European Agency for Safety and Health at Work

Musculoskeletal health and risk factors in the health and social care sector – a review of existing information

Report

European Agency for Safety and Health at Work

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Executive Summary

Context and objectives

- Musculoskeletal disorders (MSDs) are the most prevalent occupational health issues in the human health and social care (HeSCare) sector, affecting millions of workers and contributing to absenteeism, reduced productivity and high healthcare costs. The HeSCare sector includes healthcare, residential care and social work activities. The report provides an in-depth, cross-national overview of key musculoskeletal (MSK) risk factors and MSD health outcomes, sector-specific challenges, and evidence-based policy guidance to prevent and manage MSDs. The objectives are to:
  - provide a comprehensive overview of occupational safety and health (OSH) in the HeSCare sector, focusing on prevalent MSK risk factors and related health outcomes (acute and chronic);
  - raise awareness of existing and emerging MSD risks, highlighting those unique to the HeSCare sector or with sector-specific impacts;
  - support risk prevention and the promotion of good MSK health at work by:
  - enhancing knowledge,
  - sharing good practices and tools, and
  - promoting a proactive health and safety culture at the workplace;
  - offer policymakers, social partners, OSH professionals and researchers cross-national insights into OSH and MSD issues in the sector;
  - identify research gaps related to MSD risk factors and health in HeSCare; and
  - provide input to the European Agency for Safety and Health at Work (EU-OSHA) Healthy Workplaces Campaigns (HWC) on Digitalisation (HWC 2023-2025) and Mental Health at Work (HWC 2026-2028).
- In addition to the report, eight standalone case studies have been developed that provide concrete examples of strategies, initiatives, approaches, methods and practical tools to address MSK risk factors in the HeSCare sector. A policy brief including a summary of the research findings as well as the policy pointers has also been developed.

Main MSK risk factors/MSD health outcomes in the HeSCare sector

This study presents several of the most relevant risk factors contributing to MSDs and MSD health outcomes within the HeSCare sector. These risks factors have been prioritised for further study due to their prevalence, severity and impact on workers' health and the operational effectiveness of care facilities. The selection is informed by sector-specific data, research findings and interviews with stakeholders, focusing on the multifaceted challenges posed by physical, psychosocial and organisational demands.

- **High workload and organisation of working time**
  - Chronic staff shortages and high patient demands increase physical and mental workload, elevating the risk of developing MSDs.
  - Irregular shifts and night work disrupt sleep cycles and recovery time, exacerbating fatigue and risk of injury.
  - Digitalisation intensifies work pace and reduces autonomy, compounding stress and physical strain.
  - Poor work organisation (for example, unclear roles, lack of participatory management) adds to physical and psychosocial risks.
  - Participatory approaches and quality of life at work (QWL) initiatives can improve working conditions and reduce the risk of developing MSDs.
  - Open dialogue across organisational levels fosters shared solutions and a prevention-focused workplace culture.

- **Manual handling of patients**
  - Lifting, repositioning and assisting patients — especially those with obesity or complex care needs — places heavy strain on workers, especially the lower back and shoulders.
  - Residential care workers, older workers or staff already suffering from MSDs are at particularly high risk due to the intensity and frequency of handling tasks.
  - Underuse of assistive devices due to time pressure, lack of awareness or insufficient training heightens exposure.
  - Safe patient handling and mobility (SPHM) programmes, tailored training and ergonomic equipment are proven to reduce injury rates.
  - A shift in the care culture, for example, by promoting patient autonomy, can reduce manual handling demands and improve outcomes for both workers and patients.
- **Repetitive hand or arm movements**
  - Increasing exposure to repetitive tasks (for example, in nursing, surgery or dentistry) is a major contributor to upper limb MSDs.
  - Repetition, combined with awkward postures and forceful exertions, leads to fatigue, muscle strain and long-term injury.
  - Digital tasks (for example, electronic recordkeeping) add to cumulative strain, especially when performed in poor ergonomic conditions.
  - Prevention requires ergonomic workstations, proper body mechanics training, and structured task rotation or redesign.
  - Organisational changes (for example, rest breaks or job diversity) are essential to reduce long-term exposure and support recovery.
- **Working posture/awkward positions**
  - Frequent bending, twisting and static postures (for example, during surgery or patient care) are strongly linked to the development of MSDs such as back, neck and shoulder pain.
  - Nurses, dentists, surgeons and physical therapists are at particular risk due to prolonged or repetitive awkward positions.
  - Risks are heightened for younger trainees and older female workers, reflecting a combination of physical and demographic characteristics.
  - Solutions include ergonomic workstation design, adjustable equipment, task variation and work processes designed to keep workers' bodies in healthy positions, reducing strain and preventing injury.
  - Training and awareness must be embedded into organisational practices to sustain healthy posture habits.
- **Poorly designed environments and inadequate equipment**
  - Inadequate workstation layouts and poor ergonomic design are major contributors to physical strain and the development of MSDs.
  - Cramped or inefficient care settings force workers into awkward postures and increase physical exertion.
  - Participatory approaches — engaging staff in identifying risks and designing improvements — enhance success and compliance.
  - Ergonomic interventions (for example, the use of trolleys or adjustable beds or space optimisation) reduce injury, improve care quality and lower absenteeism.
  - Investment in ergonomic design brings long-term returns through better staff retention, job satisfaction and care outcomes.
- **Inadequate training**
  - Lack of comprehensive training on ergonomics and patient handling increases risk of poor posture, incorrect lifting and repetitive strain injuries.

- Generic or minimal training is ineffective; programmes must be job-specific, context-aware and practically focused.
- Best practice includes multidisciplinary, interactive and long-term training models (for example, Finland's Patient Handling Card,[1] Germany's Ergo Coach[2]).
- Digital platforms can improve access for home care workers and support self-paced, engaging learning.
- Sustained organisational support, leadership involvement and availability of ergonomic equipment are key to long-term success.

- **Lack of workplace age management strategies (ageing workforce)**
  - Long-term exposure to physical and psychosocial risks increases the likelihood of developing chronic MSDs, especially in physically demanding roles.
  - Older workers (50+) face higher risks due to declining physical capacity and cumulative strain from years of care work.
  - Extending working lives without supportive measures may worsen MSD health outcomes and accelerate workforce attrition.
  - Age-sensitive strategies, for example, task adaptation, ergonomic support and flexible scheduling, are crucial to protect older workers' health.
  - Gender-sensitive approaches are especially needed to address the specific characteristics of older female workers in care roles.

- **Psychosocial risks (focus on violence and harassment)**
  - Violence and harassment — especially from patients or their families — are highly prevalent in HeSCare and linked to the development of MSDs via stress and muscle tension.
  - Emotional demands, poor communication, high workloads and lack of support heighten exposure to psychosocial risks.
  - Frontline staff, women, migrant workers and home care professionals face disproportionate exposure to verbal, physical and sexual harassment.
  - The COVID-19 pandemic amplified aggression toward healthcare workers and worsened existing stressors.
  - Prevention requires strong management commitment, risk assessments, tailored interventions, reporting systems and skill-building training — not just violence-specific instruction.

- **Working with MSDs (back, upper & lower limb pain)**
  - A significant portion of HeSCare workers continue working while experiencing pain.
  - Persisting with physically demanding work aggravates injuries, increases absenteeism and heightens the risk of permanent disability.
  - Women, older workers and migrants are more likely to suffer and less likely to receive adequate support or accommodations.
  - Psychosocial stressors and poor work organisation further undermine recovery and exacerbate pain conditions.
  - Effective support includes ergonomic adaptations, job rotation, flexible scheduling and fostering an inclusive, recovery-oriented workplace culture.

[1] For more information, please see: https://osha.europa.eu/en/publications/alm-approach-preventing-musculoskeletal-risks-during-patient-handling-and-transfer

[2] For more information, please see: https://osha.europa.eu/en/publications/establishing-ergonomic-and-back-friendly-working-practices-organisations-bgw-ergo-coach-programme

Policy pointers

- To effectively prevent and address the MSK risks and related health outcomes identified in this study, a coordinated effort across multiple policy areas is essential. While MSK risks are a core OSH concern, their root causes and solutions extend beyond the traditional OSH remit.
- Robust measures are needed to uphold the right of HeSCare workers to a high level of protection for their health and safety at work — particularly in relation to MSK risks.
- Develop and disseminate EU-level MSD prevention guidelines for HeSCare that include ergonomic standards, safe patient handling protocols, validated risk assessment tools (for example, Rapid Upper Limb Assessment Tool (RULA) and Movement and Assistance of Hospital Patients (MAPO), and practical implementation examples adapted to care settings.
- Mainstream MSD and OSH strategies into EU employment and ageing workforce policies, adopting a life-course approach. Align with EU-OSHA guidance on reasonable accommodation and the Disability Employment Package to promote sustainable, inclusive work in HeSCare.
- Support retention through EU-backed early intervention and return-to-work systems. Promote knowledge exchange and co-fund national rehabilitation pathways to address the high cost of sickness absence and prevent premature workforce exits.
- Invest in research, innovation and data collection on MSDs. Fund pilot programmes for emerging ergonomic technologies and develop tools to monitor physical workload and strain, especially in high-risk groups like older, female and migrant workers.
- Ensure national OSH strategies, social partner actions and workplace-level policies address both physical and psychosocial risks. This includes workforce planning, training frameworks, ergonomic investments, inclusive OSH committees and cultural shifts in care practices.
- Embed MSD prevention into workplace structures through comprehensive training, worker involvement and inclusive job design. Promote participatory approaches, role-specific ergonomics training, and flexible work adaptations for ageing or injured workers.

1. Introduction

1.1 Objectives and goals of this report

1.1.1 Scope of the report and terminology

The human health and social care (HeSCare) sector is crucial to European society, impacting both overall health and wellbeing of the population and the economy. This sector encompasses various activities classified under healthcare (NACE code Q86), residential care (NACE code Q87) and social work (NACE code Q88). It employs individuals in formal care settings like hospitals, nursing homes, care homes and medical practices, as well as care workers who assist individuals in their own homes.

Musculoskeletal (MSK) risk factors are the most frequently reported hazards in the HeSCare sector and more generally across all economic sectors and have been increasing over time. Compared to other sectors in the EU-27, workers in the HeSCare sector are more frequently exposed to all types of MSK risks (EU-OSHA, 2024). These risks can lead to musculoskeletal disorders (MSDs), which are painful injuries affecting muscles, tendons, joints and nerves (EU-OSHA, 2022a).

Throughout the course of this report, a simplified terminology is used to address the three subsectors, which is indicated in Table 1.

Table 1: Main sectors comprising health and social care activities (NACE Rev. 2 Section I)

Division	Class	Description
Q86 - Human health activities (Referred to as: *Healthcare*)	Q86.1	Hospital activities
	Q86.2	Medical and dental practice activities
	Q86.2.1	General medical practice activities
	Q86.2.2	Specialist medical practice activities
	Q86.2.3	Dental practice activities
	Q86.9	Other human health activities
Q87 - Residential care activities (Referred to as: *Residential care*)	Q87.1	Residential nursing care activities
	Q87.2	Residential care activities for mental retardation, mental health and substance abuse
	Q87.3	Residential care activities for the elderly and disabled
	Q87.9	Other residential care activities
Q88 - Social work activities without accommodation (Referred to as: *Social Work*)	Q88.1	Social work activities without accommodation for the elderly and disabled
	Q88.9	Other social work activities without accommodation
	Q88.9.1	Child day-care activities
	Q88.9.9	Other social work activities without accommodation n.e.c.

Source: Eurostat's NACE classification

1.1.2 Objectives

This report contributes towards a major research activity currently being carried out by the European Agency for Safety and Health at Work (EU-OSHA) regarding the HeSCare sector.[3] The specific objectives of the study are presented in Box 1.

[3] More information is available at: https://osha.europa.eu/en/themes/health-and-social-care-sector-osh

Box 1: Specific objectives pursued by this study

- To contribute to providing a comprehensive overview of the state of play when it comes to occupational safety and health (OSH) in the HeSCare sector by providing and developing new knowledge or information on very prevalent MSK risk factors as well as health outcomes related to MSK health (acute or chronic problems, back, upper limb – lower limb disorders).
- To increase visibility and awareness on the existing and new and emerging MSK risk factors in the sector. Special attention is given to the identification and further description of the risks that are specific (or unique) to the sector.
- To contribute to the prevention of OSH-related issues and the promotion of good MSK health at work among the HeSCare workers by:
  - improving knowledge;
  - sharing good practice examples, approaches, methods, schemes, interventions and tools addressing MSDs prevention; and
  - focusing not only on OSH prevention but also on the promotion of good MSK health at workplace level.
- To provide policymakers, social partners, OSH practitioners at workplaces and researchers with a better understanding of and comprehensive, cross-national insight into the state of the art of the HeSCare sector when it comes to OSH in general and more especially to MSK health in the sector.
- To contribute to identifying gaps in terms of research when it comes to MSK risk factors and MSK health in the HeSCare sector.
- To provide data and information to support the European-wide Healthy Workplaces Campaign (HWC) 'Together for Mental Health at Work' (HWC 2026-2028).

The primary target group of the assignment is policymakers at EU and national levels, including the European Commission and other EU institutions, social partners and public authorities. The secondary target group is OSH researchers, experts and OSH practitioners.

In addition to this report, eight standalone case studies[4] have been developed that provide concrete examples of strategies, initiatives, approaches, methods and practical tools to address MSK risk factors in the HeSCare sector. Where relevant, these are referred to in this report. A policy brief including a summary of the research findings as well as the policy pointers has also been developed.[5]

1.2 Research questions

In order to achieve the above-mentioned objectives, a list of research questions was elaborated with the goal of developing the contents and design of this report (and related case studies), as well as the different methodological tools elaborated within the framework of this report.

[4] For more information, please see: https://osha.europa.eu/en/publications/alm-approach-preventing-musculoskeletal-risks-during-patient-handling-and-transfer; https://osha.europa.eu/en/publications/health-and-social-care-workers-free-musculoskeletal-disorders-awareness-campaign; https://osha.europa.eu/en/publications/establishing-ergonomic-and-back-friendly-working-practices-organisations-bgw-ergo-coach-programme; https://osha.europa.eu/en/publications/ergonomic-patient-handling-cardr-promoting-good-working-practices-healthcare-sector; https://osha.europa.eu/en/publications/firstfit-method-assessing-monitoring-and-providing-feedback-paramedics-physical-capacity; https://osha.europa.eu/en/publications/swedish-guide-and-intervention-strategy-ensure-safe-patient-handling-and-movement-healthcare; https://osha.europa.eu/en/publications/tilthermometerc-mapping-severity-and-type-exposure-physical-strain-when-handling-patients; https://osha.europa.eu/en/publications/tms-pros-programme-supporting-msds-prevention-health-and-social-care-sector

[5] For more information, please see: https://osha.europa.eu/en/publications/safeguarding-musculoskeletal-health-health-and-social-care-sector-policy-brief

Table 2: Main research questions proposed in this study

Topic	Research questions
MSK risks and workers' MSK health-related outcomes in the HeSCare sector	▪ How prevalent are MSK risk factors and MSK health issues in HeSCare and how have these evolved over time? ▪ What are new and emerging MSK risk factors in the sector and how do these relate to MSK health? ▪ What are the interlinkages and exposures between psychosocial and MSK risks? ▪ Which groups of workers are most affected?
	▪ What types of measures can be implemented to prevent and manage these risks? What would be most effective? ▪ What actors play a role in the prevention and management of these risks? How can we foster direct and indirect worker participation in OSH on MSK risks? ▪ What good practices can be identified at different levels (organisational, sectoral, regional, national)?
Good practice / interventions / practical tools and recommendations to address work-related MSK risk factors and workers' MSK health issues in the HeSCare sector	▪ What are examples of practice / interventions / practical tools in the EU Member States that have been taken to address work-related MSK risk factors and workers' MSK health issues in the sector? ▪ Are there examples of practice / interventions / practical tools from other non-EU countries that address MSK risk factors and workers' MSK health issues?
	▪ What sector specific measures exist, and how do these differ between subsectors? ▪ What sectors are the subject of most focus in regard to possible measures?
	▪ Are there examples of specific measures taken to target persons from vulnerable groups (for example, migrants, women)?
	▪ What existing recommendations are given to support a good MSK work environment in the sector, with a focus on the MSK risks or MSK health issues? What programmes or organisations are currently advising or implementing to tackle MSK risks, to prevent mental health issues and to promote mental health?
Policy approaches to address MSK risks and MSK health outcomes in the HeSCare sector	▪ What are the main existing and upcoming challenges that should be considered in the context of future policy options to address work-related MSK risk factors and workers' mental health issues in the HeSCare sector?
	▪ Which policy recommendations are most likely to address work-related MSK risk factors and workers' mental health issues in the HeSCare sector?

Source: Panteia, vhp Human Performance, Eurogip and HIVA-KU Leuven

1.3 Cause-effect model for MSDs used in the context of this research

MSDs can arise from a variety of interconnected risk factors, including physical or biomechanical, psychosocial, organisational and individual factors. Physical risk factors may involve sustained or awkward postures, repetitive movements, forceful exertions, hand-arm and whole-body vibrations,

mechanical compression and exposure to cold. Psychosocial risk factors, such as violence and harassment, work pace, autonomy, task monotony, work/rest cycles and job demands, also contribute to MSDs. Organisational risk factors may include excessive work demands and insufficient rest breaks, inefficient workflow, unclear roles and lack of support, as well as insufficient instruction on safe work practices and ergonomics. Additionally, individual factors — including age, gender, professional and recreational activities, household tasks, alcohol or tobacco consumption, and previous work-related MSDs — play a role in shaping workers' MSK health. The extent to which these risk factors interact and influence MSD development is further shaped by broader contextual elements, such as social, political and economic conditions.

MSDs involve impairments to bodily structures such as muscles, joints, tendons, ligaments, nerves, cartilage, bones and the localised blood circulation system. When these disorders are primarily caused or worsened by work and the immediate work environment, they are referred to as work-related MSDs (EU-OSHA, 2019). Work-related MSDs include a range of health issues from minor discomfort to serious conditions causing permanent disability, affecting millions of European workers annually. Common MSDs like lower back pain and upper limb disorders are often linked to manual handling and carrying out repetitive tasks.

Despite efforts to control MSDs through engineering, organisational changes and training, they still remain a major occupational problem, causing significant human suffering and high costs to companies or HeSCare establishments and healthcare systems.

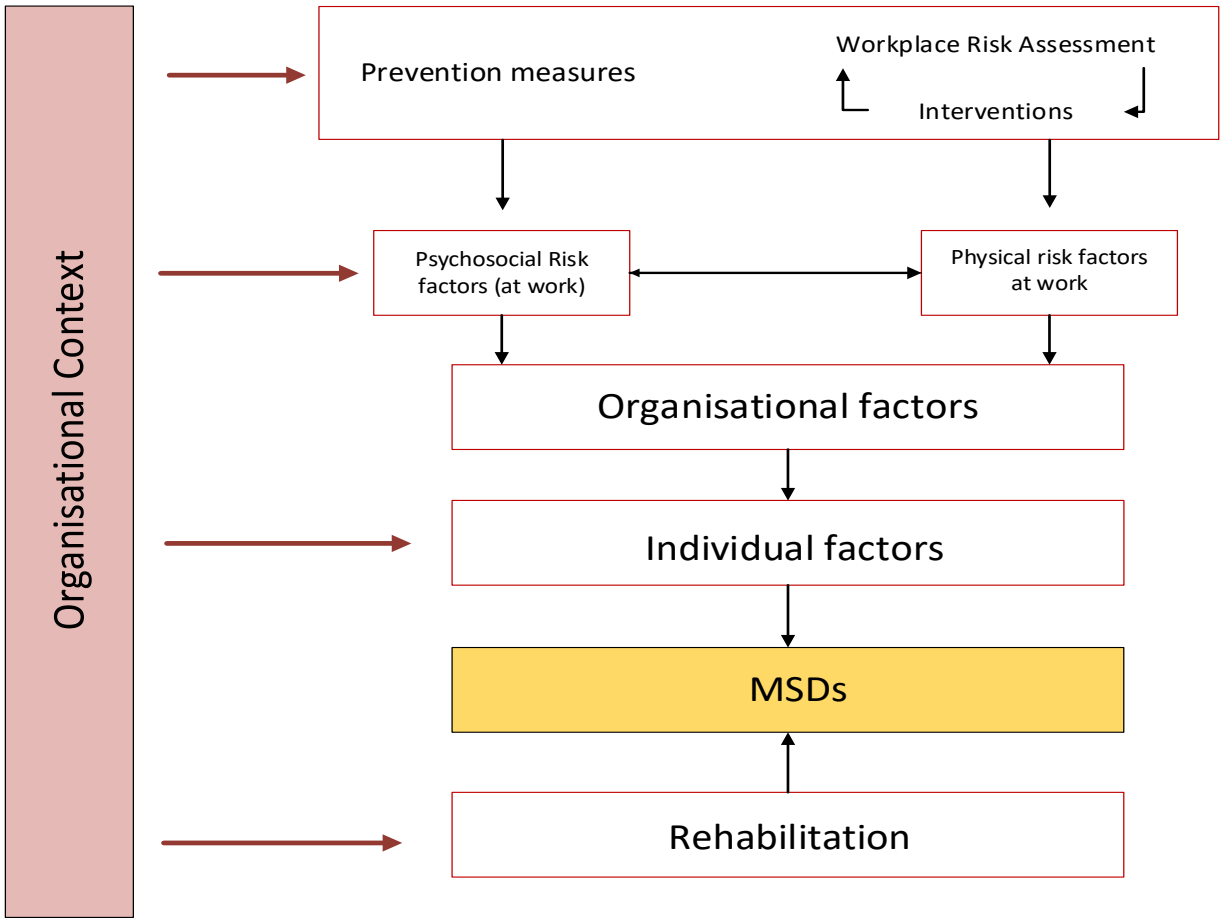
Previous research carried out by EU-OSHA in the field of MSDs is applied to the HeSCare sector in the context of this report. This research showed that MSDs are the most prevalent work-related health problem in general, as well as in the HeSCare sector. This is despite the existing efforts made in terms of prevention. In addition to traditional causes of MSDs in workers in the sector (for example, manual handling of patients), other factors also contribute to their prevalence including the following:

- New forms of work and new technologies.
- Demographics — ageing HeSCare workforce.
- Despite the growing prevalence of psychosocial risks and evidence of the influence of psychosocial risk factors on the development of work-related MSDs, in practice the focus is still on physical / biomechanical hazards.
- Risk assessment / management practices in workplaces don't reflect the complexity of the contributing factors — MSDs may develop due to exposure over a long period of time to occupational hazards, the hazards are numerous, and they interact, which makes MSD risk assessment complex. Furthermore, men and women are affected differently by work-related MSDs, in large part due to the differing nature and circumstances of the work they perform.
- A large percentage of MSDs are short-term (or acute), so workers could recover by taking simple measures as soon as the first symptoms appear. The sooner an MSD is managed, the less likely it is to become a chronic condition leading to long-term work absence.
- Gaps in current strategies used to manage work-related MSDs.
- Lack of effectiveness and quality of interventions.

In order to understand the mechanisms that are at work in the development of MSDs in the HeSCare sector, a cause-effect model has been used that takes different sets of factors into account. This model also shows how factors interact with each other. This model can be of use to stipulate the effect of interventions. Contributing factors are included in this model.

The model highlights prevention as the starting point, emphasising the role of workplace risk assessment and interventions. It also accounts for the interplay between psychosocial risk factors (autonomy, stress), physical risk factors (manual handling, repetitive movements), organisational risk factors (workload, organisation of working time) and individual risk factors.

Figure 1: Cause-effect model for MSDs



Source: vhp Human Performance/Panteia

The model has also been used to develop and understand the key MSK risks and MSD health outcomes identified and studied in this report, helping to illustrate how these risks interact within a broader context — characterised by workforce shortages, reliance on migrant workers, financial constraints affecting both healthcare and long-term care services, and the sector's limited attractiveness — which together contribute to the prevalence of MSDs in the HeSCare sector.

1.4 Methodology used

To answer the different research questions outlined above and meet the main and specific goals of the study, a mixed methodological approach was used, comprising of the following three main methods.

1.4.1 Review of studies and literature

To inform the development of this report, extensive desk research was undertaken to identify, review and synthesise existing literature and data relevant to MSK risks, MSK health issues and the broader HeSCare sector. The research process prioritised sources published within the last five to 10 years (from approximately 2014 onwards), ensuring the inclusion of recent scientific and academic studies, policy papers and strategic documents — particularly those developed by EU institutions. However, where particularly relevant or foundational, older literature outside of this timeframe was also incorporated to provide historical context or to reference seminal work in the field.

The desk research began with a curated list of initial key sources, which served as a foundation for further exploration. A snowballing method was employed: references cited within the initial sources, as well as studies that cited those works, were systematically examined to uncover additional relevant publications and data. This iterative process enabled a comprehensive mapping of the current

knowledge landscape surrounding MSK-related risks and conditions, as well as insights into occupational health trends and prevention strategies within the HeSCare sector.

The research included peer-reviewed journal articles, grey literature (such as institutional reports and working papers), national and international policy documents, and statistical data sets. Both qualitative and quantitative sources were considered to ensure a balanced understanding of the topic. In total, 192 sources were reviewed and integrated into the analysis (see the bibliography for a complete list of sources consulted). The cause-effect model identified in the previous section was used as a guiding framework to structure the desk research by helping to categorise and analyse MSK risks and health outcomes in the HeSCare sector. Specifically, it informed the research process in the following ways:

- Identifying relevant risk factors
- The model distinguishes between psychosocial and physical risk factors, and organisational and individual factors, which helped in selecting relevant literature that examines these dimensions. The desk research focused on gathering evidence related to key risks such as high workload, manual handling, ergonomic challenges, repetitive movements and workplace violence, as highlighted in the model.
- Selecting sources based on prevention, risk and rehabilitation
- The model emphasises prevention, workplace risk assessment and interventions, aligning it with policy documents and scientific studies that explore best practices to reduce MSK risks. Research also included sources on rehabilitation, examining strategies to support affected workers, particularly those with pre-existing MSDs.
- The organisational context component of the model underscored the importance of considering broader workplace structures and policies, leading to the inclusion of policy documents from the European Commission and other regulatory bodies. This ensured that the desk research captured not only workplace-level risks but also systemic factors shaping MSK health outcomes.

1.4.2 Data analysis

Building on the data and knowledge collected in the context of the 2024 study published by EU-OSHA on ‘OSH in Figures in the health and social care sector’, several data sources were used in the context of this study, which were:

- European Survey of Enterprises on New and Emerging Risks (ESENER)
- European Working Conditions Telephone Survey (EWCTS)
- EU Labour Force Survey (LFS)
- EU-OSHA – OSH Pulse 2022 survey

Data from these sources relating to MSK risks and MSK health outcomes in the HeSCare sector are presented where relevant throughout the report.

1.4.3 Fieldwork research: key informant interviews and stakeholder workshop

Finally, in-depth qualitative research was conducted in the form of interviews, focus groups and workshops with key stakeholders in the field. These engagements took place between August 2024 and March 2025, and they were designed to gather expert insights, validate preliminary findings from the desk research and explore real-world experiences and perspectives that may not be fully captured in existing literature.

A total of 26 individuals participated in these activities, either through one-on-one or multi-party interviews. Participants were carefully selected to ensure a diverse and balanced representation of relevant stakeholder groups within the HeSCare ecosystem. These included representatives from social partner organisations (such as employer associations and trade unions), OSH professional associations, academic and applied researchers, as well as frontline practitioners with direct experience addressing MSK risks in the workplace.

The interviews and group discussions were semi-structured, allowing for both consistency in the key topics addressed and the flexibility to explore emerging themes in greater depth. Topics covered included the identification of current and emerging MSK risks, prevention strategies in different work environments, regulatory and institutional frameworks, the role of training and awareness and

challenges and gaps in existing practice.

All interviews were documented and analysed using a thematic approach, identifying recurring patterns, contrasting viewpoints, and novel insights that enriched the overall understanding of MSK health issues and informed the development of evidence-based recommendations. The qualitative data collected through these engagements played a critical role in complementing the desk research findings and grounding the report in the lived experience of experts and practitioners across the sector.

Additionally, a workshop was held in March 2025 to discuss some of the key findings from the project and to collect further feedback and inputs from a variety of stakeholders. Participants included a mix of social partners, experts and researchers. The objective of the meeting was to further involve stakeholders in the research process, informing them about the findings of the project (building on the research and consultation carried out). It also provided the opportunity to gather comments, ideas, feedback and proposals, with the idea of integrating them in the final version of the report.

1.4.4 Case studies

In addition to this report, eight in-depth case studies were carried out, which provide concrete examples of strategies, initiatives, approaches, methods, practical tools and so on. The case studies have also been included in the wider overarching analysis provided in this report. The case studies were developed on the basis of desk research and interviews.

These case examples are published as standalone documents by EU-OSHA and are referenced throughout this report.

1.4.5 Analysis of information

In conducting this study, a mixed-methods approach was adopted to ensure a comprehensive understanding of MSK risks and associated health outcomes in the HeSCare sector. The data and information gathered from various sources were systematically analysed and triangulated to identify key risk factors and health outcomes. This methodological approach strengthens the validity and reliability of the findings by integrating evidence from different perspectives, methodologies and data sources.

The triangulation process involved synthesising information from the three primary sources: a review of literature and policy documents, quantitative data analysis from multiple European surveys and qualitative insights obtained from key informant interviews. Findings from the case studies were also included within this overall analysis. By cross-referencing data from these diverse sources, it was possible to corroborate findings, fill gaps where individual sources might be limited and gain a more nuanced understanding of MSK risks in the HeSCare sector.

The triangulation of these different sources of data allowed the identification of a number of potential MSK risk factors and associated health outcomes. These were selected for further exploration in the framework of this report based on their high prevalence, severity and impact on workers' health. This structured approach ensures that the findings are evidence-based, comprehensive and reflective of both theoretical knowledge and practical realities.

1.5 Overview of the structure of the report

Following this general introduction to the report, **Chapter 2** explores the general state of play regarding MSK risks and MSDs in the HeSCare sector. This chapter describes the relevance and prevalence of MSK risks in the HeSCare sector, discussing working conditions, challenges such as an ageing workforce, gender dynamics and migrant workers. It explores the specific MSK risk factors in the sector and the types of health issues that arise. Following this, the chapter then provides descriptions and an analysis of the main MSK risk factors and MSD health outcomes in the HeSCare sector, broken down into specific themes. Each of these sections are standalone sections that outline the main issues related to each particular risk. Where relevant, cross references are provided to other sections of the report.

Chapter 3 summarises the main findings of the research, drawing conclusions from the various MSK risk factors and MSD health outcomes discussed. It also provides policy pointers aimed at improving prevention and management of MSDs in the HeSCare sector.

The report also includes a **list of references**.

2. State of play regarding MSK risks and MSDs in the HeSCare sector

This chapter provides a general state of play regarding MSK risk factors and MSDs in the HeSCare sector. In particular, it briefly examines working conditions and specific challenges faced by the HeSCare sector. It also provides an overview of MSK risk factors and health issues present in the HeSCare sector, using available data where relevant.

The following sections of the report provide more information on some key risk factors contributing to MSDs and MSD health outcomes within the HeSCare sector. This selection has been prioritised for further study due to their prevalence, severity and impact on workers' health. It is informed by sector-specific data, research findings and interviews with stakeholders, focusing on the multifaceted challenges posed by physical, ergonomic and organisational demands.

2.1 Organisational context in the HeSCare sector

This section highlights several key elements that are particularly relevant to the topic of MSK risks in the HeSCare sector (as shown in Figure 1), focusing on both specific worker groups — such as women, migrant workers and ageing workers — and certain sectoral characteristics, including labour shortages, precarious working conditions, work intensity and work–life balance. These aspects have been selected due to their significant impact on the sector and their relevance to ongoing policy discussions. This information helps provide a clear framework in understanding the challenges and dynamics shaping the sector's workforce. Further elaboration on these issues is presented in the EU-OSHA 2024 report 'OSH in Figures in the health and social care sector'.

The HeSCare sector is highly important to European society. It involves a wide range of activities, from healthcare and residential care to social work, and employs individuals in various settings, including hospitals, nursing homes and home care environments. Statistics from the LFS show that in 2022, over 21,500,000 people were employed in the HeSCare sector (NACE Q), with the majority of these workers working in the healthcare subsector (around 12.5 million workers) (EU-OSHA, 2024). The data also show that the levels of employment in the HeSCare sector have been slowly increasing over the past 10 years, which can be seen across all subsectors. In total, the HeSCare sector accounts for 11% of all employment across the total economy.

Most workers within the HeSCare sector are employed in hospitals, and in nursing homes, care homes, medical practices and patients' homes (EU-OSHA, 2022a). Women dominate the workforce in the sector, accounting for 79% of the total number of workers (based on data from 2022 from the LFS). Women are highly exposed to a number of physical risk factors, such as lifting heavy loads, repetitive motions, prolonged periods of sitting and assisting individuals with mobility, which are all linked to MSDs (EU-OSHA, 2020b). Female workers therefore often experience poorer physical and mental health and report a higher occurrence of MSDs than their male counterparts (EU-OSHA, 2024). Furthermore, working under time constraints due to a high number of patients (versus not enough carers in the sector) as well as high workload may lead to rushing through tasks, often resulting in neglecting safe practices that results in carers being more prone to injuries and MSDs (Stakeholder interview).

Migrant workers are also highly prominent in the sector, often filling the labour shortages associated with an ageing workforce (Stakeholder interview). The number of migrant healthcare professionals has grown by more than 5% annually over the last 30 years (EU-OSHA, 2022a). Data from 2021 show that the HeSCare sector was among the sectors experiencing both a persistent labour shortage and the largest share of migrants, which can be seen especially in the residential care subsector (European Commission, 2023).

The **aforementioned labour shortages are a result of an ageing of the workforce** (in 2022, 37% of workers in the HeSCare sector were aged 50 years or above) as well as a lack of attractiveness and poor image of working in the sector (EU-OSHA, 2024). In the residential care subsector, the proportion of workers aged 65 years or older in the EU has nearly doubled in the past decade (EU-OSHA, 2024).

Older workers face a greater susceptibility to occupational health problems due to prolonged exposure to certain hazards and are more likely to report work-related health problems such as backache and muscular pain (EU-OSHA, 2023a). On the other hand, younger workers are more likely to be exposed

to extended working hours and social and emotional demands. Furthermore, some physical hazards are more of a risk for younger workers in the HeSCare sector due to less training, experience and job maturity (Eurofound, 2019).

Looking at the HeSCare sector as a whole, **precarious work is highly prevalent**, with 9% of workers indicating precarious employment conditions, with the social work subsector having the largest share of workers who indicated this (13%) (EU-OSHA, 2024). The youngest group of workers (those aged between 16 and 34) has the highest share of workers with precarious employment conditions (11%), whereas the share of these workers decreases when age increases (EU-OSHA, 2024).

Workers in the HeSCare sector experience high work intensity, with EWCTS-2021 data indicating that the share of workers experiencing high work intensity is slightly higher in the HeSCare sector (41%) than the average across all sectors in the EU economy (38%). About half of the workforce in the healthcare subsector experiences high work intensity, while only one in three workers in the residential care subsector and less than one in three in the social work subsector experience high work intensity (EU-OSHA, 2024).

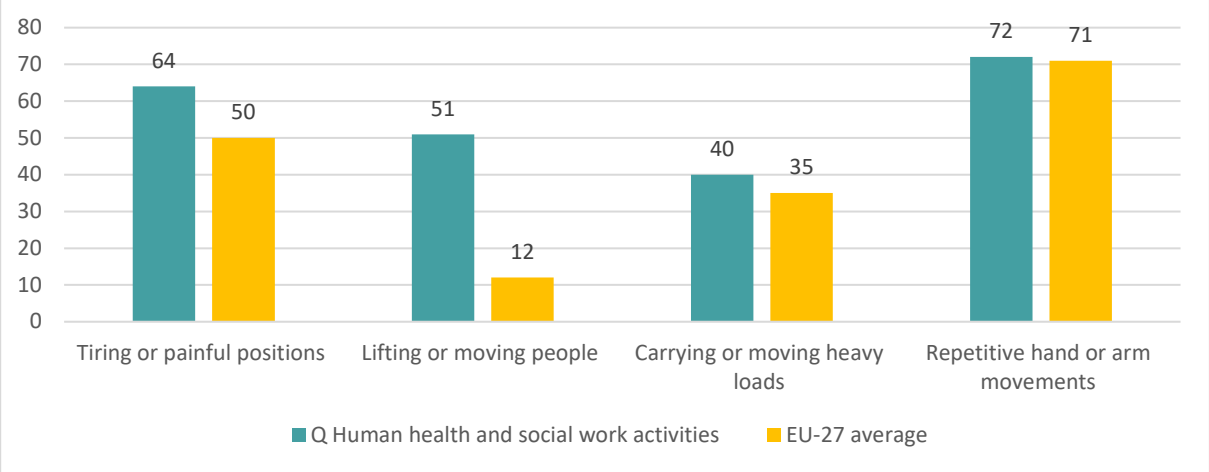
The **COVID-19 pandemic also contributed to poor working conditions** in the HeSCare sector, with a large number of workers indicating an increase in stress attributed to factors such as excessive workload stemming from a rise in the number of patients and staff shortages (EU-OSHA, 2022a). Workers in the HeSCare sector have also encountered challenges in maintaining a satisfactory **work–life balance**, with the share of workers reporting difficulties managing this being higher (23%) when compared to the EU-27 average across all sectors (19%) (EU-OSHA, 2024).

2.2 MSK risk factors and MSD health outcomes present in the HeSCare sector

2.2.1 High prevalence of MSK risks in the HeSCare sector

European-level data show that MSDs represent a significant concern in the HeSCare sector, impacting the wellbeing of millions of workers and posing substantial economic challenges. Additionally, there is often limited awareness among workers in the sector regarding the broader range of MSK risks and their potential long-term consequences, which may hinder early prevention and intervention efforts (Stakeholder interview). Data from the EWCTS-2021, LFS-2020 and ESENER show that **MSK risk factors are the most reported risks in the HeSCare sector as well as for all sectors in the total economy**. HeSCare workers are also more frequently exposed to all types of MSK risks compared to the average for all other sectors in the EU-27 (see Figure 2).

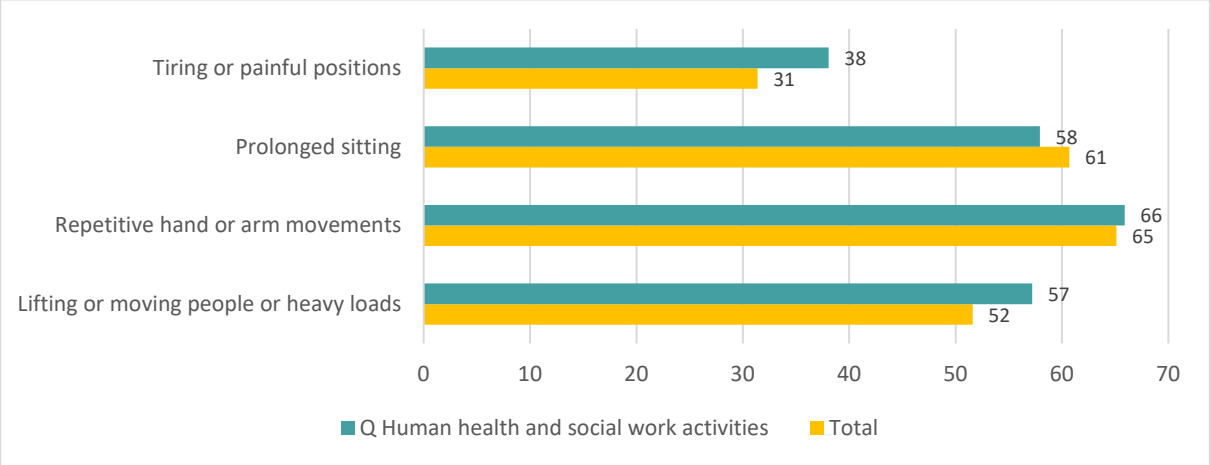
Figure 2: Percentage of workers sometimes/often/always exposed to MSK risks, by sector, EU-27, 2021 (%)



Source: TNO based on EWCTS-2021
Base: All workers in the EU-27

This is also indicated in data from ESENER-2019, which indicate that MSK risks (in this case tiring or painful positions, repetitive hand or arm movements as well as lifting or moving people or heavy loads) are more often reported in establishments within the HeSCare sector, when compared to all sectors (see Figure 3).

Figure 3: Types of MSK risks indicated by establishments, by sector, EU-27, 2019 (%)

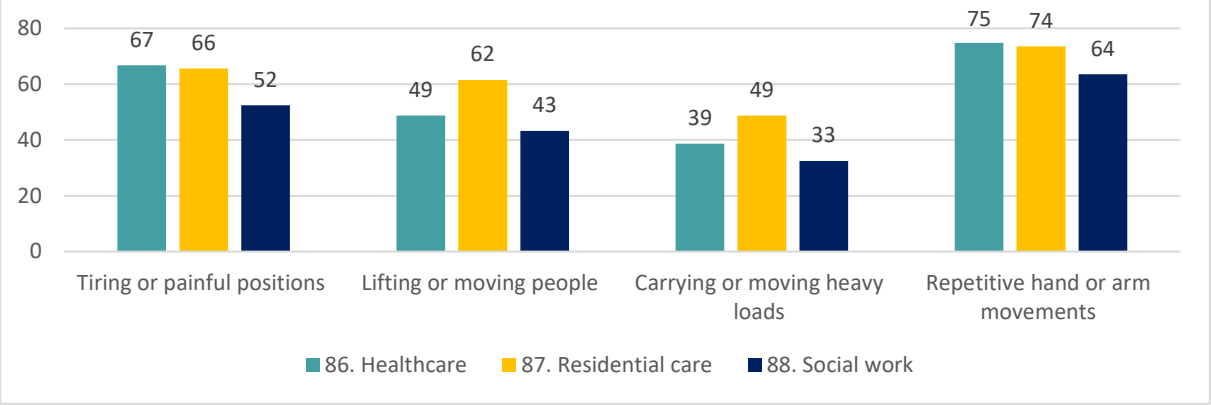


Source: Panteia based on ESENER-2019
Base: All establishments in the EU-27

The ESENER-2019 data also show that some of these risks are becoming more prevalent in the sector over time. Between the period 2014 and 2019 there was a notable rise in establishments in the HeSCare sector reporting repetitive hand or arm movements as a risk, increasing from 51% to 66% (EU-OSHA, 2024). Additionally, the proportion of establishments reporting risks associated with lifting or moving people or heavy loads grew from 54% to 57% during the same period (EU-OSHA, 2024).

There are differences across the various HeSCare subsectors (as shown through EWCTS data), with **healthcare workers and residential care workers being exposed more often to tiring or painful positions, lifting or moving people, carrying or moving heavy loads and repetitive hand or arm movements** than workers in the social work subsector (Figure 4). Exposure to lifting and/or moving people as well as carrying and moving heavy loads is higher in residential care when compared to healthcare and social work.

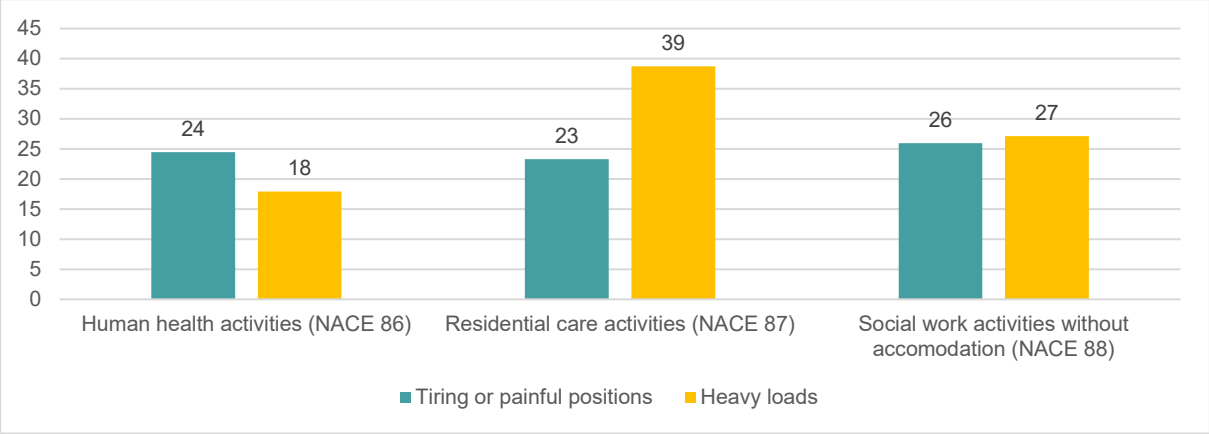
Figure 4: Percentage of HeSCare sector workers sometimes/often/always exposed to MSK risks, by subsector, EU-27, 2021 (%)



Source: TNO based on EWCTS-2021
Base: All HeSCare workers in the EU-27

Data from the LFS-2020 show that workers in residential care are more likely to lift heavy loads (which can consist of moving or lifting patients) (Figure 5).

Figure 5: Highest rate exposures within the HeSCare subsectors that could affect their physical health, EU-27, 2020 (%)



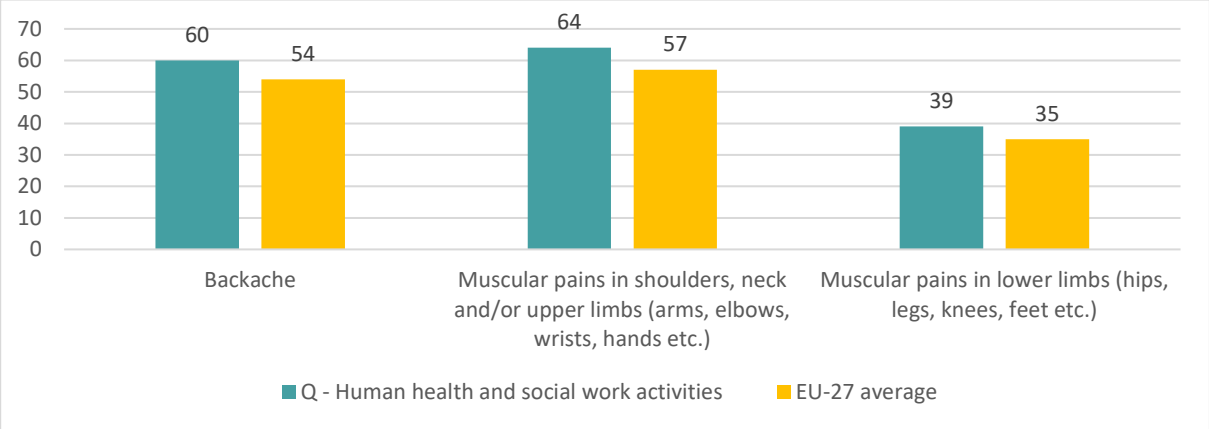
Source: EU Labour Force Survey, 2020

Exposure to MSK risks are positively associated with an increase in the size of the organisation, which can be seen from the findings from ESENER-2019 where large organisations are more likely to report OSH risk factors compared to smaller organisations, especially micro establishments (EU-OSHA, 2024).

2.2.2 MSD-related health outcomes

Workers in the HeSCare sector are more likely to suffer from MSDs than workers in any other sector. Data from the EWCTS-2021 show the high prevalence of MSDs in the sector (see Figure 6). HeSCare workers experience more back pain as well as muscular pain in the upper limbs as well as the lower limbs in comparison with the average EU-27 worker. EWCTS-2021 data show no significant differences between the subsectors in the HeSCare sector.

Figure 6: Percentage of workers reporting health problems over the last 12 months, by sector, EU-27, 2021 (% indicating yes)



Source: TNO based on EWCTS-2021
Base: All workers in the EU-27

2.2.3 Other factors impacting MSK risk factors and MSD health outcomes in the sector

One significant demographic shift that is having an impact on workers' exposure to MSK risk factors and health outcomes **is the characteristics of the changing workforce in the HeSCare sector** (EU-OSHA, 2022a). Two underlying factors for this can be identified. The first is related to the age of the workforce. Data show that there is a high percentage of workers 50 years or older in the HeSCare sector. In 2022, 37% of the employees in the HeSCare sector were aged 50 years or above, 3% higher than in the workforce as a whole. This is particularly the case in the residential care subsector.

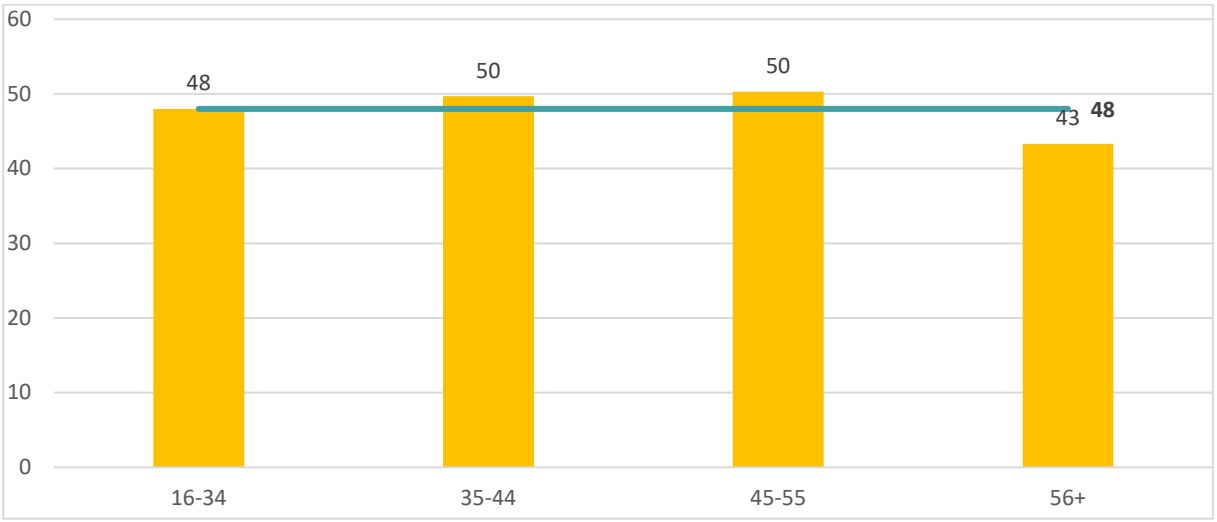
Table 3: Age structure in employment, HeSCare sector versus all total economy, EU-27, 2022 (%)

Age range	Healthcare	Residential care	Social work	HeSCare Sector	Total – all NACE activities
% employment 15-24 years old	6	8	8	7	8
% employment 25-49 years old	57	53	56	56	58
% employment 50 years or older	36	39	37	37	34

Source: EU Labour Force Survey, 2020

Data from the EWCTS-2021 seen in Figure 7 show that 48% of HeSCare employees report that their health and safety are at risk because of their work. This differs slightly between the different age categories.

Figure 7: Percentage of HeSCare sector workers reporting that health or safety is at risk because of work, by age, EU-27, 2021 (%)

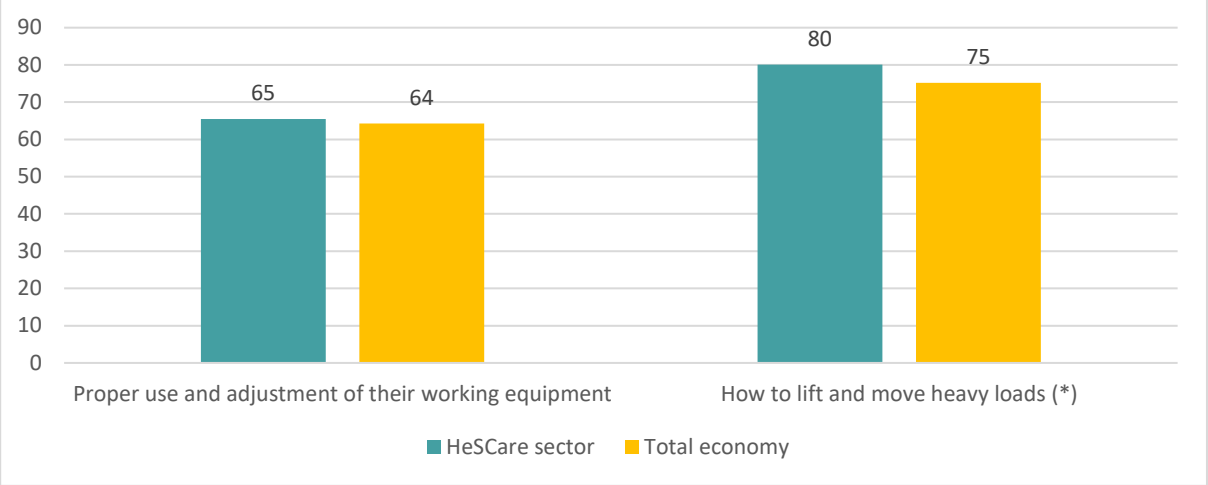


Source: TNO based on EWCTS-2021
Base: All HeSCare workers in the EU-27
The horizontal line indicates the HeSCare (NACE Q) EU-27 average

Older workers face a greater susceptibility to occupational health problems due to prolonged exposure to certain hazards. They report more work-related health problems, particularly backache and muscular pain that affect over 70% of workers aged 55 and above (EU-OSHA, 2023a). Particularly, it is expected that a growing number of workers in the future, including those in the HeSCare sector, may experience chronic health issues while still being active in the workforce, as the occurrence of chronic health problems tends to rise with age (EU-OSHA, 2023b).

The second underlying factor is related to adequate training. Providing workers in the HeSCare sector with adequate training on potential MSK risks and health outcomes is essential for safeguarding workers' health. A lack of proper training in the HeSCare sector increases the risk of suffering from MSDs, as it could result in workers adopting poor posture from improper use of working equipment, performing repetitive movements incorrectly or lifting heavy loads without proper technique (Robla, 2015). For instance, data from ESENER-2019 show that only 65% of all establishments instructed their employees on the proper use and adjustment of their working equipment. Whilst this is slightly higher than for the total economy, this still constitutes a sizeable share of the workforce not receiving adequate training on this topic (Figure 8).

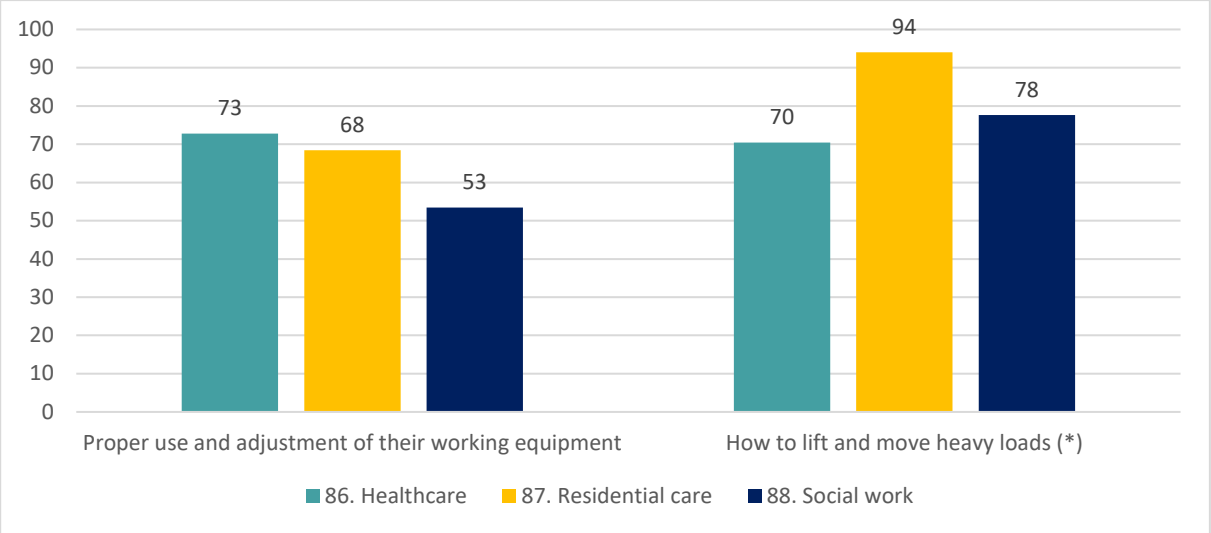
Figure 8: OSH-related topics on which training has been provided to employees, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-2019
Base: All HeSCare sector establishments in the EU-27
(*) Base: Only HeSCare sector establishments exposed to 'lifting or moving heavy loads'

At the subsector level, data show that there are some significant differences between the OSH-related topics covered in training (EU-OSHA, 2024). For instance, workers in the social work subsector are far less likely to receive training on the proper use and adjustment of working equipment, and residential care workers are far more likely to receive training on how to lift and move heavy loads (Figure 9). Both topics are important regarding MSD prevention.

Figure 9: OSH-related topics on which training has been provided to employees in HeSCare sector establishments, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-2019
Base: All HeSCare sector establishments in the EU-27
(*) Base: Only HeSCare sector establishments exposed to 'lifting or moving heavy loads'

2.2.4 Key MSK risk factors and MSD health outcomes for the HeSCare sector

As shown from the information presented in the previous section, there are a number of potential MSK risk factors or MSD health outcomes that are evident in the HeSCare sector. The main factors and outcomes that have been identified are presented in Table 4. The information provided in this table has been based upon the available data and information gathered through the review of studies and the interviews with key informants. The main factors and outcomes identified include:

- **High workload and organisation of working time:** Persistent staff shortages and time pressure lead to increased patient handling and irregular work schedules, significantly elevating MSK risks.
- **Manual handling of patients:** This sector-specific task poses one of the highest risks for developing lower back pain, with a high prevalence of heavy lifting.
- **Repetitive hand or arm movements:** A common and growing risk in the sector, this contributes to chronic strain injuries over time.
- Poorly designed care environments and inadequate tools/equipment: the importance of ergonomic design and workplace layout in the HeSCare sector: Poorly designed care environments and inadequate tools force workers into unsafe postures and movements, exacerbating physical strain.
- **Awkward working postures:** Tiring positions are a frequent hazard, particularly in constrained environments such as patient homes.
- **Inadequate training:** Limited opportunities for practical, multidimensional training contribute to improper handling techniques and greater MSD vulnerability.
- **Lack of workplace age management strategies/policies (ageing HeSCare workforce):** Cumulative strain disproportionately affects older workers, particularly given the ageing workforce and double care burdens.
- **Psychosocial risks (focus on violence and harassment):** HeSCare workers face the highest prevalence of workplace violence and harassment across sectors, with severe impacts on their health, wellbeing and organisational outcomes, which are highly interconnected with other workplace risks. This makes these critical factors in the health, safety and wellbeing of workers in the sector, as well as in organisational outcomes.

- **Working with MSDs (back pain, pain in the upper and lower limbs):** High exposure to MSD risk factors, combined with inadequate accommodations for injured workers, perpetuates harm.
- It is important to note, however, that these risk factors and health outcomes are not clear-cut or entirely distinct from one another. In practice, they are deeply interconnected and often interact in complex ways. For example, high workloads may contribute to awkward postures and increase the likelihood of improper manual handling; violence and harassment can compound stress and exacerbate physical strain; and inadequate training may intensify the impact of poor ergonomic design. While these risks may be categorised individually for the sake of clarity, in the real-world contexts of the HeSCare sector, they frequently overlap, reinforce or trigger one another — leading to compounding effects on worker safety and health. Nonetheless, for analytical purposes, we present a brief overview of each risk factor in relative isolation to facilitate understanding, while acknowledging that the boundaries between them are often fluid and multidimensional.

Table 4: Overview of main MSK risk factors/MSD health outcomes evident in the HeSCare sector

Risk factor / outcome	Main considerations regarding selection
High workload and organisation of working time	▪ Staff shortages in social and health care facilities are a major problem, leading to overwork for carers (Krishnan et al., 2021). ▪ Lack of time is the main barrier to using appropriate assistive devices during patient transfers. This dual effect —– a high number of patient handling and transfer tasks combined with insufficient use of assistive devices — results in a high risk of MSDs (EU-OSHA, 2020c). ▪ Workers in the HeSCare sector are more likely than workers in other sectors to have irregular schedules including working during the night and working on short notice compared to the average EU-27 worker (EU-OSHA, 2024). ▪ A meta-analysis of 18,199 nurses found that shift workers had a 40% higher risk of back pain than those on fixed day shifts (Chang et al., 2021). ▪ A Finnish study found an association between night work and higher levels of lower back and abdominal pain, as well as headaches and upper limb pain (Katsifaraki et al., 2019). ▪ Long working hours (>40 hours/week) increase the risk of neck and shoulder pain (Arlinghaus et al., 2022). ▪ Interviews specifically mention that a high patient-to-carer ratio and heavy workloads result in rushed tasks, further elevating the risk of MSK injuries. Long shifts and irregular schedules cause physical strain and increase the risk of MSK issues. Time pressure forces workers to prioritise speed over proper techniques, increasing the likelihood of injuries.
Manual handling of patients	▪ Data from the EWCTS-2021 show that, compared to the EU-27 average, workers in the HeSCare sector are over four times more likely to be exposed to the risk of lifting or moving people (51% HeSCare, 12% EU-27 average) (EU-OSHA, 2024). This particular risk of lifting or moving people is highly sector-specific and is seen as a regular task in both health and social care. ▪ More specifically, the daily tasks of workers in the residential care subsector involve a great amount of moving or lifting patients, and 40% of long-term care workers report that this activity takes up to three-quarters of their working time (Eurofound, 2020).

Risk factor / outcome	Main considerations regarding selection
	▪ Lastly, the handling/lifting or transfer of patients is seen as a major risk for developing lower back pain (Andersen et al., 2013). A systematic review showed that, among all healthcare tasks, patient transfer is associated with the greatest risk for developing low back pain (LBP) and injuries among nurses and nursing assistants (Yassi et al., 2013).
Repetitive hand or arm movements	▪ Data from the EWCTS-2021 show that, compared to other MSK risks (working in tiring or painful positions, lifting or moving people and carrying or moving heavy loads), workers in the HeSCare sector are most often exposed to repetitive hand or arm movements. This is the most reported MSK risk, according to the EWCTS-2021. ▪ Furthermore, data from ESENER-2014 and ESENER-2019 show that there was a significant increase in the number of establishments reporting repetitive hand or arm movements as a risk (from 51% in 2014 to 66% in 2019) (EU-OSHA, 2024).
Poorly designed care environments and inadequate tools / equipment: the importance of ergonomic design and workplace layout in the HeSCare sector	▪ An ergonomic approach improves workplace health and quality of life by reducing MSDs, fatigue and poor posture (Chakrabortty et al., 2023). ▪ Human factors and ergonomics are poorly understood in the medical field (Keebler et al., 2022). ▪ Inadequate design of the workstation (small rooms, poorly placed electrical sockets, poorly organised storage, etc.) can force staff into uncomfortable postures, prolonged positions and repetitive movements, increasing the risk of MSK injuries (Rogers et al., 2013). ▪ Interviews also mention that social work activities, such as elderly or childcare, pose significant OSH risks, particularly for MSK issues. Common risks include postural strain from pushing/pulling patients and working in cramped or poorly designed home spaces. Additionally, homes are not equipped for care activities, often lacking proper tools and sufficient space for safe patient handling.
Working posture / working in awkward positions	▪ Apart from the sector-specific risk of handling patients, workers in the HeSCare sector are much more often likely to work in awkward positions in comparison with the average EU-27 worker (EWCTS 64% versus 50%). Similar findings can be found in ESENER-2019. ▪ In all defined subsectors, 50% of workers are sometimes/often/always exposed to tiring and painful positions (EU-OSHA, 2024). ▪ Interview results indicate that some professions are particularly affected: ▪ care workers who work in patients' homes and have no influence on the working environment, and ▪ particular professionals who need to work on rather small areas of a patient's body and need to conduct highly precise movements for prolonged periods of time (dentistry, surgeons, laboratory workers).
Inadequate training	▪ Lack of training in the HeSCare sector increases the risk of suffering from MSDs as workers may adopt poor posture, perform repetitive movements incorrectly or lift heavy loads without proper technique (Robla, 2015). ▪ At the subsector level, there are some significant differences between the OSH-related topics covered in training, with 94% of residential care establishments providing training on how to lift heavy loads but this being the case in only 70% of healthcare establishments (EU-OSHA, 2024).

Risk factor / outcome	Main considerations regarding selection
	▪ Training in patient handling is not enough to prevent MSDs and back injuries in healthcare workers (Richardson et al., 2018). It must be seen as part of a complete package (Thomas et al., 2014). ▪ High priority should be given to the development and evaluation of multidimensional interventions, incorporating physical training to promote strength and flexibility, and tailored to the sector (Garzillo et al., 2020). ▪ Interviews also highlight that there is a lack of training in proper patient handling that significantly increases the risk of MSK injuries. Workers are generally aware of MSK risks but lack time for adequate training due to high workloads. There is also a need to promote MSK risk awareness and implement training programmes that include not only technical skills but also cultural understanding and occupational safety practices.
Lack of workplace age management strategies / policies (ageing HeSCare workforce)	▪ Compared to the average worker in the EU-27, workers in the HeSCare sector report higher levels of exposure to MSK risk factors as well as a higher prevalence of MSDs (especially back pain and pain in the upper limbs) (EU-OSHA, 2024). The main causes for MSDs lie in physical and ergonomic risk factors, although especially in the HeSCare sector, psychosocial risks come into play as well. ▪ Conducting years of high physical work demands can lead to cumulative strain on the body. Such a prolonged exposure significantly raises the risk of workers leaving the labour market early and involuntarily due to health problems (Bláfoss et al., 2021). Women and workers over 45 years old are particularly vulnerable to the effects of physical exposure, while at the same time taking up a double care role and thus having even less time to recover and rest (Hillion, 2024). ▪ HeSCare workers, furthermore, experience long working hours, irregular working times, high workloads and having to work under time pressure, coupled with a growing care burden and staff shortages, which again all contribute to physical strain and to cumulative physical stress (EU-OSHA, 2020c). ▪ Recent studies and the interviews highlighted the significance of the ageing workforce in the HeSCare sector, with one interviewee expressing that over 50% of care workers are over 50 years old (Social Europe, 2024). This ageing workforce is more prone to MSK injuries. ▪ Factors like good organisation, having enough staff and access to proper equipment can help to reduce the job demands, and hence workers' exposure to MSK risk factors, in the short and the longer run (Social Europe, 2024).
Psychosocial risks (focus on violence and harassment)	▪ MSDs are multifactorial, arising from a combination of physical, biomechanical and psychosocial risks. While MSDs are often associated with physical strain, growing evidence highlights the significant role of psychosocial risk factors — such as work-related stress, high job demands, and workplace violence and harassment — in their development and aggravation. In this context, violence and harassment are particularly relevant, as they contribute to chronic stress, muscle tension and an increased risk of MSDs among HeSCare workers. ▪ Workers in the HeSCare sector are exposed to a wide range of psychosocial risks, among which violence and harassment at work is often highlighted as particularly problematic. Data from the EWCTS-2021, the

Risk factor / outcome	Main considerations regarding selection
	LFS-2020 and the OSH Pulse 2022 survey all point to a (very) high prevalence of violence and harassment in the sector, with HeSCare workers recording the highest exposure across all sectors and workers. ▪ Workers in jobs that require patient contact (for example, nurses, care assistants) especially run the risk of being subjected to violence and harassment at work, although HeSCare workers may also experience such behaviour from colleagues, management and others. Women workers are especially vulnerable to violence and harassment in HeSCare. ▪ Although violence and harassment is a persisting issue in HeSCare, the pandemic seems to have aggravated the issue, especially among frontline workers. It also has drawn more attention to it from policymakers and stakeholders (EU-OSHA, 2024). ▪ Being exposed to violence and harassment has severe negative impacts on the workers' own health and wellbeing (higher levels of stress, depression, burnout, sleep problems, etc.), but also on that of others (colleagues or team), as well as on their performance/outcomes and those of the organisation (less engagement, higher turnover). ▪ In the HeSCare sector, workers exposed to violence and harassment face other risks that may severely affect their physical and mental health, safety and overall wellbeing as well, which should not be seen in isolation in risk prevention and management.
Working with MSDs (back pain, pain in the upper and lower limbs)	▪ Workers in the HeSCare sector report higher than average exposure to MSK risk factors, compared to workers in other sectors in the EU-27, according to several sources (EU-OSHA, 2024). ▪ Workers in the HeSCare sector also report more often than workers in other sectors that they are experiencing (lower) back pain, neck pain, pain in the upper limbs and/or the lower limbs, and so on (EU-OSHA, 2024). ▪ Women are overrepresented in HeSCare, but evidence suggests that women are less likely to speak up about work-related health risks and that OSH measures often lack a gender lens (EU-OSHA, 2024). Women, moreover, often have a dual care role, which contributes to an even higher physical and mental burden and an increased risk of developing MSDs, or of having those untreated. ▪ The issue seems particularly pressing in home care, where prevention measures are more difficult to implement, and the work environment is less adapted to workers' needs. This is problematic especially for those workers already experiencing MSDs or working with injuries. ▪ Workers' prior medical history, physical capacity and lifestyle and habits have been identified as key individual risk factors when it comes to MSDs. The issue of working with (pre-existing) MSDs, working while injured, hurt or in pain is particularly pressing in HeSCare (van der Heijden et al., 2019).

Source: Panteia, 2025

The remaining sections of this chapter are presented as standalone sections that outline the main issues related to each particular risk. Where relevant, cross references are provided to other sections of the report. Each section outlines the main factors influencing the risk, practical guidance identified on how to address the particular risk, as well as good practice examples and recommendations for prevention of the risk in question.

2.3 High workload and organisation of working time

2.3.1 Introduction

HeSCare workers are at particular risk of MSDs due to a number of organisational factors. One key aspect relating to this is in relation to high workload and the organisation of working time, which is exacerbated by a shortage of qualified staff due to an ageing population and lack of funding resulting in high workloads (UNI Global Union, 2020). In addition, irregular working hours, time pressure and the physically demanding nature of the tasks increase the vulnerability of these workers to MSDs (EU-OSHA, 2020c). These difficult working conditions, combined with inadequate training, exacerbate the risk of MSK injuries in this sector (EU-OSHA, 2024).

2.3.2 Relevant factors influencing high workload and organisation of working time

- **Staff shortages – overwork – time pressure**

Staff shortages in social and health care facilities are a major problem, leading to high workload for carers (Krishnan et al., 2021). In particular, there is a noted shortage of qualified health professionals, including general practitioners and specialists, nurses, care assistants and physiotherapists (EURES, 2022). Due to these staff shortages, doctors and other healthcare professionals are often asked to perform tasks that are not normally part of their activities (illegitimate tasks) and often have multiple roles within the organisation (EU-OSHA, 2024). In this regard, one interviewee stressed the fact that there is often a 1:1 staff-to-patient ratio due to understaffing, leading to situations where only one person is responsible for physically demanding tasks such as heavy lifting.

To cover for shortages, staff have to compensate by working longer hours, caring for more patients or taking on additional tasks, often without adequate rest. This increases the physical and mental workload, increasing the risk of MSDs. A Swedish study suggests that the COVID-19 pandemic has exacerbated this overload, highlighting the limits of human resources in healthcare facilities (Myndigheten för arbetsmiljökunskap, 2023). Overwork in the HeSCare sector leads to a number of consequences:

- Fewer breaks: Less time to rest or adjust posture, which increases cumulative physical stress (Anyfantis et al., 2018; Ho Chung et al., 2013).
- Acceleration of tasks: The need to work faster leads to the adoption of non-ergonomic postures, which increases the incidence of MSDs.

According to EWCTS data, work intensity, characterised by very fast rhythms and tight deadlines, is slightly higher in this sector (41%) compared to the EU average for all sectors (38%). The situation varies between subsectors:

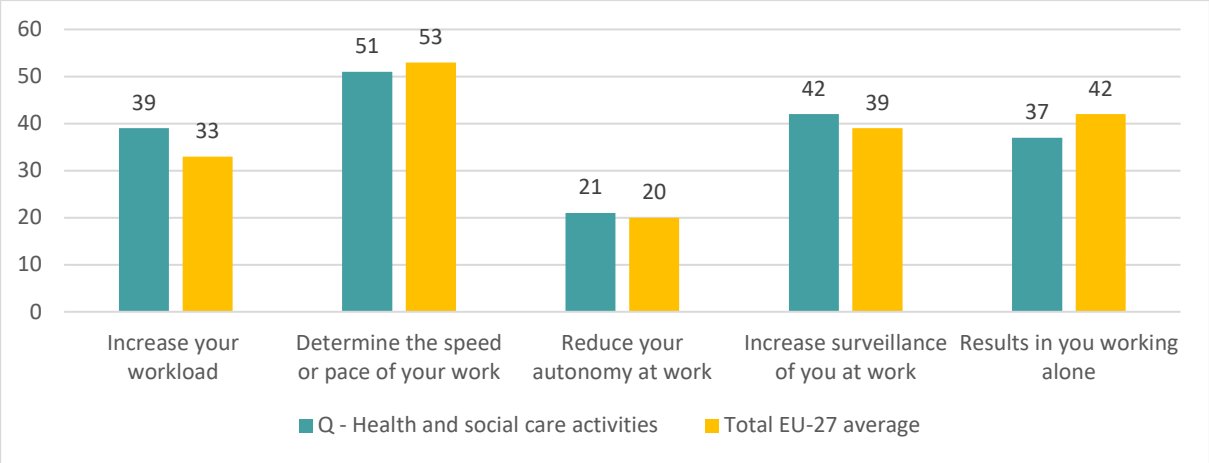
- Around 50% of employees in the healthcare subsector experience high work intensity.
- A third of those working in residential care and less than a third in social work experience high work intensity.

High workload is a particular problem in the social work and residential care subsectors, which are characterised by relatively low pay, physically and mentally demanding tasks, working hours that include weekends and nights, and high levels of stress (EU-OSHA, 2024). Healthcare professionals also cite lack of time as the main barrier to using appropriate assistive devices during patient transfers. This dual effect — a high number of patient handling and transfer tasks combined with insufficient use of assistive devices — results in an increased workload and a higher risk of suffering from MSDs (EU-OSHA, 2020c).

- **Impact of digitalisation on workload**

Digitalisation has become a major driver in the HeSCare sector, encompassing telemedicine, artificial intelligence (AI) and electronic health records, reshaping interactions and work processes. The use of digital devices (computer, laptop, tablet or smartphone) is common in the sector (70% of HeSCare workers report using them often/always according to the EWCTS). OSH Pulse 2022 data also indicate that the biggest consequences of the use of digital devices in the HeSCare sector are the determination of the speed/pace of work (51%), followed by an increased surveillance at work and an increased workload (42% and 39%, respectively) (EU-OSHA, 2024) — see Figure 10.

Figure 10: Main consequences identified by individuals and derived from the use of digital devices at work, by sector, EU-27, 2022 (%)



Source: Panteia based on OSH Pulse 2022 survey – Occupational safety and health in post-pandemic workplaces
Base: All respondents

- **Organisation of working time**

High workloads are compounded by restrictive working hours, which are a major risk factor for upper limb disorders in healthcare workers (Long et al., 2012). The organisation of working time plays a crucial role in the development of MSDs among healthcare workers, and particularly nurses (Abo El Ata et al., 2016). Some key findings from various studies indicate the following:

- An American study shows that long hours, overtime, working weekends and working on holidays (sick, on days off or without a break) were significant risk factors for MSDs among nurses (Trinkoff et al., 2006).
- Those who work at an intense pace or for long hours are more likely to report back or neck pain (van der Heijden et al., 2019).
- In addition to physical factors, organisational and psychosocial factors, such as night work or a perceived lack of support, also increase the risk of severe back symptoms and sick leave (Eriksen et al., 2004).
- Long, irregular or fragmented working hours, lack of flexibility and unpredictable demands significantly increase the risk of MSDs (Myndigheten för arbetsmiljökunskap, 2023).

Night work or shift work involving overnight hours represent irregular working times that is a fundamental characteristic of the provision of HeSCare services. This can lead to specific OSH risks due to disruptions in the natural sleep–wake cycle and work performance during night-time shifts. It is important to note that most professionals working irregular shifts belong to the healthcare subsector, with a particular emphasis on nursing, according to a study conducted mid-2023 (Silva et al., 2023). Making the most of expensive/rare machines (MRI scans, robot surgeons) may also generate 24-hour staffing needs.

Residential care workers are also frequently engaged in shift work, with rotating shifts being particularly common. Many report a lack of influence over their work schedules and are often required to respond to short-notice work requests. Evening, night and weekend shifts are especially prevalent in the long-term residential care sector (Eurofound, 2020b). Accordingly, workers in the HeSCare sector are more likely than workers in other sectors to have irregular schedules, including working during the night and working on short notice, compared to the average EU-27 worker (EU-OSHA, 2024).

Due to the nature of their work, night work is most common among workers within the healthcare subsector who are exposed twice as much to night work, compared with workers in the social work subsector (see Figure 11). The prevalence of night shifts is also higher among residential care workers than social work workers. The differences are logical since healthcare and residential care have

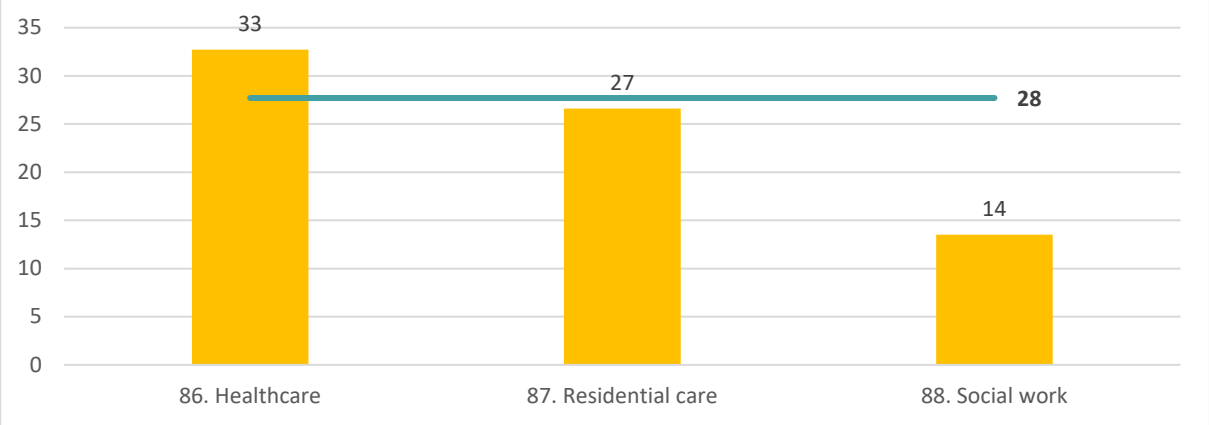
increased demands for 24/7 services, whereas social work provides service to patients/clients in their own homes, during the day.

Several studies have highlighted the negative effects of shift work on MSK health:

- A meta-analysis of 18,199 nurses found that shift workers had a 40% higher risk of back pain than those on fixed day shifts (Chang et al., 2021).
- A Finnish study found an association between night work and higher levels of lower back and abdominal pain, as well as headaches and upper limb pain (Katsifaraki et al., 2019).
- Long working hours (>40 hours/week) increase the risk of neck and shoulder pain (Arlinghaus et al., 2022).
- Nurses with high physical demands and shift work have a significantly higher prevalence of lower back disorders (90%) compared to other groups. Additionally, gender (female) and work experience (over seven years) are significantly associated with lower back disorders prevalence (Raeisi et al., 2014).

Although the exact role of the daily duration of shift work remains to be clarified, recent data generally confirm an increased risk of MSDs among shift workers, particularly lower back pain (Attarchi et al., 2014). The results for night work are more mixed, with insufficient data on irregular shifts, permanent night shifts and split shifts to draw firm conclusions.

Figure 11: Percentage of HeSCare sector workers working sometimes/often/always at night, by subsector, EU-27, 2021 (%)



Source: TNO based on EWCTS-2021
Base: All HeSCare workers in the EU-27
The horizontal line indicates the HeSCare (NACE Q) EU-27 average

Working at short notice (which involves asking workers to work with little advance notice) is more common in the healthcare sector than in other subsectors, leading to fatigue and sleep disruption, stress, disturbed work–life balance and reduced preparedness for the job to be performed. These conditions reduce recovery time and force staff to perform physical tasks in a state of fatigue, reducing their vigilance and their ability to apply handling techniques correctly, putting them more at risk of developing MSDs. Compared to other sectors, the share of short-notice work on a regular basis in the HeSCare sector is more frequent (21%) compared to other sectors in the EU-27 (EU-OSHA, 2024). Analyses show no significant difference in exposure rates based on subsector in HeSCare (EU-OSHA, 2024).

These findings highlight the importance of proper work planning, regulation of working hours and the introduction of priority medical screening programmes for shift workers.

2.3.3 Practice and guidance identified on how to prevent risks related to high workload

- **Optimise work organisation through participatory approaches**

Effective work organisation is fundamental to reducing high workloads and mitigating the risks associated with irregular work-time arrangements in the HeSCare sector. The **Good Ward Organisation, a guide for nursing teams in hospitals (DE)**, is a practical tool that supports nursing teams in hospitals both in identifying the need for action and in developing and introducing mitigating measures (BAA, 2024). Good work organisation in the clinic is not only important for the smoothest possible processes, it is also essential for the wellbeing, health and motivation of nursing staff. If everything 'fits', this has a demonstrably positive effect on the quality of work, absenteeism, staff retention and therefore also on the profitability of a clinic. In this respect, good ward organisation is advantageous for everyone involved — not least for the patients, who benefit from it.

The guide structures the procedure during the change process and enables the teams to analyse, evaluate and design key aspects of their own ward organisation. To this end, checklists to determine the current status and the possibility of downloading materials have been integrated into the guide.

The modular guide focuses on 14 'building blocks' that reflect different aspects of ward organisation. In this way, one aspect (module) can be systematically designed after the other. The modules can be selected as required depending on the individual situation of the clinic. The last section of this guide (section 14) refers explicitly to safety and health at work, and in particular it details organisational and technical measures to reduce the risks associated with physically demanding tasks like handling patients, and it gives some practical organisational advice, such as:

- Providing sufficient staff and adequate time to carry out these tasks safely: it is advisable to work in pairs when moving or lifting patients, in order to reduce risks to the health of carers.
- Providing technical aids for moving patients (for example, patient lifts or sit-up aids).
- Organising training and instructions on good lifting and carrying practices. These instructions are aimed in particular at nursing area managers. However, the guide can also be used by all those responsible for quality management or safety and health at work in a clinic.

Participatory approaches complement structured tools by directly engaging staff in identifying and resolving workplace challenges. France's **At the Heart of Hospitals** initiative exemplifies this method by inviting healthcare professionals to share ideas and experiences for improving working conditions (ANEO – Le CNAM, 2018). Through a participatory platform, nearly 90 contributions were received, with shortlisted projects including collaborative spaces for discussing working conditions, internal quality of life at work (QWL) projects and the development of a skills matrix to enhance staff versatility. These examples demonstrate how involving frontline workers in decision-making fosters a sense of ownership and results in tailored, effective solutions to workload and time pressure challenges. Of these, 21 ideas were shortlisted for submission to a jury of healthcare professionals and management specialists, which included, among others:

- Development of a time ratio strictly allocated to providing care / to calculate the number of patients to take care of (Association Toulousaine de Soins à Domicile).
- Development of an initiative to prevent MSDs by avoiding the patient handling (Institut MSGWN de la Verrière).
- Creation of a collaborative space for workers to discuss working conditions (Fondation Léonie Chaptal).
- Promotion of the MSK health of carers by encouraging the physical activity at work (just before starting to work or at the end of the working day). This activity is also seeking to improve the cohesion among the teams (LUDEMA).
- Call for QWL projects in-house (Centre Hospitalier de Valenciennes).
- The skills matrix to promote versatility (CHU de Nimes).

- **Enhance QWL programmes**

Improving QWL is a proven strategy to address high workloads and irregular schedules. The French guide **Improving wellbeing at work in hospitals (FR)**[6] underscores the critical link between staff wellbeing and quality of care, emphasising the need to integrate QWL objectives into hospital projects. This guide gives concrete and practical examples of solutions tested in various hospital establishments to deal with difficulties linked to staff shortages and time constraints, but also to prevent MSDs and enable workers to look after their health during their breaks by taking part in sport or wellness activities or simply having a nap in a dedicated space. All these measures contribute to the wellbeing of workers and the prevention of MSDs. See also Box 5.

Drawing on extensive field experience, the **Improving quality of life at work in the healthcare and social sector: practical resources based on field experience (FR)** initiative (see link above) provides practical resources for care institutions to implement QWL initiatives. Based on lessons learned from the field, the practical guide and the associated resources provide benchmarks for better combining quality of care and QWL. They are useful for initiating approaches aimed at improving staff retention, preventing staff turnover or supporting change projects.

Between 2018 and 2020, 277 HeSCare establishments (for the elderly and disabled) across France took part in innovative and learning collective actions to improve their working conditions. These approaches, which involved management, administrative staff and carers, enabled the organisations to identify the scope for joint action on wellbeing at work, quality of care and performance. In this context, the teams took concrete actions in terms of time management, change support, architectural project management, digital transition and so on.

A number of practical cases are presented in the second section of the guide to give an overview of the actions taken by the organisations. The guide presents nine themes that have been addressed using the QWL approach, including reorganising work and work areas, improving physical working conditions, working better together, managing differently and preventing team tensions, improving professional relations and so on. Each theme is illustrated by three case studies. The cases are anonymous and relate real actions taken in various HeSCare establishments.

These collective actions took place within the framework of a partnership set up at the request of the French Ministry of Solidarity with the National Agency for the Improvement of Working Conditions (ANACT) network and the regional health agencies.

- **Foster dialogue across organisational levels**

Open communication across all levels of an organisation is critical to addressing workload challenges and fostering a healthier workplace. The Dutch **Approach to Organisational Climate: Talking to each other improves health and safety among healthcare workers (NL)** provides a scientifically tested framework for facilitating solution-oriented dialogues (IZZ, 2018). This approach encourages discussions within teams, between teams and line managers, and with senior leadership to collaboratively identify and address workplace issues. By aligning perspectives across all organisational levels, solutions are more inclusive and actionable, resulting in improved safety and health outcomes for staff. Health care organisations with a good organisational climate have healthy workers. By entering into a dialogue with each other, the organisational climate is affected positively. IZZ Foundation (founded and managed by employers and workers in healthcare in Netherlands) developed a method for this, in partnership with Erasmus University Rotterdam: Approach to Organisational Climate. A — scientifically tested — effective approach for having a solution-oriented dialogue.

Addressing the challenges associated with high workload and the organisation of working time in the HeSCare sector requires a multifaceted and proactive approach. The practices and tools outlined in this section underscore the importance of optimising work organisation through structured and participatory methods. These initiatives demonstrate how collective action and inclusive dialogue can lead to sustainable improvements to better manage MSD-related issues and promote good MSK health at work.

[6] For more information, please see: https://sante.gouv.fr/IMG/pdf/resah-editions_guide-qvt_vf.pdf

2.3.4 Workplace interventions/good practices

The following boxes provide a number of practical workplace interventions and good practices that have been identified that address high workload and organisation of working time in the HeSCare sector.

Box 2: Case Voima: A working time pilot/Helsinki City home care/Vuosaari 1-area (FI)

A pilot project took place in the home care sector (2015-2016) in Helsinki, Finland, focusing on reorganising work schedules and tasks to improve workers' wellbeing and client care. The new system extended work shifts from eight to nine hours but allowed more days off, reducing overtime and sick leave. As a result, workers experienced better recovery, work–life balance and job satisfaction, while client care quality and satisfaction improved. The project inspired similar initiatives across Finland, demonstrating that investing in workers' wellbeing benefits both staff and clients.

Source: https://hospeem.org/wp-content/uploads/2018/06/Presentation-Hyv%C3%A4rinen-24.05.18-EN.pdf

Box 3: DRK Kliniken Berlin Pflege und Wohnen Mariendorf, Berlin (DE)

In this residential care facility, 102 staff members provide care for 142 residents. The facility experiences low staff turnover, and vacant positions are quickly filled without the need for extensive advertising campaigns. The Facility won the BGW Health Prize 2024, and the jury described it as a 'hidden gem' that excels in all aspects. They specifically highlighted the well-organised absence management, which ensures that staff rarely need to be called in during their time off, even in cases of short-term absences. Additionally, a medical assistant in the administration supports the care staff by handling tasks such as medical prescriptions, visits and patient transport.

Key components of workplace health protection include a conflict reporting system, de-escalation training, mandatory use of assistive devices, health breaks and emergency childcare. Centralised trainers onboard new hires and trainees in a specially redesigned room. The jury witnessed the facility's effective employee suggestion system during their visit: cooling cloths for heat protection, an idea proposed by staff, were being tested on-site.

Source: https://www.bgw-online.de/bgw-online-de/presse/bgw-gesundheitspreis-2024-pflegeeinrichtungen-aus-berlin-papenburg-und-zittau-ueberzeugen-mit-zukunftsweisendem-einsatz-fuer-beschaeftigte-111024

Box 4: The benefits of a nap for carers during a 12-hour day (FR)

The Seclin-Carvin hospital group has set up spaces and times for micro-naps for its staff. Although the scheme is gradually being rolled out, the nurses who make use of it are mainly those who work 12-hour shifts. This is an opportunity for them to take a restorative break from physical fatigue and mental workload during their break time.

In total, 17 cocoons (soon to be 18) have been deployed in the three establishments since 2020, and 12 immersive relaxation headsets have been added to the range in recent months. 'There has been a pause in the project because we are still coming up against taboos,' says the HR Director. 'People are holding themselves back, some believing that they are there to take care of others and not themselves. We need to communicate widely on the subject of relaxation at work, which is allowed for everyone. However, the staff who do take a nap say they are convinced of the benefits'.

Source: Travail et sécurité – 05/06/2024: https://www.travail-et-securite.fr/ts/860/DOS/les-horaires-atypiques/les-bienfaits-de-la-sieste-pour-les-soignants-en-journee-de-12-heures.html

Box 5: A residential home for the elderly is questioning its organisation (FR)

The Grenoble-based association 'Arbres de vie', which manages three nursing homes (EHPADs), took some proactive measures to improve working conditions and prevent MSDs, particularly lower back pain, among their staff.

Despite a complete reconstruction of the Bévière facility in 2012, which included installing ceiling lifts in each room and adjustable-height beds to reduce physical strain, the incidence of work-related MSDs and back pain remained high. In response, a QWL group was established to evaluate and implement appropriate assistive devices, such as stand-assist aids and patient lifts, and to ensure staff received proper training in their use.

Additionally, the organisation implemented several strategies to enhance overall working conditions:

- Conducting annual 'Satin' questionnaires to identify staff concerns, leading to adjustments such as rescheduling family phone calls to reduce interruptions during morning care routines.
- Revising work schedules to 11- or 12-hour shifts over three days per week, allowing for a more balanced distribution of workload throughout the day and reducing time-related pressures that often lead to accidents.
- Extending preventive measures beyond caregiving staff, including the introduction of motorised meal carts in kitchens to minimise pushing and pulling tasks that can cause back strain, and redesigning the reception desk to improve ergonomic conditions for administrative personnel.

These comprehensive efforts have fostered a positive cycle of improved working conditions and employee wellbeing, emphasising the importance of collective involvement in sustaining such initiatives.

Source: Travail et sécurité – 22/02/2024: https://www.travail-et-securite.fr/ts/857/DOS/les-lombalgies/un-ehpad-qui-questionne-l-organisation-de-tous-ses-metiers.html

2.3.5 Recommendations for prevention

In order to address the potential risks in the HeSCare sector associated with high workload and the organisation of working time, the following recommendations are presented:

- **Participatory programmes to identify, assess and reduce the risk of MSDs** through the involvement of frontline staff and with the support of management. The main barriers are high staff turnover, labour shortages and time constraints, common to all organisational change efforts in long-term care. Practical implementation shows that such a programme is feasible in long-term care, improving communication and helping to identify and control risks (van Eerd et al., 2021).
- Reduce the time of exposure to demanding work conditions.
- **Task rotation:** Implement task rotation systems to prevent staff from performing repetitive movements or being exposed to prolonged postures that can cause MSDs (Asensio-Cuesta et al., 2012).
- **Reorganisation of the work** to consider work practices, the type of patients, peaks of work at specific times of the day.
- **Reduce administrative tasks:** Automate or delegate certain repetitive administrative tasks to limit stress and errors, while reducing the amount of time spent sitting in front of a screen.
- **Team planning:** Ensure that shifts are planned in such a way as to allow sufficient breaks and a balanced distribution of workloads, and to avoid burnout, especially in busy departments such as hospitals or nursing homes.
- **Encourage fluid communication:** Encourage open communication and the reporting of difficulties on work organisation encountered by professionals. This can be done through working groups on working conditions, or regular audits.
- Take spontaneous rest breaks on night shifts (Tirilly et al., 2015).

- **Promote healthy work–rest patterns** such as good work planning, alternating activities, adequate work schedules and improved distribution of tasks.
- **Create relaxation areas:** Provide rest rooms or quiet areas where staff can relax during their breaks, reduce stress and recharge their energy.
- **Regular breaks:** Raising awareness of the importance of taking regular breaks to avoid mental and physical fatigue. Encourage relaxation techniques.
- Specifically for the home care sector (IRSST, 2011):
- providing time for professional and inter-professional groups for the home care workers,
- stabilising work situations for home care workers, and
- setting limits for the tasks performed by home care workers.

2.4 Manual handling of patients

2.4.1 Introduction

HeSCare workers are often tasked with the (manual) handling of patients. Handling of patients is a generic term that includes several tasks such as (lateral) lifting of patients (from one surface to another), repositioning of patients (moving the person into a different position to redistribute pressure), turning of patients, helping patients from a sitting position to a standing position and the ambulation of patients (aiding patients in walking) (Mayeda-Letourneau, 2014). Although there are several variations of patient handling possible, many of them share one common feature: the physical load on the HeSCare workers' body. According to several studies, handling demands for patient care workers frequently exceed the safe lifting limit recommended for patient handling activities derived from the National Institute of Occupational Safety and Health (NIOSH) Lifting Equation (Skotte et al., 2002; Skotte et al., 2008; Waters, 2007). This safety limit states that the compression force of the lower back (between L4 and L5) should not exceed 3400 Newton during work (NIOSH, 1994).

Exceeding this safe lifting limit during work will increase the likelihood of the development of MSDs. Such high internal loads on muscles, ligaments and joints of the body (especially the (lower) back and shoulder) significantly increase the potential for development of work-related MSDs (Waters et al., 2007).

It may be concluded that the continuous performance of (manual) patient handling will place a HeSCare worker at risk for development of an MSD, especially lower back pain (LBP) (Mayeda-Letourneau, 2014; Yassi et al., 2013; Smedley et al., 1995).

2.4.2 Relevant factors influencing the risks related to the manual handling of patients

- **Number of (daily) handling activities**

The level of exposure to patient handling activities plays a role in the severeness of this particular risk. Several studies in the past have shown an association between the frequency of handling patients and lower back pain (Smedley et al., 1995; Hignett, 1996). More recently, however, there is evidence that has established a more direct relationship between the number of patient handling activities and the magnitude of the risk. Evidence from a recent prospective cohort study shows that the number of daily patient transfers was — in an exposure–response fashion — a risk factor for sustaining a back injury during patient transfer in a hospital setting in Denmark (Andersen et al., 2019). These findings are in line with earlier research done in elderly care facilities, also in Denmark (Andersen et al., 2014).

- **Patient characteristics**

As with all loads that need to be manually handled, the characteristics of the load have a direct influence on the severity of the risk. Patients are no 'regular' load and are not always stable. A patient's movements during a lift can create additional load to the HeSCare workers' body and patients may even be unpredictable (they might have muscle spasms, be combative or resist), leading to higher loads (Waters, 2007). As far as patient characteristics are concerned, there are two major demographic trends that are of particular relevance with regard to the topic of patient handling.

Weight problems and obesity are increasing at a rapid rate in most of the EU Member States, with estimates of 52.7% of the EU's adult (aged 18 and over) population being overweight in 2019 (Eurostat,

2024). Obesity is a serious public health problem as it significantly increases the risk of chronic diseases. This is problematic for HeSCare workers: not only will obesity lead to more patients within the healthcare systems, overweight or obese patients will increase the load on HeSCare workers' bodies when handling those patients. Recent research shows that handling patients with overweight or obesity leads to a higher risk of developing MSDs, especially LBP (Choi et al., 2015; Skotte et al., 2008; Galinski et al., 2021; Galinski et al., 2010). With the expectation that the prevalence of obesity will increase in the coming years, this risk will only increase (Janssen et al., 2020).

Besides obesity, there is another challenge with regard to patient characteristics: ageing. An ageing society increases the number of patients who need care. Research indicates a clear and direct relationship between age and the necessity for healthcare and social services — as people grow older, their health tends to decline, leading to a corresponding rise in the demand for healthcare and social support (EU-OSHA, 2024). As individuals age, they often experience changing health conditions, such as the development of numerous chronic diseases, disabilities and increased reliance on assistance, which can persist over an extended duration. This increased reliance on assistance (for example, not being able to move) will lead to more patient handling tasks and/or patient handling tasks in which the HeSCare worker has to use a higher physical effort to handle the patient, which induces a higher load on the MSK system (EU-OSHA, 2020c).

- **Availability and use of (lifting) equipment or other assistive devices**

Assistive devices, such as (ceiling) lifts, sliding sheets or boards, master turners (a sheet allowing workers to turn a patient on the side) and adjustable beds are developed with the aim of both aiding the patient into another posture while simultaneously reducing the physical load on the HeSCare worker. Several studies have shown that the proper use of assistive devices is an efficient way to reduce the load on the lower back during patient handling (Holterman et al., 2015; Andersen et al., 2014; Vinstrup et al., 2020). A more recent review on the biomechanical effects when using assistive devices concluded that there is a growing level of biomechanical evidence to support the use of assistive devices for many patient-handling tasks (Fray, 2023).

Despite the overwhelming evidence on the effectiveness of assistive devices for patient handling, those devices are not always used. Evidence from literature suggests that time constraints, lack of perceived need, lack of knowledge, limited staffing, lack of appropriate policies, lack of equipment, room congestion and lack of management support are all barriers for using assistive devices (Noble et al., 2018; Holman et al., 2009; Koppelaar et al., 2011). Recent research confirmed that the most influential factors in the decision to use assistive devices for patient transfers are time constraints and difficult patient-handling situations (Wiggerman et al., 2024). These factors lead to infrequent use of assistive devices, especially mechanical devices that are difficult to retrieve or not readily available.

2.4.3 Subsectors and (specific) workers at risk

Data show that there is a difference in the exposure to manual handling of patients within the three subsectors of which the HeSCare sector is composed. Data from both the LFS-2020 and the EWCTS-2021 show that workers within the residential care subsector are most frequently exposed to this risk compared to the other two subsectors (EU-OSHA, 2024). This is confirmed by a recent Eurofound report that states that the daily tasks of workers in the residential care subsector involve a great amount of moving or lifting patients, and that 40% of long-term care workers report that this activity takes up to three-quarters of their working time, which is almost double the proportion of workers in the healthcare (23%) subsector (Eurofound, 2020a). Eurofound states that this difference may be due to the nature of long-term care work: users are often physically frail and physical contact is required to help people get out of bed, wash and dress. Furthermore, the application of lifting technology (especially in home care) has so far been limited (Eurofound, 2020a).

With regard to the manual handling of patients, specific groups of workers are particularly at risk:

- Older HeSCare workers will be more at risk compared to their younger peers. This is due to a combination of natural age-related changes, chronic disease and years of cumulative exposure, whereby the physical demand of manual handling of patients becomes even more challenging (EU-OSHA, 2020c).

- Workers with existing MSDs: HeSCare workers who have already developed MSDs have a poorer prognosis for recovering from their pain when the work is physically strenuous, which is the case in the manual handling of patients (Andersen et al., 2012).

2.4.4 Practice and guidance identified on how to prevent risks related to the manual handling of patients

- **Safe patient handling and mobility programmes**

In order to protect both patients as well as HeSCare personnel, safe patient handling and mobility (SPHM) programmes are developed within the sector. Although not all SPHM programmes are similar, the main focus of such programmes is to provide staff with strategies for safe mobilisation of patients to prevent associated worker injuries within an initiative to mobilise patients early (early mobilisation of the patient is the application of physical activity as early as the second to fifth day after the onset of critical illness or injury) and frequently (Dennerlein et al., 2017; Olinski et al., 2017).

Recent research outlined core programme elements for successful SPHM programmes (Thomas et al., 2014):

- establishment of a safe lifting policy,
- performance of an ergonomic (risk) assessment,
- equipment availability,
- creation of a patient assessment protocol,
- staff training, and
- the provision of resource staff.

A recent meta-review including 27 scientific papers found that SPHM programmes significantly reduce patient care worker injuries and that the beneficial effects of these programmes not only persisted but improved over time (Teeple et al., 2017). These findings provide strong support for the widespread implementation of SPHM programming in all healthcare facilities. Therefore, to prevent worker injuries associated with the expected increase in demands, these quality initiatives need to be implemented with an embedded SPHM programme to improve care of the patient and the safety and health of the caregiver. In this report, Box 9, Box 10, Box 11 and Box 35 display examples of the implementation of SPHM programmes throughout the EU.

- **Mechanical equipment and assistive devices**

As already mentioned above, there is overwhelming evidence on the effectiveness of assistive devices for patient handling. A variety of assistive devices exist, each with its own use and context. However, just providing HeSCare workers with equipment is not enough. In order to make sure that such devices will have a positive effect on the physical load of workers, the introduction of such devices should be accompanied by proper training on how to use such devices (Garg et al., 2012; Thomas et al., 2014).

- **Training of workers**

Besides the use of assistive devices, the training of HeSCare workers in the manual handling of patients used to be a measure often taken within the sector (Hignett, 2003). However, research found strong evidence that interventions predominantly based on technique training have no impact on working practices or injury rates (Martimo et al., 2008; Hignett, 2003). However, evidence was also found supporting the opposing statement for the use of training, but only to achieve short-term changes (Hignett, 2003).

More recent literature based on multiple studies provides a similar insight: interventions based on workers' training alone do not have enough impact on the prevention of MSDs and/or injury rates (Dawson et al., 2007; van Hoof et al., 2018; Thomas et al., 2014). The training of workers can be a useful element in a broader strategy to eliminate or mitigate risks, but as a standalone solution this measure can be seen as ineffective. See section 2.8 'Inadequate training' for more information.

- **Worker participation**

Workers have detailed knowledge of their work and often good ideas about how to make it safer. Nevertheless, workers alone may not have the resources or mandate to make actual changes. A participatory approach involving all stakeholders, including the practical experience of workers, can be

effective in improving working conditions (EU-OSHA, 2020c). Recently, in Denmark a study was carried out in which multiple departments of a hospital group were involved in a participatory approach to improve the use of assistive devices (Jakobsen et al., 2019). Workers identified barriers and solutions for the better use of assistive devices, developed plans, and provided their practical experience and suggestions. After one year, the general use of assistive devices increased significantly.

Although this is just one example of successful worker participation, the potential of worker participation to improve safety and health in the sector is high. Based on ESENER data, many establishments in the HeSCare sector have ensured worker representation in terms of work councils, trade union representation, safety and health committees and safety and health representatives (EU-OSHA, 2020c).

2.4.5 Workplace interventions/good practices

The following boxes provide a number of practical workplace interventions and good practices that have been identified that address manual handling of patients in the HeSCare sector.

Box 6: Active exoskeletons for lifting patients in a German Hospital – Film (DE)

At Berlin's Charité hospital, nurses are wearing exoskeletons that make it easier for them to lift patients. The goal is to make the nursing profession less burdensome and more attractive. A German automotive supplier is producing the system. In this film the use of the exoskeleton is described and interviews are carried out with nurses who use them.

Source: https://www.dw.com/en/the-exoskeleton-high-tech-help-with-lifting/video-68895899

Box 7: Guideline for patient handling (DE)

Moving and handling people in healthcare work can lead to MSK injuries and pain. The healthcare profession has been shown to be one of the occupations most at risk for back pain. A high proportion of healthcare professionals report MSDs and the primary cause for MSDs are patient-handling tasks such as lifting, transferring and repositioning of patients. This guideline provided by the German Social Accident Insurance for the healthcare sector shows several factors and measures that enable workers to move patients ergonomically and thus reduce the risk of MSDs.

Source: https://publikationen.dguv.de/widgets/pdf/download/article/1264

Box 8: Large-scale prevention training for social and healthcare workers through an adaptable ergonomics model (FI)

In 2020, MSDs were responsible for about a third of absences at Siun sote — joint municipal authority for North Karelia social and health services. The Finnish organisation produced a comprehensive ergonomics expertise action plan for care and support work. This ergonomics model emphasises MSD prevention by training and raising the awareness of social and healthcare workers. Siun sote is one of the commended examples of the 15th Healthy Workplaces Good Practice Awards competition, which recognises successful prevention and management of MSDs.

Source: https://osha.europa.eu/en/publications/finland-large-scale-prevention-training-social-and-healthcare-workers-through-adaptable-ergonomics-model

Box 9: Cultural change in French residential care facility (FR)

At the Les Myosotis nursing home (FAM) in Dourdan, France, staff are learning to accompany multi-disabled residents as they move around, carrying them as little as possible. It is a cultural change

that requires the involvement of everyone. The idea is to get rid of the automatisms that consist of systematically carrying residents when they have to get up, get out of their seat, sit up in bed and, on the contrary, to rely on their abilities to accompany them in the different movements. The caregiver guides them by speaking, which requires knowing the constituent elements of each movement to be able to break down and verbalise all the movements to be carried out.

Source: https://www.travail-et-securite.fr/ts/852/DOS/Le-port-de-charges/soins-a-la-personne-accompagner-sans-porter.html

Box 10: Videos to help workers change the way of manual handling of patients (FR)

A new series of videos from the Institut National de Recherche et de Sécurité (INRS) aims to change the way care and assistance professionals approach the handling of people. This innovative approach to the prevention of risks linked to physical activity in this sector will result in global action to prevent MSDs.

Source: https://www.inrs.fr/actualites/videos-tms-soin-personne.html

Box 11: Manual handling of patients policy (IE)

Ireland's public health and social care service (HSE) developed a policy aimed at mitigating the risks that come with manual and people handling in the HeSCare sector. Accordingly, this policy establishes the responsibilities that different actors in the HeSCare sector (for example, senior managers, HSE workers) need to take on to mitigate risks associated with manual handling and people handling. Furthermore, procedures relating to (documented and undocumented) risk assessments, risk control, emergency situations, and education and training are provided.

Source: https://assets.hse.ie/media/documents/manual-handling-and-people-handling-policy.pdf

Box 12: Course on manual handling of patients (FI)

The Finnish Institute of Occupational Health developed this course for HeSCare individuals already working in the field or about to join the field. In this training, work practices to promote efficiency and safety are explored in the context of helping patients move and transferring them. The training is composed of theoretical distance learning (which includes courses on cognitive ergonomics and natural movements and body control) combined with contact learning and support by an 'ergonomic patient handling card-trainer' as well as practical learning and a final review and competence evaluation.

Sources: https://www.ttl.fi/en/training/ergonomic-patient-handling-cardr-learning-program/ and https://hospeem.org/wp-content/uploads/2021/03/Anne-Ranta-JHL-Ergonomic-patient-handling-card-way-to-promote-good-working-practices-in-the-healthcare-sector.pdf

2.4.6 Recommendations for prevention

Based on the findings of the practice, guidance and interventions presented in this chapter, it becomes clear that there are no standalone solutions in order to mitigate the risk of manual handling of patients. Multifactor interventions are most likely to be successful in reducing risk factors related to patient handling activities. The multifactor interventions should consider the following 'building blocks' (which may be overlapping):

- The **performance of an ergonomic (risk) assessment** of the tasks involving manual handling of patients. There are several risk assessment tools for the manual handling of loads, including the Dutch instrument TilThermometer©.[7]
- The development and implementation of **SPHM programmes** or **safe lifting policies** within establishments.
- **Mobilisation of patients programmes**, so that the need for manual handling of patients decreases (see Box 11).
- Building an **organisational safety culture** in which, besides the safety and health of the patient, the health and safety of the worker is emphasised and in which worker participation is embedded (see Box 9 and Box 35 for practical examples).
- **Availability of (lifting) equipment or other assistive devices**, suited for the task to be performed, and properly used by the HeSCare workers.
- Application of **'new technologies'** such as exoskeletons, etc. (see Box 6 for an example).
- **Adequate training of workers** regarding the risk of manual handling of patients (consisting of multiple elements such as risk awareness, risk assessment, safe handling techniques and proper use of equipment) (see Box 8 and Box 12 for practical examples). It must be noted that the training will only yield results if the work environment or organisation is designed in such a way that workers are able to adopt the good techniques/put into practice what they have learned.

2.5 Repetitive hand or arm movements

2.5.1 Introduction

Repetitive motion disorders are a family of muscular conditions that result from repeated motions performed during the normal work or daily activities. The disorders are caused by too many uninterrupted repetitions of an activity or motion, unnatural or awkward motions such as twisting the arm or wrist, overexertion, incorrect posture or muscle fatigue (EU-OSHA, 2022b).

MSDs are very common among healthcare professionals (Jacquier-Bret, 2023). Data from the EWCTS-2021 show that, compared to other MSK risks (working in tiring or painful positions, lifting or moving people, and carrying or moving heavy loads), workers in the HeSCare sector are most often exposed to repetitive hand or arm movements. According to the EWCTS-2021, this is the most reported MSK risk in this sector. A diverse set of types of healthcare professionals deal with repetitive movements in their work, varying from nurses to dentists. Although repetitive movements are rarely defined exactly and can vary in cycle time, there is ample evidence that they pose a risk factor for development of MSDs (EU-OSHA, 2024).

Common MSDs linked to repetitive movements (EU-OSHA, 2024):

- neck: tension neck syndrome, cervical spine syndrome;
- shoulder: shoulder tendonitis, shoulder bursitis, thoracic outlet syndrome;
- elbow: epicondylitis, olecranon bursitis, radial tunnel syndrome, cubital tunnel syndrome; and
- wrist/hand: De Quervain disease, tenosynovitis wrist/hand, synovial cyst, trigger finger, carpal tunnel syndrome, Guyon's canal syndrome, hand-arm syndrome, hypothenar hammer syndrome.

Data from ESENER show that in the HeSCare sector there was a significant increase between 2014 and 2019 in the number of establishments reporting repetitive hand or arm movements as a risk (from 51% in 2014 to 66% in 2019). Healthcare workers and residential care workers are more often exposed to tiring or painful positions, lifting or moving people, carrying or moving heavy loads, and repetitive hand or arm movements than workers in the social work subsector (EU-OSHA, 2024).

[7] For more information, please see: https://osha.europa.eu/en/publications/tilthermometerc-mapping-severity-and-type-exposure-physical-strain-when-handling-patients

2.5.2 Relevant factors influencing the risks related to repetitive movements

Repetitive movements are especially hazardous when they involve the same joints and muscle groups over and over again and whenever the same movement is done too often, too quickly and for too long (EU-OSHA, 2020d). **Work involving repetitive movements** is very tiring because the **worker cannot fully recover** in the short periods of time between movements. If the work activity continues in spite of the fatigue, injuries can occur. Especially **frequent short-cycle repetitions** increase the risk of MSD problems. A higher risk is found when the repetitive movements account **for 50% of work time** (Latko et al., 1999).

When repetitive movements require **higher levels of applied force**, this increases the risk of MSDs (Gallagher, 2013). Also, the **combination of repetitive movements and working in awkward positions** increases the risk of developing MSDs (Meyers et al., 2023).

The **increase in healthcare information technology** has added additional repetitive tasks to the task set of many healthcare professionals. Healthcare information technology is fundamentally changing the nature of many healthcare jobs. Often, **healthcare information systems require repetitive movements in awkward positions**. The projected **increased use of healthcare information technology without attention to ergonomic considerations** can increase prevalence of upper extremity MSDs (Hedge et al., 2011). Examples of common healthcare information technology in hospitals are in-room wall-mounted computer workstations, computers on wheels (push carts) and radiology reading rooms.

2.5.3 Subsectors and (specific) workers at risk

Repetitive movements occur in many different healthcare professions, but they are especially prevalent in a number of professions, such as physiotherapists, nurses, dentists, radiographers, medical laboratory workers and surgeons. Surgeons and dentists present the highest prevalence of lower back, shoulder and upper extremity MSDs. Accuracy is also a factor in the origin of MSDs, as has been shown in dentists and surgeons (Jacquier-Bret, 2023).

Frequently reported professions at risk for MSDs due to repetitive movements:

- Surgeons make accurate, repetitive movements during prolonged procedures and surgeries. This is often done in awkward positions and with neck twisting, increasing the risk for MSDs for different types of surgery (Occhionero et al., 2014; Szeto et al., 2012; Catanzarite et al., 2012). Section 2.7 on working posture/working in awkward positions provides more information on awkward positions.
- Eye care physicians (ophthalmologists and optometrists) have a high prevalence of neck, hand/wrist, and lower back pain. Repetitive tasks, prolonged or awkward/cramped positions, and bending/twisting are contributory factors (Kitzmann et al., 2012).
- Dentists and dental hygienists are prone to high MSD risks, due to the combination of working in awkward positions and the presence of many accurate repetitive movements (Occhionero et al., 2014). Symptoms appear to begin very early in careers, with higher prevalence of MSDs even during educational training as clinical hours increase. Frequent use of hand tools for examining and cleaning teeth involves repetitive motions, which in combination with awkward working position (neck bending) increases risks for MSD problems.
- Physical therapists use hands-on techniques and exercises that require repetitive arm movements. Especially arm and wrist pains are reported, for example, related to manual therapy and masseurs (Morse et al., 2010; Jacquier-Bret, 2023).
- The prevalence of MSDs in nurses is high due to the physical demand of their work (Soylar et al., 2018). The association found between MSD in distal upper extremities and physical demand shows that attention should be paid not only to the activities related to handling and transfer of patients but also to other activities that require precise and repetitive movements with the hands (Fonseca et al., 2010). Examples of repetitive tasks carried out by nurses are handling/carrying objects, assisting with patient handling, changing patient wound dressings, injections and turning patients over in bed (Ou et al., 2021). The occurrence of MSDs is generally higher among

critical care nurses than non-specialised nurses (Du et al., 2021; Aleid et al., 2021). This is specifically accurate for scrub nurses who are more prone to MSDs as they are actively engaged in creating and maintaining the surgical field and passing medical equipment to surgeons (Clari et al., 2019).

- Laboratory workers are at risk for repetitive motion injuries during routine repetitive laboratory procedures such as pipetting, working at microscopes, operating microtomes, using cell counters and keyboarding at computer workstations (Occhionero et al., 2014; Occupational Safety and Health Administration, 2020).
- Radiology technologists report a prevalence of MSK symptoms in the back, right hand/wrist and dominant hand/wrist, right shoulder and dominant shoulder (Lamar, 2004). In general, radio- and sonographers are a high-risk group in the radiology department. Finally, workers in the radiology department often spend much time in front of a computer, increasing risk for MSDs.
- Fewer studies can be found on MSDs in residential care workers, but repetitive movements, especially in combination with heavy lifting, are reported as a predictor for increased prevalence of MSDs (Murphey, 2006; Cheung et al., 2018).

2.5.4 Practice and guidance identified on how to prevent risks related to repetitive movements

To prevent MSDs caused by repetitive movements, Kroemer (1989) recommends that the following situations should be avoided or minimised:

- frequent repetitions with a cycle less than 30 seconds;
- one basic activity element that is present for more than 50% of total cycle time; and
- work that requires prolonged or repetitive exertion of more than 30% of the operator's muscle strength available for that activity.

The following strategies can be applied to prevent work-related repetitive motion injuries:

- ergonomic workplace and tool design,
- training in good work techniques,
- regular breaks and stretching, and
- task rotation.

- **Ergonomic workplace and tool design**

Ergonomically designed workspaces are essential to lower risks for MSDs that are developed due to repetitive tasks (see section 2.6 **'Poorly designed care environments and inadequate tools/equipment: the importance of ergonomic design and workplace layout in the HeSCare sector'**) (Sirisawasd, 2018). Many studies discuss the importance of a properly designed workplace. Ergonomic interventions for healthcare workers that reduce exposure to forceful repetition (i.e. lower force levels and/or slower exertion rates) may reduce the risk of shoulder tendonitis, especially when upper arm elevation cannot be avoided (Meyers et al., 2023). Another example is a study focusing on adjustments of sonographer scanning postures that found that the electromyography activities of the muscle in the shoulder and forearm were decreased when the sonographer changed their working posture to near natural position and used the support under the forearm when they used their instruments (Murphey, 2006).

With so many clinicians using computers more than ever before, the design and placement of computers and related equipment are critical for comfort, safety and productivity while also ensuring accuracy (Hedge, 2011). Radiologists' work increasingly relates with healthcare information technology and digital imaging. The implementation of the digital workplace has resulted in an increase in repetitive strain injuries (RSIs). Radiology work practices especially in some subspecialties like sonographers and breast imagers are especially prone to RSIs. Ergonomic approaches can reduce the frequency and severity of RSIs and improve radiologists' productivity but involve nearly all aspects of the radiology workplace (Sze et al., 2017).

- **Training in good work techniques**

Training in good work techniques can affect the prevalence and risk level of MSDs among nursing staff working in the operating room (see section 2.8 'Inadequate training'). The incorporation of ergonomics education into degree education and on-the-job training initiatives for nurses working in the operating room may help with the further improvement of the workplace environment, and consequently reduce workplace injuries and associated absences, and increase the quality of care delivered by them (Abdollahi, et al., 2020). In addition, it is necessary to provide workers with training on the tools they use to ensure that they use them correctly (Ergo/IBV, 2023).

The OSHA factsheet 'Laboratory Safety Ergonomics for the Prevention of Musculoskeletal Disorders' describes a number of training goals for employers related to repetitive motions, such as workers to be more aware of their posture, to avoid static positions, and to avoid ergonomic-related risk factors when pipetting or using a microscope (Occupational Safety and Health Administration, 2016).

- **Regular breaks and stretching**

A vast amount of research has shown that taking regular breaks and maintaining a good work–rest balance lowers the risk of developing MSDs. This also holds for jobs with heavy lifting and working in awkward positions, but this is especially valid for MSDs caused by repetitive movements (see sections 2.4 and 2.7).

- **Task rotation**

Data from ESENER-2019 show that task rotation is not the most often used intervention by establishments in the HeSCare sector that reported the presence of repetitive hand or arm movements. However, tasks with highly repetitive movements should not be conducted for prolonged periods. Rotating these tasks between team members can be an effective way to mitigate MSD risks. However, when high risk tasks are included, job redesign of those high-risk tasks should be the primary focus of intervention efforts rather than job rotation (Mehdizadeh et al., 2020). See also Box 14.

2.5.5 Workplace interventions/good practices

The following boxes provide a number of practical workplace interventions and good practices that have been identified that address repetitive hand or arm movements in the HeSCare sector.

Box 13: OSHA Laboratory Safety Guidance (US)

Employers should recognise that laboratory workers are at risk for repetitive motion injuries during routine laboratory procedures such as pipetting, working at microscopes, operating microtomes, using cell counters and keyboarding at computer workstations. Repetitive motion injuries develop over time and occur when muscles and joints are stressed, tendons are inflamed, nerves are pinched and blood flow is restricted. Employers can minimise occupational injuries and simultaneously improve worker comfort, productivity and job satisfaction by becoming familiar with ways to control laboratory ergonomics-related risk factors. In addition to general ergonomic guidance, this factsheet reminds employers to make laboratory workers aware of simple adjustments that can be made at the workplace.

Source: https://www.osha.gov/sites/default/files/publications/OSHAfactsheet-laboratory-safety-ergonomics.pdf

Box 14: Assessment of Repetitive Tasks tool (UK)

The Assessment of Repetitive Tasks is a tool designed to help assess repetitive tasks involving the upper limbs. It assesses some of the common risk factors in repetitive work that contribute to the development of upper limb disorders.

Source: https://www.hse.gov.uk/msd/uld/art/index.htm

Box 15: Industrial standards for prevention in sonography (US)

MSDs are potentially one of the biggest causes of injury and ill health among sonographers. Proper ergonomics must be an integral part of all aspects of the practice of sonography. The risks for MSDs among sonographers include a broad range of contributing factors. Therefore, the employer, manufacturer, sonographer/user, industry organisations and educational programmes all have the responsibility to do their part to educate, train, exercise best practices, and provide equipment and working conditions to prevent health and safety problems that cause work-related MSDs.

Source: https://www.sdms.org/docs/default-source/Resources/industry-standards-for-the-prevention-of-work-related-musculoskeletal-disorders-in-sonography.pdf

2.5.6 Recommendations for prevention

The following strategies can help to prevent or mitigate work-related repetitive motion injuries:

- The **performance of an ergonomic (risk) assessment** of the tasks involving repetitive hand or arm movements (see Box 14 for an example).
- **Ergonomic workplace and tool design:** Workplaces of healthcare professionals at risk for MSDs should be designed with care. More healthy work positions, better chairs, arm rests and ergonomic tool design can mitigate the risk for MSDs caused by repetitive movements and can at the same time improve productivity and reduce fatigue. See also section 2.6 **'Poorly designed care environments and inadequate tools/equipment: the importance of ergonomic design and workplace layout in the HeSCare sector'**. Furthermore, Box 15 describes an example of preventive standards regarding tools.
- **Regular breaks and stretching:** To avoid the harmful effects of repetitive movements, it is essential to organise and encourage rest and recovery breaks and stretching exercises and to distribute them appropriately throughout the working day. It is also advisable to adapt the pace of work to the individual's capabilities and, as far as possible, allow him or her to manage their own breaks.
- **Task rotation:** When properly applied, task rotation between workers can be a good intervention to mitigate the risks for MSDs due to repetitive movements. See also section 2.3 'High workload and organisation of working time'.
- **Training in good work techniques:** Healthcare workers should be trained in good ergonomic practices to be able to perform their tasks as safely as possible and minimise the risk of MSDs. In addition, workers should be offered proper training on the tools they use to ensure that they use them correctly. Workers should also be encouraged to promptly report symptoms of a problem to a manager. See also section 2.8 'Inadequate training'. In addition, Box 13 describes guidelines for what a training programme should entail. It must be noted that training alone will not mitigate the issue on its own: other measures such as those mentioned above should also be implemented in order for the training to have an effect.

2.6 Poorly designed care environments and inadequate tools/equipment: the importance of ergonomic design and workplace layout in the HeSCare sector

2.6.1 Introduction

Ergonomics at work plays a crucial role in maintaining workers' health, promoting QWL and enhancing professional wellbeing. By focusing on reducing the risk of MSDs, fatigue and other health issues caused by poor posture or inadequate working conditions, an ergonomic approach enhances workplace health and overall quality of life (Chakrabortty et al., 2023).

Ergonomists can be involved either at the **design stage** (of the object, workstation or installation, workshop, process, etc.) or in **correcting a workstation** (see Box 19). This involves designing workspaces, furniture and equipment to align with the needs and capabilities of workers. This can

include universal design for accessibility considering the type of floor surfaces, adequate lighting for handling operations and sufficient space for patient handling (EU-OSHA, 2024) (see Box 21).

As a matter of example, a study on the impact of workplace conditions on MSK injuries among nurses, which included nurses and stakeholders from five hospitals in North Carolina in 2013, reported that the physical working environment, particularly the design of nursing stations, was unsuitable (Rogers et al., 2013). Rooms were too small to accommodate the necessary equipment, and poorly placed electrical sockets forced staff to adopt uncomfortable postures. The poor layout of storage areas and equipment created risks of falls and made it difficult to move around. These conditions forced nurses into prolonged postures and repetitive movements, increasing the risk of MSK injuries.

Applying ergonomics in healthcare can **enhance the wellbeing of workers, enabling them to deliver high-quality patient care while achieving organisational goals** (see Box 18). However, many healthcare workers still fail to incorporate ergonomic principles into their daily routines. According to Keebler (2022), human factors and ergonomics are poorly understood in the medical field. When experts are involved, their presence is limited to small, multidisciplinary groups, with ergonomics often being viewed as costly and time-consuming. Raising awareness about ergonomics within the healthcare sector is therefore essential (Thomas et al., 2023).

Ergonomists should therefore **collaborate with healthcare professionals** to understand the field's complexities, foster lasting partnerships, and improve workplace risk management by raising awareness, researching MSD-related issues and offering ergonomics training (Hignett et al., 2013; Rodríguez et al., 2021; Macdonald et al., 2022) (see also Box 16).

2.6.2 Focus on the home care sector

Home care workers face a high risk of MSDs, particularly affecting the back, shoulders, arms and wrists, due to the physical demands of assisting patients with activities like moving, bathing or dressing. Confined spaces, such as bathrooms, often force carers into awkward postures, while home equipment like patient lifts or shower chairs, when they are available, can be challenging to manoeuvre in small areas. These factors contribute to increased strain, fatigue, and the risk of injury, including back bending, twisting, or prolonged kneeling and squatting, which can lead to chronic pain over time (INRS, 2016; NIOSH, 2010). As reported by several interviewees, home care workers are also more likely to perform non-care-related tasks, such as using ladders or working in non-ergonomic environments (for example, resting in their cars), which further exacerbates risks.

To mitigate these risks, **promoting home modifications is crucial**. Measures such as removing clutter, installing grab bars in bathrooms or adjusting furniture heights can help reduce bending and twisting and create safer work environments (Cloutier et al., 2011). Involving home care workers in these changes fosters their commitment and compliance. However, this participatory approach has limitations, as not all risks are immediately apparent. In more complex situations, especially those involving severe pathologies, the expertise of specialists like ergonomists or occupational therapists is essential for effective solutions (Cloutier et al., 2011). These adaptations may also benefit informal carers — such as family members or relatives who assist older people at home — by improving safety and reducing physical strain.

2.6.3 Focus on healthcare and surgeons in particular

The medical profession is highly demanding, involving long hours, repetitive tasks and sustained postures, which contribute to MSDs among healthcare professionals.

Ergonomics is crucial in preventing these injuries. Poor ergonomic conditions, such as prolonged postures, repetitive movements, forceful exertions and the need for precision, are major contributors to MSDs. Raising awareness among healthcare professionals about physical fitness, correct posture, ergonomic adjustments and early identification of work-related problems is essential to reduce these risks and improve workplace safety and productivity (Mansoor et al., 2022) (see also Box 17).

- The main objective of a study carried out in Spain in 2014 was to investigate the level of ergonomic risk faced by surgeons and surgical technicians during operations (INSST, 2014a). A survey of more than 100 workers involved in organ transplant operations at the Vall d'Hebrón and Bellvitge University Hospitals (Barcelona) analysed the physical burden of healthcare professionals involved in long-term surgical interventions with the aim of detecting risk factors

and proposing organisational and improvement actions in the design of operating rooms. It proposed ergonomic measures in the workstations of the personnel involved in this type of intervention, such as:

- Improving the positioning of the instrument nurse in relation to the surgeon to avoid torsional postures of the trunk. It has been detected that in operations where the scrub nurse is positioned diagonally instead of on the surgeon's side, the working posture becomes more comfortable.
- Improvement of the arrangement of the material, and the reach and the height of the working planes. The goal is to avoid working with suspended arms for long periods of time and in situations where difficult access to materials forces the worker to adopt strained postures, including forward and lateral bending of the torso, as well as working with arms above the shoulders.
- Assess the instruments and ergonomic material available on the market and assess needs to reduce the physical load.

2.6.4 Effects of adapting workplaces

Workplace adaptation can have positive cost–benefit effects and contribute to:

- **Improving quality of care:** Adapting workstations to the needs of professionals can help provide better care for patients and residents. Moreover, caregivers can work in better conditions, which has a positive impact on the quality of care provided (see also Box 20).
- **Reduce absenteeism and turnover:** Ergonomic and organisational changes help reduce MSDs and staff fatigue. This helps reduce absenteeism linked to occupational health issues.
- **Save time and increase efficiency:** Optimising the layout of premises and equipment reduces unnecessary travel and facilitates access to equipment. Professionals are thus more efficient in their daily tasks.
- **Improve cooperation:** Certain adaptations, such as pair working for complex manipulations, reinforce cooperation between team members. This helps to streamline workflows and increase collective efficiency.
- **Enhance skills:** Involving professionals in the identification of problems and the search for ergonomic solutions enhances their expertise. This fosters their commitment and motivation at work.
- **Optimise resources:** By reducing the workload and improving work organisation, workstation adaptations enable better use to be made of available human resources.

Although workstation adaptations represent an initial investment, they can have a significant positive impact on the overall productivity of medical-social establishments in the medium and long term. They help create a virtuous circle between QWL, quality of care and organisational performance (see Box 22).

2.6.5 Practice and guidance identified on how ergonomic design and workplace layout can help prevent MSK risk factors

- **Proactive design and layout of facilities**

Designing workplaces with ergonomics in mind from the outset minimises physical strain and facilitates efficient workflows. This begins with leveraging tools like the Mavimplant 3D mock-up application,[8] which allows planners to anticipate and mitigate occupational risks during the construction or renovation of care facilities. INRS has made available a new Mavimplant application dedicated to places where young children are cared for. This 3D mock-up creation tool makes it possible to integrate occupational risk prevention upstream of construction or redevelopment projects for this type of establishment. Mavimplant allows to anticipate the implementation of solutions aimed at reducing movement and handling. Below are a few examples:

- arranging storage areas to reduce the distances to be travelled and the need to carry loads;
- providing handling equipment (trolleys, carts, hand trucks, etc.);

[8] More information about the tool is available at: https://www.inrs.fr/media.html?refINRS=outil57

- providing smooth floors to facilitate the use of wheeled equipment;
- providing delivery points to receive orders (nappies, water packs, food, etc.);
- arranging the premises to facilitate waste management (sorting, disposal); and
- providing direct access (without passing through the children's unit) from the kitchen to the delivery area, storage room, dining room and waste area.

Sector-specific guidelines, such as for nursery homes (EHPAD), provide additional frameworks for ensuring that furniture, equipment and spatial organisation meet safety and usability standards, thus minimising awkward postures and repetitive movements (INRS, 2024). This guide is intended for all those involved in the construction, extension or renovation of a home for the dependent elderly. Its aim is to help all those involved to integrate the prevention of work-related accidents and illnesses right from the project planning stage, and to enable them to put in place tried and tested prevention measures that meet the objectives of current regulations, in particular the French Labour Code. It gives very specific advice on how to incorporate prevention measures at the design stage, such as providing handling aids and suitable premises for their use and storage. It recommends that all bedrooms be equipped with mobility aids, such as rail lifts. Circulation within the establishment, floors, air quality, lighting and subsequent interventions are also reviewed. Then each type of room (bedroom, kitchen, technical rooms, linen room, etc.) is the subject of specific recommendations in terms of risk prevention for workers (patient handling, slips, trips and falls, etc.). Architectural considerations should also focus on separating service areas from patient zones, improving accessibility, and facilitating efficient workflows to further enhance safety and productivity.

- **Empowering action at organisation level and change management**

Engaging all stakeholders in collective efforts fosters a culture of prevention and workplace improvement, particularly in HeSCare settings. Successful initiatives in France demonstrate the effectiveness of participatory approaches, where management, administrative staff and caregivers collaborate to identify and implement strategies to improve wellbeing, reduce turnover and enhance care quality. Actions such as optimising time management, supporting digital transitions and providing change management resources can address both ergonomic challenges and operational efficiency. Collaborating with networks like ANACT-ARACT[9] ensures tailored interventions that balance quality of care with staff wellbeing. These initiatives not only foster staff loyalty but also create a sustainable work environment by addressing both immediate and long-term ergonomic risks.

Drawing on lessons from field experiences, the practical guide 'Quality of life at work approach in medico-social establishments and the associated resources' (described in section 2.3 'High workload and organisation of working time') offers benchmarks to better combine quality of care and QWL (ANACT-ARACT, 2021).

Practical, day-to-day adjustments are crucial for addressing ergonomic risks and improving working conditions. Providing handling aids such as trolleys, carts and adjustable furniture reduces physical strain, while smooth flooring enhances the safe use of wheeled equipment in settings like hospitals and elderly care. Design features can also minimise repetitive or awkward movements, such as organising workstations based on activity-specific requirements and properly placing equipment to reduce physical strain. Training and awareness programmes further empower staff to adopt safe practices, ensuring that patient handling and other routine activities are performed in ergonomically sound ways. By integrating these measures into daily operations, facilities can create safer, healthier work environments and effectively prevent MSK injuries. Prevention Technical Notes 1029 Ergonomics in the laboratory: design requirements for furniture and equipment (2014) (ES) presents the main guidelines to be considered when carrying out the ergonomic design of a laboratory from a geometrical point of view as well as for choosing and placing the furniture in the laboratory based on both the recommendations contained in the regulations and technical criteria (INSST, 2014b).

2.6.6 Workplace interventions/good practices

The following boxes provide a number of practical workplace interventions and good practices that have been identified that address ergonomic design and layout of the workplace in the HeSCare sector.

[9] For more information, please see: https://www.anact.fr/agence-nationale-pour-lamelioration-des-conditions-de-travail

Box 16: Health promotion at the nursery school workplace – the 'MusterKiTa' (Model Nursery) as an example of good practice (DE)

The high level of sick leave among nursery staff is associated among other things with unfavourable ambient factors such as room acoustics, room climate and lighting and with MSK loads. The latter are often attributable to furniture non-ergonomically designed and unsuitable for adults and to the extension of care to crèche children (care of the under-threes). The 'Ergonomisches Klassenzimmer' (Ergonomic Classroom) and 'ErgoKiTa' (Ergonomic Nursery) research projects of the German Social Accident Insurance (DGUV) have brought forth an extensive catalogue of ergonomic recommendations and strategies for the implementation of acoustics, ventilation and lighting in nursery schools. At the initiative of the German Social Accident Insurance for the public sector in Rhineland-Palatinate in cooperation with the Institute for Occupational Safety and Health (IFA), these findings are being implemented in practice in the 'MusterKiTa' project. The success factor of this method relies mainly on the participatory ergonomic approach used during the data collection phase and the intervention phase of the project, which considers not only the workers but also the beneficiaries, in this case, the children.

An existing nursery school in Neuwied – Heimbach-Weis has been modernised and extended following these recommendations. On the basis of extensive measurements and a survey of workers, it has been possible to assess the effectiveness of the measures taken with the aid of a before-and-after comparison. The results of the room-acoustic, climatic, ergonomic and lighting (re-)design of the nursery school in the interests of more effective promotion of the health of teaching staff and the cared for children are presented in this report.

Sources: https://publikationen.dguv.de/widgets/pdf/download/article/3322 and https://osha.europa.eu/en/publications/ergokita-example-ergonomic-intervention-education-sector

Box 17: Incorporating ergonomic criteria into the structural and organisational adaptation of the extraction service at the Hospital Clínico de Barcelona (ES)

The Hospital Clínico of Barcelona improved the extraction service by incorporating ergonomic criteria in the structural and organisational project.

The project aimed to address deficiencies impacting staff health and the relationship with the user, identified in previous studies. A multidisciplinary team was formed to define needs, supervise the implementation of changes, and assess outcomes through quantitative (accident rates) and qualitative (work condition surveys) studies.

The changes included redesigning workspaces based on ergonomic principles, introducing new furniture to facilitate tasks, reorganising patient flow and implementing a digital queue management system. These measures improved efficiency, reduced repetitive strain injuries and enhanced job satisfaction.

For example, the cubicle layout was redesigned, placing essential equipment within easy reach and limiting the number of times staff had to move during the sampling process. Adjustable chairs, for both staff and patients, has helped to reduce MSK pain.

The results showed significant improvements in working conditions, employee health, team relations and overall satisfaction. The success of the project highlighted the importance of a multidisciplinary approach and worker involvement in the decision-making process.

Source: Instituto Nacional de Seguridad e Higiene en el Trabajo – *Prevención de trastornos musculoesqueléticos en el sector sanitario*, Buenas practicas (pp. 38-52): https://fesprosa.org.ar/portal/wp-content/uploads/2014/08/trastornos-musculoesquel%C3%A9ticos1.pdf

Box 18: Reform of the oncology area at Vic University Hospital from an ergonomic point of view (ES)

The comprehensive reform of the oncology area in a hospital aimed to improve working conditions and patient care by integrating ergonomic principles. The project addressed challenges related to the use of space, workflow inefficiencies and staff wellbeing.

The primary objectives were to optimise the physical layout for better functionality, streamline workflows to reduce staff strain and implement ergonomic solutions to mitigate repetitive stress injuries. A multidisciplinary team conducted surveys, focus groups and observational studies to identify key

issues. Based on their findings, they proposed a redesigned layout featuring ergonomic furniture, improved lighting and restructured workstations.

Key changes included adjustable desks and chairs to reduce MSK strain, revamped patient areas for greater comfort and accessibility, and optimised equipment placement to minimise staff movement. Additionally, the lighting and acoustics were improved to foster a more supportive environment for both staff and patients.

The reform resulted in increased staff satisfaction, a reduction in physical complaints such as back and neck pain, and enhanced patient comfort. Operational efficiency also improved significantly, demonstrating the value of ergonomic interventions in healthcare settings.

This initiative highlights how well-thought-out, ergonomic-focused reforms can positively impact both staff wellbeing and the quality of patient care.

Source: Instituto Nacional de Seguridad, Salud y Bienestar en el Trabajo (INSSBT), 2017 - *Intervención ergonómica en centros hospitalarios: casos – prácticos* (pp. 81-91): https://www.insst.es/documents/94886/214929/intervencion%20ergonomica.pdf

Box 19: Early integration of risk prevention in building design (FR)

The Belharra Clinic in Bayonne, France, results from the merger of four local healthcare facilities. Richard Legeaye, the clinic's director, emphasises the importance of incorporating risk prevention measures during the building's design phase to ensure both patient care quality and employee working conditions.

The project began in 2008 when Capio Santé acquired three Bayonne clinics, merging them legally in 2009 and deciding to consolidate their operations into a single site. This consolidation aimed to streamline operations and improve service delivery. Between 2009 and 2012, the clinics tested new working methods, such as ambulatory care, to identify best practices and potential pitfalls, which informed the design of the new facility.

Employee working conditions were a central focus. The clinic aimed to achieve high environmental quality standards, emphasising comfortable thermal and lighting conditions and healthy air quality. A participatory approach was adopted, involving architects and employee working groups in the design process. The preliminary design was reviewed by a safety inspector from Carsat Aquitaine, who provided advice on unresolved issues, including those affecting maintenance staff.

Unfortunately, despite thorough planning, unforeseen issues can arise post-construction. For instance, the design of the sterilisation service did not fully anticipate the impact of its large surface area on the noise environment. Following employees' complaints, the situation was rectified with acoustic panels and baffles.

In summary, the Belharra Clinic's experience highlights the critical role of early integration of risk prevention in building design, the value of employee involvement in the planning process, and the need for continuous assessment and improvement to address unforeseen challenges.

Source: https://www.travail-et-securite.fr/ts/846/DOS/TS846P012025/l-anticipation-ne-dispense-pas-d-un-suivi.html

Box 20: National Rehabilitation Hospital (IE)

This case study demonstrates how the National Rehabilitation Hospital managed MSK risks through the introduction of a range of engineering and organisational improvements in the way work was carried out to avoid or reduce the risk of MSK injury. With the inclusion of worker participation, the (ergonomic) redesign of the workplace eliminated the following risks:

- lack of space to maintain good posture,
- use of force in an awkward kneeling position, and
- static kneeling posture.

Source: https://www.hsa.ie/eng/workplace_health/manual_handling_display_screen_equipment/guidance/ergonomics/case-studies-health-nrh-4pg-v5-copy.pdf

Box 21: National Ambulance Service (IE)

This case study demonstrates how the National Ambulance Service managed MSK risks through the introduction of a range of engineering and organisational improvements in the way work was carried out to avoid or reduce the risk of MSK injury. The National Ambulance Service has a fleet of 500 ambulances throughout the country. Each ambulance has a defibrillator fitted within the ambulance that is used as part of patient clinical care. Due to the position of the defibrillator, staff either had to kneel on the patient stretcher in order to remove the defibrillator from the bracket on the side (trauma) wall of the ambulance or stretch over the stretcher to remove the equipment. The situation led to:

- awkward posture as the upper arms are angled away from the body and the trunk is bent forward,
- twisting and stooping postures, and
- unstable posture when reaching to remove the defibrillator from the wall bracket.

In this project, in which workers participated, a risk assessment of the current task was set up, the MSK risk factors were quantified, and through ergonomic redesign of the working environment, the risk was eliminated while the task to be performed was still effective.

Source: https://www.hsa.ie/eng/workplace_health/manual_handling_display_screen_equipment/guidance/ergonomics/ergonomiccasestudynationalambulance.pdf

Box 22: At the hospital, a dynamic team serving the little ones (FR)

For two years, professionals from the nursery, maternity and neonatal units of the Assistance publique-hôpitaux of Marseille (APHM) have been working on a project to improve working conditions in the five day nurseries for employees' children, the three neonatal units and the maternity ward.

The initiative focuses on preventing MSK risk factors and psychosocial risks among staff. This project has enabled them to improve the structure of occupational risk prevention and working conditions in the departments. Key measures implemented include:

- Organisational changes: decluttering corridors, designating additional rooms for newborn care to prevent bottlenecks, and enhancing parental support, which staff find rewarding.
- Ergonomic equipment: introduction of height-adjustable bathtubs, meal trolleys and supportive seating to reduce physical strain during tasks.
- Violence prevention: limiting visitor numbers, improving co-parent accommodations and assigning volunteers to guide visitors, thereby reducing task interruptions and associated tensions.

The project emphasises a multidisciplinary approach, involving prevention advisors, healthcare workers and internal health services to collaboratively identify issues and develop solutions.

Source: Travail et Sécurité, INRS, 2024: https://www.travail-et-securite.fr/ts/863/DOS/Travailler-avec-des-enfants/a-l-hopital-une-dynamique-d-equipe-au-service-des-plus-petits.html

2.6.7 Recommendations for prevention

To anticipate the need to adapt workstations, HeSCare organisations can take a number of steps:

- Carry out **regular ergonomic assessment of workstations** to identify potential areas for improvement.
- Incorporate **workplace adaptation** into facility projects and multi-year investment plans.
- Ensure that workstations are adapted to the size and needs of staff to avoid awkward postures.
- Place **frequently used equipment within easy reach** to limit repetitive movements and stretching.
- Install adjustable beds, chairs and work surfaces for optimum comfort.
- Facilitate circulation with sufficiently wide corridors to avoid awkward postures and the risk of falls.

- Anticipate **demographic changes** in staff and residents to plan for future needs.
- Provide budgets for continuous improvement of working conditions.
- **Establish multidisciplinary working groups** involving nursing, administration and management to gather feedback from the field.
- **Encourage feedback from staff** about their difficulties or adaptation needs.
- Seek the expertise of ergonomists or prevention specialists for specific advice.
- Regularly **train staff** in appropriate movements and postures and the use of assistive devices.
- Raise awareness of occupational risk prevention among all teams.
- Develop management skills in ergonomics and work organisation.
- Monitor the development of ergonomic recommendations in the HeSCare sector.
- Keep abreast of innovations in equipment and assistive technology for patient handling.
- Use **best practice** from other organisations.

2.7 Working posture/working in awkward positions

2.7.1 Introduction

Working posture is the posture adopted by a worker while performing work tasks. It can be altered often, or a single posture can be sustained for an extended time. The human body can be represented by segments, such as an arm, forearm, thigh or trunk, connected to other segments by joints. Working posture can be described by angles between body segments. The optimum, least strenuous body posture is natural, meaning a posture with a rigid trunk and upper limbs hanging down naturally along the body. In this position, all angles between body segments equal zero (EU-OSHA, 2020e).

Awkward postures (also referred to as painful or tiring posture/position) refers to positions of the body that deviate significantly from the neutral position (with the joint in its 'neutral' position) while performing work activities. The higher the deviation from the natural body posture, the higher the MSK load (EU-OSHA, 2020e).

Several studies have shown the relationship between the risk of developing MSDs and working in awkward positions. **Working with a bent or twisted back for over two hours** is a risk factor for lower back pain, **performing work with the arms raised above shoulder level** will lead to an increased risk of developing shoulder pain, and the risk of neck pain increases when the **neck is rotated, bent and/or flexed during work** (EU-OSHA, 2020e; Pope et al., 1997; Ariëns et al., 2002).

Examples of working in awkward positions within the HeSCare sector are **nurses bending over patients in hospital wards**, **surgeons constantly bending their neck** in order to see their working area on a patient's body, and **dentists bending their back continuously** in order to perform their work (Nourollahi, 2018; Szeto et al., 2009; Alexopoulos et al., 2004).

Although workers in the HeSCare sector are also often exposed to work involving prolonged standing and sitting (EU-OSHA, 2024), this section solely focuses on working in awkward positions.

2.7.2 Relevant factors influencing the risk related to working posture/working in awkward positions

As mentioned above, the **higher the deviation from the natural body posture**, the higher the MSK load. Two other factors play a key role in the MSK load due to working posture: time and force. The most strenuous work situations happen when postures are sustained for long periods of time without alteration (static postures) or are repeated numerous times (repetitive tasks, see section 2.5). There is **a relationship between posture duration and incidence of MSDs**. Static postures result in the diminishing of blood circulation through the muscles. If an awkward working posture must be adopted for a worker to perform work tasks, it should be sustained for a very short time. **The more strenuous the working posture, the shorter time it should be sustained** (EU-OSHA, 2020e).

Besides level of deviation and time, the third important factor influencing MSD development is exerted force. When awkward postures require **higher levels of applied force**, this increases the risk of MSDs (EU-OSHA, 2020e). Furthermore, the **combination of working in awkward positions and repetitive movements** increases the risk of developing MSDs (Meyers et al., 2023).

2.7.3 Subsectors and (specific) workers at risk

When looking at data from sources at the European level, it becomes clear that HeSCare workers are more often exposed to working in tiring or painful positions compared to the average EU workers across all sectors (EU-OSHA, 2024). Within the HeSCare sector, EWCTS-2021 data show that workers in both the healthcare subsector and the residential care subsector are more exposed to working in tiring or painful positions compared to workers within the social work subsector (EU-OSHA, 2024).

Several studies have been conducted within the HeSCare sector in which MSK risk factors in individual professions were targeted:

- Nurses spend a significant part of their daily working time in an awkward position, potentially leading to the development of MSDs. Analysis of working posture indicates that, in addition to lifts and transfers, emphasis needs to be placed on patient care and miscellaneous activities when assessing injury risk for nurses.
- Within the operating room, awkward postures that are maintained for a long time due to inappropriate positioning relative to the patient expose surgeons to risk of MSDs in the neck, back and upper limbs (Gorce et al., 2023). Furthermore, hospital operating room nurses are also often found to work in awkward postures, potentially leading to MSDs (Abdollahzade et al., 2016).
- In physical therapy, one of the major risk factors of developing lower back pain is working in awkward and static postures (Milhem et al., 2016).
- In dentistry, awkward postures that involve forward bending and repeated rotation of the head, neck and trunk to one side are common occurrences during clinical work, potentially leading to the development of MSDs (Ng et al., 2016). Recent studies confirm that the problem of working in awkward positions in dentistry is also common for oral health students, which highlights the need to place further emphasis on ergonomic education in these programmes (Hayes et al., 2014; Kurşun et al., 2014).

A recent, more generic, systematic literature review that studied the prevalence of work-related MSDs among all healthcare professionals (classified as nurses, midwives, physiotherapists, osteopaths, dentists and surgeons) showed that the main causes of work-related MSDs reported for all healthcare professionals were maintenance and repetition of awkward postures (Jacquier-Bret, 2023). This literature review found that for both the risk factors and the solutions proposed to reduce MSDs in all the literature that was included, the redundant element that appeared, whatever the profession, was posture. This shows how widespread this risk is within the HeSCare sector and that this risk should be mitigated in order to reduce MSDs within the sector.

2.7.4 Practice and guidance identified on how to prevent risks related to awkward postures

Working postures are determined by the relationship between the workstation dimensions, the materials or tools used, the anthropometric dimensions of the worker and the task demands (to perform a specific operation) (EU-OSHA, 2020e).

- **Applying ergonomic principles to workstation and equipment design**

The dimensions of the segments of the worker's body in combination with the spatial structure of the workstation determine the working posture of the worker. The best situation is when the workstation dimensions can be adjusted in order to facilitate an optimal working posture. In order to obtain optimal working posture, machinery or workstation dimensions and equipment should be adjusted to the dimensions of the workers as well as the tasks to be performed (EU-OSHA, 2020e). Evidence shows that insufficiently or poorly designed equipment may lead to poor postures as workers are forced to adopt uncomfortable positions to perform their tasks (Lu et al., 2024).

It must be noted that the adjustability of equipment also plays a crucial role in making sure that workers do not need to adopt awkward postures. Research shows that simple interventions in the workplace, such as raising the bed to hip height and using a stool in the bathroom, significantly increase the proportion of time that nursing personnel can work with a healthy posture (Oliver-Hernández et al., 2023).

- **Task design**

Time factors play an important role with regard to awkward posture (see section 2.3). The most strenuous work situations happen when postures are sustained for long periods of time without alteration (static postures). There is a relationship between posture duration and incidence of MSDs. Static postures result in the diminishing of blood circulation through the muscles.

If awkward positions cannot be eliminated through workstation and/or equipment design or other technical interventions, awkward postures should only be sustained for a very short time. The more strenuous the working posture, the shorter time it should be sustained (EU-OSHA, 2020e). A shorter duration of awkward postures could be achieved through task design, for instance by:

- making sure variation in posture is possible within the task;
- performing task rotation; and
- letting workers take regular (mini)breaks during their work.

- **Training of workers**

The training of workers (and staff) on healthy working postures can be a valuable tool, if embedded in a comprehensive prevention of MSDs approach (see section 2.8). For training to be useful with regard to awkward postures, it should be complemented by a workplace environment and task design that allows for healthy postures. Educational programmes and training as a sole preventive measure have little effect on the mitigation of the risks and therefore on the prevention of MSDs.

With regard to awkward postures, training should be aimed at reducing the number and types of awkward neck, back, wrist and shoulder postures and minimising the levels of mechanical forces applied. Several studies confirm that training or educational programmes within the HeSCare sector have a positive influence on body posture (Moazzami et al., 2015; Abdollahi et al., 2020).

Apart from the more 'classical' approaches with regard to training, research suggests that (direct) postural feedback may have a beneficial effect on body posture as well. Although further research is needed (Figueira et al., 2024):

- A **digital sound feedback** system was shown to be effective in encouraging correct working posture in dental hygiene students by helping them improve their REBA[10] scores (Sim et al., 2021). In student nurses, similar findings have been found in a setting in which the student nurses were given auditory feedback on posture in patient-handling techniques (Doss et al., 2018).
- **Video feedback** systems were also found effective in improving workers' posture, although the feedback was presented to the worker only at the end of the task (Thanathornwong et al., 2014).
- **Haptic feedback** systems (application of vibratory stimulus) were found to be effective in other sectors other than healthcare. Given the fact that sound may not be heard in loud HeSCare settings or that the transmitted sound can be annoying both for the worker and for patients, haptic feedback may be appropriate for HeSCare workers.

2.7.5 Workplace interventions/good practices

Box 23: Case study: National Rehabilitation Hospital (IE)

This case study demonstrates how the National Rehabilitation Hospital managed ergonomic risks through the introduction of a range of engineering and organisational improvements in the way work was carried out to avoid or reduce the risk of MSK injury. With the inclusion of worker participation, the (ergonomic) redesign of the workplace eliminated the following risks:

- lack of space to maintain good posture,
- use of force in an awkward kneeling position, and

[10] REBA (Rapid Entire Body Assessment) method is a tool for evaluating the risk of biomechanical MSDs. See: https://ergo-plus.com/wp-content/uploads/rapid-entire-body-assessment-reba-1.png?x75257

- static kneeling posture.

Source: https://www.hsa.ie/eng/workplace_health/manual_handling_display_screen_equipment/guidance/ergonomics/case-studies-health-nrh-4pg-v5-copy.pdf

Box 24: Guidance: Maintaining good posture in several HeSCare activities (NL)

This website offers tips and guidance on adopting a good posture for various tasks within nursing, caregiving and home care. The postures are illustrated with photos, with accompanying information for further clarification. Examples are provided on the correct posture for washing clients, checking vital signs and performing transfers with a passive lift.

Source: https://www.werkhoudingvvt.nl/

Box 25: Guidance: Adopting a healthy sitting working posture during patient treatment for dental professionals (NL)

This guidance, from the Centre for Dentistry and Oral Hygiene of the University Medical Centre Groningen, explains the way in which different dental procedures can be carried out in the mouth of the patient while maintaining a healthy sitting posture. The way in which conditions to adopt this posture need to be applied is shown with the help of pictures. Furthermore, the guidance elaborates on basic principles of healthy posture and gives valuable insights on how to position a patient in such a way that physical strain for the dental professional is limited.

Source: https://www.rug.nl/research/ctm/kenniscentrum/ergonomie/pdfergonomie/1adoptingahealthysittingworkingposturedringpatienttreatment.(jan2009).pdf

Box 26: Guidance: Ergonomics and posture guidelines for oral health professionals

This guideline from the FDI World Dental Federation gives dental professionals information about the risks of MSDs in their profession and practical tips on how to best mitigate these risks. This guidance addresses positioning of the dentist, the patient and the assistant, and posture and vision during dental work as well as the choice of instruments. The guidance touches upon the broad spectrum of ergonomics, but most information is about making sure dental workers are working in a good posture.

Source: https://www.fdiworlddental.org/ergonomics-and-posture-guidelines-oral-health-professionals

Box 27: Pilot Study: An exoskeleton adapted to the work at hospital (FR)

The purpose of this study was to investigate how to maintain posture and to reduce pain and fatigue for nurses with an exoskeleton adapted to the work at a hospital. The exoskeleton was used from 2022 to 2023 at Foch Hospital, France. Phase 1 consisted of the selection of the exoskeleton, and Phase 2 included the testing of the device by the nurses and a questionnaire to assess it. The 'active' ATLAS model from JAPET, ensuring lumbar protection, was selected because it corresponds to all the specification criteria to tackle the nurses' unmet needs. The implementation of exoskeletons received positive qualitative feedback from the nurses concerning the improvement of posture and the reduction in fatigue and pain, despite some points of improvement being highlighted by the users during the test phase.

Source: Farah, L., Roll, D., Sorais, A., & Vallée, A. (2023). Assessment of exoskeletons on nurses' quality of work life: A pilot study at Foch Hospital. *Nursing Reports, 13*(2), 780-791. https://doi.org/10.3390/nursrep13020068

2.7.6 Recommendations for prevention

Based on the findings of the practice, guidance and interventions presented in this section a list of recommendations is presented below. Since work-related MSDs are caused by multiple factors, a combined approach is the best way to make sure MSDs are prevented.

- The workplace risk assessment is a fundamental condition for successful prevention. In order to assess whether workers are exposed to the risk of awkward posture, the performance of an ergonomic (risk) assessment is the first step. Valid tools for such an assessment are:
- RULA (Rapid Upper Limb Assessment Tool)
- REBA (Rapid Entire Body Assessment Tool)
- The (re)design of work or eliminating or mitigating risks through design solutions. This principle can be applied the following ways:
- Workplaces, including equipment:
- Design the workplace in such a way that there is enough room for workers to adopt and maintain healthy work postures. Box 23 provides an example of ergonomic redesign.
- Make sure that the furniture (and other equipment) facilitates workers to adopt and maintain healthy work postures during work (see Box 27 as an example).
- Make sure furniture and other equipment is adjustable, making sure workers with different (anthropometric) characteristics are able to use it safely.
- The organisation of work, including the tasks workers need to perform:
- Design the tasks in such a way that working in awkward postures is eliminated or mitigated.
- Plan in such a way that prolonged work in awkward positions is eliminated.
- Allow for variation in the work, so that variation of posture is possible for workers.
- Make sure workers can have regular (short) breaks.
- Allow for task rotation in order to make sure variation in work tasks and/or work posture is enabled.
- Building an organisational safety culture (in which worker participation is embedded).
- Develop a coherent prevention policy that covers technology, work organisation, working conditions, social relationships and the work environment.
- Adequate training of workers regarding the risk of awkward posture (consisting of multiple elements such as risk awareness, posture awareness, risks assessment, safe posture, and proper use of equipment and furniture). Start training as early as possible. Box 24, Box 25 and Box 26 are all examples of guidance that can be used in order to raise awareness and train workers.

2.8 Inadequate training

2.8.1 Introduction

A lack of proper training significantly raises the risk of MSDs among professionals in the HeSCare sector. Without training, workers are more likely to adopt awkward postures and perform inappropriate repetitive movements when handling patients or equipment. When best practices are unknown, workers may inadvertently make sudden movements or lift excessively heavy loads without the correct technique (Robla, 2015).

Additionally, limited access to equipment and frequently cluttered workspaces, especially in home care settings, make it difficult to apply the preventive practices that have been learned. Beyond the issue of inadequate or insufficient training, the work organisation or workplace layout often prevents workers from applying the practices they have learned. As previously mentioned — particularly in the context of patient handling — the problem is not always a lack of knowledge, but rather that carers are, or feel, forced to carry out their tasks in ways that disregard what they have been taught, even when they know it may be harmful to their health and safety.

On the other hand, lack of training leads to reduced awareness of MSK risks and prevention measures. Untrained staff are often less mindful of how biomechanical and psychosocial factors can impact their health, and they may not understand the importance of adapting their workstations or using handling aids effectively.

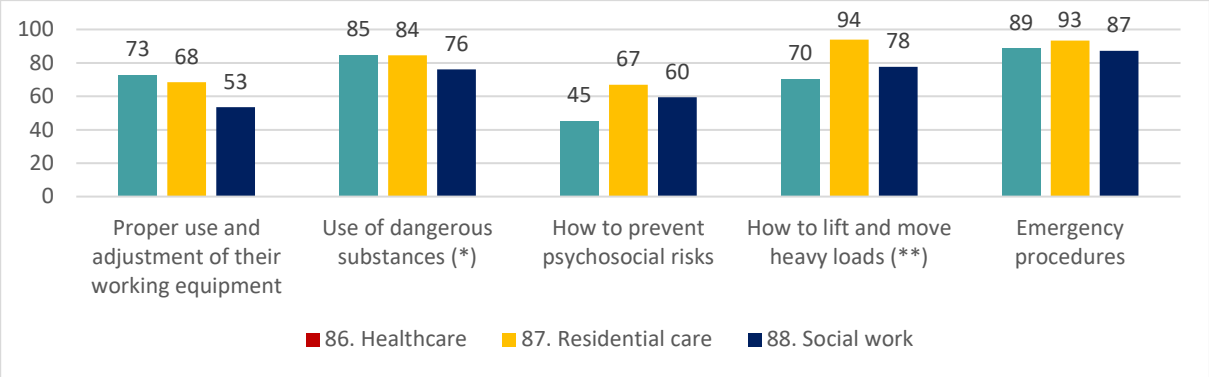
In conclusion, insufficient training elevates the risk of MSDs within the HeSCare sector — a critical concern. Investing in occupational training is essential to lowering the prevalence of these disorders and enhancing the QWL in this field.

2.8.2 Relevant factors influencing the risks related to inadequate training

- **Type of training offered**

According to ESENER-2019, at the subsector level, there are some significant differences between the OSH-related topics covered in training (Figure 12). Whereas 94% of establishments in the residential care subsector provide training to lift and move heavy loads, this is only the case in 70% of healthcare establishments. Residential care establishments are also more likely to provide training to prevent psychosocial risks when compared with establishments in the healthcare subsector (67% and 45%, respectively) (EU-OSHA, 2024).

Figure 12: OSH-related topics on which training has been provided to employees in HeSCare sector establishments, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-2019
Base: All HeSCare sector establishments in the EU-27
(*) Base: Only HeSCare sector establishments exposed to 'chemical or biological substances'
(**) Base: Only HeSCare sector establishments exposed to 'lifting or moving heavy loads'

Moreover, despite the high share of migrant workers and a culturally diverse workforce and service receivers, only 9% of establishments in the HeSCare sector provide OSH training in different languages, which is the lowest across all sectors in the EU-27 (See Box 31). Results from ESENER-2014 and ESENER-2019 show a decline among establishments over recent years in providing training in other languages, from 15% in 2014 to 9% in 2019 (EU-OSHA, 2024). For migrant workers, the main reasons for increased risks include the fact that there may be language barriers, which results in a lack of understanding of relevant safety procedures. Additionally, one interviewee stated that migrant workers often have experience with family care rather than health or care training.

- **The need for a global, multidimensional approach**

Preventing MSDs in the HeSCare sector requires a global, multidimensional approach. Isolated interventions are often insufficient, given the complex interplay of organisational, physical and psychosocial risk factors across different care settings. Effective prevention strategies must therefore combine individual-level training with structural and organisational changes. This includes not only equipping workers with the right knowledge and tools but also ensuring that the broader work environment enables and supports the application of preventive practices. The diversity of roles within the HeSCare sector — from nurses to support staff — and the wide range of settings, including hospitals and nursing homes, means that interventions need to be context-specific, yet guided by a shared, holistic prevention framework.

Developing a training programme can be quite complex, as it requires in-depth knowledge of the workplace and work organisation, the shifts worked, the clinical and psychological conditions of the staff involved, risk assessment and the workers' perceptions of the risks associated with their condition (Garzillo et al., 2020). On-the-job training would have a greater impact than, for example, non-contextualised training. The type of training, that is, theoretical, practical or both, also needs to be considered to optimise the application of knowledge and promote the possibility of applying knowledge

in real-life situations. Resnick et al. (2009) have also identified workplace constraints that may hinder the implementation of preventive practices.

Nurses, in particular, are a key occupational group in this context. They often face a combination of physical demands and organisational constraints that heighten their exposure to MSD risks. Despite being generally well informed about preventive practices, they are frequently unable to implement them due to systemic barriers within the workplace. Key facilitators could be:

- increasing training and education;
- ensuring the availability of ergonomic equipment;
- fostering a safety-focused organisational culture; and
- tailoring interventions to the specific context of HeSCare institutions.

A literature review of 15 studies conducted between 2000 and 2020 attempted to identify effective interventions to reduce work-related MSDs in nursing homes (Asuquo et al., 2021). The study classified interventions into four main categories: specialised equipment, staff training, policies and procedures, and support and supervision. The results show that the use of ceiling lifts, comprehensive staff training and multidimensional approaches are most effective in reducing MSDs.

- **Lack of training awareness**

Poor ergonomic practices contribute to high rates of MSDs among HeSCare workers (Chakrabortty, 2023). This is possibly due to a lack of awareness of ergonomics among healthcare professionals, which suggests a need for better targeted education and training to promote safer practices in the workplace. (see Box 28).

Better ergonomics not only benefits the physical wellbeing of healthcare workers but also improves patient care outcomes. By promoting a comprehensive understanding of ergonomics within healthcare systems, workplaces can improve the safety, efficiency and quality of healthcare delivery.

- **Inadequate training**

Evidence suggests that manual handling training (alone or as standalone measure) is largely ineffective in reducing back pain and injury (Daniels et al., 2013; Krill et al., 2012). Training in patient handling is not enough to prevent MSDs and back injuries in HeSCare workers (Richardson et al., 2018). Training must therefore be seen as part of a multi-component programme (Thomas et al., 2014). Furthermore multidisciplinary simulation-based team training improves outcomes by enhancing teamwork skills that cannot be taught in a theoretical setting (see Box 29).

In addition, the basic training provided at college and university, as well as on-the-job training, seems inadequate due to the lack of context and duration of the training provided (Ziam et al., 2020). High priority should therefore be given to the development and evaluation of multidimensional interventions, incorporating physical training to promote strength and flexibility, and tailored to the sector (Garzillo et al., 2020) (see Box 30).

Effective training to protect the health of carers while enhancing the abilities of patients and ensuring greater safety and comfort for them can be based on several key principles according to the French ALM Approach 'Supporting patient handling and transfer whilst preventing MSD risks':[11]

- Individual adaptation: Each care situation is unique and must be adapted to the patient's abilities at the time of handling or transfer. These abilities are assessed movement by movement, and each time patients are being cared for, as their condition can vary throughout the day.
- Spontaneous mobility: Carers rely on the natural movements that patients can make on their own, substituting only those movements they are unable to perform.
- Handling as care: Handling is conceived as a component of care. By involving patients in their own movements, it encourages their autonomy and active participation.
- Use of technical equipment: Equipment (patient lifts, sliding sheets, etc.) are integrated to supplement the patient's abilities when he or she cannot carry out one or more movements, and

[11] For more information, please see: https://osha.europa.eu/en/publications/alm-approach-preventing-musculoskeletal-risks-during-patient-handling-and-transfer

if verbal support or support through handling without carrying a harmful load cannot be the solution.

2.8.3 Practice and guidance identified on how to prevent the risks related to inadequate training

- **Ergonomic training for workers**

To prevent MSDs effectively, primary prevention must centre on empowering workers with practical, ergonomic knowledge and skills (see section 2.6). Comprehensive training initiatives that emphasise long-term engagement can build a culture of safety and awareness in the HeSCare sector.

For example, the **BGW Ergo-Coach**[12] programme in Germany trains nursing staff to become ergonomic coaches. To achieve this, the BGW offers a combined consulting and qualification concept. The target groups are initially in-patient care facilities for the elderly, hospitals and residential homes for people with disabilities. Nursing staff are qualified as Ergo-Coaches to support their colleagues in back-friendly working methods. The training takes place over three three-day seminars. With the know-how they have gained, the BGW Ergo-Coaches continuously keep an eye on back-friendly working methods and workplace design, provide inspiration, motivate, and provide their colleagues with advice and support when it comes to back health. In order to ensure the sustainability of the entire project from the outset, external consulting involves the company management and the executives from the very beginning. Adopting such models ensures not only the technical competency of individual workers but also supports a collaborative approach where trained workers act as mentors to peers, fostering sustained improvements in workplace ergonomics.

Additionally, the Finnish Institute of Occupational Health developed the **Ergonomic Patient Handling Card® – learning programme (FI)**[13] for HeSCare individuals already working in the field, teaching about the field or about to join the field. In this training, work practices to promote efficiency and safety are explored in the context of helping patients move and transferring them. The training is composed of theoretical distance learning (which includes courses on cognitive ergonomics and natural movements and body control) combined with contact learning and support by an 'ergonomic patient handling card-trainer' as well as practical learning and a final review and competence evaluation. Since its adoption in 2010, 10,000 healthcare professionals and students, including nurses, practical nurses and physiotherapists, have completed the programme and presently it is estimated that 1,000 individuals participate in the training annually. Moreover, there are nearly 600 certified trainers across Finland who are capable of providing the necessary training for interested individuals to obtain the Ergonomic Patient Handling Card®. These certified trainers are present in 15-20 schools and 50-60 workplaces in Finland. This high number of certified trainers also indicates that there is a significant demand for the Card® and a general desire among the workforce to promote safe working practices.

- **Leveraging digital and interactive tools for accessible training**

Interactive and accessible digital resources can enhance primary prevention efforts by providing flexible, engaging training options for diverse roles in the HeSCare sector. The **Prevention at Home**[14] tool in France exemplifies this approach, offering a set of online resources tailored to various profiles, including home care workers, coordinators and private employers. The www.prevention-domicile.fr website has been created by the Direction Générale des Entreprises, Assurance Maladie – Risques Professionels and INRS, in partnership with the IRCEM group, to help prevent occupational risks in the home care sector: home care workers, workers of a service provider or a private employer, sector coordinators, managers of service providers, private employers and so on, whatever their activity (childcare, home maintenance, assistance for the elderly or disabled).

As a 'resource centre', the site offers free access to:

- a media library organised by theme or by type of media;

[12] For further information, please see: https://osha.europa.eu/en/publications/establishing-ergonomic-and-back-friendly-working-practices-organisations-bgw-ergo-coach-programme

[13] For further information, please see: https://osha.europa.eu/en/publications/ergonomic-patient-handling-cardr-promoting-good-working-practices-healthcare-sector

[14] For more information, please see: https://www.prevention-domicile.fr/prevention-domicile/

- a fun/educational tool with realistic scenarios to anticipate the risks of work-related accidents and illnesses;
- personalised courses depending on the profile (individual employer, sector manager, home care worker, etc.) to remind everyone of their role in a prevention approach and to direct them to the appropriate tools provided by the prevention network; and
- interactive quizzes to test knowledge of safety and health at work and find practical solutions to implement.

This tool aims to enable all professionals involved in home care to learn and raise awareness online while having fun. Designed like a game, it presents realistic and engaging scenarios where users must anticipate risky situations and make steady progress. Users can also assess their skill level and track their progress as they advance.

Such tools not only democratise access to training by removing barriers related to location or time but also allow workers to track their progress, test their skills and directly apply learned strategies in realistic settings. Digital tools are particularly effective for reaching dispersed workforces, such as home care providers, ensuring primary prevention measures are implemented across varied environments.

- **Integrating multidimensional training models**

Addressing MSD risks requires training programmes that incorporate diverse disciplines, from occupational health to psychosocial wellbeing, in order to provide a holistic perspective on prevention. The Italian Pilot Study for Interdisciplinary Manual Patient Handling (MPH) Training illustrates this by combining occupational health, physical therapy and psychosocial strategies into a single cohesive programme (Garzillo et al., 2020). MPH is a major occupational risk in healthcare settings. The aim of this study was to propose an MPH training model involving interdisciplinary aspects. A scheduled training programme was performed with 60 healthcare workers from a hospital in Naples, Italy, providing training divided into three sections: occupational health, physical therapy and psychosocial.

This approach acknowledges the interplay between physical and mental health, providing participants with strategies to manage stress and fatigue while improving manual handling techniques.

Similarly, the INRS video series[15] in France employs an innovative multimedia approach to educate care professionals on safe handling practices, combining visual learning with global MSD prevention strategies.

These interdisciplinary and multimedia approaches are instrumental in addressing the multifaceted nature of MSK risks, equipping workers with a well-rounded skill set to prevent injuries in their day-to-day tasks.

2.8.4 Workplace interventions/good practices

The following boxes provide a number of practical workplace interventions and good practices that have been identified that address inadequate training in the HeSCare sector.

Box 28: Awareness campaign 'For health and social workers free from MSDs' (ES)

The awareness campaign 'For health and social care workers free from MSDs' is one of the actions promoted by the MSDs group of the National Commission for Safety and Health at Work (CNSST) and was carried out by the National Institute for Safety and Health at Work (INSST). This campaign was carried out in March 2022 with the main objectives of preventing MSDs and raising awareness of the importance of proper patient handling and transfer particularly in the residential care sector.

The plan sought to link OSH with the improvement of the service and safety of the residents, reflected in the central message: 'take care to take better care'.

This central message was then adapted to each actor: employers, workers and prevention services. Beyond raising awareness, the objective was to involve everyone and provide criteria and information tailored to each role to be available after the campaign.

Source: https://www.insst.es/sin-trastornos-musculoesqueletico

[15] Please see link for more information: https://www.inrs.fr/actualites/videos-tms-soin-personne.html

Box 29: Training the trainers at departmental level (FR)

This ARS Normandie initiative trains 'prevention trainers' in the HeSCare sector to limit MSK risks and accidents linked to physical work. The participants, who come from a wide range of organisations, receive comprehensive training with practical workshops and then train their colleagues in their own organisations. The aim of the two-year support programme is to ensure that good practice is adopted and to embed a culture of prevention in each facility. This project is a sustainable investment in workplace safety.

Source: https://www.travail-et-securite.fr/ts/856/ACT/une-formation-de-formateurs-a-l-echelle-des-departements.html

Box 30: Good work environment and good performance go hand in hand! Karlskoga Hospital (SE)

The hospital, which has won awards for its approach, has introduced training in patient transfer, pressure sore prevention and the use of adapted equipment.

The success factors at Karlskoga Hospital include:

- partnership with patients and workers: active involvement of patients and staff in identifying improvements;
- management commitment: involvement of managers at all levels;
- continuous improvement: data-driven decisions and regular evaluation;
- local social partnership: working with local partners to support initiatives; and
- economic balance: maintaining financial sustainability while improving quality of care and staff safety.
- Thanks to continuous improvement techniques and the involvement of all staff, Karlskoga Hospital has:
- reduced work-related accidents: the number of days lost due to injuries associated with patient transfers has fallen dramatically, from 400 days per year in the 1990s to just 2.8 days per year between 2010 and 2014;
- reduced pressure ulcers: the rate of pressure ulcers has been reduced to around 1%, well below the Swedish national average (7%); and
- maintained a high patient and staff satisfaction: 98% of patients and 95% of staff would recommend the hospital, demonstrating a high level of satisfaction.

These measures have resulted in significant cost savings while improving the wellbeing of patients and staff.

Source: https://hospeem.org/wp-content/uploads/2015/04/6.Paris-good-work-environment-2015-LarssonTorensj%C3%B6.pdf

Box 31: Eulift app (EU)

The Eulift application is an innovative app designed to provide a comprehensive solution to enhance skills in patient lifting and handling techniques to reduce the risk of injury and improve overall efficiency. This free app is developed with partners in five European countries and comes in four languages (English, Dutch, Spanish and Hungarian).

It includes:

- Interactive Tutorials: step-by-step guides that visually demonstrate proper patient handling techniques.
- 3D Animations: detailed 3D animations that showcase ergonomic practices, making complex concepts easy to understand.
- Ergonomic Tips: practical advice on maintaining good posture and reducing strain during care tasks.
- Multilingual Support: content in multiple languages
- Customised Learning Paths: personalised recommendations.

- Real-time Feedback: instant feedback on technique to continuously improve skills.

Sources: https://eulift-app.com/en/ and Eulift app – OSHwiki | European Agency for Safety and Health at Work

2.8.5 Recommendations for prevention

There are a number of points to bear in mind if training is to be as effective as possible:

- **Employer's obligation:** Each worker must receive sufficient and appropriate training in safety and health, particularly upon being hired, transferred or changing roles.
- **Risk assessment** should also identify the needs in terms of training, workers more in need or lacking the required training and be **updated in time** to new techniques and new devices.
- **Training content:** Training must be specifically focused on the worker's job or role, adapted to changing risks and repeated periodically if necessary. It should cover topics such as safe handling techniques, correct use of specialist equipment and recognition of high-risk situations.
- **Integration into a multidimensional approach:** Training should be part of a multidimensional approach to preventing and reducing MSDs. It should be combined with other interventions, such as the use of specialised equipment and the implementation of appropriate policies and procedures.
- **Training quality:** Training should consider the most recent knowledge and techniques and be adapted to new devices or equipment.
- **Participatory staff training:** This approach actively involves participants in the learning process, which can improve knowledge retention and application.
- **Importance of ongoing training**: This keeps staff's knowledge and skills up to date.
- **Regular follow-up:** Training should not be a one-off event but should be followed up regularly to reinforce learning and ensure that preventive practices are maintained over time.
- **Training the trainers** when resources are limited. This approach consists of training certain members of staff who can then train their colleagues, enabling knowledge to be disseminated more widely despite limited resources.
- **Role of a prevention champion:** A designated person within the organisation to promote preventive practices, including training, could play an important role in reducing injuries.

In summary, training is a key element of MSD prevention, but it needs to be ongoing, participative, regularly monitored and integrated into a wider MSD prevention strategy (Robla, 2015).

2.9 Lack of workplace age management strategies/policies (ageing HeSCare workforce)

2.9.1 Introduction

Increased exposure to physical and psychosocial risks in the workplace can lead to **declining health**, which not only affects workers but also contributes to higher rates of workplace accidents, sick leave and presenteeism (Hillion, 2024). Especially when workers are exposed to doing physically and/or psychologically demanding tasks **over a long period of time**, work can have a severe impact on their physical and mental health and overall wellbeing (EU-OSHA, 2020c). A French study covering the period 2013-2016 combining survey data on working conditions and psychosocial risks with health insurance data shows that, **already in the short run**, increased exposure to physical and psychosocial risks is significantly associated with a worsening of the health status (Hillion, 2024). In the study, this is evidenced by a decline in psychosocial wellbeing, functional limitations, and an increased prevalence of chronic or long-term ailments.

In this context, the ageing workforce in the HeSCare sector presents a major challenge, particularly as **workers naturally experience a decline in physical capacity and a higher risk of chronic diseases with age** (Stakeholder interview). Such age-related changes, combined with years of **accumulated physical strain**, make physically demanding tasks increasingly difficult (EU-OSHA, 2020c). Managers tend to experience fewer MSK risks, whereas frontline workers, such as cleaners and caregivers, are highly exposed to physical strain. Company size can play a significant role in risk management, with

larger organisations tending to have more structured risk prevention strategies, while smaller companies place higher physical and psychological demands on employees due to fewer resources and greater workload pressures (Stakeholder interview). This issue is compounded by a rising retirement age in many EU Member States and a growing demand for healthcare services due to an ageing population, resulting in an escalating care burden (Stakeholder interview). The HeSCare sector thus faces a pressing need to recruit a diverse, qualified and healthy workforce to address these challenges (EU-OSHA, 2023b).

However, with a high proportion of workers aged over 50, a shortage of younger workers and increasing care demands, the **reliance on older, more experienced workers is becoming more pronounced**. In this regard, extending working lives, such as through higher retirement ages, has been suggested as a solution to staff shortages across the EU. However, this prolongs exposure to workplace hazards, potentially worsening health outcomes for ageing workers (EU-OHSA, 2023b; Social Europe, 2024).

Chronic health conditions, which tend to increase with age, are thus already affecting and are **expected to affect a growing number of HeSCare workers in the future**, which explains why addressing workplace risks and supporting the wellbeing of older workers is key.

At the same time, however, this implies that it is important **to look after the MSK health of the HeSCare workers from the beginning of their career in the sector**, to avoid that workers over time develop MSDs and are forced to leave the HeSCare sector because of it. In this context, adopting a life course approach to studying MSDs and MSK risks in the sector becomes critical: this relates to understanding risks and outcomes, focusing on prevention early on, for example, mainstreaming attention for MSK risk factors and MSDs into education and so on (EU-OSHA, 2021a).

Considering the high prevalence of MSK risk factors and MSDs in the HeSCare sector, past studies have stipulated that reducing workers' exposure to work-related risk factors is key to ensuring the longer-run sustainability of work. Sustainable work supports workers' employability across the life course. As workers age, changes in their health due to exposure to hazards, and the consequences of such changes for performance and workplace safety and health, could push workers to leave their job or the labour market altogether (EU-OHSA, 2016). Employers in the HeSCare sector should adopt age management strategies or policies that account for these issues and contribute to the prevention of workplace risks for workers of all ages, such as lifelong learning, career development, flexible working time practices, health promotion or other measures. From an OSH perspective, such measures should help ensure that work does not damage health across the life course, and that additional steps are taken towards the protection of vulnerable groups such as older workers or workers suffering from health problems.

2.9.2 Subsectors and (specific) workers at risk

Both the LFS-2020 and EWCTS-2021 data indicate **differences in workers' exposure to specific MSK risks** in the healthcare, residential care and social work subsectors (EU-OSHA, 2024). More specifically, whereas around 75% of workers in healthcare and residential care are sometimes, often or always exposed to repetitive hand or arm movements, this percentage drops to around 64% for workers in social work (see Figure 4). A similar pattern is visible for work in tiring or painful positions, lifting or moving people, and carrying or moving heavy loads. Workers in the healthcare subsector report the highest incidence of tiring or painful positions, whereas residential care stands out in terms of lifting or moving people and carrying or moving heavy loads.

Compared to younger workers, **older workers**, particularly those aged 55 and above, are more vulnerable to work-related health issues such as backache and muscular pain, affecting over 70% of workers in this age group (EU-OSHA, 2024). This increased susceptibility is compounded by longer recovery times from illnesses and injuries, as physical and sensory capabilities tend to decline with age. From around the age of 40, workers' physical capacity, including muscle strength and cardiovascular fitness, declines by at least 1% per year. Over two decades, this results in a reduction of at least 20% in physical ability for HeSCare workers. If the job demands remain unchanged, the relative workload or the effort required compared to an individual's capacity increases, leaving workers with less reserve capacity. This makes physically demanding tasks more challenging as workers age (Andersen et al.,

2012; Holtermann et al., 2013). These findings highlight the importance of tools such as the TilThermometer©[16] (see Box 34) and the ALM approach[17] (see Box 35).

For older workers, the increased level of MSK risks relates to the fact that HeSCare work can in itself be very demanding and working in the field for a longer time means that its effects can be felt more (i.e. cumulative exposure that results in so-called wear and tear (EU-OSHA, 2020)). There is also the issue that at an older age, certain workers cannot assume all functions in the HeSCare sector and thus can be subject to more risks when conducting such tasks. The likelihood of reporting MSDs increases with age: workers over 55 years old reported more often (67%) one or more MSDs than workers under 25 years (45%) (EU-OSHA, 2019). This exacerbates current challenges such as staff shortages and it puts more pressure on both workers and the healthcare system (Social Europe, 2024).

Nevertheless, although **younger** workers report experiencing MSDs less than older workers, available data show that MSDs are also problematic for this group of workers, especially considering that their exposure to MSK risk factors will last throughout their career in the HeSCare sector. With the life course perspective in mind, this suggests that younger workers should not be forgotten in the prevention and management of MSK risk factors in HeSCare organisations.

Women workers are at risk for long-term exposure to MSK risk factors as well, as many of them have a double care role (i.e. providing care at work and at home) and start working in the HeSCare sector at a young age and continue working in the sector over a long period of time (EU-OSHA, 2024). Many women in HeSCare are over the age of 50 and are thus dealing with a loss of physical strength and cumulative impacts of being exposed to MSD risks. Towards the end of their working lives, these women may no longer be able to do their work (EU-OSHA, 2020c). A recent EU-OSHA study, moreover, finds that gender and age (notably being an older women) are associated with a higher prevalence of MSD symptoms in the HeSCare sector (EU-OSHA, 2024). At the same time, studies have pointed to a gender bias in terms of the OSH measures adopted, as well as to the fact that workstations, tools and equipment are often designed with the male body in mind (EU-OSHA, 2020b). The recent Belgian Presidency of the European Union has highlighted the need to address MSDs, particularly given the ageing and predominantly female workforce (Stakeholder interview).

2.9.3 Practice and guidance identified on developing and promoting more sustainable work

In terms of practice and guidance on ensuring that work does not damage health in general and more specifically MSK health across the life course, the following points emerge from the literature, which should help HeSCare workers to build good MSK health or prevent MSDs by building good work environments within organisations in the sector.

- **Effective work organisation and workplace design**

An effective work organisation and appropriate workplace design that puts workers' physical and mental health in the centre on the short, medium and long run are important tools to address long-term exposure to MSK risk factors. This includes aspects such as efforts to reduce long working hours, proper planning of shifts and measures to improve workers' work–life balance, frequent breaks and task rotation. Adaptations in the work organisation and the work environment are needed to accommodate the ageing HeSCare workforce (see section 2.6 'Poorly designed environments and inadequate equipment').

- **Working time reductions and task rotation**

Working time reductions and task rotation have also been proposed as measures to help deal with the issue of long-term exposure to MSK risk factors, by breaking up the work. However, having sufficient and well-trained staff is a prerequisite here, meaning that addressing staff shortages is a priority in HeSCare (see section 2.3 'High workload and organisation of working time').

[16] For more information, please also see: https://osha.europa.eu/en/publications/tilthermometerc-mapping-severity-and-type-exposure-physical-strain-when-handling-patients

[17] For more information, please also see: https://osha.europa.eu/en/publications/alm-approach-preventing-musculoskeletal-risks-during-patient-handling-and-transfer

- **Use of proper handling techniques and assistive equipment**

This includes a range of measures, for example SPHM programmes that aim to protect both patients and HeSCare workers, the use of appropriate equipment and assistive devices for patient handling, as well as training of workers in using these techniques and devices (see section 2.4 'Manual handling of patients'). Examples are also provided in Box 35 and Box 36.

- **Age- and gender-sensitive measures/risk assessments**

As exposure to workplace risks during youth could lead to health issues later in life, which affect some workers more than others (for example, women), adopting measures that consider the entire HeSCare workforce and how their situation changes over time is essential. Age-sensitive risk assessment refers to taking into account age-related characteristics of different age groups when assessing risks, including potential changes in functional capacities and health status (EU-OSHA, 2009). Younger workers in the HeSCare sector often have less autonomy, greater job insecurity and limited control over their working conditions compared to older workers, and this could be detrimental in the longer run. For older workers, on the other hand, it is critical to account for the reduction in their physical strength, as well as the cumulative impact of long-term exposure to MSK risks. Women workers in HeSCare are particularly vulnerable to both the physical and psychosocial risks associated with their job, which are exacerbated with age. In this regard, it must be highlighted that inter-individual differences do increase with age, which implies that age is not the only factor that should be considered in risk assessments or when adopting prevention measures. Instead, other aspects — such as gender, migrant workers or health status — should be considered too. This approach is used, for example, in the Awareness plan 'For social health personnel without MSDs' (see Box 32) and the age-sensitive approach used by an Austrian hospital to prevent MSDs (see Box 33).

2.9.4 Workplace interventions/good practices

The following boxes provide a number of practical workplace interventions and good practices that have been identified that address long-term exposure to MSK risk factors (ageing workforce) in the HeSCare sector.

Box 32: Awareness plan 'For social health personnel without MSDs' (ES)

The Spanish National Institute of Safety and Health at Work (INSST) promotes the awareness plan 'For social health personnel without MSDs' aimed at the working population, business community and prevention services in the sector. Its objective is to avoid MSDs and raise awareness about the importance of adequate mobilisation and transfer of people. This approach is relevant also from the perspective of long-term exposure to MSK risk factors, as it provides materials and guidance targeting all HeSCare workers and thus adopts a holistic approach.

Source: https://www.insst.es/sin-trastornos-musculoesqueletico

Box 33: Preventing MSDs in a large hospital through staff involvement and an age-sensitive approach (AT)

The University Hospital Vienna implemented several different strategies to promote staff involvement in the mitigation of MSK risks. In this case, the focus was on the staff of the operational department who are involved in support tasks at the hospital. Actions included: the deployment of a survey among the operational department, workshops focused on feedback from staff regarding MSK risks and potential preventive measures, involvement of staff in the selection of equipment and footwear, the appointment of special health advisors for healthcare workers, and the creation of 'mixed generation' cleaning teams. Through these actions the hospital implemented practical solutions to prevent MSK injuries and MSDs and it gathered information to help develop further initiatives. In such mixed teams, the perspective of workers' age is accounted for, as per the life course perspective.

Source: https://osha.europa.eu/sites/default/files/documents/gpa_case_study_2022_at_01_en.pdf

Box 34: TilThermometer© – Identifying physical overload of healthcare workers (NL)

TilThermometer© is a Dutch-developed tool that is available online and free of charge. Through TilThermometer© individuals can establish the type and level of physical load on caregivers, the burden of care placed on relevant carers and the extent to which an institution is successful with the implementation of physical load policies. This evaluation can be done at a departmental, team and organisational level. TilThermometer© has different evaluation tools for: nursing, care and home care; disability care; and ambulance care. Presently the tool has also been developed to be accessible in several EU languages including Spanish, French, German and Swedish. With regard to this measure, it is important to note that workers of all ages could benefit from this, both older and younger workers. This is key in helping to protect their MSK health in the long run and to build good MSK health throughout the workers' careers.

More information can be found on the TilThermometer© at: https://osha.europa.eu/en/publications/tilthermometerc-mapping-severity-and-type-exposure-physical-strain-when-handling-patients

Source: https://www.tilthermometer.nl/

Box 35: La démarche ALM: Accompagner La Mobilité (The ALM initiative: supporting mobility) (FR)

The ALM approach is based on a training programme called 'Le soin de manutention' (Maintenance care) developed at the Paris Saint-Joseph Hospital. This method entails relearning basic movements. With this method, healthcare workers only assist with the movements that the person is unable to do. Currently, workers often lift the person entirely and perform all the movements for them. This method also allows the patient to have more autonomy and dignity, while workers avoid injuring themselves by lifting or pushing unnecessarily. Another issue that the ALM approach addresses is that nurses are often taught how to use a tool, but they do not know exactly when to use it and for which movement. In healthcare, it is not just about using the tool but understanding why it is necessary and choosing the right one for the specific task. The appropriate use of this tool could have a major impact on the MSK health of younger and older workers in the HeSCare sector, which could help support workers dealing with situations where they are exposed to MSK risks factors in the long run.

More information can be found on the ALM approach at: https://osha.europa.eu/en/publications/alm-approach-preventing-musculoskeletal-risks-during-patient-handling-and-transfer

Source: https://www.inrs.fr/media.html?refINRS=ED%206415 and based on input from interview with INRS

Box 36: TMS PRO (FR)

The Occupational MSD (TMS Pros) process is based on four online steps and enables companies to reduce risk factors and improve how work is organised. It is open to any company wishing to prevent MSDs among its workers in the long term (and thus targets workers of all ages in the HeSCare sector), and it also includes financial support from the OSH department of the Regional Sickness Insurance Funds (Caisses régionales d'assurance maladie) for the companies most affected by MSD claims. Many examples of initiatives can be found in the HeSCare sector to illustrate this national programme.

More information can be found on TMS Pros at: https://osha.europa.eu/en/publications/tms-pros-programme-supporting-msds-prevention-health-and-social-care-sector

Source: https://www.ameli.fr/hauts-de-seine/entreprise/sante-travail/risques/troubles-musculosquelettiques-tms/demarche-tms-pros

2.9.5 Recommendations for prevention

When it comes to the prevention, the following points could be considered in light of long-term exposure to MSD risk factors:

- **Age-sensitive risk assessments.** With workers being exposed to a wide range of MSK risk factors from the very start of their career in the HeSCare sector, it is important to devote sufficient attention to this issue in risk assessments, and to ensure that they are age-sensitive. For younger workers, it is important to consider how long-term exposure to MSK risk factors could affect their health over time, as their career progresses, in order to build good MSK health. For older workers, of whom many have already been exposed to MSK risks over a long period of time, risk assessments should also consider their weakened health. The prevention of chronic diseases as the result of the long-term exposure to MSK risks is thus critical.
- **Adopt a life course perspective to MSK risk factors and MSDs.** Although older workers are more vulnerable, research also highlights the critical importance of adopting a life course perspective to preventing and managing MSK risk factors and MSD health outcomes, which requires starting early — at the beginning of a worker's career in the HeSCare sector. Adopting such an approach results in a better understanding of how and why MSK conditions occur over the life course and how MSK health can be promoted. Its adoption is beneficial for all HeSCare workers. In this context, the importance of health surveillance and ensuring workers can access early diagnosis and care (secondary and tertiary prevention) should also be mentioned as key points.
- **Physical and ergonomic factors** contributing to MSDs should receive particular attention in risk assessments and the implementation of prevention measures, notably to reduce physical exertion. Task rotation could be considered to avoid long exposure to MSD risk factors, while the availability of ergonomic tools is important as well.
- **Working conditions and organisational practices.** Giving workers more control over their schedules and workload planning can significantly reduce stress levels and improve job satisfaction, and afford better mental wellbeing and increased motivation.
- **MSK risk factors are found in combination** (EU-OSHA, 2020b). With this in mind, strategies aiming to prevent MSDs in HeSCare should be comprehensive in nature, addressing physical as well as psychosocial risk factors.
- Create more **inclusive workplaces** that address OSH inequalities (related to age) and enable a diverse workforce to thrive.
- **Pay attention to older (women) workers.** This calls for accommodation of work demands to better balance physical work demands with the capacity of older workers, especially women, who are faced with a double care role and may feel the impact of physically demanding work more. Dedicated training for this group could also be beneficial. More generally, in the HeSCare sector, training offered to workers should be age-sensitive.
- **Worker participation** is essential in tackling MSDs, as (older HeSCare) workers are best positioned to identify MSK risk factors and propose solutions. The insights and experiences of workers performing the tasks are invaluable for understanding how the work impacts them and implementing effective measures (EU-OSHA, 2022c).
- **Promoting MSK health at work for the whole workforce (not just individuals who already suffer from MSK pain).** Because of the prevalence of MSK risk factors in the sector, it is important that HeSCare workers keep their MSK system healthy. Including age-sensitive health promotion as part of a systematic approach to MSDs at work helps to retain workers with chronic MSDs or facilitate their return to work, as well as promoting health and wellbeing among the whole workforce.

2.10 Psychosocial risks (focus on violence and harassment)

2.10.1 Introduction

Psychosocial risks at work[18] are 'factors linked to the way work is designed, organised and managed, as well as to the economic and social context of work' (EU-OSHA, 2007). For HeSCare workers, the

[18] This section builds mainly on EU-OSHA´s work on the topic and on its efforts to illustrate the link between psychosocial risks and MSDs

main psychosocial risks that they are exposed to are violence and harassment, dealing with difficult patients or customers, discrimination and high workload/time pressure (EU-OSHA, 2024). For each of these psychosocial risk factors, workers in HeSCare report a higher exposure than workers in any other sector.

In the scientific literature, psychosocial risk factors are considered job characteristics, which encompass all physical, psychosocial and social conditions associated with the work activities (for example, elements related to the task, organisational factors, workplace relationships) (Bakker et al., 2017). Job characteristics are often categorised into job stressors and job resources (Bakker et al., 2017). **Job resources** refer to elements such as social support or worker participation that motivate and support workers and enhance workers' ability to manage work demands. **Job stressors**, on the other hand, are elements that require sustained effort and may negatively impact workers' health and wellbeing. Workers' health and wellbeing can be compromised when there is an imbalance between stressors and resources, which appears to be the case in HeSCare (Eurofound, 2023).

The **relationship between psychosocial risks and MSDs** is well documented (EU-OSHA, 2021b). Studies show that exposure to psychosocial risks, such as an excessive workload, a high work intensity, and being exposed to work-related violence and harassment can contribute to the development of MSDs, while having an MSD can make the perception of psychosocial risks worse (EU-OSHA, 2020c). Being confronted with such psychosocial risk factors could lead to increased levels of stress, which consequently leads to muscle tension, inflammation, and changes in workers' responsiveness and sensitivity to pain (EU-OSHA, 2021b). Stress responses are also associated with increased heart rates and changing breathing patterns (EU-OSHA, 2021c). Moreover, psychosocial risks are found to not just cause MSDs but also to contribute to their chronic nature. For example, workers are faced with a lack of control over tasks, the organisation of work, the speed of work and so on, or with a lack of social support so they might take risks (for example, by not using required personal protective equipment or not following procedures) and might take on more work (for example, by not taking breaks, carrying higher physical loads), in that way aggravating MSK risk factors and worsening pre-existing problems (EU-OSHA, 2021c). Psychosocial factors can serve as obstacles to returning to work or securing employment for individuals with chronic MSDs. Additionally, having a (chronic) MSD can contribute to psychosocial issues like depression and stress (EU-OSHA, 2021c). However, it is not so straightforward to discern specific patterns, as there are many varied associations between physical risk factors, psychosocial risk factors and MSDs (EU-OSHA, 2020c). It is clear, however, that this link is important to consider for longer-run impacts.

Among the psychosocial risks, violence and harassment are particularly problematic, because of their strong negative and long-lasting impact on those affected (Eurofound, 2023). According to data from the EWCTS-2021, across the EU-27, 11% of HeSCare workers reported being subjected to any type of intimidation, which is the highest share across all sectors (EU-OSHA, 2024). These findings are corroborated by the OSH Pulse 2022 survey, which shows that 32% of HeSCare workers reported being exposed to violence and verbal abuse from members of the public (patients, their friends or family members), compared to 16% on average across sectors (EU-OSHA, 2024). Such adverse social behaviour may be caused by various reasons, such as frustration, pain or anxiety.

Being subjected to violence and harassment at work has a severe impact on the workers concerned, as it results in both physical and psychological harm in the short, medium and longer run (Eurofound, 2022a). These include bio-physiological effects (for example, fear), emotion effects (for example, anger), social effects (insecurity) and cognitive effects (disbelief) (Needham et al., 2005). Workers subjected to violence and harassment can suffer from mental health issues also in the long run, with post-traumatic stress syndrome and depression being key issues (ETUI, 2021).

In fact, according to a Eurofound (2022a) study based on the EWCTS-2021 data, over twice as many workers who experienced adverse social behaviour — that is, verbal abuse or threats, harassment, bullying, violence, unwanted sexual attention — were found to be emotionally exhausted, anxious and at risk of depression, reported a lack of energy, or felt that their overall safety and health are at risk, when compared to those who were not exposed to such behaviour.

More generally, taking a job stressors and resources perspective, workers who are subjected to adverse social behaviour are also more likely to work under high pressure, work night shifts, lack support from colleagues and/or management, have fewer job prospects and to be more concerned about losing their job in the next six months (Eurofound, 2022a). Besides the impact on the individual, harassment and

violence have profound effects on the organisation, due to higher turnover, absenteeism, recruitment issues, reduced productivity and other impacts (ETUI, 2021; Neumann et al., 1998). On this note, the trend towards privatisation and budget cuts in the HeSCare sector has been associated with more precarious conditions (for example, long, irregular working hours, job and income insecurity).

2.10.2 Relevant factors influencing psychosocial risks

- **High workload, time pressure, and long or irregular working hours**

The HeSCare sector is under growing pressure, with increasing workloads due to an ageing population and a global shortage of healthcare workers (Kivimäki et al., 2001). High patient-to-professional ratios are common, with workers often facing significant time pressures and high workloads, which are among the most reported psychosocial risks that HeSCare workers are exposed to (Fricke et al., 2023). An increased workload and working under time pressure have been associated with higher levels of workplace violence and harassment (Firat et al., 2021). Similarly, long and irregular working hours, including shift work, are common in the HeSCare sector and challenge workers' work–life balance (EU-OSHA, 2024).

- **Emotional demands and traumatic events**

Work in the HeSCare sector is often emotionally demanding, requiring workers to regulate their emotions and sometimes conceal their own feelings (EU-OSHA, 2023b; Frick et al., 2023). This emotional effort includes managing the pain and anxiety of patients, addressing pressure from patients' relatives, and confronting severe or terminal illnesses, emergencies and other traumatic situations. Dealing with difficult patients is one of the most frequently reported psychosocial risks in the HeSCare sector, affecting 85% of workers (EU-OSHA, 2023b).

- **Lack of organisational resources (including training)**

HeSCare workers often lack organisational resources to help them manage the high demands of their roles (EU-OSHA, 2014, 2023b; Fricke et al., 2023). Data from the EWCTS-2021 show that workers in this sector report the lowest levels of autonomy in determining their speed of work compared to other sectors (EU-OSHA, 2022b). Similarly, the OSH Pulse 2022 survey found that HeSCare workers were the most likely to report limited autonomy or control over their work pace or processes, with 23% highlighting this issue compared to 18% across all sectors (EU-OSHA, 2022d). Poor communication and cooperation within organisations are also prevalent, representing a significant psychosocial risk factor. According to EU-OSHA data, 28% of workers in this sector identified poor internal communication as a concern, rising to 32.5% in the OSH Pulse 2022 survey, compared to 26.5% in all sectors (EU-OSHA, 2022d). Additionally, many HeSCare workers, particularly those in certain roles, feel undervalued and insufficiently rewarded for their efforts (ETUI, 2022). Low organisational resources can amplify other risks, such as understaffing, which reduces the availability of support and increases exposure to third-party violence, particularly among community and hospital nurses.

- **Shift towards the provision of home- and community-based services**

Against a background of an ageing population and growing care needs, care provision is shifting towards a person-centred approach, in which home care- and community-based services play a central role (EU-OSHA, 2023b). This shift, however, introduces new OSH risks for HeSCare workers, who in such settings frequently deliver care alone or in pairs outside of the regular workplace. These risks include heightened stress and feelings of isolation due to working independently and without immediate support from colleagues. Such conditions increase workers' vulnerability to violence or harassment from patients or third parties — such as informal carers who are often relatives, friends or neighbours of the care recipient and also provide various forms of care (for example, personal care, support with mobility or social support). Moreover, workers have only limited resources for handling such issues. In such cases, training becomes even more critical.

- **Impact of the COVID-19 pandemic**

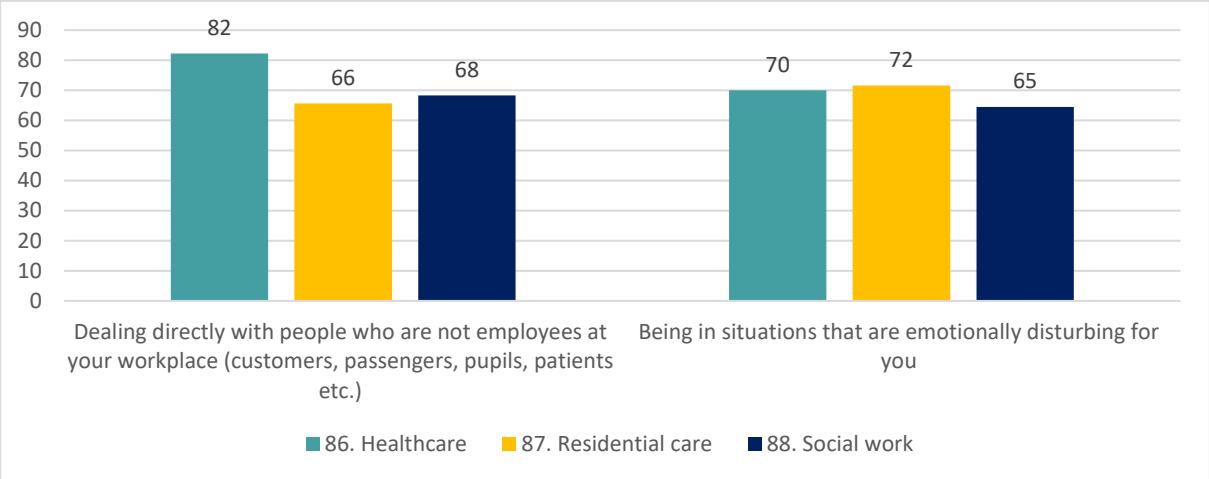
Several studies have highlighted that violence and harassment against HeSCare workers worsened during the COVID-19 crisis, especially among frontline workers, physicians, emergency care providers and nurses (Brigo et al., 2022; McKay et al., 2020; Kuhlmann et al., 2023). Many HeSCare workers played a vital role in implementing COVID-19 measures, but this provoked frustration and fear, leading to violence from patients and their relatives. The pandemic also heightened stress, burnout and

exhaustion among HeSCare workers, exacerbating staff shortages and worsening recruitment and retention issues (EU-OSHA, 2023b).

2.10.3 Subsectors and (specific) workers at risk

As a starting point, it is interesting to verify whether there are differences at the subsector level regarding HeSCare workers reporting having to deal with difficult patients. Data from the EWCTS-2021 survey, however, reveal only minor differences between the subsectors, with healthcare workers being more likely to deal directly with service users (82% of them stated to be dealing directly with people who are not employees at the workplace and in situations that are emotionally disturbing, versus 66% in residential care and 68% in social work).

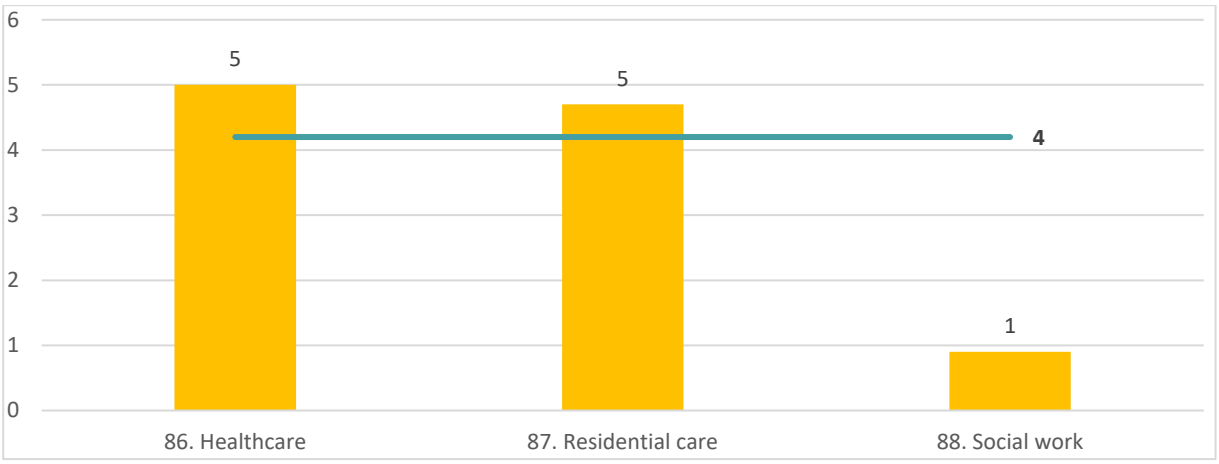
Figure 13: Percentage of HeSCare sector workers sometimes/often/always dealing directly with people not employees at the workplace and in situations that are emotionally disturbing, by subsector, EU-27, 2021 (%)



Source: TNO based on EWCTS-2021
Base: All HeSCare workers in the EU-27

Although minor differences are reported at the level of the HeSCare subsectors – healthcare, residential care and social work – when it comes to being subjected to violence, bullying and harassment, workers in social work are less exposed to unwanted sexual attention (Figure 14).

Figure 14: Percentage of HeSCare sector workers subjected to unwanted sexual attention, by subsector, EU-27, 2021 (%)



Source: TNO based on EWCTS-2021
Base: All HeSCare workers in the EU-27
The horizontal line indicates the HeSCare (NACE Q) EU-27 average

In general, studies report that HeSCare workers are at risk of being a victim of harassment and violence especially in cases where they are working alone or in pairs, outside of regular working hours, have to work with difficult patients (for example, with mental health issues, who are under the influence of substances), have to handle medication and exercise authority (EU-OSHA, 2024). A survey of 1,214 home care workers revealed significant exposure to violence and harassment, with high numbers of workers reporting exposure to verbal aggression (50.3%), aggression (26.9%), violence (23.6%), sexual harassment (25.7%) and sexual aggression (12.8%) within the past year (Hanson et al., 2015). These incidents were strongly linked to increased stress, depression, sleep disturbances and burnout. However, workers with greater confidence in handling such aggression experienced fewer negative impacts on their health and job satisfaction, highlighting the protective role of preparedness and self-efficacy.

In the literature, several groups of workers have been identified for whom exposure to violence and harassment is higher than for the average worker in HeSCare. **Women workers** report being exposed more to violence and harassment than men in the sector, and so gender-based violence and sexual harassment do seem to be widespread among HeSCare workers (Kuhlmann et al., 2023). **Migrant workers** are another group at risk among the HeSCare workers when it comes to violence and harassment at work (Kuhlmann et al., 2023).

Besides socio-demographic characteristics, the literature has identified specific HeSCare **professions** in which workers are more exposed to violence and harassment. These include, but are not limited to, nurses, nurse aids or care aids, workers in emergency care, workers responsible for patient transport, physicians, physical therapists and so on (Escribano et al., 2019; Winstanley et al., 2004; Eurofound, 2022a; Yeh et al., 2020; Findorff et al., 2004; Koritsas et al., 2004). What is common among these professions is that many of them are frontline workers with high levels of direct contact with patients and their relatives. Finally, some studies point out that especially those **HeSCare workers who are repeatedly subjected to violence and harassment at work** are at risk of experiencing long-run consequences (Winstanley et al., 2002).

2.10.4 Practice and guidance identified on how to prevent psychosocial risks

- **Management commitment and worker participation**

To address work-related violence and harassment and its impact on workers' physical and mental health and wellbeing, having the commitment of all levels is key (EU-OSHA, 2021b). Management commitment and worker participation are crucial for an effective workplace violence prevention programme.

Management should recognise violence and harassment as a critical issue and prioritise tackling it. Management's visible involvement and endorsement provide the necessary motivation and resources to address violence and harassment effectively. This commitment should include prioritising a safe work environment, allocating appropriate resources and authority to support all responsible parties, assigning clear responsibilities to managers and supervisors, establishing accountability systems for all involved, introducing policies and practices that encourage the reporting, monitoring and post-briefing of incidents of violence and harassment and foresee counselling for affected workers, and so on with the aim to establish an overarching framework to prevent violence and harassment (EU-OSHA, 2020c, 2021b).

Worker participation is key as well, as workers' involvement and feedback are invaluable in designing, implementing and evaluating workplace violence prevention programmes (EU-OSHA, 2021b). Workers at different levels and roles bring diverse perspectives and skills, enriching programmes' effectiveness in practice. Worker participation should include contributing to programme development and evaluation, engaging in safety and health committees, providing input on facility design or modifications to enhance safety and security, and identifying high risk activities and related activities. Key examples of the importance of worker participation and social dialogue are provided in Box 37 and Box 38.

- **Worksite analysis and risk assessments**

When it comes to primary prevention of psychosocial risk factors, including violence and harassment at work, the literature highlights the importance of **risk assessments** in order to identify these risks and to reflect on their drivers and the workers most affected, develop a tailored intervention planning to target these risks, and to implement, monitor and evaluate these plans. In other words, risk assessments in the HeSCare sector should incorporate violence and harassment in all its forms, including digital forms such as cyberbullying (EU-OSHA, 2023b). The **OiRA tool** developed by EU-OSHA to perform a risk

assessment on third-party violence can be a helpful starting point. Keeping in mind that violence and harassment tend to combine with other psychosocial risks and with physical risks, risk assessments should help identify other job stressors (for example, staff shortages and high workload, irregular working hours, etc.) so that those can be tackled, while also investigating which job resources (for example, social support) can be strengthened. An example of a tool that helps to predict work-related violence and harassment is the Brøset Violence Checklist presented in Box 41.

As soon as the risk assessment is completed, **measures to prevent and control the risks should be adopted**. For violence and harassment in particular, those often include a wide range of measures such as training (see below), zero-tolerance policies, enhanced security, personal alarms, addressing staffing issues, changing the design of the work environment and the work procedures, monitoring and reporting tools (see below), counselling programmes, efforts to improve communication and support, efforts to increase the visibility of such incidents and avoid that this issue is normalised, and so on (OSHA, 2016b; Gillespie et al., 2010) (also see Box 39 and Box 40 for measures targeting employers). In the literature, it is noted that some of these interventions are widely used, while assessing their effectiveness is quite difficult in many cases.

- **Training on work-related violence and harassment**

In the literature, significant attention is paid to the impact of **training** on the prevention and management of violence and harassment in the HeSCare sector. While some of such trainings have proven effective, others are less so, depending on the training components, approaches used, target groups, follow-up and other factors, as discussed below with some examples (Wassell et al., 2009; Arbury et al., 2017; Beech et al., 2006). In one study, a workplace violence simulation training was run with 66 nursing staff members working in high-risk units in Taiwan, who were then asked about their self-confidence in coping strategies (Ming et al., 2019). Study results showed that both the perception of workplace violence and workers' confidence in being able to manage it increased among training participants. In another study including 1,401 personal support workers — frontline workers in the home and community care sector — in Canada, the impact of different types of training were examined among workers who had encountered violence and harassment (Sayin et al., 2023). The study found that training in challenging tasks[19] boosts workers' self-esteem and lowers stress, while training focused on workplace violence showed no real effect on either. A key recommendation from the study is to improve the current approach to workplace violence training by offering training that focuses on broader skill development rather than solely on workplace violence.

- **Post-incident briefing (record keeping)**

Finally, studies highlight the importance of **reporting incidents** of violence and harassment, **recording** them (also monitoring trends over time), and **enabling post-incident debriefing** in a way that avoids victim-blaming and the normalisation of violence and harassment in HeSCare (Ming et al., 2019).

2.10.5 Workplace interventions/good practices

Box 37: TPV Project – Multisectoral social dialogue project 'The role of social partners in preventing third-party violence and harassment at work'

The project was conducted by EPSU, CEMR, CESI, ETUCE, EUPAE, ETF, UITP and ETNO. It covered the role of social partners in preventing third-party violence and harassment at work. The project examined and discussed the prevalence, causes and impact of third-party violence and harassment at work in the partners' respective sectors as well as recent legislative and social partners' responses to this major health and safety matter of common concern. It aimed to assess the application at the national level of the 2010 Multi-sectoral Guidelines to tackle third-party violence and harassment related to work and whether further actions might be needed to make its implementation more effective. The project, including the research carried out by Jane Pillinger, had a focus on the following sectors: hospitals, prison services, employment services, frontline workers in local and regional government, secondary schools and urban public transport as well as telecoms.

Source: https://hospeem.org/category/activities/projects/

[19] In the study, this is understood as critical thinking skills training broad enough to cover a number of challenging circumstances that these workers might experience and which develops the skills required to identify and resolve those challenges.

Box 38: EU cross-sectoral social dialogue project: 'Eliminating violence and harassment in the world of work'

EU cross-sectoral guidelines on violence and harassment at work have been developed within the framework of the UNI Europa project 'Eliminating violence and harassment in the world of work'. They are the result of an extensive documentary research and EU-wide survey among trade unions and employers and consultations with the members of the service sectors. While these do not include HeSCare specifically, the fact that the guides themselves are cross-sectoral could provide inspiration for the sector. In fact, the guidelines may be applied and endorsed by other service sectors as well, where workers are in regular contact with clients. Project partners engaged in extensive consultations, including webinars with hundreds of participants. Interactive sessions with employers and employees were held to reflect their needs and future measures. As such, these guidelines are the first tool of its kind, having involved social partners and employers in the process and the European Trade Union Confederation (ETUC) and included experts on gender equality, and they have focused on the ILO Convention. The social partners condemn any violence and harassment at the workplace and have come together to tackle violence and harassment for employees across Europe. The guidelines are specifically focused on domestic violence as related to the world of work, third-party violence and psychosocial risks of telework and have built on previous similar guidelines in line with international standards, including the ILO Convention 190 and the Council of Europe Convention on Preventing and Combatting Violence against Women and Domestic Violence (the Istanbul Convention).

Source: https://www.uni-europa.org/wp-content/uploads/sites/3/2023/11/EU-Cross-Sectoral-Guidelines-on-Violence-and-harassement-at-work_Official.pdf

Box 39: Violence and harassment at work: A practical guide for employers

This guide focuses on the general principles in the prevention and management of violence and harassment at work, with reference to the ILO Violence and Harassment Convention (No 190) and its accompanying Recommendation (No 206), 2019. It aims to enable enterprises to better control the risks and minimise the negative impacts that violence and harassment bring to the workplace. It includes, among other things, guidance on what is considered violence and harassment in the world of work, examples of common violence and harassment at work, legal framework and employers' responsibilities, why employers need to act, and how to address, prevent and respond to violence and harassment including by developing and implementing enterprise-level policy, as well as risk management with sharing of good practices and examples.

Source: https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_dialogue/@act_emp/documents/publication/wcms_857915.pdf

Box 40: HealthWISE

Work Improvement in Health Services (HealthWISE) — a joint ILO/WHO publication — is a practical, participatory quality improvement tool for health facilities. It encourages managers and staff to work together to improve workplaces and practices. HealthWISE promotes the application of smart, simple and low-cost solutions leading to tangible benefits for workers and health services, and ultimately for patients. The topics are organised in eight modules addressing OSH, personnel management and environmental health issues. HealthWISE combines action and learning. Module 4 specifically covers tackling discrimination, harassment and violence at the workplace. The module looks at three aspects of discrimination and violence: discrimination and violence suffered by staff from patients; by staff from co-workers; and discrimination and violence suffered by patients from the health workers in whose care they have been placed. The Action Manual helps initiate and sustain changes for improvement, using a checklist as a workplace assessment tool, designed for identifying and prioritising areas of action. Each of the eight modules illustrates key checkpoints to help guide action. The accompanying Trainers' Guide contains guidance and tools for a training course. HealthWISE is designed for use by all who are concerned with improving workplaces in the health sector, including health workers and healthcare managers, supervisors, workers' and employers' representatives, labour inspectors, occupational health specialists, trainers and educators.

Source: https://www.ilo.org/resource/training-material/healthwise-work-improvement-health-services

Box 41: Brøset Violence Checklist

The Brøset Violence Checklist is a short-term violence prediction instrument assessing confusion, irritability, boisterousness, verbal threats, physical threats and attacks on objects as either present or absent. It is a useful instrument for predicting inpatient violence within the next 24-hour period. The Brøset Violence Checklist has been widely translated and implemented in diverse mental healthcare settings to improve prevention of violence.

Source: https://pubmed.ncbi.nlm.nih.gov/12072138/

2.10.6 Recommendations for prevention

The following points could be considered to address violence and harassment in the HeSCare sector:

- **Risk assessment.** Psychosocial risks, and violence and harassment in particular, must be included in risk assessments in the HeSCare sector. Having a good understanding of this issue, which workers are most at risk, and how to best prevent and manage it is key in a context where such a large share of the workforce runs the risk of being exposed to violence and harassment. This is even more relevant considering the high impact that being exposed to violence and harassment has on workers' wellbeing, safety and health in the short and longer run.
- Adopt a plan to prevent work-related stress and put in place procedures and action plans to prevent and deal with cases of bullying, violence and harassment (including threats, assaults, abuse) by external persons to ensure that it is well understood by everyone — both in- and outside (patients and families, workers, etc.) HeSCare organisations — that violence and harassment are not acceptable. Despite the high prevalence of violence and harassment in the HeSCare sector, a considerable share of HeSCare establishments does not have any such procedures, plans or actions in place, according to recent ESENER data.
- **Address underreporting.** Despite the high incidence of violence and harassment at work in the HeSCare sector, underreporting remains a key issue. At the same time, record keeping, monitoring and post-briefing of incidents have been found to be effective tools for addressing violence and harassment in HeSCare.
- **Boost social support from colleagues and management.** Social support plays a crucial role in mitigating the negative effects of violence and harassment on workers by enhancing psychological safety, health and work capabilities. It helps them to manage high-stress situations more effectively and preventing or lessening the harmful impacts of such work environments, and should therefore be strengthened (Yeh et al., 2020; Woodrow et al., 2012). **Training on how to prevent and handle violence and harassment** has been found to be an effective tool in terms of prevention, but it should be embedded in a wider strategy on OSH.
- **Worker participation** is key to understanding and preventing violence and harassment in the HeSCare sector, as well as to managing its impacts on workers' physical and mental health and wellbeing and their safety.
- **Holistic approach.** Interventions should be designed to mitigate the heightened risk of MSDs associated with psychosocial risks. Research highlights the importance of adopting a holistic approach that acknowledges the multifactorial nature of MSDs. Effective interventions should address both psychosocial and physical risk factors to comprehensively reduce the risks and improve workplace conditions. Indeed, workplace psychosocial risk factors can contribute to developing MSDs, exacerbating pre-existing health problems and delaying recovery from MSDs, and MSDs can contribute to stress and lead to mental ill health. Bearing this in mind, it is important that psychosocial and MSK risks are assessed and prevented together.
- **Pay attention to violence based on discriminatory grounds**, such as gender, age, race or ethnic diversity, which is highly prevalent in HeSCare.

2.11 Working with MSDs (back pain, pain in the upper and lower limbs)

2.11.1 Introduction

MSDs are among the most prevalent work-related health issues in Europe, affecting millions of workers, particularly in sectors like the HeSCare sector (EU-OSHA, 2024). Among the MSDs, back pain and muscular pain in the upper limbs appear more common than muscular pain in the lower limbs. In fact, according to data from the EWCTS-2021, the most common health issue was upper limb pain — reported by 57% of the surveyed workers (Eurofound, 2022b). Back pain ranked in second place with 54%, followed by headaches (51%) and pain in the lower limbs (35%).

According to data from the LFS, in 2020 **11% of all employees of ages 15-64 working in the HeSCare sector reported experiencing a work-related health problem** (EU-OSHA, 2024). Based on this score, it is the sector with the second highest share of workers reporting work-related health issues, with the agriculture, forestry and fishing sector ranking first (12%) and the education sector and the transportation and storage sector taking up a joint third place (10%). For the HeSCare sector, however, the high prevalence of MSDs stands out (EU-OSHA, 2024). Among those reporting work-related health problems, 56% indicate having an MSD, while 24% report dealing with stress, depression or anxiety. For other work-related health problems, such as headaches and eyestrain, infectious diseases and breathing or lung issues, in each case around 5% of workers with health issues states encountering such concerns. These results are corroborated by the OSH Pulse 2022 survey, which highlights that 35% of the HeSCare workers indicated having bone, joint or muscle problems or pain caused by or made worse by work in the past year, compared to 30% where the average across all sectors is concerned (EU-OSHA, 2024).

Socio-demographic factors, including gender, age and education level, influence MSD prevalence, with the prevalence of MSDs being highest among older workers (55+) and individuals with lower educational backgrounds (EU-OSHA, 2011). In addition, women and migrant workers — who are overrepresented in the HeSCare sector and tend to take up jobs with higher physical strain, more repetitive tasks and so on — face a notably higher risk of MSDs (Social Europe, 2024). This is also evident in the EWCTS-2021 data, where 68% of women workers in the HeSCare sector reported having had muscular pains in the shoulders, neck and/or upper limbs in the past 12 months compared to 52% among men, 62% of women reported having back pain versus 54% of men, and 41% of women reported having muscular pain in the lower limbs compared to 33% of men (see EU-OSHA, 2024). Compared to the average EU worker, workers in the HeSCare sector are thus more likely to be working with MSDs. A considerable share of the HeSCare workers suffered or have suffered from MSDs, which is an important factor to account for.

A study examined the **relationship between occupational groups, psychosocial working conditions and the likelihood of receiving a disability pension due to MSDs** (Ropponen et al., 2013). Using data from 24,543 Swedish twins over a 12-year follow-up, researchers found that 7% of participants were granted a disability pension. Workers in several sectors, such as healthcare and social work, had a two to three times higher risk of receiving a disability pension compared to those in administration and management. Lower job demands, greater job control and increased social support significantly reduced the need for disability pension. The results suggest that both sector-specific occupational risks and psychosocial working conditions are independent predictors of disability pensions due to MSDs, highlighting the need for targeted preventive measures.

Some studies stipulate that prior to the COVID-19 pandemic, the **rate of self-reported MSDs had been declining**, but more recent data suggest that this **trend has since reversed**, especially among frontline workers, including those in the HeSCare sector (RAND Europe, 2023). The pandemic brought about sudden and widespread changes to work practices at individual, organisational and national levels in efforts to limit the spread of infection. Such adjustments in work environments may have influenced workers' exposure to known MSK risk factors, for example, as workers were facing increased demands, longer working hours and having to work in adapted workstations. This growing exposure to MSK risk factors is particularly problematic for those workers who were already dealing with (pre-existing) MSDs, injuries and pain. The long-term implications of the pandemic on MSK risks, however, are still being assessed.

MSDs present significant personal risks to workers, as they can result in loss of work ability, increased sickness absence and permanent disability. According to the EWCTS-2021, 23% of workers reported being physically exhausted, while 13% indicated being physically and emotionally exhausted (Eurofound, 2022b). Furthermore, 20% of workers reported having a chronic illness. These data show that working with an injury or while in pain is a reality for millions of workers across the EU.

Based on these insights, it is clear that many workers — **and especially women** — in HeSCare are working with MSDs or dealing with back pain or pain in the upper or lower limbs. As also confirmed in the interviews, in the HeSCare sector, such workers face significant physical demands while executing their jobs, especially when working in home care settings. Studies show that heavy physical work increases the chances of developing chronic knee and back pain, taking more sick days and needing disability benefits. The more demanding the tasks, the higher the risks. For those who already have MSDs, recovery is harder if their work continues to be very physically demanding (Anderssen et al., 2013). MSDs have also been associated with negative health outcomes, including sleep disorders (Hämmig, 2020).

In addition, and as also underscored in the stakeholder workshop organised as part of this project (see section 1.4), it must be acknowledged that most of the MSDs that workers are reporting are acute, and efforts should be made to avoid such acute MSDs becoming chronic. Chronic MSDs have a profound impact on both the worker and the organisation, for example, in terms of absenteeism, presenteeism, turnover and performance.

Despite these important challenges, with the right adjustments, equipment and support, workers in the HeSCare sector suffering from (chronic) MSDs could still work. In general, being at work, even when confronted with health issues, helps to promote workers' physical and mental health and their wellbeing. A recent EU-OSHA (2021d) study on working with chronic MSDs lays out several steps for successfully managing chronic MSDs at work: (i) avoiding the need for individual accommodations by making the workplace environment and equipment as inclusive as possible (universal design); (ii) effective return-to-work planning; (iii) coordination between OSH and health and human resources/equal opportunities policies; (iv) a culture of worker consultation and good communication; and (v) training for managers and workers (EU-OSHA, 2021d). The report further underscores the importance of understanding the needs of workers with (chronic) MSDs, being aware of the risks and the problems that these workers face, and providing support to these workers to help manage their own health proactively.

Most of the academic literature, however, seems to discuss MSDs as an outcome, rather than working with MSDs as a risk as such. The discussion below should thus also be read with this in mind. Finally, in this regard, secondary and tertiary prevention are particularly relevant, but this is somewhat beyond the scope of the current report, which focuses on workers with MSDs.

2.11.2 Relevant factors influencing the risk of aggravating MSDs

- **Staff shortages and high workload**

The HeSCare sector is confronted with persistent **labour shortages**, which are expected to increase due to the ageing population, which pushes up the demand for workers in the sector (de Zwart et al., 1997). In the interviews, it was confirmed that many organisations in the HeSCare sector are currently dealing with understaffing. This issue is the result of a declining supply of workers providing care due to the **ageing of the HeSCare workforce**, the **high turnover in the sector, which is linked to the working conditions**, and the **low inflow of new workers** into the HeSCare sector, which is related to the changing preferences and expectations of workers (for example, an interviewee noted that workers demand better working conditions than in the past) (de Zwart et al., 1997). This decline is coupled with an increasing demand for care work and a *growing care burden* (EU-OSHA, 2020a). As the population of care recipients is growing older and lifestyle changes, the care needs are becoming more complicated (for example, due to widespread obesity, growing number of physical patients with a disability or multiple severe care needs) (Briggs et al., 2016). This, in itself, raises MSK risks as HeSCare workers already suffering or having suffered from MSDs have to handle heavier loads and more physical effort is required from them. While using appropriate handling techniques and the necessary equipment and mobilising the patient's own resources is crucial in such cases, workers may not always have the work ability, the knowledge, time or resources to do so — see section 2.3.

Such staff shortages, however, worsen the high workload of HeSCare workers already suffering from MSDs and may lead to these workers executing physically demanding tasks such as manual handling of patients without any support. This puts a high physical burden on HeSCare individual workers, and it raises MSK risks. Staff shortages may lead workers to take on tasks that they are not or inadequately trained for to fill in for a colleague, which could result in injuries and worsen pre-existing health issues, especially when such tasks have to be carried out at a fast pace (EU-OSHA, 2020c). When workers are under pressure to handle patients quickly, without the time to build up joint strength or use proper lifting techniques, the risk of injury or the risks of having MSD-related problems aggravated increases, as also confirmed by the interviews. In addition, although long working hours are common in the HeSCare sector, staff shortages likely result in a further extension of the working day and in a longer exposure to MSK risk factors and physical exhaustion (EU-OSHA, 2020c). For those who are working with MSDs or while in pain, this can be very problematic, as it further reduces time to rest and recover. Related to this, it increases the chances of acute MSDs becoming chronic. Moreover, in such situations of staff shortages, HeSCare organisations have less possibilities to propose accommodations or adaptations to their workers working with (chronic) MSDs, which in turn further aggravates the issue.

An interviewee from the INRS noted that labour shortages are not always managed very well. In France, for example, the HeSCare sector seems to have lowered the educational standards especially for nurses, which results in poorer quality care and raises the risk of MSDs.

- **Organisational and psychosocial risks**

The prevalence of MSDs among HeSCare workers is closely tied to the physical work demands, as described above, but it is also significantly influenced by psychosocial *and* organisational factors such as high job demands, low control, irregular work schedules and inadequate support. Such factors seem to come into play especially where lower back pain and back injuries are concerned (EU-OSHA, 2020c). On the other hand, a supporting psychosocial work environment can help in the process of recovering from an MSD or help in simply continuing to work with an MSD.

Psychosocial risks, such as precarious working conditions, could have a detrimental impact especially on workers already suffering from MSDs. Many HeSCare workers face job and income insecurity, unpredictable schedules (in terms of length, rotating and irregular shifts) (EU-OSHA, 2023), limited training opportunities and poor career options. Low-skilled women and migrant workers are especially vulnerable, as they often lack awareness of their rights. Effort–reward imbalances, overcommitment and low recognition for work also contribute to MSD risks. These issues apply to all HeSCare workers and contribute to MSDs, and thus warrant special attention for workers with MSDs as such factors can aggravate existing problems — see section 2.10 ‘Psychosocial risks (focus on violence and harassment)’.

Similarly, the scientific literature has identified several organisational factors that contribute to MSDs in the HeSCare sector, and which could once again worsen especially the situation of workers already suffering from MSDs. Organisational issues, including poor communication, limited cooperation and a lack of autonomy over the pace of work and the work processes, further exacerbate stress and physical demands (EU-OSHA, 2014, 2022). Social capital, defined by trust and cooperation among colleagues, is crucial in mitigating risks but is often lacking in HeSCare settings. Several studies reveal that weak social capital correlates with higher incidences of upper body MSDs and back injuries (Andersen et al., 2019; Herin et al., 2011; Eriksen et al., 2004). These deficiencies also increase the risk of third-party violence and hinder the use of assistive devices, contributing to unsafe practices and heightened physical workloads. Organisational changes, such as downsizing, further increase physical workloads, contribute to staff shortages and lead to greater incidences of MSDs, particularly among women and lower-income workers (Kivimäki et al., 2001).

2.11.3 Subsectors and (specific) workers at risk

Although more workers in the HeSCare sector report having an MSD — (lower) back pain, muscular pain in the upper limbs and muscular pain in the lower limbs — than workers in other sectors, across HeSCare subsectors the differences appear more limited (EU-OSHA, 2024). The EWCTS-2021 data show that 61% of workers in healthcare and 60% of workers in residential care experienced having back pain in the last year, compared to 56% of workers in the social work sector. In addition, looking at pain in the upper limbs, workers in healthcare record the highest prevalence (69% versus 66% in residential care and 64% in social work). Forty-one per cent of workers in both the residential care and social work subsectors indicate pain in the lower limbs, compared to 37% of workers in healthcare. These insights

are important to keep in mind as they show that MSDs are not distributed equally across the subsectors within the HeSCare sector, which implies that the risks that workers face in seeing an acute MSD become chronic may also differ.

Table 5: Percentage of HeSCare sector workers reporting health problems over the last 12 months, by subsector, EU-27, 2021 (% indicating yes)

	Backache	Upper limbs	Lower limbs
Healthcare	61	69	37
Residential care	60	66	41
Social work	56	64	41
Total HeSCare sector	60	64	39

Source: TNO based on EWCTS-2021
Base: All HeSCare workers in the EU-27

Several studies have pointed to the **high risk of developing MSDs faced by workers in home care**, as this group of workers is least likely to have had sufficient training to perform their work, may lack the necessary equipment, and is often providing care in an ill-adapted environment (for example, small spaces, poor lighting) (EU-OSHA, 2014). More generally, as also explained for other risks, a lack of training and education, the absence of formal routines and the lack of appropriate equipment all contribute to a rising number of MSDs in the HeSCare sector (EU-OSHA, 2014). A 2020 study by Eurofound shows that the nature of the work carried out in residential and non-residential care raises MSK risks. Although these issues apply to all HeSCare workers, they are particularly problematic for HeSCare workers already suffering from MSDs, as in their case workplace accommodations are even more relevant.

Some socio-demographic groups reported higher levels of MSDs than others. In HeSCare, especially **women, migrants and older workers indicate a higher prevalence of (lower) back pain and pain in the upper and lower limbs** (Social Europe, 2024; EU-OSHA, 2020c). There are several reasons as to why this is the case, as is further explained below. It is important to keep these findings in mind, as this means that these socio-demographic groups are likely overrepresented among the HeSCare workers who are already suffering from MSDs.

In healthcare and long-term care, for example, orderlies and nurses face the highest risk of back injuries because the manual handling of patients is part of their core activities (EU-OSHA, 2020c). Similarly, the HeSCare professions involve a lot of repetitive movements (for example, workers who are involved in patient handling or transfer), working in awkward positions (for example, nurses, physical therapists, dentists), or working in small or restricted areas (for example, dentists, surgeons, laboratory workers — see section 2.7) (Andersen et al., 2019). Several of these professions, especially when it comes to professions for which lower levels of education or specialisation are required, are often taken up by women and migrant workers. Migrants, in particular, often find themselves working in organisations with staff shortages. In general, several studies confirm that MSDs are particularly problematic among nurses in HeSCare, irrespective of whether they work in the healthcare, residential care or social work subsectors (Clari et al., 2021). At the same time, studies have pointed to a gender bias in terms of the OSH measures adopted, as well as to the fact that workstations, tools and equipment are often designed with the male body in mind (EU-OSHA, 2011).

When it comes to **women workers**, literature points to the double care role that many women take up, especially those with (young) children or ageing parents or other family members. In such cases, workers are exposed to a higher overall physical and psychological burden, which can lead to health issues such as MSDs, or contribute to making acute MSDs chronic and exacerbating the problem (EU-OSHA, 2011; de Zwart et al., 1997).

2.11.4 Practice and guidance identified on how to prevent aggravating MSDs

Most of the studies that were identified that discussed working with MSDs and working while injured or hurt provided practice and guidance on how to prevent MSDs altogether. As indicated above, this relates to the logic that is also visible in the literature in which MSDs are treated as an outcome rather than as a risk as such. Following a previous study by EU-OSHA (2021d), key interventions can be grouped as follows:

- **Technical interventions**

Examples of key interventions are the availability and use of required equipment and assistive devices. Adjustable equipment is crucial in preventing awkward postures, while assistive devices such as ceiling lifts, sliding sheets or boards, or adjustable beds are designed to help patients shift positions while reducing the physical strain on workers. Research has consistently shown that these devices effectively lower the risk of low back strain during patient handling. Despite this evidence, assistive devices are often underused due to time constraints, lack of awareness, insufficient training, staffing shortages, inadequate policies, equipment unavailability, room congestion and limited management support. This should be considered when adopting such measures. In addition, it is of vital importance that when such technical interventions are adopted, these consider the specific situation and challenges of workers with chronic MSDs too. Such interventions could help to ensure that workers with chronic MSDs can continue working and that their condition is not worsened.

- **Organisational interventions**

Examples of organisational interventions are limiting the time HeSCare workers are exposed to physically demanding tasks, fostering a healthy work–life balance, and carefully planning work schedules to account for peak hours, task allocation and patient needs. An effective work organisation based on participatory approaches is key to managing high workloads and mitigating the challenges posed by irregular work schedules in the sector. Alternating between different activities and providing comprehensive staff training are also effective. Also in this case, organisational interventions should account for the specific situation of workers who are already dealing with pain and MSDs, in order to make sure that there are adaptations/accommodations to help them continue working. An example of an organisational intervention is provided in Box 43.

- **Work environment and design**

When it comes to the work environment and design, examples for the HeSCare sector entail creating ergonomically designed workplaces, incorporating features such as universal accessibility, appropriate floor surfaces and sufficient lighting for handling tasks. Ample space should be provided for patient handling and transfers, along with adequate storage facilities that consider volume and height. A worker's working posture is influenced by the dimensions of their body and the layout of the workstation. Ideally, workstation dimensions should be adjustable to promote an optimal posture. To achieve this, machinery, equipment and workstations must align with both the worker's physical dimensions and the demands of the tasks. Poorly designed space often forces workers into awkward, uncomfortable positions to complete their duties. Once again, this is particularly relevant for workers who are already dealing with MSDs. Adaptations to the work environment and design should keep this target group in mind — see section 2.6. **'Poorly designed care environments and inadequate tools/equipment: the importance of ergonomic design and workplace layout in the HeSCare sector'**.

- **Person-oriented interventions**

Examples are training, education, and exercises on aspects such as varying postures and tasks, effective working methods, workstation adjustments, proper use of equipment, and safe manual handling techniques, including patient lifting and handling strategies. Training of workers can be effective if it is embedded in a comprehensive prevention approach. For workers with chronic MSDs, this would refer to adapted training that accounts for their needs and challenges (see section 2.8 'Inadequate training'). Another example is provided in Box 44, which presents conversation starters that help to raise awareness among workers about this issue. In addition, see Box 42 on the importance of training on appropriate tool use and relearning basic movements under the ALM programme.

2.11.5 Workplace interventions/good practices

The following boxes provide a number of practical workplace interventions and good practices that have been identified that address working with MSDs or while dealing with (lower) back pain, pain in the upper and lower limbs in the HeSCare sector. Examples of specific interventions targeting workers with chronic MSDs can be found in a recent EU-OSHA (2021d) study. Also in that study, a lot of the examples that are listed seem to address the prevention of MSDs altogether. The overview below should be read with this issue in mind.

Box 42: La démarche ALM: Accompagner La Mobilité (The ALM initiative: supporting mobility) (FR)

The ALM approach is based on a training programme called 'Le soin de manutention' (Maintenance care) developed at the Paris Saint-Joseph Hospital. This method entails relearning basic movements. With this method, healthcare workers only assist with the movements that the person is unable to do. Currently, workers often lift the person entirely and perform all the movements for them. This method also allows the patient to have more autonomy and dignity, while workers avoid injuring themselves by lifting or pushing unnecessarily. Another issue that the ALM approach addresses is that nurses are often taught how to use a tool, but they do not know exactly when to use it and for which movement. In healthcare, it is not just about using the tool but understanding why it is necessary and choosing the right one for the specific task. The appropriate use of this tool could have a major impact on the MSK health of younger and older workers in the HeSCare sector, which could help support workers dealing with situations where they are exposed to MSK risk factors in the long run. In that regard, since the ALM programme was developed to be able to retain workers to stay at work, it helps workers already suffering from MSDs as well.

For more information on the ALM approach, please see: https://osha.europa.eu/en/publications/alm-approach-preventing-musculoskeletal-risks-during-patient-handling-and-transfer

Source: https://www.inrs.fr/media.html?refINRS=ED%206415 and based on input from interview with INRS

Box 43: Task changes for a podiatrist with neck problems

This case analysis is part of a larger project on working with chronic MSDs that includes a review with guidance and examples and articles. Out of the eight cases that are listed of people who either have returned to work or stayed at work with a chronic MSD, the case of the podiatrist with neck problems is particularly interesting as it concerns the HeSCare sector. As described in the case, the worker is a podiatrist working in a large HeSCare organisation. After being diagnosed with an MSD, the worker informed her colleagues and line manager, who take on an advising and supporting role, and she is working with a physiotherapist to learn how to improve patient handling. The case study also mentions that it was quite straightforward to introduce workplace accommodations for the computer tasks that the worker is carrying out, while other workplace changes proved to be more difficult to implement. In addition, the worker did experience some modifications in the tasks assigned to her.

Source: https://osha.europa.eu/sites/default/files/Analysis_case_studies_chronic_MSDs_EN.pdf

Box 44: Conversation starters for workplace discussions about MSDs

Conversation starter scenarios are a resource to facilitate group discussions in the workplace or during vocational training. These conversation starters include scenarios that have been designed for use with workers who are involved in tasks that have the potential to cause MSDs and their managers and supervisors, and scenarios that have been designed to support the need for prompt and effective communication between a worker and their manager about an MSK health problem. These scenarios can be used as a starting point to initiate a discussion, with suggested topics and introductory questions. They can be used in a discussion-style workshop or as an opener to a training session. Through discussion, workers, managers and supervisors should recognise the importance of early symptom reporting in reducing the risk of workers developing MSDs and in supporting sustainable working lives. While not specific to the HeSCare sector, this tool could be very relevant for it, in light of the high share of workers who already suffer from MSDs in the sector.

Source: https://osha.europa.eu/sites/default/files/Conversation_starters.pdf

2.11.6 Recommendations for prevention

When it comes to prevention, the following points could be considered in light of working with MSDs, working while injured or in pain:

- Risk assessments should pay more attention to workers with pre-existing issues or who are working while injured or in pain, including from an age and gender perspective, as this could help with bringing any issue particular to this group to light and ensure that these are considered in the risk management. Risk assessment can be used to determine both collective measures and additional measures for individuals at additional risk (like workers already suffering from MSDs).
- **Early intervention for an MSK condition, both medically and in the workplace, is very important.** The earlier an MSK problem is managed the less will be the impact on the person and their work. 'Early intervention means taking measures — such as providing professional support, ensuring rapid referral and diagnosis, and adjusting the work environment — as soon as symptoms appear. This significantly lowers the worker's chance of experiencing long-term absence from work. It also means taking measures as soon as possible to remedy the cause of work-related problems' (EU-OSHA, 2021d).
- **Measures to prevent and address physical strain**, which account for the individual worker (for example, physical strength), the task at hand (for example, level of physical exertion), the organisation (for example, hospital or home care setting, staff shortages), and the patient (for example, age, care needs). Work and the work environment should be designed with this in mind, for example by ensuring that the necessary equipment is at hand, with ergonomic workplace design.
- **Consider the combination of high physical and psychosocial job demands in HeSCare**, which affect some groups of workers more than others. It is the combination of these that is particularly detrimental for workers' health, which should not be overlooked. Organisational measures are thus key (for example, work organisation in terms of working hours).
- **Ensure access to occupational health services and healthcare.** Healthcare should be part of a multidisciplinary approach to continuing to work. A healthcare team should also support the patient to remain in work as a goal for their treatments and the individual should discuss staying in work or returning to work with them as part of their treatment.
- **Adaptations and accommodations for workers** should account for the challenges facing workers with MSDs, as this likely is a growing problem due to the ageing of the HeSCare workforce.
- **Worker participation is essential** in ensuring that existing MSDs are not further aggravated and in ensuring that workers are supported and can take an active role in their own recovery, rehabilitation and reintegration, as workers are best positioned to identify MSK risk factors, as well as factors worsening chronic MSDs, and propose solutions. The insights and experiences of workers performing the tasks are invaluable for understanding how the work impacts them and implementing effective measures.
- **Promote workplaces where individuals feel that they can voice their concerns**, and ensure that they experience high levels of support from managers and colleagues who are more likely to make supportive adaptations.
- **A no-blame culture should be established** to ensure that workers, their representatives and management within HeSCare organisations can discuss issues relating to working with MSDs, while injured or in pain without prejudice.

3. Conclusions and policy pointers

3.1 Main conclusions from the research

Overall conclusions

To understand the development of MSDs in the HeSCare sector, a **cause-effect model has been used that accounts for various interacting factors**. This model helps assess the impact of interventions and highlights prevention as a key starting point, focusing on workplace risk assessment. It considers psychosocial (e.g. stress), physical (e.g. manual handling), organisational (e.g. workload) and individual risk factors. The model also helps identify and analyse key MSK risks and MSD outcomes, showing how these factors interact within the broader context of workforce shortages, reliance on migrant workers, financial constraints and the sector's limited appeal, all of which contribute to the prevalence of MSDs in HeSCare. This model is presented in Figure 1 on page 18 of this report.

MSDs are widespread in the HeSCare sector, with workers facing significant risks due to the physically demanding nature of their roles. Factors such as **manual handling of patients, repetitive movements and prolonged awkward postures** are particularly prevalent, contributing to chronic pain and injuries in the back, neck, shoulders and upper limbs. These conditions are exacerbated by the **irregular schedules, high workloads and inadequate recovery periods** present in the sector. These findings reflect the physical-biomechanical dimension of the cause-effect model, which highlights how work-related physical strain leads to MSDs, particularly when rest and recovery are insufficient.

In addition to physical demands, **organisational and psychosocial factors play a critical role in the prevalence of MSK risks in the HeSCare sector**. **High workload, time pressure and insufficient staff** contribute to physical and mental strain. Workers' limited control over their schedules and work processes, coupled with inadequate organisational support, intensify the risks of developing MSDs, and correspond to the psychosocial and organisational dimensions of the model, on what contextual and systemic factors aggravate MSD risks. The imbalance between job demands and available resources not only increases the likelihood of MSDs but also hinders recovery and amplifies long-term health consequences.

Certain groups of workers within the HeSCare sector are disproportionately affected by MSK risks. Older workers and women, especially those balancing dual caregiving roles, are more vulnerable due to cumulative physical strain and socio-demographic factors (for example, age, gender, migrant status, education levels). Migrant workers and those in high-risk subsectors, such as home care and residential care, face elevated exposure to physically demanding tasks and inadequate ergonomic support, further increasing their susceptibility to MSDs. The cause-effect model shows how intersecting physical, organisational and psychosocial factors increase exposure to MSDs among particular groups of workers.

The **ageing population and increasing complexity of patient needs intensify physical demands on HeSCare workers**. External trends such as the privatisation of care services and budget constraints exacerbate the situation by leading to understaffing and fewer economic resources for ergonomic tools and training. The shift towards home- and community-based care introduces additional challenges, as workers often operate in environments ill-suited for safe patient handling, increasing their exposure to MSK risks. This reflects broader structural conditions incorporated in the organisational dimension of the cause-effect model, which highlights how policy and systemic factors shape exposure to risks.

Psychosocial stressors, such as emotional demands and high workloads, contribute to the development and persistence of MSDs. Conversely, workers with MSDs experience heightened stress and reduced capacity to manage job demands, creating a vicious cycle of deteriorating health and productivity. This two-way relationship — where psychosocial risks exacerbate physical conditions and vice versa — is a key insight of the cause-effect model and supports the need for integrated prevention approaches.

Addressing the high prevalence of MSDs in the HeSCare sector requires a **holistic approach that considers both physical and psychosocial factors**. In line with the model's multidimensional framework, effective prevention must go beyond ergonomics and include organisational reform and psychosocial support. Effective prevention strategies include improving ergonomic workplace design, providing adequate training, implementing task rotation and promoting a supportive organisational

culture. Recognising and accommodating the needs of vulnerable worker groups, such as older workers and women, is essential for reducing MSK risks and fostering a sustainable workforce in the sector.

High workload and organisation of working time

HeSCare workers, especially in the healthcare sector, face the significant risk of developing MSDs due to a combination of **staff shortages, high workloads, time pressure and physically demanding tasks**. The ageing population and underfunded healthcare systems exacerbate these challenges, leading to increased pressure on existing staff, who often work longer hours, take on additional duties and lack adequate rest. This high workload increases physical and mental strain, resulting in a higher likelihood of MSDs. Studies have shown that tasks performed under time pressure, with fewer breaks and at an accelerated pace all contribute to higher physical workload and higher MSD incidence. These findings clearly correspond to the physical-biomechanical dimension of the cause-effect model presented earlier, demonstrating how work-related physical loads directly contribute to the development and aggravation of MSDs.

Beyond these physical and psychosocial elements, **the way work is organised — that is, the broader organisational context — plays a crucial and often underexamined role in the development and aggravation of MSDs**. The organisation of working time, particularly working irregular shifts and night work, significantly contributes to the development of MSDs among HeSCare workers. Shift work, including nights and weekends, disrupts workers' natural sleep cycles, leading to fatigue, decreased performance and a higher risk of injuries. Healthcare workers in certain subsectors, such as nursing and residential care, are more exposed to these risks due to the 24/7 nature of care services. Prolonged working hours and irregular schedules leave little time for recovery, forcing workers to perform tasks while fatigued, which impacts their ability to use proper handling techniques and increases the risk of developing MSDs. This links closely to both the psychosocial and organisational dimensions of the cause-effect model, showing how work patterns and fatigue interact to elevate the risk of developing MSDs.

In this context, organisational risk factors such as **inadequate staffing levels, poor task distribution, lack of participatory management and unclear role boundaries** can all indirectly increase physical and psychosocial workloads, yet they are often overlooked in favour of a more physical-biomechanical focus. By highlighting these factors, the study explicitly addresses the need — identified in the research questions — to look beyond physical risks and account for systemic organisational contributors to MSDs, in line with the cause-effect model. This report aims to correct that imbalance by emphasising the multifactorial nature of MSK risks and the need for integrated prevention strategies.

The integration of **digital technologies** in the HeSCare sector, such as telemedicine, AI and electronic health records, has reshaped work processes but also contributed to heightened workloads. The use of digital devices has increased the pace of work, with many workers reporting that their work speed and intensity are dictated by these tools. This added pressure not only impacts physical health but also exacerbates mental stress, increasing the likelihood of the development of MSDs. Healthcare workers who regularly use digital devices are often required to meet tight deadlines and maintain a high level of surveillance, further intensifying their workload. This digital acceleration exemplifies how changes in work organisation — included within the organisational dimension of the cause-effect model — can indirectly increase physical-biomechanical and psychosocial strain, leading to heightened MSK risks.

Improving work organisation is a crucial strategy for reducing MSK risks. Participatory approaches, where HeSCare workers are actively involved in decision-making, are particularly effective in identifying challenges and implementing solutions. By allowing frontline workers to contribute ideas and collaborate on improving working conditions, organisations can create a more supportive and effective work environment. Examples from initiatives in Germany (see Box 7) and France (Box 5) show how involving healthcare workers in developing and executing improvements leads to better working conditions and a reduction in MSK risks and MSDs. This participatory approach also reflects the preventive strategies linked to all three dimensions of the cause-effect model — physical, psychosocial and organisational — and addresses the research question on how risks can be mitigated.

Focusing on the **QWL** is essential to address high workloads and irregular schedules. Integrating QWL initiatives into organisational practices, such as improving workplace relationships, career development opportunities and work–life balance, can significantly enhance staff wellbeing and reduce the physical and mental toll of healthcare work. The French approach to the QWL, which includes measures like time

management, change support and digital transition, has proven successful in improving staff retention and reducing absenteeism in HeSCare institutions.

Fostering open communication between all levels of an organisation is key to addressing MSK risks. Creating spaces for dialogue between staff, management and leadership ensures that workplace challenges are identified and solutions are collaboratively developed. The Dutch 'Approach to Organisational Climate' and similar initiatives in France show that when workers are actively involved in problem-solving, solutions are more effective and lead to a healthier, more cohesive work environment. These dialogues also help build a culture that prioritises worker safety, wellbeing and efficiency, ultimately reducing the risk of developing MSDs.

In sum, **MSDs are not only the result of physical-biomechanical stressors but are deeply embedded in organisational structures and practices**. The findings from this study, aligned with the cause-effect model, reinforce that a holistic, systems-based approach—integrating physical-biomechanical, psychosocial and organisational dimensions—is essential to understanding and addressing MSDs in the HeSCare sector.

Manual handling of patients

The manual handling of patients is a significant occupational risk for HeSCare workers, particularly in tasks that involve **lifting, repositioning and assisting patients with mobility issues**. This constant physical load on the workers' bodies, particularly on the lower back and shoulders, increases the likelihood of developing MSDs, especially lower back pain. Consequently, continuous engagement in MPH tasks places HeSCare workers at an elevated risk of developing MSDs, highlighting the need for comprehensive interventions aimed at mitigating these risks. This risk pathway aligns directly with the physical-biomechanical dimension of the cause-effect model, where MSK strain results from physically intensive tasks and poor ergonomics.

Certain subsectors and worker demographics face a higher exposure to MSK risks due to the physical demands of patient handling. **Workers in the residential care subsector are particularly exposed to these risks**, with many spending a significant portion of their time on physically demanding tasks such as lifting and moving patients. Additionally, older HeSCare workers and those already suffering from MSDs are at a greater risk of injury due to age-related physical decline, chronic health conditions and the cumulative effects of years of strenuous work. Special attention is needed to accommodate the physical limitations of these workers, particularly through ergonomic adjustments and targeted training programmes. These findings intersect with the psychosocial and organisational dimensions of the model — highlighting how worker characteristics (for example, age, health status) and structural factors (for example, training access, workplace adaptations) influence both risk exposure and recovery capacity.

The exposure to MSK risks for HeSCare workers is further **exacerbated by patient characteristics**. Obesity, which is becoming more prevalent in the EU, significantly increases the physical load on workers when handling patients. Furthermore, the ageing population leads to more patients requiring assistance, many of whom have complex health needs that demand more physically demanding care. These factors underscore the importance of adapting work practices and environments to account for the increasing weight and health complications of patients. The availability and proper use of assistive devices, such as ceiling lifts and sliding sheets, are crucial in reducing the physical strain on workers, though barriers such as time constraints and inadequate training must be addressed to ensure these devices are used effectively. For instance, in Spain, it was observed that 'minor aids' — simple and inexpensive tools that assist in handling patients — were not widely known in the sector. This issue was highlighted both during and after an awareness campaign, illustrating how a lack of awareness can hinder even the most basic preventive efforts.

The implementation of **SPHM programmes** is essential for preventing MSDs in the HeSCare sector. These programmes focus on safe lifting practices, ergonomic assessments, equipment availability and staff training. Research consistently supports the effectiveness of SPHM programmes in reducing injuries among patient care workers, with the benefits improving over time. However, for these approaches to succeed, it is essential to tailor communication and training strategies to different stakeholders — employers, workers and prevention services — and to time their dissemination effectively. These elements speak directly to the organisational dimension of the model, where institutional commitment, training systems and stakeholder coordination play a critical role in risk mitigation.

It is also important to recognise that improving patient handling practices is not only a technical or procedural adjustment but may require a **broader shift in the culture of prevention**. The ALM approach (see Box 35), for example, goes beyond tools and techniques by eliminating harmful manual handling and adapting the work to people. This method also transforms the patient–carer relationship by centring the care process on the patient's abilities, thereby promoting autonomy and reducing the strain on workers. Such approaches underscore the need to rethink manual handling practices in a way that benefits both patients and workers.

To effectively combat the growing demands in the sector, SPHM programmes should be widely implemented across healthcare settings, with a focus on early mobilisation of patients and proper use of assistive devices. Embedding these interventions within a framework that simultaneously addresses physical risks, organisational responsibilities and psychosocial stressors — as outlined in the cause-effect model — ensures a more durable and equitable approach. Integrating culture change, stakeholder-targeted communication and low-cost technical solutions — such as 'minor aids' — can reinforce these efforts and make them more sustainable.

Repetitive hand or arm movements

Repetitive motion disorders are particularly prevalent in healthcare settings, where **workers frequently perform repetitive tasks involving the hands, arms and upper body**. Professions such as nursing, surgery, dentistry and radiology are particularly at risk due to the frequency and intensity of these movements, which often occur in awkward or sustained postures. These risks are clearly situated within the physical-biomechanical dimension of the cause-effect model, which captures how repetitive strain, awkward postures and lack of recovery time contribute to the development of MSDs. Addressing this issue is crucial to reduce the high rates of MSDs in the HeSCare sector.

The risks associated with repetitive movements are compounded by several factors, including the **duration, frequency and force involved in the movements**. Repetitive tasks become more hazardous when they engage the same muscle groups over extended periods without sufficient recovery, leading to fatigue and muscle strain. Healthcare information technology, for instance, has introduced additional repetitive tasks, such as computer work and digital imaging, often performed in suboptimal postures, exacerbating the risk of upper extremity MSDs. The combination of repetitive movements with awkward postures or the application of excessive force significantly increases the likelihood of injury, especially when these conditions account for a substantial portion of workers' tasks. These risk-enhancing factors also interact with psychosocial and organisational dimensions: for example, high job demands, digitalisation and lack of control over work processes limit opportunities for recovery and adjustment, increasing the cumulative strain.

To reduce the risk of developing MSDs caused by repetitive movements, **primary prevention strategies must be prioritised**. Ergonomic interventions, such as designing workstations and tools to minimise strain, play a crucial role in preventing injuries. Training healthcare workers in proper body mechanics and the use of ergonomic tools can reduce the likelihood of strain and fatigue. These strategies align with the physical-biomechanical and psychosocial dimensions of the cause-effect model — where adequate knowledge, task awareness and bodily autonomy reduce exposure to harmful movements.

Interventions relating to the organisation of work, such as **allowing regular breaks and stretching exercises are also vital for maintaining muscle health and preventing overexertion**. Furthermore, task rotation, where workers are periodically assigned to different tasks to avoid prolonged exposure to repetitive motions, can help distribute physical demands more evenly across workers, thereby reducing the risk of cumulative trauma. Such organisational measures reflect the third dimension of the cause-effect model, demonstrating how changes to work design and scheduling can actively reduce risk exposure. However, when tasks involve particularly high risks, job redesign should take precedence over task rotation to ensure that the tasks themselves are safer. This reinforces the importance of structural and systemic changes — central to the organisational dimension — in achieving meaningful MSD prevention.

Working posture/working in awkward positions

Working posture plays a critical role in the development of MSDs, especially in the HeSCare sector where **workers are often required to perform tasks in static postures (sitting and standing) and**

in awkward or sustained postures. Prolonged or repetitive awkward postures, such as bending, twisting or raising arms above shoulder level, increase the risk of developing MSDs, including lower back pain, neck strain and shoulder discomfort. These positions are particularly common in professions like nursing, surgery, dentistry and physical therapy. The evidence indicates a strong link between the maintenance of these positions and the onset of MSDs, underscoring the need for targeted interventions to address this risk across various HeSCare occupations.

The risks associated with awkward postures are **disproportionately higher in certain subgroups within the HeSCare sector**. Nurses, surgeons and dental professionals are among the most vulnerable due to the physical demands of their tasks, which often involve repetitive motions, static postures, and prolonged periods of bending or twisting. Data confirm that healthcare and residential care workers are particularly exposed to these risks compared to other sectors. Moreover, the risks are further exacerbated for younger professionals in training, highlighting the importance of incorporating ergonomic education into professional training programmes. The sector's ageing workforce, particularly older women, may face additional challenges, as their bodies are more susceptible to the strain of repetitive, awkward postures over time. This reflects an intersection between physical risks and broader demographic characteristics and psychosocial risks highlighted in the model.

The **design of workstations and the adjustment of equipment** to suit the physical dimensions of workers are **crucial in reducing the need for awkward postures**. Simple modifications, such as raising beds to hip height or incorporating adjustable stools, can significantly improve posture and reduce strain. Furthermore, task design plays a critical role; ensuring that tasks are varied, allowing for posture changes and incorporating task rotation can help mitigate the risks associated with static, sustained postures. These types of ergonomic and design-based solutions correspond to the physical-biomechanical domain of the model, but they must be embedded within broader systemic practices. While ergonomics-focused solutions are key, they must be complemented by comprehensive organisational practices and training programmes that promote healthy working postures and educate workers on the risks related to poor posture. This integration of ergonomic design, training and organisational culture reflects the holistic prevention approach proposed in the model, where physical, psychosocial and structural interventions must work together.

Poorly designed care environments and inadequate tools/equipment: the importance of ergonomic design and workplace layout in the HeSCare sector

Ergonomics plays a vital role in maintaining the health and wellbeing of workers, particularly in high-risk sectors such as healthcare and home care. By proactively addressing both physical and psychosocial risk factors, **ergonomics enhances worker comfort, reduces the risk of developing MSDs and promotes overall job satisfaction**. Creating work environments that prioritise ergonomic principles not only benefits the health of workers but also improves the quality of care provided to patients, as well as efficiency of work, highlighting the importance of ergonomics in achieving both worker wellbeing and organisational goals.

MSK injuries in HeSCare are often the result of a combination of **physical exertion, repetitive tasks and inadequate workstation design**. For example, poor layout of workstations, especially in nursing environments, can force workers into uncomfortable postures, increasing the risk of injury. To effectively combat these issues, a multifaceted approach is necessary. Ergonomists should be involved in both the design and modification of work environments, offering solutions that reduce physical strain and improve worker and patient safety. These interventions should address key areas such as workstation design, task rotation and the proper placement of equipment, all while incorporating ergonomic tools and training to ensure long-term success.

Incorporating the **insights and experiences of workers is essential in identifying MSK risks and implementing practical solutions**. Empowering workers to participate in the identification and modification of ergonomic hazards fosters greater engagement and compliance with safety measures. Successful initiatives demonstrate the power of collective action, where management, staff and caregivers work together to improve working conditions. By engaging all stakeholders in the process of ergonomic improvements, organisations can not only reduce health risks but also enhance worker motivation, reduce turnover and improve overall care quality. This participatory approach ensures that

ergonomic changes are tailored to the unique needs of healthcare workers, fostering a safer, more productive work environment.

Proactively designing workspaces and adapting existing facilities to meet ergonomic standards can have substantial benefits. From reducing physical strain to enhancing workflow efficiency, well-designed workstations and environments lead to improved productivity and lower rates of absenteeism. For example, the use of ergonomic equipment, such as trolleys and adjustable furniture, along with the optimisation of space layouts can significantly reduce the risk of developing MSDs. Moreover, workplace adaptations not only enhance care delivery but also create a virtuous cycle in which improved working conditions lead to better organisational performance and worker satisfaction, ultimately benefiting both workers, patients and HeSCare organisations.

Despite the clear benefits of ergonomics, **many HeSCare workers still lack a comprehensive understanding of ergonomic principles**. Education and training are critical to ensuring that workers adopt safe practices in their daily routines. By providing ergonomic training and raising awareness about the MSK risk factors, healthcare organisations can empower their staff to implement preventive measures effectively. Integrating ergonomic practices into daily operations, such as using handling aids and adjusting workstations based on specific activities, can help mitigate the physical demands of patient care and other tasks. Furthermore, organisations should invest in continuous training programmes to foster a culture of safety and wellbeing.

While initial investments in ergonomic workplace adaptations can be costly, the long-term benefits far outweigh these costs. **Improved working conditions lead to reduced injury rates, lower absenteeism and enhanced staff retention**, which in turn contribute to higher-quality care and greater operational efficiency. Additionally, by optimising the use of resources, ergonomic changes can help healthcare facilities become more sustainable, improving both the quality of life for workers and the quality of care for patients. Thus, integrating ergonomic principles into healthcare systems is not only a matter of worker health but also an essential factor in achieving better patient outcomes and organisational success.

Inadequate training

A clear **link exists between the lack of proper training and the increased risk of developing MSDs in the HeSCare sector**. Workers who are not adequately trained are more likely to adopt poor postures, perform repetitive movements, and handle patients or equipment incorrectly, increasing their exposure to physical strain and injury. Training deficiencies also hinder workers' ability to identify ergonomic risks and understand how to use handling aids effectively. Therefore, insufficient training is a critical factor contributing to the high prevalence of MSDs, which highlights the urgent need for comprehensive occupational training initiatives aimed at improving workers' awareness and skills in ergonomic practices. These risks fall squarely within the physical-biomechanical dimension of the cause-effect model but are significantly shaped by organisational conditions such as training provision, work design and OSH management culture. It is also essential that there is a suitable work environment/organisation of work in place so that workers are in a position to carry out their work taking into account what they learnt. This need for alignment between individual training and organisational context reflects the interaction between different dimensions of the model.

One-size-fits-all approaches to training in the HeSCare sector are inadequate in addressing the complexities of MSD prevention. Evidence suggests that manual handling training alone is insufficient to prevent back pain and injuries. Instead, training should be part of a multidimensional package that incorporates physical strength and flexibility training, ergonomic awareness and a deep understanding of the sector's specific demands. Moreover, basic training provided during education or on the job often lacks the depth and contextual relevance needed to make a meaningful impact. This underscores the importance of tailoring training not only to the biomechanical risks but also to organisational practices and the psychosocial context in which care is delivered — highlighting the multifactorial nature of MSDs as defined by the cause-effect model. Tailored, sector-specific and long-term training programmes, like those developed by the BGW Ergo-Coach programme[20] in Germany and the Finnish Ergonomic Patient

[20] For more information, please see: https://osha.europa.eu/en/publications/establishing-ergonomic-and-back-friendly-working-practices-organisations-bgw-ergo-coach-programme

Handling Card® programme,[21] have proven more effective in equipping workers with the skills needed to safely handle patients and reduce MSK risks.

Digital platforms and interactive tools present a promising avenue for improving training access, particularly for dispersed workforces in home care settings. The 'Prevention at Home' tool in France exemplifies how online resources can be used to offer tailored training to different profiles within the sector, including care workers and coordinators. These digital tools make learning more engaging and accessible by using realistic scenarios, interactive quizzes and multimedia resources that help workers understand and apply preventive measures in real-life situations. By making training flexible and accessible, digital tools can overcome geographical and time barriers, enabling a broader range of workers to benefit from effective MSD prevention training.

MSD prevention requires a **holistic approach that addresses both physical and psychosocial factors affecting workers**. Multidisciplinary training models, such as the interdisciplinary MPH programme in Italy that integrates occupational health, physical therapy and psychosocial strategies, are more likely to reduce MSK risks. This approach acknowledges the interconnectedness of physical and mental health in the workplace, providing workers with comprehensive tools to manage stress, fatigue and ergonomic challenges. This reflects the cause-effect model's core premise: that effective MSD prevention requires an integration of all three risk dimensions —physical, psychosocial and organisational— to interrupt the cycle of strain, injury and poor recovery. The integration of multimedia learning methods, like the INRS video series in France (see Box 10), further enhances training effectiveness by combining theoretical knowledge with practical, visual instruction.

For MSD prevention to be effective in the long term, **organisational commitment and ongoing support** are crucial. Establishments must ensure that training programmes are not only implemented but also sustained through continuous support, including management involvement and the availability of ergonomic equipment. Programmes like the BGW Ergo-Coach[22] in Germany highlight the importance of leadership involvement in ensuring the long-term success of MSD prevention initiatives. Additionally, the case of the Ergonomic Patient Handling Card® in Finland[23] illustrates how a well-designed training programme can achieve widespread and sustained uptake when it addresses a clear need in the workforce. Since its introduction in 2010, thousands of healthcare professionals and students in Finland have participated annually, reflecting ongoing relevance and value. A key factor in the programme's success is its extensive training infrastructure. With hundreds of certified trainers active in educational institutions, workplaces and private settings, the model ensures accessibility and flexibility. This decentralised approach supports broad engagement and fosters a culture of safe working practices. Importantly, the initiative has also attracted interest beyond national borders. Inquiries from countries such as Spain and Sweden point to the potential for wider adoption across the EU, suggesting that the programme addresses a shared need in the healthcare sector.

Furthermore, ensuring that training is tailored to the specific context of each institution, including its culture, work shifts and the psychosocial and physical needs of its workers, is essential for maximising the impact of the training.

Lack of workplace age management strategies/policies (ageing workforce)

Long-term exposure to MSK risk factors in the HeSCare sector is a critical issue that **not only affects workers' physical and mental health but also has broader implications for workplace productivity and organisational efficiency**. Increased exposure to both physical and psychosocial risks can lead to a decline in overall health, including chronic ailments, decreased psychological wellbeing and functional limitations. This, in turn, results in higher rates of workplace accidents, absenteeism and presenteeism. Addressing these risks is essential to ensure the long-term sustainability of the sector and maintain a healthy, effective workforce.

The physical demands of HeSCare work, such as lifting and transferring patients, repetitive movements, and prolonged standing or sitting are significant contributors to the development of MSDs. **Over time,**

[21] For more information, please see: https://osha.europa.eu/en/publications/ergonomic-patient-handling-cardr-promoting-good-working-practices-healthcare-sector

[22] For more information, please see: https://osha.europa.eu/en/publications/establishing-ergonomic-and-back-friendly-working-practices-organisations-bgw-ergo-coach-programme

[23] For more information, please: https://osha.europa.eu/en/publications/ergonomic-patient-handling-cardr-promoting-good-working-practices-healthcare-sector

these physical stresses can lead to fatigue, MSK strain and chronic health issues, particularly for workers in physically demanding roles like nursing and home care. The sector's challenges are compounded by the ageing workforce, with older workers experiencing a greater risk of developing MSDs due to a natural decline in physical capacity. The cumulative impact of years of physical exertion makes it more difficult for ageing workers to perform demanding tasks, exacerbating the strain on the sector and increasing the likelihood of workers leaving the profession. This highlights the importance of integrating long-term, life course-sensitive measures within both the physical and organisational domains of the model.

The ageing workforce in the HeSCare sector poses unique challenges, particularly as **workers over the age of 50 are more likely to develop or have developed MSDs**. The decline in physical capacity, combined with the cumulative effect of years of exposure to physical strain, makes it essential to implement targeted strategies for older workers. Additionally, extending working lives, as proposed by some EU policies, may prolong workers' exposure to MSK risks, potentially worsening health outcomes for older workers. Special attention should be given to this group of workers, including providing accommodations for their physical limitations and ensuring that working conditions are adjusted to support their continued wellbeing.

Effective age-sensitive prevention strategies must address both physical and psychosocial risk factors, ensuring that all aspects of workers' health are considered, while adopting a life course perspective and contributing to the sustainability of work in the HeSCare sector. This includes improving the work organisation, promoting task rotation, providing adequate training and using assistive equipment to reduce physical strain. It is also essential to recognise the specific needs of older workers, particularly women, by implementing age- and gender-sensitive measures that address the unique challenges they face, and by accounting for other elements of workforce diversity more explicitly. By creating a healthier, more supportive work environment, the sector can better retain a diverse and capable workforce, ensuring that the increasing demand for care services can be met without compromising workers' health.

Psychosocial risks (focus on violence and harassment)

Psychosocial risks at work refer to those 'factors linked to the way work is designed, organised and managed, as well as to the economic and social context of work'. Psychosocial risks can lead or contribute to the onset of MSDs. Moreover, psychosocial risks are found to not just cause MSDs but also to contribute to their chronic nature. For example, workers who are faced with a lack of control over tasks, the organisation of work, the speed of work and so on or with a lack of social support might take risks (for example, by not using required personal protective equipment, or not following procedures) and might take on more work (for example, by not taking breaks, carrying higher physical loads), in that way aggravating MSK risk factors and worsening already existing acute MSD problems. Additionally, having a chronic MSD can contribute to the development or worsening of mental health issues like depression, anxiety and stress, complicating the return to work and affecting workers' wellbeing. These two-way interactions between physical and psychological strain reinforce the multifactorial nature of MSDs as outlined in the model.

For HeSCare workers, the main psychosocial risks that they are exposed to are violence and harassment, dealing with difficult patients or clients, discrimination, and high workload and time pressure. In fact, the HeSCare sector has the **highest reported exposure to violence and harassment across all sectors in the EU**. These incidents, often stemming from frustration, pain or anxiety among patients and their relatives, have profound and long-lasting effects on workers. The physical and psychological harm caused can include fear, anger, insecurity, post-traumatic stress disorder and depression. Such adverse social behaviour also exacerbates organisational issues, including increased absenteeism, higher turnover and reduced productivity. This highlights the organisational consequences of unaddressed psychosocial risks, linking individual wellbeing to broader systemic outcomes within the model. The sector's already precarious conditions, worsened by privatisation and budget cuts, further compound the challenges faced by workers.

Violence and harassment in HeSCare are closely linked to broader **psychosocial risks**, such as high workload, time pressure and emotional demands. Workers are often required to manage emotionally taxing situations, including severe illnesses and difficult patient interactions, with minimal organisational resources. Limited autonomy, poor communication and a lack of support exacerbate these risks, leaving

workers more vulnerable to adverse social behaviour. This imbalance between job stressors and resources undermines worker wellbeing and heightens the risk of violence and harassment. Certain groups of HeSCare workers are disproportionately affected. **Women, migrant workers, and frontline professionals like nurses, emergency care staff and home care workers face higher exposure due to their roles and demographic characteristics**. Specific settings, such as home- and community-based care, pose unique risks due to isolated working conditions, lack of immediate support, and increased interactions with potentially volatile patients or family members.

The **COVID-19 pandemic significantly heightened violence and harassment against HeSCare workers**, particularly those on the front lines. Increased public frustration, coupled with workers' enforcement of pandemic measures, led to escalated incidents of verbal and physical aggression.

Effective prevention of violence and harassment requires a **comprehensive approach, prioritising management commitment and worker participation**. Risk assessments must incorporate all forms of violence and harassment, including emerging risks like cyberbullying and tailor interventions to specific workplace conditions. Training programmes are critical but should focus on broad skill development rather than narrowly addressing workplace violence. Post-incident reporting, debriefing and monitoring mechanisms are essential to track trends and provide support while avoiding victim-blaming or normalisation of such incidents.

Working with MSDs (back pain, pain in the upper and lower limbs)

Data consistently show that a **substantial proportion of HeSCare workers report dealing with back pain or pain in the upper or lower limbs**, indicating a widespread challenge within the sector. For many workers, this means enduring pain or injury while continuing to perform physically demanding tasks, which exacerbates their condition and contributes to long-term health issues.

Working with MSDs can significantly impede workers' ability to perform their duties effectively. The physical demands of the HeSCare sector, especially in roles that require patient handling and other strenuous tasks, exacerbate these conditions. **Workers who already suffer from MSDs are at a higher risk of developing chronic pain, requiring more sick days and eventually needing disability benefits**. Moreover, the physical strain of working in a demanding environment can hinder recovery and worsen pre-existing injuries, leading to further health deterioration. These workers often experience reduced work capacity, prolonged absences and an increased likelihood of permanent disability. Acute MSDs may thus turn chronic when the right support, accommodations or preventive action is lacking. This dynamic reinforces the model's core idea that without coordinated responses across all dimensions — physical, psychosocial and organisational — acute MSDs issues can become chronic MSDs conditions.

The risk of developing or worsening MSDs is particularly high among certain socio-demographic groups within the HeSCare sector, such as **women, migrant workers and older workers**. Additionally, older workers, especially those over the age of 55, face heightened risks due to the natural decline in physical capacity, which can make managing the physical demands of HeSCare work more challenging.

The **prevalence of MSDs is not only influenced by physical factors but also by exposure to psychosocial and organisational risks**. High job demands, low control over work tasks, irregular work schedules and inadequate support all contribute to the development and exacerbation of MSDs. These factors are particularly problematic for workers who already have pre-existing injuries, as the lack of control and support makes it more difficult to manage physical pain and recovery. The HeSCare sector's high turnover, understaffing and limited resources exacerbate these psychosocial risks, further increasing the physical strain on workers and diminishing their ability to recover. Understaffing also means that accommodations for workers with MSDs may not be implemented, increasing their vulnerability.

Most of the MSDs that HeSCare workers are reporting are acute, and efforts should be made to avoid such acute MSDs becoming chronic. **Chronic MSDs have a profound impact on the worker and the organisation, including absenteeism, presenteeism and reduced performance**. At the same time, with the right adjustments, equipment and support, HeSCare workers suffering from (chronic) MSDs can still work, and working can even contribute to the healing process. Being able to stay at work, when supported appropriately, has been shown to improve both physical and mental wellbeing.

Preventing the exacerbation of MSDs for workers already affected by these conditions requires a **combination of technical, organisational and person-oriented interventions**. Providing the necessary assistive equipment, ensuring ergonomic work environments and adopting job rotation strategies can help reduce the physical strain on workers working with MSDs. Organisational measures, such as adjusting work schedules to allow for adequate rest and recovery, offering training on safe manual handling techniques, and fostering a supportive work environment, are crucial to mitigating the risks of working while injured. Additionally, addressing psychosocial factors, such as stress and job insecurity, is vital in supporting workers' overall health and reducing the impact of MSDs. Importantly, involving workers themselves in designing these interventions is essential to ensure that their needs are addressed effectively.

3.2 Policy pointers

3.2.1 EU-level policy pointers

- **Address MSK risks through cross-policy collaboration:** To effectively prevent and address the MSK risks and related health outcomes identified in this study, a coordinated effort across multiple policy areas is essential. While MSK risks are a core OSH concern, their root causes and solutions extend beyond the traditional OSH remit. This includes factors such as physically demanding work environments, limited access to ergonomic tools, systemic pressures that intensify physical workloads and staff shortages. Improving MSK health in the HeSCare sector requires alignment between OSH, public health, healthcare and long-term care policy, employment policy and patients' rights frameworks. Challenges such as underfunding of care systems, suboptimal employment conditions, ageing of both the workforce and patient population, and exposure to third-party violence all exacerbate MSK risks and contribute to chronic strain and injury among workers. A cross-sectoral policy approach is therefore needed to:
  - ensure adequate staffing levels to reduce physical overload;
  - invest in ergonomic infrastructure and workplace adaptations;
  - improve employment conditions and sector attractiveness; and
  - promote safe, sustainable and inclusive work environments that protect workers from preventable MSK harm.
- **Protect workers' health to safeguard quality care and public health:** Robust measures are needed to uphold the right of HeSCare workers to a high level of protection for their health and safety at work — particularly in relation to MSK risks, which are among the most prevalent and persistent occupational hazards in the sector. These measures are not only essential for protecting workers but are also foundational to ensuring EU citizens' access to timely, accessible and high-quality healthcare and long-term care services, especially in home- and community-based settings. Without a healthy and safe workforce — free from preventable MSK injuries and chronic strain — the quality, safety and sustainability of care provision are significantly compromised. This study reinforces the critical connection between workplace safety, including MSD prevention, and the overall functioning of care systems. The COVID-19 pandemic underscored these interdependencies, making clear the urgent need to strengthen collaboration between OSH and public health policy. Coordinated action across these domains is essential to build resilient care systems that protect both caregivers and those they serve.
- **Foster the development of guidelines or guides for MSD prevention specific or adapted to the sector:** These guidelines could be developed by specific risk factor (for instance, handling and transfer of patients) and could provide, among other things, minimum standards for ergonomic equipment (for example, adjustable beds, chairs, assistive devices), work–rest patterns, task organisation and safe lifting policies. They could also include implementation examples to guide practical uptake across diverse care settings. Guidelines could also recommend the adoption of validated ergonomic assessment tools such as the RULA, REBA, and Movement and Assistance of Hospital Patients (MAPO) or recognised tools

(TilThermometer© or equivalent), which enable effective risk evaluation without requiring specialist ergonomists.

- Integrate or mainstream MSD prevention (and OSH in general) into the EU policies, strategies and initiatives supporting sustainable work (work ability, employability, retention at work) of the EU ageing workforce — in general and more specifically in the HeSCare sector: it would be beneficial if a 'life course' approach be adopted in studying and addressing MSK health, ensuring that prevention strategies are applied early and adapt to different stages of workers' lives. Sustainable work improves the employability of workers throughout their working lives and requires HeSCare establishments to develop and promote age management strategies or policies for the workplace. Age management from an OSH viewpoint refers to various dimensions by which human resources are managed within organisations and encompasses elements such as lifelong learning, career development and flexible working time practices as well as ergonomics, health promotion and workplace design. An alignment of these approaches with broader EU-level initiatives should be considered:
  - guidelines and good practices on reasonable accommodation at work;[24]
  - the Disability Employment Package[25] under the Union of Equality Strategy, which aims to improve labour market outcomes for persons with disabilities, including through OSH support; and
  - tools for managing chronic diseases and supporting rehabilitation and return-to-work pathways.[26]
  - Promote retention through EU-supported OSH measures, early intervention and return-to-work systems: A strengthening of the role played by the EU in supporting and encouraging Member States and sectors like HeSCare to retain workers through improved OSH frameworks would be beneficial. OSH plays a crucial role in helping workers stay in employment, particularly those with chronic conditions, age-related health issues or cumulative exposure to OSH risks over time. To address these challenges, the EU should promote the development, dissemination and implementation of early intervention, rehabilitation and return-to-work systems across Member States. These approaches should be embedded in broader EU policy initiatives related to sustainable work, active ageing, disability inclusion and workforce retention in essential sectors. Investing in these systems can significantly reduce the long-term costs of sickness absence and disability benefits, while helping to maintain a skilled and resilient HeSCare workforce — critical to meeting the growing care needs of Europe's ageing population.
- **Fund innovation, research and data collection:** More EU funding could be allocated to support research into emerging ergonomic technologies (for example, exoskeletons, automation for administrative tasks), and pilot their use in real-world HeSCare settings. Investments could also support longitudinal data collection on the prevalence and impact of MSDs, especially among high-risk HeSCare groups such as women, older workers and migrant care staff, to guide evidence-based policy design. The development of methods or tools to assess and monitor the physical capacity or exposure to physical strain (when handling patients for instance) could also be funded (for example, looking to tools like TilThermometer©[27] as inspiration). The HeSCare sector is key for the normal functioning of the EU economy and society. Therefore, research, knowledge and prevention methods should guide and support the development of sustainable work in the HeSCare sector.

[24] Please see link for more information: https://employment-social-affairs.ec.europa.eu/reasonable-accommodation-work-guidelines-and-good-practices_en

[25] Please see link for more information: https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/disability/union-equality-strategy-rights-persons-disabilities-2021-2030/disability-employment-package-improve-labour-market-outcomes-persons-disabilities_en

[26] Please see link for more information: https://osha.europa.eu/sites/default/files/documents/Manual-managing-chronic%20diseases-preventing-%20risk-acquiring-disabilities_EN.pdf

[27] Please see link for more information: https://osha.europa.eu/en/publications/tilthermometerc-mapping-severity-and-type-exposure-physical-strain-when-handling-patients

- Promote cross-border knowledge sharing and transferability of practical tools, methods and risk prevention programmes and initiatives: Encourage the exchange of good practices among Member States on workload management, ergonomic design, training methods and successful prevention programmes. Case-based learning should be promoted, showcasing workplaces that have successfully implemented changes to reduce MSDs and improve both staff wellbeing and patient care outcomes.
- **Establish EU training frameworks for MSD prevention:** Support the development and dissemination of standardised training modules for HeSCare workers, focusing on safe patient handling, ergonomic awareness, posture and psychosocial risk management. Training should be modular, practical and adapted to different job profiles across the sector. EU-wide exchange of modular, sector-specific training models like the Ergonomic Patient Handling Card®[28] in Finland to promote occupational safety and harmonised skill standards could be encouraged.
- **Encourage the development of integrated training programmes for MSD prevention:** Ensure that knowledge and competency are embedded from professional training to continuous development. Promote integrated approaches that combine worker training with organisational consulting to ensure that occupational safety practices are embedded into workplace structures and sustained over the long term.

3.2.2 National and sectoral-level policy pointers

- Integrate the management of MSK risks in a more systematic way into OSH and non-OSH related policies, strategies and initiatives targeting the HeSCare sector. This should encompass, among other things, comprehensive policies on patient handling, workload distribution, ergonomic workspace design and the organisation of work shifts. Given the multifactorial nature of MSDs, strategies must also consider the strong interlinkages between physical-biomechanical, psychosocial and organisational risk factors. MSDs cannot be effectively understood or prevented without considering the high prevalence of psychosocial risks and organisational stressors in this sector. Therefore, national initiatives should promote the joint assessment and prevention of both MSK and psychosocial risk factors, addressing the total physical and psychological workload faced by workers.
- **Promote the business case for prevention:** Campaigns (or other awareness-increasing initiatives) and tools that clearly demonstrate the economic benefits of MSD prevention to policymakers, employers and workers could be developed at national or sectoral level. These benefits include a healthy and safe HeSCare workforce, reduced staff absenteeism, lower healthcare costs, improved retention and increased quality of care. Highlighting these returns can drive greater investment in prevention.
- Ensure access to ergonomic equipment and ergonomic expertise and also develop (in house) ergonomic expertise among HeSCare establishments: National, regional or sectoral funding schemes could be made available to support the purchase of ergonomic equipment and assistive devices, especially for under-resourced facilities. Priority should be given to long-term care and home care settings, where equipment availability is often lower. Support from experts/ergonomists can be an added value (as shown in the case of TMS Pro[29] in France).
- **Strengthen the stability of the care workforce:** Address staff shortages through national and sectoral workforce strategies that include targeted recruitment campaigns, improved employment conditions, professional development opportunities and retention incentives — particularly in hard-to-staff sectors like home care. More stability among the HeSCare workforce would help the development and implementation of more sustainable work and facilitate OSH risk prevention.

[28] Please see link for more information: https://osha.europa.eu/en/publications/ergonomic-patient-handling-cardr-promoting-good-working-practices-healthcare-sector

[29] Please see link for more information: https://osha.europa.eu/en/publications/tms-pros-programme-supporting-msds-prevention-health-and-social-care-sector

- **Leverage collective bargaining for MSD prevention (and OSH in general):** There is a need for social partners to negotiate agreements that address workload limits, adequate staffing ratios, balanced shift schedules, and prevention measures for physical and psychosocial risks in the sector. These agreements can institutionalise MSD prevention as a core labour standard in the sector.
- **Coordinate joint awareness and prevention campaigns:** Trade unions, employer associations and professional bodies should jointly promote awareness on the importance of rest, safe work organisation and early reporting of MSD symptoms. Campaigns should highlight how good practices benefit both staff and care quality.
- **Promote inclusive representation in OSH decision-making:** Policies and collective agreements should mandate worker representation in OSH committees and encourage the formation of interdisciplinary working groups to monitor and improve MSD prevention efforts.
- **Implement comprehensive prevention programmes:** HeSCare establishments could be encouraged to adopt multi-pronged MSD prevention programmes that integrate ergonomic risk assessments, SPHM protocols, staff training and workplace redesign. These programmes could include clear policies and responsibilities for prevention. Institutions are encouraged to enforce 'no-lift' policies wherever feasible and ensure that manual handling procedures prioritise both safety and staff empowerment.
- **Create safer and more supportive work environments:** Organisations could invest in well-designed workspaces with adjustable equipment, sufficient space for movement and tools that reduce physical strain. Facilities could also provide designated relaxation areas and opportunities for micro-breaks, especially for workers on long or night shifts. Establishments could ensure sufficient space for movement, adjustable equipment and task flexibility to promote posture variation. These designs should be incorporated from the architectural phase, in cooperation with planners and ergonomists. The development and promotion of a good psychosocial climate (providing support to HeSCare workers) could also contribute to the prevention and better management of MSDs.
- **Transforming care culture to reduce MSK risks:** Addressing MSK risks in the HeSCare sector requires more than just the adoption of technical measures or training — it calls for a cultural shift in how care is conceptualised and delivered. For instance, innovative approaches that reframe patient handling as care without necessarily carrying the patient challenge traditional norms and reduce physical strain on workers. By embedding these principles into everyday practice, organisations not only protect worker health but also improve the quality, safety and dignity of care for patients. Supporting such a shift through policy and practice can lead to more sustainable, person-centred care systems.
- **Provide structured and ongoing training:** All staff could receive practical, ongoing training on proper body mechanics, patient handling techniques and ergonomic tool usage. Training should be tailored to specific roles and reinforced regularly to improve uptake and retention. Training should begin in formal education and focus on adapting work to fit the worker — not forcing workers to adapt to poor task design. It should be certified where possible and include scenario-based learning.
- **Embed worker involvement in prevention efforts:** Workers should be involved in identifying ergonomic challenges, co-developing solutions and evaluating the effectiveness of interventions. Mechanisms for this include participatory risk assessments, feedback systems and regular safety discussions.
- **Adapt working conditions for vulnerable workers:** Adjust workloads, tasks and workstations for older workers or those working with MSDs. Provide flexible schedules and task modifications where necessary. Ensure that return-to-work processes for injured workers are supportive and designed to prevent re-injury.

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