a whole, implements four or more aspects of OSH management in the area of psychosocial risks, other things being equal.

4.2.4. Reporting of aspects of psychosocial risk management and country context

The scope of management of psychosocial risks is also associated with the country to which an establishment belongs.

Figure 6: **Industry and OSH_psycho composite score**
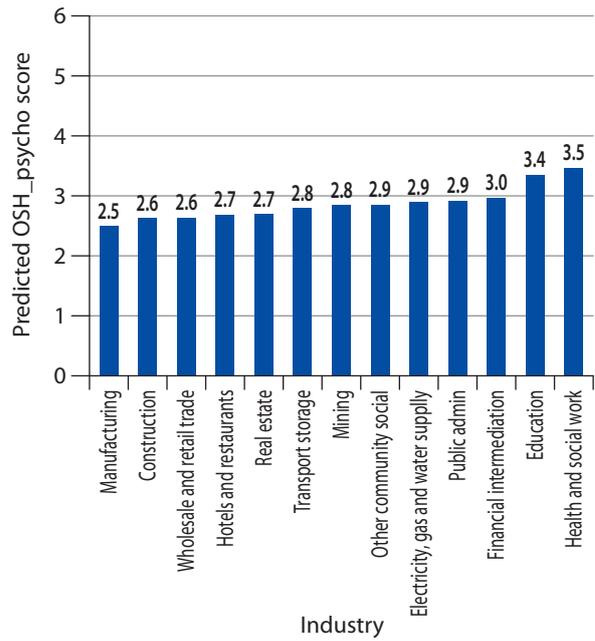
NB: weighted results, N = 26 354 (92 % of the original unweighted sample).

Source: RAND Europe calculations.

Figure 7: **Country and OSH_psycho composite score**
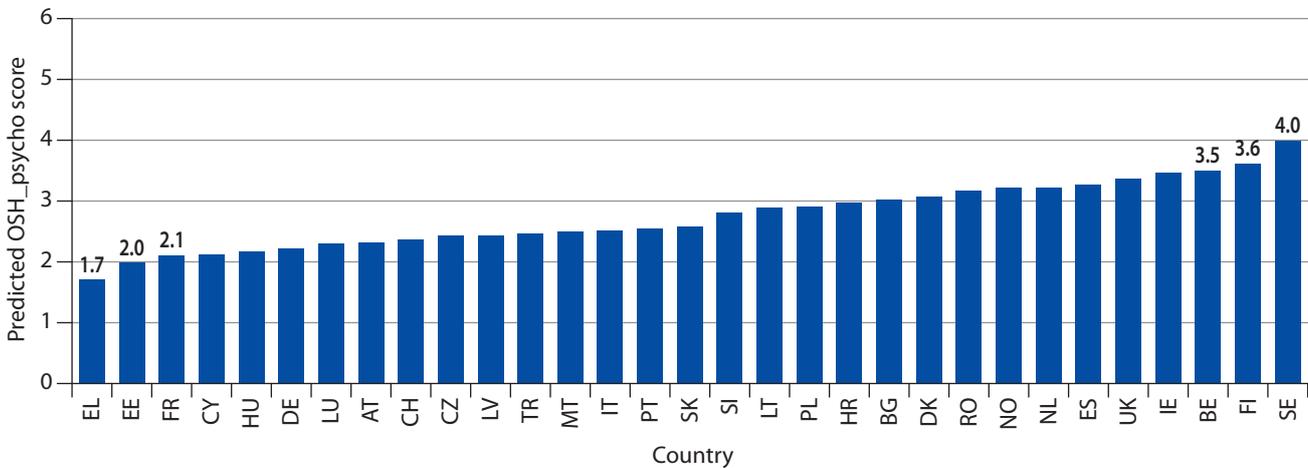
NB: weighted results. N = 26,354 (92 % of the original unweighted sample).

Source: RAND Europe calculations.

Other things being equal, selected countries of southern and eastern Europe seem to be reporting fewer instruments to manage psychosocial risks: in Greece, Cyprus, France and Estonia around two or less aspects of management are reported implemented. Selected countries of northern Europe report higher levels: in Sweden and Finland around four aspects are reported.

So far we have discussed the most important determinants of psychosocial risks. The conclusion on their principal importance originates from a number of tests that we ran. First, we compared the standardised coefficients of all determinants and found that standardised coefficients of size, industry and country had the largest values. Second, we ran a sequence of 'reduced' multivariate models. In these models we removed each determinant in turn and compared the proportion of variance explained by the model to the proportion of variance explained by the full model, i.e. the model with all determinants present.

In the next section we proceed to the presentation of some additional associations between selected determinants and the OSH_psycho score. We present these associations in the order of their importance. All determinants of management of psychosocial risks shown in subsequent sections are less influential than size, industry and country.

4.2.5. Independent and private establishments and reported numbers of psychosocial risk management measures

As their impact on OSH_psycho score is more limited, we did not calculate predicted scores for categories of these variables. Instead we discuss their impact in a narrative form.

Being part of a larger establishment (as opposed to being an independent establishment) is associated with somewhat better management of psychosocial risks: other things being equal, the difference in OSH_scores between independent and non-independent establishments is about 0.2 (Figure 8).

Figure 8: **Status of establishment and OSH_psycho composite score**
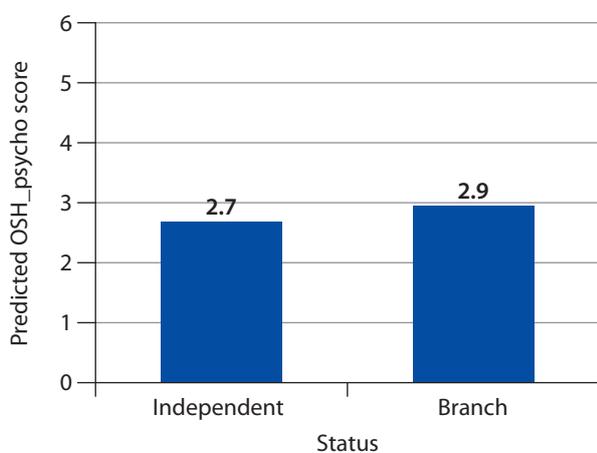
NB: N = 26 354 (92 % of the original unweighted sample). All relationships are statistically significant.

Source: RAND Europe calculations.

Private establishments are slightly worse at managing psychosocial risks than public establishments: the OSH_score of private establishments is lower than of public establishments by 0.2 (Figure 9).

Figure 9: **Sector and OSH_psycho composite score**
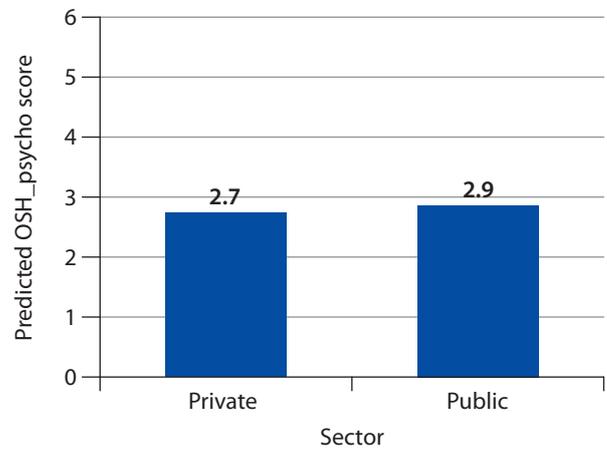
NB: N = 26 354 (92 % of the original unweighted sample). All relationships are statistically significant.

Source: RAND Europe calculations.

4.2.6. The composition of the workforce and reporting of psychosocial risk management measures

The demographic features of an establishment (i.e. composition of its workforce by age, sex and origin) are the least influential determinants of the scope of management of psychosocial risks.

The scope of management of psychosocial risks increases with the increase in proportion of female employees. However, both male-exclusive and female-exclusive establishments are doing worse in terms of management of psychosocial risks than establishments with a more balanced sex composition. The OSH_psycho score of establishments with 40 to 60 % of females in their workforce is 0.2 units higher than the score of establishments with no females at all. OSH_psycho scores of female-exclusive and male-exclusive establishments are not significantly different from each other (see Figure 10). We should remember that male-exclusive and female-exclusive establishments constitute a small minority of all establishments (about 4 % in both groups).

Figure 10: **Sex composition and OSH_psycho composite score**
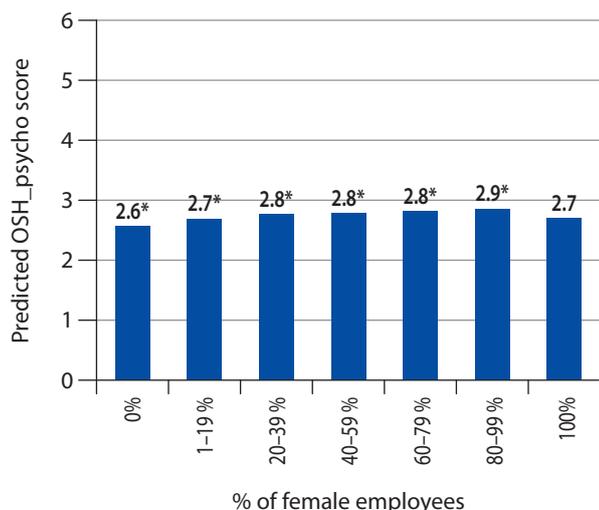
NB: N = 2 354 (92 % of the original unweighted sample). Statistically significant relationships are marked with stars.
Source: RAND Europe calculations

Establishments having a sizable minority of non-nationals in their workforces are slightly better in terms of management of psychosocial risk than establishments with no non-nationals or establishment numerically dominated by non-nationals: their OSH_psycho scores are higher by 0.1 units (Figure 11). In ESENER, about 46 % of establishments (12 000) had no non-nationals and 36 % (9 500) had between 1 and 19 % of non-nationals, 8 % (2 000) had 20 to 39 % of non-nationals, 4 % (1 000) had 40 to 59 % of non-nationals, another 4 % had 60 to 99 % of non-nationals, and less than 1 % (140) had only non-nationals.

Figure 11: **Non-nationals composition and OSH_psycho composite score**
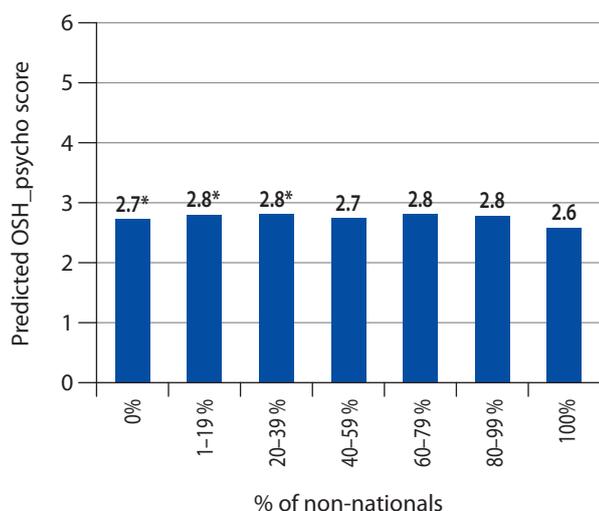
NB: N = 26 354 (92 % of the original unweighted sample). Statistically significant relationship are marked with stars.
Source: RAND Europe calculations.

Age composition of an establishment is not a significant determinant of management of psychosocial risks (Figure 12). Note that the proportion of establishments with all of their employees aged 50 years and over is negligible.

Figure 12: **Age composition and OSH_psycho composite score**
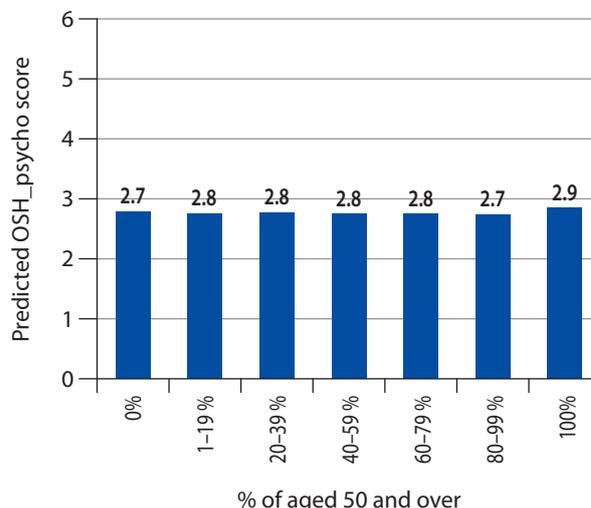
NB: N = 26 354 (92 % of the original unweighted sample).

4.2.7. The importance of the country context in determining the presence of effective psychosocial risk management

This section presents predicted scores of the scope of management of psychosocial risks for combinations of industry and size. Here we choose to focus on two selected industries (the 'best' and the 'worst' in terms of management of psychosocial risks) and on three broad categories of size. Countries have been selected to represent those reporting most measures (Sweden and the United Kingdom), the countries reporting fewest measures (France and Greece) and countries with intermediate reporting of measures to manage psychosocial risks (Spain and Germany).

Table 4: **Country and OSH_psycho composite score**

	Health and social work (best performer)			Manufacturing (worst performer)		
	up to 50 employees	100–399 employees	400+ employees	up to 50 employees	100–399 employees	400+ employees.
Sweden	4.3	4.9	5.3	3.3	3.9	4.3
United Kingdom	3.6	4.3	4.6	2.7	3.3	3.7
Germany	2.5	3.1	3.5	1.5	2.2	2.5
Spain	3.5	4.2	4.5	2.6	3.2	3.6
France	2.4	3.0	3.4	1.4	2.1	2.4
Greece	2.0	2.6	3.0	1.0	1.7	2.0

NB: weighted results. N = 26 354 (92 % of the original unweighted sample).

Source: RAND Europe calculations.

There are a number of key conclusions that can be derived from these results. Although establishment size matters (difference of just below 1 unit of OSH_psycho score between absolute size categories) it does not determine fully an establishment's fate or course of action. Even at small company sizes there is a possibility of having a rather decent coverage of OSH_psycho management aspects in certain regulatory contexts: in a range of three to four (out of a possible six) in Sweden, the United Kingdom and Spain in industries reporting the most measures (health and social work). Furthermore, even at largest establishment sizes, there are nearly twofold differences in the number of OSH_psycho aspects implemented by Sweden and Greece. The differences between 'best' and 'worst' reporting industries are of the order of magnitude of one unit of OSH_psycho score. Thus industry effect is similar in strength to the impact of size.

Country-specific economic, cultural and regulatory context matters the most. The difference between the countries reporting most and least measures to manage psychosocial risks is about two units of OSH_psycho score, which is significantly above the impacts of size and industry. Unfortunately, 'country context' is a non-specific entity in the context of this study and can include a variety of country characteristics. It is difficult to interpret it without an in-depth analysis of regulatory practices and social and cultural environments in which OSH management is taking place. There are pockets of minimal presence of reported OSH_psycho management in Greece and France at small and medium-sized establishments in the manufacturing industry.

4.2.8. Looking in more detail at components of the OSH_psycho index

The previous section highlighted the importance of country context and the size of establishments as factors in determining the extent of the management of psychosocial risks in establishments. This section looks in more detail at the frequency of components of the OSH_psycho index in establishments of various sizes in some of the specific countries selected above (Sweden, the United

Kingdom, Spain, France and Greece). These are countries with differing overall reported management of psychosocial risks. The aim of this section is to see which components of the index are specific to country context and size of establishment. In Table 5 to Table 9, the left column represents the variables or components of the OSH_psycho index; the overall frequency of measures is the average across all establishments included in ESENER; N refers to the number of establishments included in each table. Frequency refers to the percentage of establishments in the data set that have a specific measure.

It is important to note that given the uneven coverage in the OSH_psycho index of measures that could make up a systematic approach to the management of psychosocial risks and as such the inclusion of only six to eight measures in the index, care needs to be given to how these frequencies are interpreted. As such, they offer indications as to which establishments and countries use some specific measures.

In terms of overall frequency, several of the OSH_psycho measures have low frequencies: the use of psychologists and the existence of procedures to deal with psychosocial risks report the lowest frequency across all establishments included in ESENER, 24 and 17, respectively; as opposed to this, knowing whom to address on the topic of psychosocial risk management and the existence of training the most frequent measures report frequencies of 75 and 61, respectively (see Table 5). When comparing these frequencies with the analysis from the accompanying report on 'Factors associated with effective management of general OSH' published by EU-OSHA, it is fair to conclude that across the board the frequencies of OSH_psycho measures is lower than more general OSH measures, reflecting the lower prevalence of measures aimed specifically at the management of psychosocial risks.

Table 5 also shows the frequency of OSH_psycho measures per size of establishment. As expected, it shows an overall decrease of measures as the size of an establishment decreases. However,

the decrease is most pronounced for OSH_psycho management practice related to the use of a psychologist and whether health and safety information is used to inform or improve OSH management. The difference in frequency for these types of OSH practice between small and very large establishments is 30 and 34 respectively and between medium size and very large 16 and 15 (with larger establishments reporting more OSH practice). Other practices such as knowing whom to address with regard to psychosocial risk management and presence of procedures to deal with psychosocial risks show a less substantial decrease in frequency across size ranges, respectively 20 and 19 between small and very large establishments and 9 and 12 between medium and very large respectively (with large establishments reporting more OSH practice). It is of interest that the absence of procedures to deal with psychosocial risk management as such is more common across size ranges than for instance the use of a psychologist.

Table 5: **Frequency of components of OSH_psycho index per size of establishment**

Variable (questionnaire)	Abbreviated name	Frequency overall	10–19	20–49	50–249	250–499	500+
MM150.3	psychol_used	24	14	21	28	35	44
MM253.6	training	61	50	58	65	70	77
MM259	inform_empl	59	50	54	63	69	76
MM260	whom_to_address	75	67	71	78	83	87
MM302	info_used	47	33	42	52	62	67
MM250_252	procedures	17	11	14	18	24	30
	N =	24 910	6 206	6 827	7 223	2 544	2 110

Source: RAND Europe calculations.

When we look at frequency of components in specific countries, we notice as before the importance of country context (Table 6). However, differences in frequency are more pronounced for certain components of the OSH_psycho index than others across countries. Striking are the significant differences in the less frequently reported measures (use of a psychologist and the presence of procedures): with the use of a psychologist quite frequent in Sweden but not frequent at all in Germany and Greece; and the existence of procedures frequent in Sweden and the United Kingdom but not at all frequent in Germany, France and Greece. Differences in frequency of the measure 'use of psychologist' between Sweden and Greece and Sweden and France are respectively 68 and 60. Differences in the frequency of the measure, 'presence of procedures to manage psychosocial risks', between Sweden and Greece and Sweden and France are respectively 50 and 44. The differences in frequency of countries seem less pronounced for OSH_psycho practice related to whether training is available and whether employees are informed of psychosocial risks; with respectively differences of 31 and 32 between Sweden and Greece; and respectively differences of 11 and 32 between Sweden and France (with establishments in Sweden reporting more OSH practice). The other components of the index show wider differences in frequency. Overall, there seems quite a substantial difference in frequencies across countries on most measures related to the management of psychosocial risks.

Table 6: **Frequency of components of OSH_psycho index per specific country**

Variable (questionnaire)	Abbreviated name	Frequency overall	Sweden	United Kingdom	Germany	Spain	France
MM150.3	psychol_used	24	75	14	10	28	15
MM253.6	training	61	70	73	69	48	59
MM259	inform_empl	59	71	57	43	79	39
MM260	whom_to_address	75	94	86	70	82	69
MM302	info_used	47	68	54	34	76	37
MM250_252	procedures	17	53	54	5	13	9
	N =	24 910	929	1 367	1 429	1 396	1 444

Source: RAND Europe calculations.

When highlighting these differences, it is useful to look at specific countries. In Table 7 to Table 9 we look at the presence of the components of the index in Sweden, Germany and Greece across the size ranges of establishments. When looking at less commonly reported components of the OSH management practice index, such as the use of a psychologist, there is a difference in frequency between small and very large of 43 in Sweden, 21 in Germany and 22.4 in Greece (with larger establishments reporting more OSH practice). However, small establishments in Sweden have a much higher frequency of using this measure than the average of establishments included in ESENER; 24 above the average. In Germany this is 20 below the average and in Greece 23.5 below the average. When looking at a relatively commonly reported practice of OSH management such as knowing whom to address about psychosocial risk management, there is a difference in frequency between small and very large of 13 in Sweden, 23 in

Germany and 46 in Greece (with larger establishments reporting more OSH_psycho practice). Small establishments in Sweden show a higher frequency on this measure compared to the average of establishments included in ESENER; 11 above the average. In Germany this is 28 below the average and in Greece 32 below the average.

Looking at the frequency of components of the index across establishments and countries exposes the stark differences between the frequency of measures, with some measures largely absent in some countries and great differences between size ranges for other measures. Countries that have a higher OSH_psycho score in our model not surprisingly have a better overall coverage of measures but also less pronounced differences between sizes of establishments on most measures compared to other countries.

Table 7: **Frequency of components of OSH_psycho index per size of establishments in Sweden**

Variable (questionnaire)	Abbreviated name	Frequency overall	10–19	20–49	50–249	250–499	500+
MM150.3	psychol_used	24	51	74	82	93	94
MM253.6	training	61	53	62	79	90	92
MM259	inform_empl	59	60	69	73	80	90
MM260	whom_to_address	75	86	95	97	98	99
MM302	info_used	47	48	62	80	83	83
MM250_252	procedures	17	36	56	51	66	79
	N =	929	224	258	264	83	100

Source: RAND Europe calculations.

Table 8: **Frequency of components of OSH_psycho index per size of establishments in Germany**

Variable (questionnaire)	Abbreviated name	Frequency overall	10–19	20–49	50–249	250–499	500+
MM150.3	psychol_used	24	4	6	11	19	25
MM253.6	training	61	60	63	72	71	84
MM259	inform_empl	59	32	40	46	51	56
MM260	whom_to_address	75	57	63	74	80	86
MM302	info_used	47	16	26	37	51	57
MM250_252	procedures	17	2	3	7	8	9
	N =	1 429	328	361	409	148	183

Source: RAND Europe calculations.

Table 9: **Frequency of components of OSH_psycho index per size of establishments in Greece**

Variable (questionnaire)	Abbreviated name	Frequency overall	10–19	20–49	50–249	250–499	500+
MM150.3	psychol_used	24	0.5	6	8	14	23
MM253.6	training	61	27	36	38	63	71
MM259	inform_empl	59	30	34	43	51	69
MM260	whom_to_address	75	43	45	58	71	89
MM302	info_used	47	19	27	29	41	50
MM250_252	procedures	17	0.5	3	4	6	6
	N =	863	240	234	257	80	52

Source: RAND Europe calculations.

4.3.   Additional findings

4.3.1.   The management of psychosocial risks compared to the general management of OSH

These percentages on the adoption of psychosocial risk management measures outlined in Section 4.1.2 (about one third of all establishments across Europe report at least four aspects of the management system for psychosocial risks; around 3 % of all establishments report all six aspect; 12 % of establishments report not implementing any aspects, a sizable minority) stands in contrast to implementation of general OSH management reported on in an accompanying report *Management of occupational safety and health — Analysis from the European Survey of Enterprises on New and Emerging Risks (ESENER)* (EU-OSHA, 2012). Establishments implementing all elements constituted 20 % and establishments not implementing any aspects of OSH constituted less than 1 % of the total. Thus, management of psychosocial risks appears to be a relatively problematic aspect of OSH management. Psychosocial risks seem to be less well addressed at an organisational level than general risks. These risks deserve special attention by policymakers in the area of OSH ([12]).

The analysis in Appendix A: http://osha.europa.eu/en/resources/management-psychosocial-risks-esener/factors-associated-with-effective-management-of-psychosocial-risks-annexes/view (see Table 5 for more detailed information) shows that, among establishments at the lowest levels of the general OSH composite score as reported in the report *Management of occupational safety and health — Analysis from the European Survey of Enterprises on New and Emerging Risks (ESENER)* (EU-OSHA, 2012), over 65 % also possess the lowest OSH_psycho composite score and less than 1 % have the highest OSH_psycho composite score. Among establishment at the highest (best) levels of the general OSH composite score, 30 % also possess the highest OSH_psycho composite score and

only 12 % have the lowest OSH_psycho composite score. So, the better the level of management of general risks the better the level of management of psychosocial risks.

4.3.2.   The employees' and managers' perspectives in ESENER

ESENER asked for both managerial (MM) and employee representatives' (ER) perspectives on selected questions. Specifically in relation to psychosocial risks, ESENER included two identical questions for managers and employee representatives: a question on provision of training on ways to deal with psychosocial risks and informing employees regarding the effects of these risks on health.

The analysis presented in Table 10 shows that responses to the identical questions are significantly correlated: in about 60 % of cases MM and ER answers are identical. However, it is also clear that a 'dissenting' fraction is rather large: around 40 %.

Table 10: **Comparison of MM and ER perspectives**

	MM253 vs ER300_6 In the last three years has your establishment used 'provision of training' to deal with psychosocial risks?	MM259 vs ER303 Do you inform employees about psychosocial risks and their effects on health and safety?
MM yes and ER yes	41 %	38 %
MM no and ER no	19 %	19 %
MM yes and ER no	25 %	27 %
MM no and ER yes	15 %	16 %
'Agreeing' fraction	60 %	43 %
'Disagreeing' fraction	40 %	57 %

Source: RAND Europe calculations.

([12])   This recommendation holds under the normative assumption that systemic management of psychosocial risks is needed in all establishments.

Focusing on that 'dissenting fraction' it can be seen that in general, employees tend to provide a somewhat more pessimistic picture of management of psychosocial risks: in about 25 to 27 % of establishments it is the ER that provides the negative answer (no 'provision of training', no 'information on the effects of psychosocial risks on health and safety') while their MM counterparts say yes. On the other hand, in only 15 to 16 % of establishments is the ER giving the positive answer while the MM says no.

To further assess the difference between the MM and ER perspectives we replaced questions MM253.6 and MM259 with questions ER300_6 and ER303, respectively, in factor analysis (for more detailed information see Table 12 and Figure 6 in Appendix A: http://osha.europa.eu/en/resources/management-psychosocial-risks-esener/factors-associated-with-effective-management-of-psychosocial-risks-annexes/view). In terms of what we can say by replacing specific ER variables in the MM model, it appears that most predictors such as size, industry and sector show few differences between MM and ER. Our empirical analysis shows in general that employee representatives' and managers' perspectives in ESENER are correlated, this issue deserves to be further explored as existing differences in the assessment of particular aspects of the management system may reflect the effectiveness of psychosocial risk management.

4.4.   Summary

This chapter has given an overview of the main findings of the empirical analysis of ESENER data. Appendix A: http://osha.europa.eu/en/resources/management-psychosocial-risks-esener/factors-associated-with-effective-management-of-psychosocial-risks-annexes/view gives specific details on the factor analysis and multivariate modelling. The main findings are listed below.

- Applying factor analysis showed that eight factors or variables considered for inclusion in the psychosocial management index were strongly correlated with each other. This enables the development of a composite index and leads to the conclusion that establishments, on the whole, appear to be taking systemic approaches to the management of psychosocial risks. The application of a risk management approach appears empirically justifiable. However, certain variables that could have been part of the index were excluded because they formed a second axis in the factor analysis, meaning something else was influencing these factors.

- The size of the establishment, industry and country are the strongest determinants of the scope of management of psychosocial risks.

- Smaller establishments report fewer psychosocial risk management measures compared with large establishments.

- Industries differ significantly in relation to the scope of management of psychosocial risks. Aspects of management of psychosocial risks are typically reported more in industries such as education, health and social work, relative to manual occupations such as construction and mining.

- The host of cultural, economic and regulatory realities captured in this study by a 'country' variable are strong determinants of management of psychosocial risks. A more detailed analysis reveals the country context to be the most significant factor in determining the presence of psychosocial risk measures.

- From our more detailed analysis, there are pockets of a minimal presence of psychosocial risk management in Greece and France at small and medium-sized establishments in the manufacturing industries.

- Other demographic variables, and variables related to the structure of an establishment, are less significant in explaining changes in psychosocial risk management.

- In terms of overall frequency of components in the index, several of the measures to manage psychosocial risks have low frequencies: with the use of a psychologist and the existence of procedures to deal with psychosocial risks having the lowest frequency across all establishments; and with knowing whom to address on the topic of psychosocial risk management and the existence of training the most frequent measures.

- The analysis exposes the stark differences between the frequency of measures, with some measures largely absent in some countries and great differences between size ranges for other measures.

- The management of psychosocial risks in European establishments appears to lag behind the management of general OSH risks. Establishments with good management of general OSH risks also appear to manage psychosocial risks better.

- Our empirical analysis shows that employee representatives' and managers' perspectives in ESENER are correlated, with employee representatives presenting a slightly more pessimistic picture of the psychosocial risk management than managers.

5. Discussion of what the survey can tell us

Understanding the limitations of ESENER is necessary as it affects what we can say on the basis of the empirical analysis. However, it is important to note that despite some inherent limitations, some clear policy recommendations can be identified (see Chapter 6). The latter also reflects on the quality of the data collected within ESENER.

5.1. Inherent limitations of the survey

5.1.1. Common weaknesses in surveys like ESENER and the empirical analysis undertaken

This chapter does not aim to give an overview of the specific methodology used to deploy ESENER. This report as such does not reflect on how the survey instrument was designed, the sampling, response rates, representativeness and the way the data was collected. These processes are described in a report by TNS Infratest Sozialforschung, Germany, available from EU-OSHA. TNS Infratest is the organisation that managed the design, sampling, and implementation of the survey across 31 countries on behalf of EU-OSHA. Rather, this section points to some general issues.

Surveys such as ESENER typically have a low response rate. A cross-European survey would also have differential response rates by country. This is a common problem for many surveys including the European working conditions survey managed by the European Foundation for the Improvement of Living and Working Conditions. Upfront, it is hard to say how this affects the survey. One would need to build up a profile of the establishments not taking part in the survey to understand if any bias is introduced in the results.

We investigated the impact of non-response in the analysis by assigning a separate code to categories with missing information and using it as an additional category in regression analysis (for more information see Appendix A: http://osha.europa.eu/en/resources/management-psychosocial-risks-esener/factors-associated-with-effective-management-of-psychosocial-risks-annexes/view). In most cases, the coefficients of 'missing' categories were not statistically significant. On the basis of these findings there was no reason to suspect that 'missing' categories could be informative.

In addition, in an empirical analysis of this kind, the direction of impact and causality are the most obvious and serious limitations. For instance, in establishing the index of psychosocial risk management, it is not always clear how the variables in the index relate to each other. Training may impact the procedure on how to deal with violence and harassment and vice versa. The empirical research can tell us little about the direction of causality. In fact, this observation shows the importance of a thorough review of the literature. An increased understanding of how components of risk management approaches in the literature, as outlined in Chapters 2 and 3, help to inform empirical analysis. At the same time, gaps in the literature limit what we can say about the interdependencies.

From an empirical point of view, two strategies could help in determining the direction of causality: a repeat survey covering as many as possible establishments who replied in the first survey, which would significantly enhance understanding of causality; and qualitative research with establishments to understand the context of their responses and their view on relationships.

Furthermore, more work is required on understanding the individual aspects of psychosocial risk management and their distribution across establishments. Our empirical analysis did not look at the most popular subgroupings of aspects of psychosocial risk management in the index and their distributions across countries and specific establishments. As such, the analysis took each element of the index as equal and did not give a specific weight to one aspect over the other. This was judged to be the right course of action as the literature review in Chapter 2 did not offer evidence on weighting of one aspect of psychosocial risk management over the other.

5.1.2. The coverage in the survey of questions on the management of psychosocial risks

A further limitation in our analysis linked to the first is the uneven coverage within the questions of the conceptual framework proposed in Chapter 3. This is an inevitability of linking secondary analysis to a survey with wider aims. The survey contained questions asked to all establishments (unfiltered) and questions asked of a subset of establishments (filtered). The unfiltered questions focus particularly on common interventions and how common risk factors are dealt with in an organisation. As such, there are few unfiltered questions on how interventions are evaluated and how information on risks is gathered, analysed and translated into action. Ideally, more aspects of the risk management approach could be included in further surveys to allow us to test the prevalence of various other measures aimed at the effective management of psychosocial risks and see how they relate to other aspects that we included in the index developed in Chapter 4.

This low coverage and the way questions are asked are linked to how we could use factor analysis in this project. Factor analysis builds an index of associated measures and excludes less significant variables. In addition, factor analysis looks at questions asked across establishments rather than filtered questions. As such, having questions using different modalities and asking questions that cover part of a systemic approach limit what we can say using factor analysis about components that empirically constitute an index.

5.1.3. Outcome information in ESENER

ESENER focuses on reported practice and as such does not ask about the quality of implementation or the impact of such implementation. There are some good reasons for not including outcome questions.

- Self-reported information from establishments on impacts may be unreliable.

- Surveys have space restriction in the number of questions that can be included (particularly telephone surveys).

- Telephone surveys can only ask respondents for information that is easily available to them.

Nonetheless, the absence of information on the quality of implementation and impact may introduce a bias in the analysis, for instance, towards establishments that use a 'tick the boxes' approach with less concern for quality. It is important to note that ESENER did ask follow-up questions to try to understand aspects of psychosocial risk management and their — perceived by the respondents — effectiveness. However, the filtered results do not lend themselves easily to factor analysis.

In future surveys, EU-OSHA could consider collecting selected 'objective' measures of health and safety such as the rate of accidents and sickness at workplace, in addition to questions on management of OSH that are being collected already. Collection of such measures would allow relating patterns of management of OSH to the actual experiences of OSH at an establishment level. Coupled with a longitudinal design (see above), it could provide an answer to a question of the extent to which patterns of OSH practices affect the actual OSH outcomes, and are being affected by a particular OSH situation in the establishment. A main downside of taking this approach is that, typically, respondents estimate outcome measures. These estimates may be inconsistent with official data held on an establishment, or — more importantly — with reality.

As an alternative to making the survey longer and more cumbersome, EU-OSHA in follow-up work can consider linkage of specific survey data to administrative sources of information, e.g. business registries and databases containing information on accidents at workplaces. Typically, such sources contain rich information on workplace accidents and some measures of businesses performance. For example, the Health and Safety Executive in the United Kingdom maintains a company-level database on fatal and non-fatal injuries, occupational diseases, and dangerous occurrences (Riddor), and Office for National Statistics maintains the Inter Departmental Business Register containing data on companies' turnover, employees, goods and services traded. Data linkage could be a laborious undertaking but it would also represent a shortcut towards collection of 'objective' data, which is harder to obtain through surveys. Moreover, such data derived from the administrative sources could be of better quality, and time-series of data could be obtained. However, access to such data is a problem, data is likely to be available at company level (not at establishment level) and data is unlikely to

be harmonised across Europe. As such, this approach could not be undertaken systematically in ESENER but more discretely as an accompanying piece of research.

5.1.4. ESENER and informal procedures and organisational culture

ESENER focuses rightly on procedures and processes that are in place. However, informal processes and organisational culture may contribute quite significantly, in a number of establishments, to the effective management of OSH. This may particularly be the case in countries with soft regulatory approaches or with a large proportion of small-size enterprises, allowing less well-documented OSH management practices. ESENER tries to capture informal processes to some extent by for instance referring to workplace checks rather than formal documented risk assessment.

5.2. Summary

This chapter gave an overview of some of the limitations of ESENER as they affect what we can conclude. The main findings are listed below.

- The analysis of ESENER presents similar challenges to other large-scale international surveys. ESENER has similar issues regarding the management of non-response, an inevitable issue in most large-scale surveys. The empirical analysis is not affected by missing information. Moreover, direction of impact and causality are often difficult to establish in surveys like ESENER. To assist in determining the direction of causality, two approaches could be used: a repeat survey covering as many as possible establishments who replied in the first survey, which would significantly enhance understanding of causality; and qualitative research with establishments to understand the context of their responses and their view on relationships.

- Though ESENER was explicitly not designed to cover all aspects of systemic approaches to manage psychosocial risks, to aid empirical analysis of the sort used in this report future surveys could include more conceptual approaches that lend themselves better to factor analysis. This approach would make a more thorough assessment of all aspects related to the effective management of psychosocial risks possible.

- ESENER does not readily include objective outcome information, making it difficult to assess the quality of implementation and impacts. ESENER could explore the possibility of linkage to existing sources of administrative data on impacts.

6. Towards policy recommendations

In this chapter, we discuss some of the interesting policy implications that arise from the empirical analysis. In each section, we outline the main finding and the specific need for further research, which could take the form of further development of the ESENER instrument, qualitative and follow-up research commissioned by EU-OSHA, and independent academic work.

6.1. Main findings

6.1.1. The use of systemic approaches and developing an index for psychosocial risk management

The literature review in Chapter 2 concluded that the risk management approach appeared an effective way forward for the management of psychosocial risks. Our analysis showed that those aspects that were expected to be part of a common approach were indeed highly correlated. This is useful as it suggests to policymakers that a systemic approach appears to make sense and is in line with approaches by several OSH stakeholders in Europe, including the HSE (HSE, 2007) in Great Britain as well as INRS (INRS, 2007) and ANACT (Mercieca and Pinatel, 2009) in France.

However, several measures that we may have expected to be included in an index representing psychosocial risk management were excluded because they formed a second axis in the factor analysis, meaning something else was influencing them. These questions related to: changes in the way work is organised; a redesign of the work area; confidential counselling for employees; setting up a conflict resolution procedure and changes to working time arrangements. The reasons why these questions formed a second axis is not entirely clear. They may relate to actions taken in reaction to specific problems identified in the establishments (i.e. you build in a selection effect of establishments with specific issues by asking these questions). Moreover, these measures may be taken independently of specific measures aimed at psychosocial risk management or may not have been deemed necessary or relevant by specific establishments. Finally, the exclusion of certain questions could also reflect on the fact that measures taken to tackle psychosocial risks are more random and underdeveloped than general OSH management. As such, patterns of practice across European establishments could be more random and associational patterns more difficult to establish. In any case, the exclusion of these factors that could have an effect of psychosocial risk management has to be noted. For instance, some of these measures relating to providing confidential counselling and setting up of a conflict resolution procedure could be seen as useful preventative measures accompanying more specific measures aimed at the management of psychosocial risks. There were other limitations in our work. As mentioned earlier, we had a limited number of relevant questions in ESENER that covered aspects of the risk management approach imperfectly. We also had little information on the relative importance of each aspect upfront and had to weigh aspects equally.

Main finding

It is important to note that the index on the management of psychosocial risks proposed in this study appears empirically and conceptually justified. However, it is also clear that it should not be considered as a complete representation of a systemic approach of psychosocial risk management due to both the still developing nature of this concept and inherent limitations of the survey instrument.

Further research

Further research and surveys could focus on testing further aspects of a systematic approach to psychosocial risk management and seeing which other factors could be included in a more developed index.

6.1.2. The frequency of measures to manage psychosocial risks

Our empirical analysis of the ESENER data also revealed interesting findings with regards to the frequency of psychosocial risk management practice. Given the inclusion of a relatively low number of measures aimed at systemic psychosocial risk management, care has to be given in interpreting frequencies. Nonetheless, they give some indications on where specific measures occur.

In terms of overall frequency, several of the psychosocial risk management measures have low frequencies: with the use of a psychologist and the existence of procedures to deal with psychosocial risks having lowest frequency across all establishments included in ESENER; and with knowing whom to address on the topic of psychosocial risk management and the existence of training the most frequent measures. Looking at the frequency of components of the index across establishments and countries exposes the stark differences between countries, with some measures largely absent in some countries and great differences between size ranges for other measures.

Main finding

When comparing these frequencies with analysis from an accompanying report, *Management of occupational safety and health — analysis of the findings from the European Survey of Enterprises on New and Emerging Risks (ESENER)* (EU-OSHA, 2012), it is fair to conclude that across the board the frequencies of psychosocial risk management measures is lower than more general OSH measures, reflecting the lower prevalence of measures aimed specifically at the management of psychosocial risks.

In light of the European strategy 2007–12, the findings of our empirical analysis also expose that practice still differs greatly among Member States with relatively few frequent measures shared across a range of Member States. As stated in the paragraph above, this stands in some contrast to the general OSH management practice. Nonetheless, some more frequent measures such as the use of information or support from external sources on how to deal with psychosocial risks at establishment level could in part be seen as a response to the importance given to this issue at the European and national levels.

Below, we elaborate further on some of the main reasons for the difference in practice in establishments. 'Size' and 'country context' proved the most significant variables with 'industry' slightly less significant. We discuss these in turn before looking at less significant variables and additional findings.

6.1.3. Size

The results of ESENER confirm that size matters to an extent in effective management of psychosocial risks. Smaller-sized establishments typically report fewer procedures to cope with psychosocial risks. However, the research also shows in Chapter 4 that it does not have to be this way. Smaller establishments in Sweden, the United Kingdom and Spain show that even at small company sizes, regardless of the industry, there is a possibility of having a rather decent coverage of psychosocial risk management.

This observation is corroborated by the empirical modelling. Our analysis suggests that size, given the performance of some smaller establishments in Europe, may not be as a big a factor as previously thought. Size in our empirical analysis only explains about 4 % of the differences in uptake of psychosocial risk management practices between establishments. This is significant in the model, but clearly does not explain all variance.

This finding implies that size is not necessarily a predictor for the uptake of psychosocial risk management. This is important from a policy perspective. Structural changes in the EU-27 mean that SMEs are an increasingly important employer and will remain a driver for job growth going forward (EC, 2009). It means policymakers could target the use of psychosocial risk management procedures in smaller and the smallest establishments with low uptake of risk management measures and, in essence, based on the experience in other countries expect improvements in the extent of management reported.

However, this recommendation needs to be supported by a better understanding about what happens in the smallest establishments and whether a systemic risk management approach would be suitable for all establishments across Europe.

However, this finding needs to be qualified. Research points in the direction of the relative disadvantage that small establishments may have in the amount of resources that can be allocated for management of OSH and their limited capacity to follow the changing regulatory reality (Valued Research, 2007). This point

seems especially relevant in explaining the relative difference in adoption of formal processes in small establishments compared to large establishments. Evidence in the United Kingdom suggests that establishments on the whole take health and well-being seriously and regardless of size appear to devote resources to it (Valued Research, 2007). This finding is also corroborated by EU-OSHA (2010). In their analysis of ESENER, they report across all establishments that a lack of resources such as time, staff or money (49 % of establishments), a lack of training and/or expertise (49 % of establishments) and a lack of technical support or guidance (33 % of the establishments) are some of the main barriers to the uptake of psychosocial risk management reported by the respondents (EU-OSHA, 2010).

It is also true that small establishments use more informal processes and cite the size of the organisation and resources required as a reason for not formalising processes. The use of informal processes may vary across Europe and the size of establishments. It may also lead to differences in reporting, with some establishments having different perceptions of what constitutes measures of dealing with psychosocial risks. This may also be linked to regulatory styles and approaches. In some regulatory contexts small establishments may be less consistently or frequently inspected or exempt from certain types of inspection (Mendeloff et al., 2006). This means smaller establishments may have less incentive to introduce new procedures or address emergent issues. We reflect on this further below.

Main finding

If the objective of policymakers is to formalise processes dealing with psychosocial risk management, evidence in Europe suggests it is possible even in smaller establishments. However, other factors seem to play a role in the take-up of practice. Therefore, policymakers need to clearly understand the specific limitations associated with organisational capacity, create a greater understanding among establishments of what effective management of psychosocial risks is (in order to have practice better reported, documented and integrated in wider organisational processes), give appropriate support where necessary, and give clear incentives through the regulatory approach used for establishments to formalise processes. We discuss some below.

Further research

Further research is required on what explains the differences of take-up of practices aimed at psychosocial risk management across smaller establishments in Europe. In particular, more work is required on practice in the smallest enterprises with employee levels of 10 to 19 or 20 to 49.

6.1.4. Practice in industry

Our empirical analysis shows that industries differ somewhat in relation to scope of the management of psychosocial risks.

However, an interesting finding is that differences in practice largely appear to follow differences in the occurrence of psychosocial problems in the workforce. Psychosocial problems typically tend to be more severe in industries such as education, health and social work relative to manual occupations (Hassan et al., 2009). It is precisely in these industries that the empirical work presented in Chapter 4 finds the highest levels of reported implementation of psychosocial risk management.

From the point of view of the policymakers, this finding has two implications. On the one hand, it is encouraging as industries that report the most problems seem to report more measures. On the other hand, there are industries that have relatively low levels of psychosocial risk management measures. Here, how problems are reported and acted upon is important. It may well be that psychosocial risks are not particularly well understood in some industries and therefore not reported or acted upon. So, certain sectors may show less awareness of the issue, receive less feedback from employees or clients, or are less likely to act upon feedback. Our empirical analysis shows that feedback can be a contributing reason for establishments taking up psychosocial risk management practice. The risk remains that even in industries that do not perceive high levels of psychosocial risks, psychosocial risks may be prevalent. In addition, some sectors reporting high levels of psychosocial risk management also report that lack of resources (e.g. health and social sectors) is perceived less of a barrier than in other sectors. Finally, the analysis shows that establishments on the whole are less familiar with the management of psychosocial risks than observable physical hazards. It is also true in our empirical analysis that even establishments that are concerned about psychosocial risks do not necessarily act on this concern. Concern explains about 0.02 % of the variance between establishments in our model.

Main finding

Policymakers should give particular attention to industries with reported low levels of practice, understand the levels of psychosocial risks in this sector, and encourage the uptake of more systemic approaches to psychosocial risk management if appropriate. At the same time, policymakers should encourage those with practices in place to develop practices further. This is important as the management of psychosocial risks appears, from the analysis in Chapter 4, to be less well developed than the management of general OSH.

Further research

Further research is required to understand the factors that inhibit the take-up of practices in some industries. It is likely that organisational culture and tradition, next to the actual prevalence of the problem, play a role in how industries approach psychosocial risk management.

6.1.5. Country context

The analysis found that the host of cultural, economic and regulatory realities captured in this study by a 'country' variable are strong determinants of management of psychosocial risks. They explain about 11 % of the differences in the uptake of psychosocial risk management between establishments. However, we do not know always know which aspect of the 'country' variable matters. In a way, this is the most significant and difficult conclusion, especially from the policymakers' point of view. The situation is made more complicated by the particular nature of the index and frequency of measures across establishments. We reiterate two conclusions on the development of the index and frequency of the measures. On the one hand, there are clearly measures that are complementary and form part of an approach. On the other, the frequency of these measures was such that a real core approach of psychosocial risk measures was hard to establish. Below, we give a few indications.

It is clear that regulation is a driver. In earlier research (EU-OSHA, 2010), 63 % of establishments report regulatory compliance as a driver for the uptake of psychosocial risk management practice. However, our empirical analysis shows that regulatory compliance and inspections are a relatively weak explanatory factor, explaining respectively about 0.1 % and about 0.5 % of the differences in psychosocial risk management score between establishments. This finding could reflect on the limited regulation in this particular area, but also on the nature of inspections (see Mendeloff et al, 2006). Inspection regimes in countries with relatively well-developed OSH practices in establishments such as Sweden and the United Kingdom are increasingly risk based, follow consistent guidelines and have a consultative dimension to assist establishments in developing OSH policy and promoting its implementation.

Other variables often relate to awareness and receiving support. These relate back to the points on the development of capacity and expertise made earlier. It is clear that pubic support (e.g. training) and information provision are factors that could play a role in creating awareness and capacity and as a result promote the uptake of psychosocial risk management practice. Our empirical analysis shows that the use of information or support from external sources on how to deal with psychosocial risks at work and the existence of training are two more frequent measures in psychosocial risk management score across establishments indicating that establishments seem to respond to these stimuli.

Still, much of the variance in the model remains unattributed to specific factors. Other factors play a role. Such factors are the nature of industrial relations, organisational culture, economic conditions, wider societal awareness and acceptance of psychosocial issues and measures, and the maturation and development of health and safety systems. It seems logical to assume that there are national differences between them that in turn affect the uptake of OSH management. Our empirical analysis would imply that even with optimal information exchange between Member States and shared policy measures, specific differences would exist across establishments in the uptake of psychosocial risk management practice.

Main finding

Policymakers can learn from other countries. Some countries clearly perform better than other countries and learning between countries could raise the overall practice of psychosocial risk management across Europe. Furthermore, policymakers should be aware of the potential 'near-absence' of management of psychosocial risks in certain contexts. In particular, small and medium-sized establishments in the manufacturing industry in southern Europe may require the close attention of policymakers.

Further research

There is a certain need for more research to understand the relationship between regulatory environment, economy and culture and what makes some countries 'good' or 'poor' performers in terms of reporting of psychosocial risk management.

6.1.6. Establishment's demographics

In this study we found that an establishment's demographics are not as influential as size, industry and country in determining the scope of management of psychosocial risks. This is an interesting finding relevant for academic research. From the literature, it is clear that demographic changes contribute to the emergence of psychosocial risks. An overview of literature of theory and indicators of health and safety at work prepared in Pouliakas and Theodossiou (2010, p. 24) stated: 'OSH research should take further account of the changing demographic evolution of the workforce, which involves an increasing proportion of female, racially diverse and older-aged employees.'

Main finding

Although demographic factors may influence general OSH risks, the analysis shows the limited explanatory significance of demographic factors. Our finding here relevant for policymakers is that, on the basis of our empirical work, government interventions should not be targeted explicitly on the basis of the demographic characteristics of an establishment.

Further research

Further research could focus on the discrepancy between the literature and the empirical analysis on the explanatory capacity of demographics. It would be interesting to understand under which circumstances and in which contexts demographics play a role in understanding the uptake of psychosocial risk management.

6.1.7. An index for psychosocial risk management and outcomes on workers' health and well-being in ESENER

Chapter 2 highlighted the limited evidence-base for associating systemic approaches to reduce psychosocial risks in an establishment with specific outcomes such as reductions in workers feeling stressed at work and lower incidence of bullying and harassment. There are a number of reasons that establishing associations are difficult. Compared to general OSH measures, measures aimed at psychosocial risks are applied less frequently across establishments in Europe. As such, there has been a different appreciation of the situation regarding the importance of psychosocial risks across EU Member States, despite the initiatives taken at the EU level. Secondly, the division of responsibilities between the national stakeholders to tackle psychosocial risks (e.g. Ministries of Health, Ministries of Labour, independent agencies) greatly varies across EU Member States.

In addition, measuring outcomes on psychosocial risks often relies on perceptions data. Linking outcomes to OSH management is difficult when using perceptions data. As stated before, the ESENER survey did not include outcome measures and looking at answers to questions across different surveys is difficult given the differences in the underlying sample.

Nonetheless, we can give some indications from other surveys. If we look at country-level outcome data from the 2010 European working conditions survey (EWCS), a very similar survey to ESENER and see how it corresponds to country-level data in our analysis we can try to establish some patterns. In Table 11 we present a number of outcome questions from the EWCS and the overall average psychosocial risk management score for all establishments from our analysis for a sample of countries: Sweden, the United Kingdom, Spain, Germany, France and Greece.

Table 11: **Psychosocial risk management scores compared outcome information in EWCS 2010**

Country	Average psychosocial risk management score	Workers experiencing bullying and harassment (EWCS 2010)	Workers feeling health affected (EWCS 2010)	Workers very satisfied in their job (EWCS 2010)
Sweden	4.15	2.5 %	25.4 %	25.7 %
United Kingdom	3.26	4.6 %	14.4 %	39.3 %
Spain	3.16	2.2 %	28.4 %	22.9 %
Germany	2.20	4.6 %	21.9 %	28.5 %
France	2.16	9.5 %	25.6 %	21.3 %
Greece	1.51	3.4 %	40.8 %	16.3 %

As Table 11 shows, it is not straightforward to draw causal inferences from this data. Notable is that a country such as Greece, which has a relatively low score on the psychosocial risk management index also shows that workers feel that work is affecting their health and low levels of satisfaction with work in general. Sweden is the best performer in our psychosocial risk management index, but even though it shows low levels of perceived bullying and harassment it shows average percentages of workers feeling that work affects their health and satisfaction with work. Germany, despite having a relatively low psychosocial risk management score shows relatively similar outcomes to, for instance, Spain. There may be a variety of reasons making establishing a causal inference between OSH score and outcome data difficult: the psychosocial risk management index may be a relatively crude and incomplete measure unable to capture all aspects that influence a worker's perception of health and safety risk; awareness of health and safety risks may increase with experience and knowledge of OSH management (as a result you may report more incidences and be more critical given greater knowledge of OSH management); regulatory and national frameworks may vary; perceptions on a number of chosen outcomes do not always offer an accurate picture.

Main finding

There are emergent indications that adoption of OSH management systems may be accompanied by positive outcomes such as the reduction of injuries and fatalities and reductions in bullying and harassment. However, establishing causal links between the empirical analysis in this report and other recent surveys is not straightforward.

Further research

Further research could focus on establishing a link between the extent of practice related to the management of psychosocial risks and outcomes such as perceptions of stress and bullying and harassment in the workplace.

6.1.8. ESENER and the perspectives of employee representatives and managers

ESENER consists of two modules, the MM and ER surveys. It is not altogether clear who, at organisational level, is the appropriate respondent to various questions concerning management of psychosocial risk. Some types of information may be known better to one of the sides. For example, managers may have a better view of training in psychosocial risk management issues offered to employees, as they are the principal organisers of training activities and incur the costs. Employees, on the other hand, may be better positioned to answer questions pertaining to presence of tension and conflicts at the workplace.

Main finding

On the basis of the analysis of the limited comparative questions contained in the MM and ER surveys, the perspectives of employers and employees in ESENER are associated. However, some differences have been noticed. The picture of psychosocial risk management looks more pessimistic from the ER point of view. As it may significantly affect the effectiveness of the management of psychosocial risks, this issue deserves further attention.

Further research

Understanding the differences between the two modules (ER and MM) of the survey is of interest. Quite clearly, there is some evidence that employees are more negative about the policies of an organisation than management. This negativity can increase the further removed from management processes employees are (on health employees in the United Kingdom see for instance Boorman Review, 2009). Potentially, employee representatives are also less informed than management about the policies in the establishment. Furthermore, employees may not be aware of what is happening in subgroups of a larger organisation. These factors may be worth further investigation in ESENER follow-up work. In addition, further work could take place to understand how truthful answers in ESENER were by triangulating responses with other data on actual practice and outcomes. In particular, it would be of interest if the veracity of answers can be analysed as a function of country or size.

6.2. Summary

ESENER provides useful findings for policymakers.

- A particularly important finding is that the evidence suggests that systemic risk management approaches appear to make sense, not only from a conceptual point of view. This confirms some existing policy trends in Europe on the use of the risk management paradigm.

- Looking at the frequency of components of the index across establishments and countries exposes the stark differences between the frequency of measures, with some measures largely absent in some countries and great differences between size ranges for other measures.

- If the objective of policymakers is to formalise processes dealing with psychosocial risk management, evidence in Europe suggests it is possible even in smaller establishments. However, the size does not matter consistently across the whole of Europe, meaning that other factors such as regulatory style, organisational culture and organisational capacity play an important role.

- Across industries the practice of managing psychosocial risks appears to follow the perceptions of problems with psychosocial risks. Policymakers can build on this and at the same time need to manage the risk that industries that do not perceive high levels of psychosocial risks may have high levels of risks after all. As such, policymakers should give particular attention to industries with reported low levels of practice, understand the levels of psychosocial risks in this sector and encourage the uptake of more systemic approaches to psychosocial risk management if appropriate.

- The analysis shows that the country context matters a lot, but it is difficult to capture the variable. A general observation

is that countries can clearly learn from each other. A more specific observation arising from the analysis is that there are areas of specific concern in Europe with specific establishments in a number of countries showing almost no sign of practice to manage psychosocial risks.

- Other variables matter less, such as demographic factors. The analysis would suggest that targeting interventions based on the specific demographic characteristics of establishments may not be worthwhile.

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