

Work-related musculoskeletal disorders: from research to practice.

What can be learnt?

European Risk Observatory
Summary

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Executive summary

Introduction

This report summarises the three components that constituted the research project ‘Review of research, policy and practice on prevention of work-related musculoskeletal disorders (MSDs)’. The first component was an exploratory review that examined the reasons for the continuing high prevalence of MSDs in the European Union (EU) and identified gaps in prevention practice. The second was an extensive policy analysis, across EU countries and beyond, to gain a better understanding of the conditions under which strategies, policies and actions to address MSDs are most effective. The third component was field research carried out in six EU Member States to explore, through focus groups, what was happening at workplace level and, through interviews, the roles of various strategies and policies in MSD prevention.

The project was carried out because, despite many different strategies, campaigns and policy initiatives over the past 30 years, prevalence rates of MSDs across the EU are not reducing (although there have been relatively minor decreases in some countries). The current project focuses on:

- improving knowledge on new and emerging risks and trends in relation to factors that contribute to work-related MSDs and identifying the related challenges;
- identifying gaps in current strategies for tackling work-related MSDs, at both policy and workplace levels;
- investigating the effectiveness and quality of workplace interventions and risk assessment approaches;
- identifying new approaches for more effective MSD prevention.

Methods

Research questions were developed for the exploratory literature review and, from an initial scan of the literature, hypotheses were developed in relation to the continuing high prevalence of MSDs. Further literature identified through systematic searches was then examined to corroborate or refute each hypothesis. Data gaps were also identified as part of the review.

The policy analysis took a desk-based approach, reviewing a total of 142 initiatives shared by National Focal Points from across the EU together and a small number from further afield. From these initiatives, 25 were chosen for further analysis. Building on this analysis, six EU countries were then chosen for in-depth analyses of their policies and strategies; these countries were Austria, Belgium, France, Germany, Sweden and the United Kingdom¹.

The fieldwork had two aims. The first was to investigate what was happening in practice in each of the six countries selected for the policy review. This was explored through a series of focus groups with practitioners in each of the selected countries. The second aim was to identify success factors for and obstacles to policy implementation by interviewing policy developers and policy implementers.

An overarching analysis was carried out by synthesising the findings from the three project components to identify gaps in practice and policy actions. A validation workshop was then held with experts on MSDs, at which summaries of the outputs of the project were shared and discussed.

The exploratory literature review

One of the aims of the exploratory literature review was to improve our understanding of why the MSD prevalence rate continues to be high in the EU. Factors identified included the use of risk assessment processes with a disconnection between known MSDs risk factors and the range of factors evaluated.

¹ At the time of publication of this report, the United Kingdom is no longer a Member State of the European Union. Nevertheless, it was still part of the European Union when the research was carried out in 2017; therefore, henceforth in this report, the United Kingdom is referred to as a Member State.

In addition, the conventional risk assessment approach focuses on individual risks rather than considering the combined effects of multiple hazards.

Furthermore, although the strategic approach to MSDs adopted within the EU focuses on the prevention of risks, EU data sets collected since 2005 suggest that there has not been a reduction in exposure to physical risk factors. While work is changing, and the numbers employed in different sectors are changing, there appears to have been no immediate reduction in exposure to MSD risks across most sectors. Having an increasingly older workforce also impacts on prevalence, as older workers are more at risk of MSDs. There is a gap in the data on how to design workplaces so as not to exacerbate the MSD symptoms of these older workers, who are a vulnerable working group. Young workers also report high levels of MSDs before entering the workplace but, again, as a vulnerable group, consideration should be given to their specific needs once they are in the workforce. In addition, women are more likely to report MSDs than men and women report MSDs of different types from those reported by men. There is evidence to suggest that, within the same job, women may carry out different tasks from their male counterparts, so ensuring that risk assessment and prevention activities are carried out to evaluate all relevant tasks under each job title is essential.

New ways of working including technological changes in offices, manufacturing and construction can increase accessibility to work at all hours, and increase flexibility. However, research is not keeping pace with such changes and there is a lack of research in relation to the impact of new technologies such as smartphones, robots, cobots (collaborative robots) and exoskeletons.

New contractual arrangements are also being implemented in this new world of work. The impact of new, less formal working arrangements has resulted in concerns that there might be a loss of occupational safety and health (OSH) protection for individuals working in this way, as many would be considered self-employed. The growth in e-retail has also seen an increase in the numbers employed in jobs such as picking stock in warehouses and as delivery drivers, often accompanied by an increase in 'paid per job' contracts for individual workers, giving rise to concerns of fatigue, MSDs and stress. Work process changes and new technologies may reduce physical exposures but there is a lack of consideration of the human in the work system in many workplaces; this needs further research. A further issue is that an increasingly sedentary workforce brings new health concerns, about which only limited guidance is available.

While individual behaviours are also associated with MSDs, extensive discussion about who is responsible for an individual's health is still ongoing. Workplace health promotion research in the context of MSDs is currently limited but one study has shown a decrease in the reporting of MSDs where health promotion is in place. However, some organisations fail to fully appreciate the inter-connectivity among MSD risks, and consider their own responsibility over what happens at work to be limited.

There remains a lack of intervention research that could be applied in workplaces and a lack of evaluations of any interventions. This does not help companies to recognise risk or implement effective prevention measures.

Evidence from the fieldwork

While the exploratory review focused on the evaluation of research, the fieldwork aimed to identify what was happening in practice.

One of the gaps identified was the lack of the completion of risk assessments by organisations. Feedback obtained as part of the field research estimated that the completion rate for MSD risk assessments was 50 %, although data from the second European Survey of Enterprises on New and Emerging Risks (ESENER-2) indicated that around 76 % of establishments reported carrying out risk assessments for MSD risk factors. The ESENER-3 study showed that reasons for the non-completion of risk assessments (general rather than MSD-specific risk assessments) included the risks already being known, no major problems identified and a lack of necessary expertise. What is unclear from these data are whether there are fewer hazards to assess in these establishments or whether there is a lack of knowledge of what to assess and how.

It was perceived that large organisations are more likely to carry out risk assessments, but the qualitative data suggest that even these organisations are not always compliant. Data show that small and medium-sized enterprises (SMEs) are less likely to have written risk assessments, which is thought to be due to them having fewer resources including expertise, managerial support and financial support.

The inadequacy of risk assessments was also identified as a gap, with the perception that they focused on only the risks identified in EU directives, rather than the wider range of recognised risks. While good practice from Sweden is reported, there is a general gap between research evidence and practice. In addition to the narrow focus of risk assessments, it was also noted in the field research that risk assessments are often carried out as an afterthought (when something goes wrong) rather than at the design stage of the work process. Considering this, in addition to the focus on risks that must be assessed' (generally physical risks), with little consideration given to diversity (gender or age, for example), it is perhaps not surprising that risk assessments are perceived as inadequate.

With regard to prevention practices, although there were notable exceptions, the main practices used by employers were generic manual handling training, job rotation and lifting aids. This highlights a large gap between evidence and practice, although good examples of multi-level practice were identified in two countries. It is necessary to move on from the assumption that training or job rotation will reduce risks, as neither approach tackles the underlying job or task design. Other solutions identified included self-selection among workers, recruitment of workers to fit the job and outsourcing activities, none of which deals with the underlying risks. While lifting aids were made available, these were not used regularly, which gives rise to the question of how they were implemented in the workplace. While there is some requirement for worker involvement in risk assessment and prevention activities, this is not always a legal requirement; however, it was perceived that worker involvement was beneficial. Taking a participatory approach involving workers can help to gain buy-in when developing solutions.

A lack of data was perceived to be a factor 'contributing to inadequate MSD prevention' at both workplace and national levels. The data that are collected do not inform prevention activities and such data are often not readily available. For example, health surveillance data could be used to inform changes in the workplace but these data are not always available to those involved in the process. Good OSH systems are required for the collection and use of relevant data.

A lack of evaluation of the impact of any interventions was also identified as a gap. It was found that evaluation rarely happened unless it was carried out as part of a research project. The dearth of intervention studies has hindered the development of a knowledge base of effective prevention practices. There is a growing body of research on the evaluation of impacts and new tools are available. Two countries (Germany and the United Kingdom) have planned future evaluations of current strategies but in many countries such evaluations are limited (or non-existent).

While the review identified that individual-level lifestyle factors are associated with MSD occurrence, the role of workplace health promotion in MSD prevention remains unclear and the extent of the employer's responsibility for an individual's health still needs to be explored, agreed on and discussed. There needs to be a linkage with OSH practice, as MSD risks are not limited to the workplace and the general health of the workforce can have a significant impact on susceptibility to MSD risks.

While work and workplaces are changing, there are concerns about 'invisible' workers, that is, those who are self-employed by parent companies as part of the gig economy (sometimes referred to as 'the bogus self-employed'). Their status needs to be evaluated to identify how OSH protection can be ensured. For new technologies, the focus appears to be more on the machine than on the human involved in the process, with a lack of evidence on the impact of the human-machine interface on those working with robots and automation.

The policy analysis

The aim of the policy analysis was to investigate the role and effectiveness of national policies, strategies and programmes to identify success factors for and obstacles to their implementation. The policy analysis identified a number of factors that influenced impact including prioritisation and resourcing. In this context, the need for political prioritisation to enable change to cascade down to the workplace was identified. Priorities other than MSD prevention being taken forward does appear to have an impact.

MSDs are a persistent problem and it must be acknowledged that national authorities face multiple demands with limited resources. It is clear that MSDs have not had the sustained attention they require, with many countries showing limited commitment and having no clear prevention strategy.

This and other projects give rise to serious questions about the adequacy of the provisions of the EU directives, yet national legislative requirements, largely shaped by these directives, are seen as a powerful driver in many countries. Sweden has recognised this and national legislation has been extended to include a wider range of MSD risks. Germany has also adopted additional strategic legislative provisions to support and reinforce MSD prevention. It must also be recognised that, without adequate enforcement, legislative change will not have an impact. It will be essential to ensure that the necessary inspection infrastructures and resources are in place, again requiring top-level commitment and prioritisation.

However, it should be acknowledged that some countries have adopted a sustained approach with linked initiatives and in doing so have demonstrated a clear recognition of the importance of MSDs and their prevention.

Many interventions have limited scope, for example they focus on specific sectors where the risks of MSDs are highest. Nevertheless, it should not be forgotten that MSDs occur across all sectors and it is essential that a wider focus is taken and that campaigns targeted at raising awareness have a wider reach.

Awareness-raising campaigns are a common type of intervention, but, while awareness raising is essential, it is not enough to motivate action. This may be due to a lack of resources (including financial resources, time and knowledge), and a number of initiatives attempt to address this. These initiatives have included those enabling access to expertise in risk assessment and the identification of solutions typically using the approach of working with employers and workers. Such initiatives will provide more sustainable solutions but still the concern that employers have over the cost of workplace changes still needs to be addressed.

A number of the initiatives have explored the provision of collaborative support and guidance from stakeholders and identified it as beneficial. The benefits of collaboration are particularly apparent in those countries with a long culture of support and collaboration. Additional actors and intermediaries can potentially play a role in identifying and preventing MSD risks, including insurers and compensation boards. Their involvement is seen as particularly effective when the role of insurers is set down in law.

Providers of help and support in different countries included government agencies (including inspectorates), insurance providers and occupational health providers. One key benefit identified was having support available at a local level. The training of providers involved in interventions was also seen as an important benefit in ensuring good levels of awareness among providers. Having multi-skilled teams supporting prevention initiatives was also seen as valuable in aiding success.

Vulnerable workers considered in the context of MSDs should include older workers, who, unlike younger workers, are not specifically protected by EU legislation. Other groups of workers (for example women workers and migrant workers) should also be considered. The key message is that such vulnerable workers and their needs have to be explicitly considered in any initiative. In addition, initiatives can be targeted to other types of groups, for example focusing on SMEs or sector-specific measures. Targeting can help to focus attention on those seen as having most need, but it also enables guidance and information to be tailored to specific audiences.

Gaining commitment from all actors within a target group can be difficult, for example persuading SMEs to sign up to the prevention process. However, commitment needs to extend to everyone including senior management, line managers and workers. Workers must also be committed to change. For example, if workplaces need to be designed to allow the implementation of patient-handling devices, organisational changes may be required because the devices take longer to use and workers need to commit to using the devices.

For the last two decades, there has been an extensive array of implementation strategies. Some of these have taken a piecemeal approach with a lack of coherence and no continuity between strategies.

Planning policy-level initiatives with an intervention logic or a theory of change and that include an evaluation is essential to find out what works.

Taking a wider approach to prevention recognises that MSDs are not caused only by the workplace. In some countries, this is driven by research that recognises the multifactorial nature of MSDs including the wider role of lifestyle and health behaviours. Widening the reach of interventions to include aspects of public health may promote the integration of individual health, physical risks and psychosocial risks in the prevention of MSDs.

While the role of prevention is recognised, there continues to be a principal focus on risk assessment. Associated with this is the perception that a whole series of different risk assessments is required, rather than the intended integration of risk assessments, which is understood to be the original concept underlying the 24 EU OSH directives. This belief is a large barrier for employers and may help to explain why many employers do not engage at all with the risk assessment process in their workplaces. While the prevention aspect is well established in the hierarchical approach to prevention (where prevention of risks at source takes priority), this message does not seem to be reaching the workplace. This may be due to a perception that workplace change is expensive and that training and job rotation are cheaper options and easier to implement. While such measures have a role to play when correctly applied, they do not remove risks. A longer term approach is needed that incorporates ergonomics into the design and engineering process, as this can reap long-term benefits.

Success factors, challenges and obstacles

Prioritising and resourcing have been identified as key actions to improve MSD prevention. A single approach cannot be prescribed because of differences between Member States' OSH infrastructures and practices.

Stakeholder involvement is also essential, and bringing together the different skills of the various stakeholders can help to develop a multidisciplinary and more holistic approach to risk assessment and prevention.

Incentives, which can be positive (access to expertise or funding for workplace changes) or negative (fines for non-compliance), may also play a role. Positive incentives appear to have more of an impact than negative measures in encouraging the engagement of companies.

A lack of planning of interventions has been a major challenge and, without a plan, a good evaluation is unlikely. There is a need for a more coherent approach to planning interventions including planning the implementation, the intervention, the intervention logic and the evaluation. Good examples of long-term approaches from Germany and the United Kingdom are presented in the report.

The continued focus on risk assessment needs to be challenged, and a preventive pathway needs to be more rigorously used, as invoked by legislation.

In the context of OSH, the emphasis is changing from a focus on safety to one that recognises the importance of health issues. In this study, one of the aims was to improve understanding of the long-term impacts of MSDs including the risk of disability in later life. These impacts are not well understood, resulting in a lack of good-quality evidence with which to inform policy.

Inspection and enforcement were seen as strong weapons in MSD prevention, but this finding comes at a time when the numbers of inspectors are perceived to be decreasing as is the likelihood of an inspection. Focused inspection activity may offset this reduction in numbers, but it is unclear what the impact of this would be on sectors that are not perceived as high risk but nevertheless have a significant prevalence of MSDs.

Ergonomics is widely recognised as playing a key role in MSD prevention, in relation to both risk assessment and developing solutions. While in some countries ergonomists are at times a part of core prevention teams, this is not always the case. The focus is not on keeping ergonomics for ergonomists but ensuring that ergonomics knowledge and awareness are shared among relevant stakeholders and, potentially, workers.

Legislation was discussed in both the policy interviews and the focus groups, and there is concern that the legislation is outdated. However, there is nothing to prevent Member States from extending their national legislation as has happened in Sweden. Further discussions on legislation need to include the issue of protecting the workers who have more precarious contracts.

What new approaches might be helpful in MSD prevention?

Policy actions

A number of policy-level actions were identified as part of this project, including:

- top-level commitment and resourcing;
- collaboration among social partners and other stakeholders;
- incentivise positively;
- coherent planning and integration;
- adopt a wider perspective;
- provide continuity;
- promote the preventive approach;
- strengthen the role of ergonomics and ergonomics teaching.

Actions for intermediaries

A number of actions for intermediaries were also identified from the project, including:

- encourage a broader perspective for risk assessments to include additional risks;
- encourage the collection and use of data to enable an evidence-based approach;
- promote and encourage the active use of worker participation in risk assessments and prevention activities;
- improve the consideration of diversity in risk assessment by taking vulnerable workers into account, for example older workers;
- ensure that any materials used to communicate risks and prevention messages are readable and understandable.

Conclusions

The 'Review of research, policy and practice on prevention of work-related musculoskeletal disorders (MSDs)' project aimed to address the question 'Why do we still have a problem with MSDs in the workplace?' The review has identified a number of gaps both at policy level and in implementing policies in the workplace. These are listed below:

- shortcomings in the legislative framework, which does not cover all known risks for MSDs;
- failure to engage with the risk assessment and prevention process;
- the challenges for SMEs and their failure to engage (but it should not be assumed that failure to engage is only within SMEs);
- failure to fully appreciate the nature and extent of relevant risks because of a narrow focus on risks;
- a lack of understanding of how best to prevent MSD risks and move from a focus on job rotation and training to a focus on work design;
- the need to make cost-benefit messages more accessible;
- the need to incorporate ergonomics and the consideration of potential MSD risks into the design of work systems (workplaces, work equipment, work practices, etc.);
- the need to take a long-term view; there is a clear perception that prevention at source provides the best solution.

This project has identified a number of gaps at both policy level and workplace level, which to be filled will require a cohesive approach involving different stakeholders. The lack of good-quality data has impacts at both workplace and policy levels. The focus on risk assessment needs to change and this will require commitment from the top; sharing good practice would help all involved. There appears to be a lack of understanding of the role of ergonomics and work design in prevention. This needs to be improved and ergonomics knowledge shared with stakeholders including designers, engineers and others involved in prevention activities.

Recommendations

Recommendations from this project include the following:

- The legislative milieu (at EU level and/or national level) should be explored to better understand its shortcomings and identify effective ways of rectifying these.
- At national level, it will be important to understand why:
 - many employers (especially but not exclusively among SMEs) fail to engage with the risk prevention process;
 - the focus of many employers remains on risk assessment and the assessment of a limited number of risks.
- As a corollary, ways to broaden the scope of these risk assessments should be identified to incorporate a wider range of risks and to ensure that gender, age and other potential causes of vulnerability are taken into account.
- Further guidance should be provided to employers with respect to practicable and effective risk prevention measures, preferably industry-specific materials to enhance acceptability.
- The systematic planning and implementation of policy initiatives should be ensured, including the formal impact evaluation of any interventions.
- Risk assessment tools should be updated to include all recognised risks and researchers and practitioners should be supported to identify means of evaluating cumulative risks.
- The focus on risk assessment should be changed to a focus on risk assessment and prevention activities in workplaces; sharing good practice examples may promote this.
- The range of prevention activities should be broadened to focus on work design and ergonomics as a means of removing risks at source, taking a systems approach to prevention and job design.
- All organisations, especially SMEs, should be supported in prevention activities and incentives for this, such as free advice or funding for solutions, should be considered.
- Workers should be involved in risk assessment and prevention activities to increase the relevance of assessments and improve acceptance of any prevention activities identified.
- Usable and useful data collection tools should be designed to enable evaluations at national and organisational levels that can inform evaluations at policy level and interventions at workplace level. Organisations may need support and guidance to do this.
- Ergonomics knowledge should be kept up to date and adequate for ergonomists and others tasked with applying ergonomics knowledge in the workplace.

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